Agri-Business Ecosystem of Farmer Producer Organizations

Edited By:
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ICAR- Directorate of Onion and Garlic Research, Pune, Maharashtra
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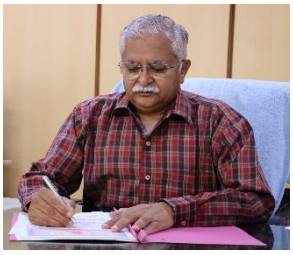
Foreword



The creation of an agri-business ecosystem through Farmer Producer Organizations (FPOs) is a remarkable and timely development that holds immense promise for the agricultural sector. FPOs have emerged as powerful platforms that bring farmers together, enabling them to collectively overcome the challenges they face and embrace new opportunities. By fostering collaboration, knowledge-sharing, and resource pooling, FPOs empower farmers to navigate the complexities of modern agriculture more effectively. Through FPOs, farmers gain access to crucial services such as training, technical support, financial assistance, and market linkages, which are essential for enhancing productivity, adopting sustainable practices, and improving the quality of their produce. By providing a collective voice and strong representation, FPOs enable farmers to negotiate fair prices and reduce their dependence on intermediaries. This not only improves their income but also strengthens their resilience and ability to withstand market fluctuations.

Furthermore, FPOs are catalysts for rural development and economic growth. By promoting value addition, processing, and marketing, FPOs encourage the development of Agri-based industries, generate employment opportunities, and contribute to the overall prosperity of rural communities. The ripple effects of a vibrant agri-business ecosystem extend far beyond individual farmers, benefitting the entire value chain and ensuring food security for the nation. The creation of such an ecosystem is a testament to the power of collective action and the unwavering spirit of our farmers. It is a testament to their determination to transform agriculture into a dynamic and profitable enterprise. As we witness the remarkable progress made by FPOs in revolutionizing the agricultural landscape, it is evident that they are not just organizations; they are the catalysts of change, the enablers of progress, and the architects of a prosperous future.

I extend my heartfelt appreciation to the collaborative efforts of ICAR-DOGR, Pune and MANAGE, Hyderabad for publishing this e-book on 'Agri-business ecosystem of Farmer Producer Organizations'. I am hopeful that this e-book will serve its purpose to all the stakeholders involved in establishing and nurturing FPOs, including the farmers, government agencies, financial institutions, and development organizations.

Together, let us embrace this transformative journey, support our farmers, and celebrate the remarkable achievements of the Agri-business Ecosystem of Farmer Producer Organizations.

(Vijay Mahajan)

Preface

India's economy is predominately dependent on agriculture, nearly 56% of jobs in the nation are in the agricultural sector, which makes a significant contribution to the economy's growth and development. India's agriculture industry has a substantial percentage of farmers with dispersed, small holdings It encourages economic development by eliminating poverty and ensuring food security for this constantly expanding population, thanks to its ability to create jobs.

The status of Farmer Producer Organizations (FPOs) in India is gradually gaining momentum and witnessing the significant growth. The Government of India has been actively promoting and supporting the establishment of FPOs as part of its agricultural reforms and initiatives to enhance farmer income and rural development. Various states in India have implemented policies and programs to facilitate the formation and strengthening of FPOs. The Small Farmers Agribusiness Consortium (SFAC) and the National Bank for Agriculture and Rural Development (NABARD) have played instrumental roles in providing financial assistance, capacity building, and technical support to FPOs. However, it is important to note that the extent of FPO development and their effectiveness can vary across different regions and states in India. While some FPOs have successfully achieved market linkages, improved incomes, and enhanced access to inputs and services, others may still face challenges related to governance, management, financial sustainability, and market integration.

Farmer Producer Organizations (FPOs) have played a significant role in the onion and garlic sector in India, addressing key challenges and benefiting farmers. These FPOs have helped in organizing small and marginal farmers engaged in onion and garlic cultivation, enabling them to collectively negotiate better prices, access markets, and enhance their bargaining power. FPOs provide essential support in terms of technology adoption, improved post-harvest management, storage facilities, and market linkages. By reducing dependence on intermediaries, FPOs ensure that farmers receive fair prices for their produce and minimize post-harvest losses. Moreover, FPOs in onion and garlic sector have facilitated value addition, processing, and marketing, contributing to the growth of Agri-based industries and generating additional income opportunities for farmers. Overall, FPOs have been instrumental in transforming onion and garlic sector by empowering farmers, improving livelihoods, and promoting sustainable agricultural practices.

This publication on **Agri-business ecosystem of Farmer Producer Organizations** is compiled highlighting Government policies on formation of FPOs and bringing farmer in market led Agribusiness model. Business knowledge of the development, implementation of policies for FPO management, foresightedness, and making critical decisions on major issues of the company/organization is crucial for sustainability of FPOs. This book is based on the objectives: to orient the participants different aspects of promotion, formulation and strengthening of Farmer Producer Organizations, policy support for FPOs; to explore scope and opportunities for sustainable farmer participatory Agri business ecosystem based on successful FPO

based models to facilitate linking FPOs with emerging marketing channels and export markets; to orient the participants about the innovative approaches for strengthening FPOs. ICAR-Directorate of Onion and Garlic Research, Pune, Maharashtra is putting sincere efforts to encourage value addition, processing, and marketing, leading to the development of Agri-based industries and employment opportunities in rural areas.

This e-book publication is our sincere efforts to serve as platform for creation of a robust agri-business ecosystem through FPOs which not only will uplift farmers' livelihoods but also contributes to food security, rural development, and economic growth, making agriculture a viable and attractive sector for the future. I hope, this publication will be useful for practitioners, producers, agricultural extension workers and professionals to promote Creation of Agri-business ecosystem through Farmer Producer Organizations.

Rajiv B. Kale
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Rohini Bhat
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Chapter 1

Farmer Producer Organizations: Global Perspective

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A Producer Organization (PO) is a legal entity formed by primary producers. A PO can be a producer company, a cooperative society or any other legal form which provides for sharing of profits/benefits among the members. Farmers Producer Organization (FPO) is one type of PO where the members are farmers. Present chapter explores the diverse pattern of FPOs' nomenclature, legal status, support and functioning could be observed at the global level. To get an idea about the FPOs at the global level, an attempt is made to collect the number, progress, and contribution of Producer Organizations/Cooperatives to the growth of farmers in the major countries and regions viz. European Union, USA, Japan, Australia, China, and Africa.

European Union

In European Union, farmers' cooperatives are very prevalent, all the member states have a cooperative tradition, however, it has different connotations in different countries. These cooperatives contribute immensely to the agricultural trade and therefore, play an important role in food system sustainability (Gonzalez 2018). The common agricultural policy of the European Union (EU) is the basis of the existing FPOs in Europe. Commission's Directorate-General for Agriculture and Rural Development (DG AGRI) defines Producers' Organizations (POs) as "a legally-constituted group of farmers and growers". POs can be cooperative, user-owned, user-controlled, and user–benefit organizations. POs aid in the marketing and distribution of goods, encourage their members to pursue good environmental practices and promote a product of higher quality. *Number and progress:* There are more than 41,000 producer organizations in the EU, half of which are cooperatives. Among them, 3505 POs/ Association of Producer Organizations (APOs), have been recognized by national authorities in 25 different Member States (1657 of them were cooperatives and 71 APOs). The non-recognized producer organizations include, mostly 20,112 cooperatives and 18,152 other legal forms entities involved in the primary sector of the food supply chain. More than half of the recognized POs and APOs (1,851) work in the fruit and vegetable industry, 334 in milk and milk products and 1320 in other sectors. The evolution of the number of recognized POs/APOs is given in Fig.1. There are more than 45 cooperatives that are

transnational like Arla foods (European Commission 2019). In fifteen countries of the EU, the market share of cooperatives is more than 20 percent (>50 % in five countries). Recognized POs get benefits in terms of exemptions from EU competition rules for certain activities and access to EU funding. Farmers are free to choose any legal business form as per their needs. To set up a jointly owned business, mostly cooperatives are preferred by the farmers.

Production planning, demand adjustment (i.e., in terms of quality), supply concentration, and product placement (including direct marketing) are the main tasks performed by recognized POs/APOs. These tasks include joint contractual negotiations, commercialization strategies, and quantity planning.

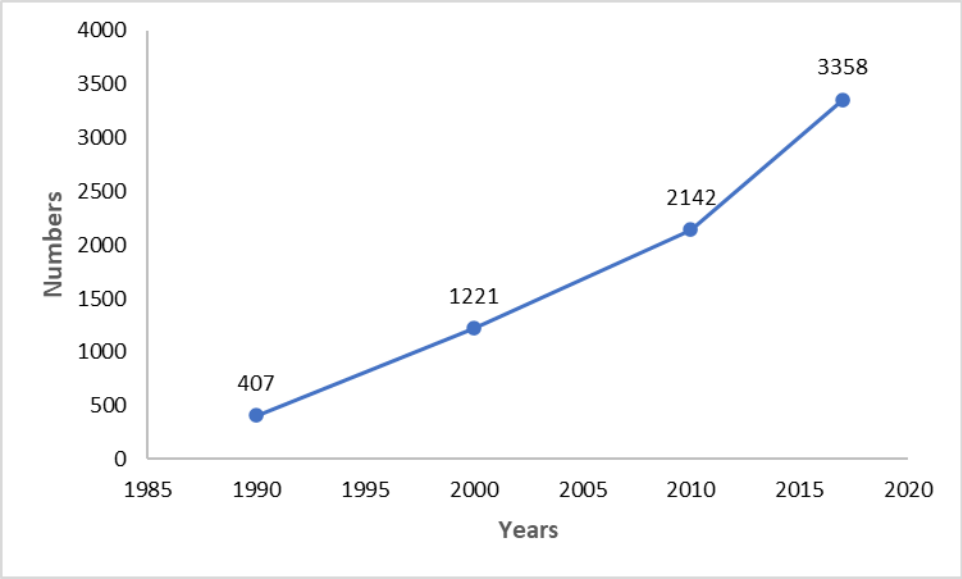

Fig. 1. Evolution of the number of recognitions of POs/APOs in the EU (Source: European Commission 2019)

The advantages of FPOs include more efficient management of supply by the downstream operators, more assurance regarding food safety, perceived as more trustworthy business partners, central role in crisis communication etc. Thus, FPOs not only benefits farmers but also the community in their locality, create employment opportunities and promote sustainable farming practices (European Commission 2019). One important trend observed is that in the long run, primary cooperatives become larger and more directly involved in marketing their products, doing the same function as federations.

USA

In the USA, marketing cooperatives were started during the first half of the nineteenth century. This number increased rapidly from 1890 to 1930 and started declining thereafter mainly because

of the great depression and World War II, focusing their attention on increasing the size and scale through mergers, acquisitions, integrations and consolidations. During the period from 1940 to 1990, there was a decline of 70 percent (Demko 2018). Though they developed as a result of cooperative efforts, they could evolve into the modern business organization.

USDA counted 1,699 farmers, ranchers, and fishery cooperatives in 2021, down from 1,744 in 2020 and 1779 in 2019. The number of agricultural cooperatives is decreasing mainly because of mergers and dissolutions. Among them, 51.2 percent were primarily marketed commodities, 42.1 percent were farm supply cooperatives and the remaining were service cooperatives. Co-operatives had 138,428 full-time employees in 2021 and 46,999 part-time or seasonal employees, for total employment of 202,988 people. About 18,45,183 Producers held memberships in cooperatives in 2021. Total gross business volume was $231.4 billion in 2021. Not all farmers, ranchers, or fishermen are members of a cooperative, but many do belong to two or more (USDA 2022). Though over the period, since 1913, the number of cooperatives declined, their membership and business volume has increased (Demko 2018). In the most recent period, jobs in cooperatives witnessed a significant increase while a slight dip in membership. Funding to the cooperatives is available through Rural Development funding programs like Value Added Producer Grants, Business and Industry Guaranteed Loan Program etc.

Role of Agricultural co-operatives: Since the early 1900s, agricultural cooperatives have been a mainstay in rural USA. In 2021, of all agricultural cooperatives in USA, 19.8 percent were more than 100 years old, 52.3 percent were more than 75 years old, and 77.3 percent were more than 50 years old (USDA 2022). Though fewer in number, cooperatives continue to be an effective and reliable marketing channel for their members' products, with many adding value to products and thus benefiting member-owners. Cooperatives also continue to provide members with the supplies and services they require to run farms and ranches in an increasingly dynamic and challenging agricultural environment (USDA 2022).

Overall, agriculture cooperatives are well-managed, efficient, and financially sound, which contributes to the viability of the rural communities where the majority of producer-members live and where many of the thousands of cooperatives facilities are located. Agriculture cooperatives also help the economies of many less-rural cities where they have offices, plants, or other facilities. Cooperatives are investing in their operations, as evidenced by record fixed and total asset levels in 2021. The overall positive performance of agriculture cooperatives in 2021 demonstrates that

the time-tested, member-owned, and governed co-op business structure remains important to USA's producers and food system (USDA 2022).

Japan

Japan Agricultural Cooperative (JA) is a cooperative established as a cooperative organized to protect and improve the businesses and lives of farmers and contribute to society based on the spirit of mutual help. Protecting and improving the lives of members and not the pursuit of profit, separate them from corporative (IUJ 2022). They originated in 1947, with the introduction of Agricultural Cooperative Law in Japan. There are two types of members, regular and associate. Only a farmer or company engaged in agriculture can be a regular member, who gets a common right (right to participate in operations of the cooperatives) as well as self-interest rights (right to receive economic benefits from the cooperatives); associate members only get self-interest rights.
Number and progress of Agricultural co-operatives: There were as many as 12,000 JAs in 1960, but the number has steadily declined to 584 as of April 2020. There are fewer JAs because many merged to strengthen their management and/or because many villages and cities merged as well. Apart from JAs, there is a unique system of group farming in Japan known as Agricultural Producers' Cooperative Corporations, which existed since 1962. They are a grouping of various stakeholders in farming operations, which has legal recognition.
Role of Agricultural co-operatives: JAs and JA Federations have multiple units within JA Group that are involved in the businesses like assistance in the farms with management and life infrastructure services; maintenance of shops to repair agricultural machines and vehicles and providing essential services; receiving payments for agricultural products as well as to pay for the cost of farm-related goods; program to provide loans; insurance against natural disasters (IUJ 2022).
These cooperatives are much more dependent and supported by financial businesses, much of their profit comes from credit and insurance businesses than agricultural-related businesses. Associate members are much more than the regular members (4,248,000 against 6,243,000 in 2018) who cannot decide the business activities of the cooperatives, but only get the self-interest right e.i. right to receive economic benefits from the cooperative. This is the reason that membership increased despite declining in the number of cooperatives in Japan. There was government interference in the market like rice production and subsidy to shift to other crops, which limits the scope of the cooperatives. Also, some products have to be compulsorily sold to the cooperatives

like dairy products to obtain government subsidies. Thus apart from cooperatives, JAs are pressure groups and government agencies too.

Australia

In Australia, cooperatives are active in all parts of the agricultural economy of the country. They are regulated at state and territory levels and generally, their business is restricted to the jurisdiction of incorporation. In recent years, a uniform Cooperative National Law is implemented in all states to harmonize cooperative laws throughout the country. This enabled the operations across the border without separate registrations and reporting in different states. Co-operatives are established across Australia for dairy, grain crops, horticulture, fruit, fishing, and forestry.

Number and progress of Agricultural co-operatives: According to the Business Council of Cooperatives and Mutual (BCCM) analysis of co-operative registrations in 2020, 229 agri-business co-operatives have been identified across Australia; 189 are involved in farming, fishing, or forestry, and 40 are irrigation and water management (Table 1). These 229 co-operatives have 24,424 individual members, each of which is a separate agricultural business with many more employees like a family farm of thousands of hectares, or a fisher with one or more vessels. The government gives grants to BCCM, for various activities related to cooperatives that include, financial support to farmers to establish new cooperatives, training on funding, advisory and hotline for cooperative business models, training related to cooperative business models and accreditation framework for educational providers.

Table 1. Number and membership of cooperatives in Australia

Cooperative type	Number	Membership
Farming and forestry coop	164	16885
Fishing coop	25	515
Irrigation coop	40	7351
Total	229	24424

Source: Australian Bureau of Statistics (2019), BCCM (2020).

Role of Agricultural cooperatives: Agricultural cooperatives provide farmers and fishers with facilities for the supply and storage of agricultural inputs such as fertilizers, seeds, fuel, water, and ploughing or harvesting services. They store and handle about 40 percent of the grain of the country. They seek to maximize the benefits to their farmer members by assisting them in access to markets, services, and products at a lower cost than they could achieve individually. Every

member of an agricultural cooperative is a business in its own right, as well as an employer and commercial player in the economy of its region. Thus, cooperatives in Australia helped in providing market access to independent farmers, increasing bargaining power, facilitating economies of scale, transferring risk and spreading wealth back to farmers (BCCM 2020). At the national level, they help in food security and generate significant export earnings.

However, over the years, the number of cooperatives are declining. Major problems they face are related to the difficulty in raising capital, and not being open to foreign investment, leading to corporatization by converting into a limited company to attract funds.

China

The cooperative movement in China started in the early 1920s, with the introduction of agricultural marketing and credit cooperatives. Thereafter it witnesses revivals. To overcome the problems of the small holding of family farms and to strengthen agriculture, in 2007, China introduced a law on cooperatives, the Farmer Specialized Cooperative Law of the People's Republic of China. Since then, farmer cooperatives have taken over as the dominant force in China's agriculture, with nearly half of the farmers of the country as members of cooperatives. There were 2.207 million registered farmer cooperatives as of the end of July 2020. Trends in the number of cooperatives and membership since 2007 are given in Fig. 2.

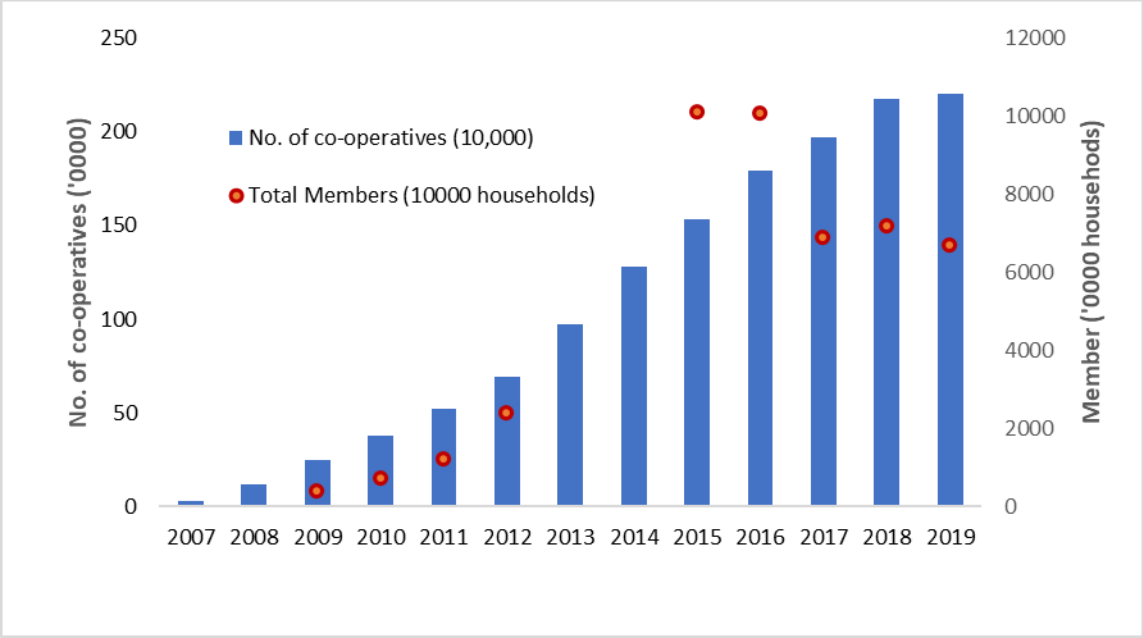

Fig. 2: Trends in the number of cooperatives and membership (Source: State Administration for Industry and Commerce and Ministry of Agriculture and Rural Affairs, China 2021)

Role of farmer co-operatives: As a member of cooperatives, farmers receive training and advice on improving production efficiency. The cooperatives have also ventured into financial services (Yu and Nilsson 2019). Farmers' cooperatives are encouraged by the government to process members' agricultural products into value-added products that can be sold at higher prices. As a result, along with an increase in the number and size of cooperatives, new functions were added. Cooperatives addressing social issues is another trend. Since 2013, the government has encouraged farmer cooperatives to participate in village social services, like financial assistance to their poor farmer members and even non-members; assisting vulnerable villagers, and involvement in environmental services (Sun 2017).

Though the growth of cooperatives in number has increased over a period, membership and members' capital contributions to cooperatives have declined. The average membership is not more than 50 and the average cultivated land is less, which poses problems for the economy of scale and viable business activity. As registration of cooperatives enables financial assistance from the government and the local government wants to show success at the higher political level, less number of registered cooperatives may be truly in business (Sultan and Wolz 2012, Deng *et al*. 2016), showing the presence of zombie cooperatives.

Africa

FPOs were highly popularized in Sub-Saharan countries, mainly by policies adopted by Research and Extension organizations (Wennik and William 2006) to tackle the problem of high poverty, where 46.9 percent of the population earn less than 1$ per day (FAO 2015). Here, four main types of village FPOs can be found; (1) farmers' groups initiated by the state in the colonial era (e.g., Primary level cooperatives), (2) producer groups initiated after independence to handle the inputs and marketing of commodities, (3) the out-grower association initiated by external agencies, and (4) community group under the rural leadership (Mahindapala *et al*. 2021).

FPOs contributed to the functions of agricultural innovation by voicing the needs of farmers by organizing the exchange of knowledge among members, providing economic services, representing farmers and participating in policy and decision-making processes (Wennik and William 2006). However, these are heavily burdened with participating in all kinds of consultative processes, particularly at national and provincial levels which put an enormous strain on their organizational resources making them prone to become more donor-oriented rather than member

oriented. Identifying core functions according to their overall institutional context, levels of operation and their members' demands for services are some of the important challenges before them (Chirwa *et al*. 2005).

In a nutshell, a vast diversity exists in the nature and functioning of FPOs in different countries, with different social, political and economic roles. Though their formation is influenced by cooperative concepts of certain countries; their evolution is different globally. This world-level perspective provides many insights for India also. China's story conveys the message that only increasing the number of FPOs would not serve the purpose. A recent report from the Maharashtra agriculture department showing only 16 percent active FPOs (Indian Express 2022), reinforces the message. USA's story emphasized the need for consolidation of FPOs so that they will be more competitive and effective over a period of time, rather than focusing on numbers. Therefore, the target as the number of FPOs needs to be replaced with the number of viable business units in FPOs. Australian example shows the increase in the corporatization of FPOs to attract more capital and funding. Therefore, mechanisms to provide more capital and funding opportunities to the FPOs need to be developed. The associate membership concept of Japan can be tried and tested with a certain limit on numbers, which would enable FPOs to obtain capital from non-agriculture, without affecting their autonomy.

Of course, different countries' lessons and experiences cannot be applied to India, as one size fit to all approach is not advisable. However, the trends during the economic course of development of these countries cannot be neglected, when we are also following the same development path. Certainly, we can learn from their experiences while formulating and guiding FPOs policies at the national level.

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Chapter 2

Formation and Functioning of Farmer Producer Organizations for Inclusive Extension and Advisory Services

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Agriculture is the main source of livelihood for more than 50 percent of the Indian population and one of the main income-generating sources. Small and marginal farmers account for 86.08 percent of the total holdings while their share in the operated area stood at 46.94 percent (Agriculture census, 2015-16). National sample survey organization, Farmers Survey of 2003 reported several issues related to small and marginal farmers. Based on this NSS Survey, National commission for enterprises in the unorganized sector (2008) observed some of the general challenges that small and marginal farmers face. They are imperfect markets for inputs/products resulting in reduced value realizations; lack of access to credit markets or imperfect credit markets lead to sub-optimal investment decisions or input applications; poor human resource base; limited access to appropriate extension services limits appropriate cultivation practices and technological know-how; and poorer access to 'public goods'.

This condition of small and marginal farmers can be improved by providing and strengthening their access to credit, inputs, market information, and extension services. These needs can be met through the provision of Inclusive Extension and advisory services (EAS) to farmers. EAS can be defined as all the different activities that provide the information and services needed and demanded by farmers and other actors in rural settings to "assist them to develop their own technical, organizational, and management skills and practices" to improve their livelihoods and well-being (Christoplos, 2010). It includes actors from the public, private, and civil society sectors. FPOs are one such organization.

India's National Bank for Agricultural and Rural Development (NABARD) defined Farmer Producer Organizations as one type of producer, organization (the legal entity formed by primary producers viz. farmers, fishermen, weavers, etc.) where the members are farmers (NABARD 2015). In India, FPOs can be registered under the Cooperative Society Act or Indian Companies Act, or Indian Trust Act. Several initiatives of the Government, the apex financial institutions such

as NABARD, private donor organizations, financial institutions, and many other institutions are supporting the growth of the FPOs and facilitating their emergence as successful business enterprises.

Status of FPOs

There are about 7059 FPOs in the country of which 898 are managed by the Small Farmers' Agri-Business Consortium (SFAC), and about 3904 FPOs by NABARD in the country. FPOs registered by Implementing Agencies (IAs) under the Central Sector Scheme (CSS) for the formation & Promotion of 10,000 FPOs in different states and aspirational districts are 2257, and 421 respectively (PIB, March 15, 2022). Around 30 percent of these are operating viably while 20 percent are struggling to survive. The remaining 50 percent are still in the phase of mobilization, equity collection, and business planning, etc. (Business Standard, February 29, 2020). The majority of them continue to struggle to establish viable and sustainable business models and achieve significant revenues and returns to their members (SFAC 2020). The government has set a target to form 10,000 new FPOs till 2027- 28. During 2020-21, a total of 2,200 FPO produce clusters have been allocated for the formation of FPOs, which also include specialized FPO produce clusters such as 100 for organic, 100 for oilseeds, etc. (Business today, February 09, 2021). According to the Tata Cornell Institute (TCI) Database for Indian FPOs, Maharashtra has the highest number of FPOs, next Madhya Pradesh, while the farmers mobilized by NABARD are high followed by SFAC.

Role of FPOs in rural extension and advisory services

FPOs in collaboration with other actors can contribute to three elements of rural advisory services viz. demand articulation, service provision, and financing (GFRAS, 2015). In demand articulation they can play important role in the identification of individual needs; exchanging and prioritizing ideas; and formulating and articulating demands, while on the supply-side they provide knowledge services, economic advisory services and facilitate the supply of input services (GFRAS 2015). The services provided by FPOs can be broadly illustrated by the following examples.

Services provided by the FPOs to the members

Knowledge Services: Sahyadri Farmer Producer Company (Nashik) brings knowledge and awareness to the farmers regarding crop protection and crop nutrition, provide them with basic, timely, and accurate information of different climates, weather conditions, and different crops (https://sahyadrifarms.com/).

In India, the Krishikabandhu Farmer Producer Company Limited trained its members on a new technology for producing red gram, as well as setting up a nursery to grow saplings and sharing knowledge on how to plant them out. The Kirtinagar Valley Association taught its members — female smallholder farmers – in spice seed production so that certified seeds could be produced for producer groups (SFAC 2014).

Economic & Advisory Services: Abhinav Farmers Club has linked 56 new farmers' groups to urban consumers by providing direct marketing services.

Many FPOs like Sahyadri Farms and Kendraimata Agro Producer Company Ltd. are making small kits of fruits and vegetables for direct sale to urban consumers and provides expert advice on various aspects to enhance the productivity of crops, soil health, usage of nutrients, etc. (Kale and Nikam, 2020).

Input Supply Services: Few FPOs such as Sai Pravara Shetkari Producer Company (Ahmednagar, Maharashtra) are involved in input provision to the members at 20-25 percent less than the market price (Kale and Nikam, 2020).

Green Vision Farmers Producer Company Ltd. Nashik, Maharashtra has started a 2200 sq. ft. agri-input shop well stocked with pesticides and seeds after receiving the licenses (Nabkisan Finance limited).

Processing Services: In India, the Devbhumi Natural Products Producer Company Limited promoted primary producers, most of them women, to set up processing facilities for organic spices, honey, and silk. This improved members' capacities in processing, sorting, and grading, and hygiene (SFAC 2014).

Vasundara Agricultural Horticultural Producer Company Ltd. (VAPCOL) began with its operations in 2008 and is operating in five states viz., Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan, with its headquarters in Pune, Maharashtra. It has one single unit for processing of mango and four units for cashew nuts processing. These products are graded and packed under their own brand name 'Vrindavan' (Paty and Gummagolmath, 2018).

Financial Services: Ginger farmers in Karbi Anglong are issued with special credit –cum – debit card in order to get bank loans through the Ginger Growers' Co-operative Marketing Federation

Ltd. (GIN-FED). The Ginger card (G-card) holder can acquire a loan of Rs 10,000 from State Bank of India for crop production (Yadav, 2011).

Marutham Sustainable Agriculture Producer Company Limited, Tamil Nadu provides activity specific loans such as cattle loan for dairy to eligible members by taking loans from private financial firms such as Ananya microfinance, FWWB, Samunnati finance, etc (CIKS & FWWB, 2017).

Training and Capacity Building Services: Valanadu Sustainable Agriculture Producer Company Ltd. (VSAPCL) Tamil Nadu, is a FPC promoted by experienced farmers in Sirkazhi, Mayiladuthurai and Vedharanyam in Nagapattinam that has conducted a series of trainings for standardization, skill development and marketing of produce made by its women shareholders (Nabkisan Finance limited).

Kali Sindh Farmer Producer Company Ltd., Madhya Pradesh has conducted training for member farmers under Solidaridad project on Good Agricultural Practices/Package of practices for Soybean crop production (Nabkisan Finance limited).

Networking Services: Apni Saheli Producer Company Limited (Dholpur, Rajasthan) is working toward forward integration by first procuring crops from member farmers and then assisting them in establishing links with the futures market in order to sell their produce at a higher price (Kumari and Kumari, 2021).

The Bhangar Vegetable Producers' Company Ltd, West Bengal has done outstanding work in connecting producers with markets. Not only has the company ensured direct access to services, but it has also built a marketing channel that ensures the initiative's long-term independent sustainability of the initiative. Because of the specific target client, the marketing channel provides rapid delivery. The producer company thoroughly and effectively controls and regulates the whole chain. As a result, the entire process becomes incredibly dynamic and responsive to the demands of the end-consumers (Paty and Gummagolmath, 2018).

Procurement and Packaging services Moneshwar Farmers Producer Company Ltd (MFPCL) (Hoshangabad, Madhya Pradesh) is involved in procurement of agriculture produce from farmers in their area of operation. The company has been able to get good margin on the produce procured from farmers and pass on the benefits to them (Nabkisan Finance limited).

Mandla Tribal Farmer Producer Company Ltd. (MTFPCL) is engaged in agri-inputs sale, procurement and trading of Agri produce from farmers, seed production etc. (Nabkisan Finance limited)

Principles of FPOs:

These are the guidelines by which FPOs will put their values into practice as per DAC, 2013

1st Principle: Voluntary and Open Membership FPOs are voluntary organizations. Membership is open to all persons without any discrimination of gender, racial, political, religion and social status. All members should be agreeable to accept the responsibilities of membership and to use their services.

2nd Principle: Democratic Farmer Member Control FPOs are democratic organizations. The Farmer-members actively participate in setting their policies, making decisions and in electing their representatives (one member, one vote). Men and women serving as elected representatives are accountable to the collective body of members.

3rd Principle: Farmer-Member Economic Participation The capital of the FPO is equitably contributed by farmer-members and is democratically controlled. A part of the capital is usually the common property of the FPO. Farmer-members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Farmer-members allocate surpluses in developing their FPO by setting up reserves, benefiting members in proportion to their transactions with the FPO and supporting other activities.

4th Principle: Autonomy and Independence FPOs are autonomous, self-help organizations controlled by their farmer-members. The democratic control and nature of autonomy by farmer-members should be ensured on entering into agreements with other organizations, including governments, or raising capital from external sources.

5th Principle: Education, Training and Information To contribute effectively to the development of their FPOs it is imperative to provide education and training for their farmer-members, elected representatives, managers, and employees. They inform the general public – particularly young people and opinion leaders – about the nature and benefits of FPOs.

6th Principle: Co-operation among FPOs By working together through local, national, regional and international structures, FPOs serves their members most effectively and strengthen the FPO movement

7th Principle: Concern for the Community FPOs work for the sustainable development of their communities through policies approved by their members.

Formation of FPOs

Producer companies are formed only among primary producers, that is, only people engaged in activities connected to primary production can join the company (Trebbin and Hassler, 2012). The following are the parameters to be considered for the formation of FPOs as given by NABARD, 2015: The productive land under an FPO may be approximately 4000 ha and it may encompass one or two contiguous Gram Panchayats, with around 700 to 1000 agricultural producers covered. The entire worth of the farmers'/non-farmers' output handled by the FPO may be roughly Rs. 2.5 crore, assuming that around 10% of the total turnover of the PO is spent on administration costs. Further, the markets selected for the Producer Organization for selling their produce maybe within 200 KM to make their marketing operations sustainable. An NGO, a bank branch, a Government Department, a Cooperative Society, or any Association or Federation can become a Producer Organization Promoting Institution (POPI). Support is available from SFAC and NABARD to help with some of the recurrent costs. The POPI must be incorporated as a legal body in order to sign into legally binding agreements with other organizations, including the PO that they wish to promote.

The facilitating agency should keep these important factors in view for the promotion of FPOs:

Producers:

- Type of product, Types of small-scale producers in the target area, the volume of production, socio-economic status, marketing arrangement
- The willingness of producers to invest and adopt new technology, if identified, to increase productivity or quality of produce
- Incentives for members (also disincentives) for joining the PO

Market:

- Demand and capacity to absorb the additional production without significantly affecting the prices

- Challenges in the market chain and market environment
- Vulnerability of the market to shocks, trends, and seasonality
- Demand of the produce from major corporate, processing firms etc

Policy Environment:

- Support from Government Departments, NGOs, specialist support agencies, and private companies for enterprise development

Steps in formation of FPOs

- The formation of FPOs follows the following steps as given by NABARD, 2015
- The location of a cluster where the PO can be established should be determined.
- After that, feasibility studies will be undertaken to guarantee that a viable PO can emerge in the cluster baseline.
- Make a business plan that will help you increase your earnings.
- Explain the Producer Company idea and the benefits it gives to the villagers (primary producers). Take the interested primary producers on an exposure visit of a working Producer Company and enable opportunities for meaningful engagement.
- Create a critical group of primary producers, who are passionate about the idea of Producer Company and empower them further with the concept and details and advantages of a producer company.
- Use the critical group for canvassing among other eligible members about the need, urgency, and benefits of a Producer Company.
- Allow adequate time for the prospective primary Producer Company members to understand the idea. Make regular visits to them and clarify all their doubts. The objective should be that the prospective members have the right understanding, and are willing to participate and collaborate for their mutual benefit. This type of social mobilisation might take anywhere from 3 to 6 months.
- Have focused group meetings and encourage eligible members to become shareholders.
- Hold a meeting with the potential shareholders to discuss the company's goals and potential business ideas
- Revise the business plan for the company taking into account the views of the prospective members

- Once the primary producers are willing to form a Producer Company and are ready to contribute to the share capital the registration of FPO is done.

Registration of FPOs

Producer Organization can be registered under any of the following legal provisions:

- Cooperative Societies Act/ Autonomous or Mutually Aided Cooperative Societies Act of the respective State
- Multi-State Cooperative Society Act, 2002
- Producer Company under Section 581(C) of Indian Companies Act, 1956, as amended in 2013
- Section 25 Company of Indian Companies Act, 1956, as amended as Section 8 in 2013
- Societies registered under Society Registration Act, 1860
- Public Trusts registered under Indian Trusts Act, 1882

Major steps in registration in brief

A step-wise basic information for the registration of a 'Producer Company' is described in NABARD, 2015 as under:

Step 1: Digital Signature Certificate (DSC)

It is necessary for a company to authorize a person's signature who will sign the documents. After filling the required information, the form for DSC has to be submitted online to the 'Certification Agencies'. It is issued with one-to-two-year validity. The official fee for issuance of DSC is 1800/. In addition, the Certification Agency charges a service fee which vary from agency to agency.

Step 2: Director Identification Number (DIN)

The DIN number can be obtained online only from the company affairs cell at Noida, UP without any fees by providing identification proof number (Only PAN Card, Voter Identity card, passport or driving license number is accepted).

Step 3: Naming of a Producer Company

Choose maximum 4 names for the producer company in order of preference and apply for the name availability in Form – INC1. Once the name is available a letter is received from the Registrar of companies indicating it.

Step 4: Memorandum & Articles of Association

After ascertaining the name of the producer company, a memorandum and articles of association have to be prepared. Memorandum and Articles of Association should be printed (preferably a computer printout - printed on both side of the paper) and get duly stamped.

Step 5: Documents to be submitted to the RoC for the Incorporation of Producer Company

File the following documents along with the fees payable with the Registrar of Companies of the state, where the Registered Office of the company is to be situated:

- Copy of the letter of Registrar of Companies confirming the availability of name for formation of the company should be made;
- Memorandum and Articles of Association duly stamped and signed;
- Form 18 regarding situation (full address) of Registered Office,
- Form 32 (in duplicate) regarding particulars of directors,
- Form 1 (on a stamp paper) declaring compliance of all and incidental matters regarding formation of companies,
- Form 29 – consent of the director, an affidavit has to be submitted by subscribers, if the Memorandum of Association is submitted in Hindi by subscribers claiming the understanding of same.

Step 6: Certificate of Incorporation

The Registrar of the Companies, on being satisfied that all the documents for the incorporation of a company is submitted, he is obliged to register the memorandum, the articles and other documents, if any, and issue a 'certificate of incorporation' within thirty days, which is a conclusive proof of its formation in terms of Part IX A. [Section 581C (2)]. The incorporation of Producer Company is effective from the date mentioned in the certificate of registration granted by the Registrar of Company.

Power of Attorney: A power of attorney form duly stamped and executed by all the subscribers of directors have to be submitted to the RoC. A power of attorney holder is, specifically, authorized to make corrections, as may be necessary in the Memorandum and Articles of Association and all other documents filed with the RoC and to attest the same on their behalf and to receive the Certificate of Incorporation.

Step 7: Tasks to be completed immediately after incorporation of the PC

The following tasks have to be completed immediately after incorporation:

Open a Bank Account with minimum two officially nominated signatories in the name of the Company. Procure PAN number from the Income Tax and TIN number from the Commercial Tax Department to carry out business. Also, the company has to register itself for Service Tax from Commercial Tax Department and VAT from Excise department.

Apply for the commercial connection of Power supply to related agency/board for the office of the PC. Establishment of company office means arrangement of furniture and fixture along with a visible signage board.

Schemes for promoting FPOs

They are broadly classified into schemes provided by SFAC, Bank and financial institutions, and central ministries.

- *Schemes provided by SFAC*

The Union Finance Minister, in the Budget Speech for 2013-14, announced two major initiatives to support Farmer Producer Companies (FPCs) viz., support to the equity base of FPCs by providing matching equity grant and credit guarantee support for facilitating collateral-free lending to FPCs.

- *Equity Grant Fund Scheme*

The SFAC Equity Grant Fund's major goals are to improve the viability and sustainability of FPCs, raise their creditworthiness, and increase members' shareholding to increase their ownership and involvement in the FPC. The equity grant support to qualified FPCs is granted on a matching basis, up to a maximum of Rs 15 lakh per FPC, if the FPC has at least 50 farmers as shareholders.

- *Credit Guarantee Fund Scheme*

The Credit Guarantee Fund Scheme's major goal is to give a credit guarantee cover to qualified lending institutions so that they can provide collateral-free credit to FPCs while reducing their lending risks on loans up to Rs. 100 lakhs. Only FPCs with a minimum of 500 individual shareholders are eligible for credit guarantee coverage under the schemes.

Schemes provided by Bank and financial institutions

- *Producers Organization Development Fund (PODF)*

NABARD established its fund corpus through PODF in 2011 with an initial investment of INR 50 crore. By using a flexible approach to satisfy the demands of producers, the fund promotes the development and funding of POs. Any registered producer-owned cooperative, such as Producers Cooperatives, registered Farmer Federations, MACS (Mutually Aided Cooperative Society), industrial cooperative societies, other registered federations, PACS, and so on, are eligible to participate in the fund. The PODF's goal is to help POs through three levers: credit and grant support, capacity building, and market linkage. The fund's goal is to satisfy POs' end-to-end needs while also ensuring their long-term sustainability and economic viability.

- *NABKISAN's support to FPOs*

The primary goal of the NABKISAN Finance Limited (NKFL) is to offer financing for the growth, expansion, and commercialization of agricultural, allied, and rural non-farm activities. The company's current emphasis is to help PO for term loans and working capital requirements. NABKISAN Finance Limited is now active in 16 states.

Central sponsored schemes

- *Rashtriya Krishi Vikas Yojana (RKVY) -Remunerative Approaches for Agriculture and Allied sector Rejuvenation (RAFTAAR)*

The formation of FPOs has been supported through the scheme 'Vegetable Initiative for Urban Clusters (VIUC)' and Integrated Development of 60,000 pulse villages in rainfed areas, whereby FPO projects have been taken up by some State Governments under general RKVY funds. For the year 2017-18 to 2019-20, funds for the formation and strengthening of FPOs, and projects under FPOs, may be taken up under RKVY –RAFTAAR. However, there should be no overlap with other schemes.

- *Re-Vamped National Food Security Mission (NFSM)*

Small and marginal farmers will be grouped into FPOs and assisted in the areas of value chain integration and millet production under the revamped NFSM. FPO formation and strengthening are expected to alleviate at least some of the risks and restrictions that farmers confront. FPOs may provide collective strength for seed production and seed procurement, access to credit and better technology, lower transaction costs, enable value addition, reach high-value markets, and engage into more equitable collaborations with private businesses. During the XII Plan, SFAC demonstrated the advantages of grouping farmers into FPOs.

- *'Operation Greens' under Ministry of Food Processing Industries*

In the budget speech of Union Budget 2018-19, a new Central Sector Scheme "Operation Greens" – a scheme for integrated development of Tomato, Onion and Potato (TOP) value chain - with an outlay of ₹500 crore to promote Farmer Producer Organizations (FPOs), agri-logistics, processing facilities and professional management.

- *Formation and promotion of FPOs scheme*

The Government of India has approved and launched the "Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)" the Central Sector Scheme to form and promote 10,000 new FPOs till 2027-28. The formation and promotion of FPOs under this scheme is based on a Produce Cluster Area approach and specialized commodity-based approach.

- *PMFME scheme*

The Ministry of Food Processing Industry (MoFPI) has launched the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) scheme under the Aatmanirbhar Bharat Abhiyan for a five-year term spanning 2020-21 to 2024-25, with a total budget of Rs 10,000 crore. The scheme focuses on assisting Agri-food processing groups such as Farmer Producer Organizations (FPOs), Self Help Groups (SHGs), and Producers Cooperatives along their entire value chain.

Functioning of FPC as per NABARD, 2015

The company is run/governed by a board of directors; office bearers (include chief executive officer (CEO), Accountant, godown keeper, etc.) and the members/shareholders.

- The Chief Executive Officer is appointed by the Board of Directors as per AoA and he is accountable to both the Board of Directors and members
- The FPC can have up to 15 directors, with a minimum of five directors prescribed. Members elect the board of directors. There can be up to three nominated directors out of the total of 15 directors (one nominated director for every five directors). The general meeting also elects the nominated directors. A director's term is for a minimum of one year and a maximum of three years, and the director can be re-elected.
- Individual producers or producer groups can become members of a producer company by subscribing to share capital in accordance with the MoA and with an entry in the register.

The term "The Seven Habits of Highly Effective Farmers' Organizations" was introduced in FAC Policy Brief 032 (2009). It represented critical elements of success' in high performing farmers' organizations in Africa. The seven 'habits' identified were: (i) clarity of mission; (ii) sound governance; (iii) strong, responsive and accountable leadership; (iv) social inclusion and raising 'voice'; (v) demand-driven and focused service delivery; (vi) high technical and managerial capacity; and (vii) effective engagement with external actors. These habits offered a valuable checklist of working principles and practices for evaluating the success of farmer organizations in Africa and worldwide. According to Robert and Peter (2014), farmer organizations have the potential to improve services and reduce transaction costs; however, effective mechanisms of downward accountability are required to address issues such as poor management and elite capture, and farmers are motivated to invest in actions that have collective benefits. They also suggested that in order for farmers' organizations (particularly large farmer organizations) to fulfil their potential roles in development, there should be a focus on developing means of legitimizing smallholder farmers' rights, strengthening their capacity to challenge exclusion, and moving from rights to obligations regarding information provision.

Challenges and Issues in Building Sustainable FPOs

Some of the issues commissioned by NABARD have clearly established the positive role of FPOs of increased net income of farmers through informed decision making, improved access to inputs, and agro-services, institutional credit, marketing services, and enhanced efficiency in the framing operations. However, there are challenges and policy gaps in the ecosystem. The important challenges and confronting issues in building sustainable FPOs are under:

- *Lack of technical Skills/ Awareness*

Farmers lack awareness about the potential benefits of collectivization. Further, there is a lack of legal and technical knowledge about various acts and regulations related to the formation of FPOs. Cumbersome registration and establishment process, difficulty in obtaining APMC licenses for trading and processing, hardships in getting organic certification and establishing internal control systems were also few challenges faced by them.

- *Lack of Inadequate Professional Management*

Lack of experienced, trained, and professionally qualified CEO, Board of directors, and other personnel in the rural space to manage FPO business professionally. Lack of professional experts in marketing and value addition and lack of participation.

- *Inadequate Access to credit*

The credit guarantee cover offered by SFAC for collateral-free lending is available only to Producer Companies (other forms of FPOs are not covered) having a minimum of 500 shareholder membership. Due to this, a large number of FPOs, particularly those which are registered under other legal statutes and also FPOs with lesser than 500 members are not able to access the benefits of the credit guarantee scheme. FPOs also have a poor resource base i.e. lack of capital, lack of a supportive ecosystem, lack of ability to attract credit from outside, difficulty in getting loans.

- *Inadequate Access to Market and Infrastructure*

Marketing of produce at remunerative prices is the most critical requirement for the success of FPOs. The input prices are largely fixed by corporate producers. They also have inadequate access to the basic infrastructure required for aggregation such as transport facilities, storage, value addition (cleaning, sorting, grading, etc.), and processing, brand building, and marketing. Further, in most of the commercial farming models, the primary producers are generally excluded from the value chain.

Needed Policy Support to develop agribusiness ecosystem. Some of the critical policy reforms and other suggested measures to be initiated by the Govt. of India/ other stakeholders for further strengthening the FPO agribusiness ecosystem in the country are as under:

- *Financing resources*

NABARD may act as Nodal Agency for channelizing credit through banks, implementing credit risk mitigation measures (like credit guarantees). Small private equity participation/ refundable long-term capital infusion by the private investors may be made to strengthen the financials of FPOs and create an appropriate business model for commercial sustainability. The benefits of Credit Guarantee Fund schemes of SFAC may be extended to all forms of FPOs as also to FPOs with less than 500 producers as shareholders.

- *Flexible policy by State Governments:*

In line with the focus/ policy framework of the GoI, the State Governments may introduce an appropriate flexible policy to support and strengthen FPOs in order to take up both forward linkages (warehousing, processing, transportation and marketing aspects) and backward linkages (crop production, credit, farm equipment) to make them commercially viable business enterprise of the farmers, particularly small producers.

- *Farm-level infrastructure:*

For the creation of farm-level infrastructure at FPO level to take up value addition activities and for the adoption of modern technologies in production and marketing of agricultural products and also for the establishment of custom hiring centers for the benefit of shareholder members, the Government of India may provide specific budget allocations for FPOs under infrastructure development schemes. This primary and secondary processing may create value to the products and thereby increases the net profits.

- *Direct marketing:*

To enable FPOs to market their produce directly to the consumers/ bulk-buyers, without involving of middlemen would go a long way in strengthening FPOs. Buyers may be encouraged to set up collection centers near to FPOs /crop clusters. Adequate care must be taken to build required marketing infrastructure and to continuously meet the demands of consumers in domestic and world markets (market led production) and to maintain quality assurance.

- *Ease of doing business:*

Relief to FPOs from various statutory compliances may be provided at least during the first 5 years to assist them in adjusting to regulatory business environments and stabilising their operations as part of the GoI's "ease of doing business" approach.

- *Human resource development:*

National institutions like MANAGE-FPO academy, Extension Education Institutes, or Producer Organization Promoting Institutes, or Nodal institutions such as NABARD, SFAC may design few courses to create professionals capable of not only promoting FPOs but also strengthening the agribusiness ecosystem of FPOs.

- *Single window state-wide license:*

The system of issuing various licenses required for undertaking business activities by FPOs may be simplified to provide a single-window state-wide license.

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Chapter 3

Roles and Responsibilities of Board of Directors and Chief Executive Officers in FPOs

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The government has played a critical role in promotion and support of producer companies. Realizing the indispensable role of collectivization of farmers' particularly small and marginal farmers into their groups for leveraging the economies of scale in production and marketing, Department of Agriculture, Cooperation & Farmers' Welfare (DAC&FW), Ministry of Agriculture & Farmers' Welfare (MoA&FW), Government of India, launched a pilot programme for promotion of Farmers Producer Organizations (FPOs) during 2011-12 under two sub-schemes of Rashtriya Krishi Vikas Yojna (RKVY) viz. National Vegetable Initiative for Urban Clusters and Programme for Pulses Development for 60,000 rainfed villages. The initiative got a real momentum in 2013 with formulation of National Policy and Process Guidelines for FPOs and with introduction two schemes viz. Equity and Credit Guarantee Scheme for Farmer Producer Organizations (FPOs). This was followed by setting up of a dedicated 'Producers Organization Development and Upliftment Corpus' (PRODUCE) Fund with NABARD in 2014 for formation of 2000 FPOs.

The three key stakeholders in a FPO are members of FPO, the Board of Directors and Office bearers including CEO.

a) Members or shareholders: A producer organization can act only through its members. The FPO is created by the members and can also be wound-up by them and the members act through the general body

b) Board of Directors: The Directors are elected by members for specified period

c) Officer Bearers: They are hired professionals to manage day to day affairs of the FPO and includes CEO, Accountant etc.

Members: A member is defined as a "person or producer institution", whether incorporated or not, admitted as a member of a producer organization and who retains the qualification necessary for continuance of membership. Membership is voluntary and is available to all eligible members

(criteria of membership defined in the AoA/Byelaws of a FPO) who can participate and avail the facilities or Services of the FPO.

The members act through the general body, and the body alone can:

1. Approve the budget and adopt annual accounts of the FPO
2. Approve patronage bonus
3. Authorize the issues of bonus shares
4. Appoint auditors
5. Declare dividend and decide on the distribution of patronage
6. Amend MoA and AoA/Byelaws
7. Specify the conditions and limits of loans that may be given by the BoD
8. Approve and act on any other matters that are specifically reserved in the AoA/bye-laws for decision by the members.

Board of Directors

Every FPO should have a Board of Directors of not less than five and not more than fifteen in case of Farmers Producer Companies and in case of FPO registered the State Cooperative Act as per the stipulations under it.

Roles and responsibilities of Board of Director

The Board may act only in areas not reserved to the General Body and may not exercise executive functions. In general, the Board has authority and is responsible for formulating, supervising, and monitoring of the performance of the FPO in respect of the following matters:

- Determination of the dividend payable
- Determination of the quantum of withheld price and recommended patronage to be approved at general body meeting
- Admission of new members
- Pursue and formulate organizational policy, objectives, establish long-term and annual objectives, and approve strategies and financial plans
- Appointment of a CEO and other officers, as may be specified in the AoA/Byelaws
- Exercise superintendence, direction and control over CEO and other officers
- Sanction any loan or advance, in connection with the business activities of the FPO to any member, not being a director or his relative
- Investment of the funds of the company in the ordinary course of its business

- Acquisition or disposal of property in its ordinary course of business.
- Check that proper books of account are maintained.
- Ensure that annual accounts are placed before the AGM with the auditor's report
- The Board may make recommendations in the case of those matters reserved for decision of the General Body.
- Approval of budget and adoption of annual accounts, approval of patronage bonus, Issue of bonus shares
- Specify the conditions and limits of loans that may be given by the board to any director

All the powers specified above shall be exercised by the Board only by means of a resolution passed in its meeting and decision can be made or resolution adopted by circulation.

The Functions to be performed by the BoD which require the Resolution by Members at the AGM of the Company

The Board of Directors shall exercise the following powers on behalf of the Company only after resolutions are passed at the AGM of its members:

- Approval of the budget and adopting the annual accounts of the Producer Company
- Approval of patronage bonus
- Issue of bonus shares
- Declaration of dividend return and decision on distribution of patronage
- Specifying the conditions and limits of the loans that may be given by the Board to any Director
- Any other transaction which requires the approval of the Members as specified in the Articles of Association of the Company.

Thus, while the Board can ordinarily do all acts that a Company is authorized to do, the above listed activities require the express approval of the Members of the Company through a resolution at the AGM.

Chief Executive Officer

Board of Directors has to appoint full time CEO amongst persons other than members. The qualification, experience and the terms and conditions of services shall be decided by the Board. The CEO shall be the ex-officio Director of the Board and shall not retire by rotation. The CEO shall be entrusted with substantial powers of management as may be determined by the Board. She or he is accountable for the performance of the FPO, both, to the Board of Directors and to the Members.

Duties and Responsibilities of CEO

- Do administrative acts of a routine nature including managing the day-to-day affairs
- Operate bank accounts or authorize any person, subject to the general or special approval of the Board
- Make arrangements for safe custody of cash and other assets
- Sign business related documents as may be authorized by the Board for and on behalf of the FPO
- Maintain proper books of account prepare annual accounts; place the audited accounts before the Board and in the annual general meeting of the Members
- Furnish the members with periodic information to appraise them of the operation and functions of the FPO
- Make appointments to posts in accordance with the powers delegated to him by the Board
- Assist the Board in the formation of goals, objectives, strategies, plans and policies
- Advise the Board with respect to legal and regulatory matters concerning the proposed and ongoing activities and take necessary action in respect there of
- Exercise the powers as may be necessary in the ordinary course of business
- Discharge such other functions, and exercise such other powers, as may be delegated by the Board
- To provide timely information to the members and Board of Directors for scheduled FPO meetings or emergency or short notice meetings:
- Meetings or emergency or short notice meeting
    1. Maintain proper books of account; prepare annual accounts and audit thereof; place the
    2. audited accounts before the Board and in the annual general meeting of the Members
    3. Recruit other staff on direction of the Board, monitor their performance
    4. Establish and operationalize different required systems in the FPO – Accounting &
    5. Book keeping, Monitoring & MIS, Production, Marketing, Governance, HR etc.,
    6. Dealing with support agencies, contracts / MoU, coordinate with them.
    7. Work closely and report to APMAS FPO team.

Eligibility Criteria for Chief Executive Officers:

- Master's degree in Agricultural & Allied and Agri. Business, related specialization

- Knowledge on local Language, Arithmetic, Analytical, Sales & Marketing, Management,
- Commodity market / Agricultural trading, Documentation & Computers
- Strong oral and written communication / negotiation skills in local language and English
- Ability to work independently to achieve performance objectives and deliverables
- Excellent skills in MS Office, MIS, Communication systems and social media
- Work in a team and promote team spirit and culture

References:

FPOs are growth engines of Indian Agriculture by BIRD Lucknow

DUTIES, RIGHTS AND RESPONSIBILITIES Manual for Shareholders, Directors & Chief Executive Officers of Producer Companies by A.V. Balasubramanian &K. Vijayalakshmi Centre for Indian Knowledge Systems, Chennai

FORMATION AND PROMOTION OF 10,000 FARMER PRODUCER ORGANIZATIONS (FPOs) OPERATIONAL GUIDELINES Government of India, Ministry of Agriculture & Farmers' Welfare Department of Agriculture, Cooperation & Farmers' Welfare

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Chapter 4

FPC Registration, Legal, Compliances of Producer Company & GST

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Incorporation of Company

1. Documents Required of Directors:

   Copy of PAN, Aadhar Card

   Proof of Residence (Electricity bill not older than 2 months, if not in the name of subscriber provide Bank passbook). Passbook shall be latest updated.

   Proof of Identity- Anyone of Election Card, Passport or Driving License.

   Letter from the agricultural officer certifying that the subscribers of the company are farmers

   Mobile No. & Email id of each subscriber

   Extract of 7/12 document which should be certified by a Talathi

   Occupation

   Educational Qualification.

   Duration of stay at the current residential address

   Place of birth

   Passport size photographs– 2 copies

2. Application for obtaining the name of the proposed Company is to be filed first with the Registrar of Companies, for reservation of name for the company along-with the main object/activity of the company.
3. Address of the registered office of the company along-with the latest electricity bill will be required along-with the NOC from the owner of that address.
4. Digital Signature Certificate (DSC) is to be obtained of one of the Authorized person to complete the filing of incorporation of the Company.
5. There is no minimum capital requirement for producer company for incorporation of the Company.

6. Once the Company is incorporated, a Bank Account in the name of the Company is to be opened and each subscriber has to transfer the money in that Bank Account as per his share in the capital of the Company.
7. Once the capital amount is deposited in the Company, then we will have to apply for commencement of the business. This is to be done within 180 days from the incorporation of the Company.

The Company can start its business activity only after the commencement of business form is filed and approved.

Basic Accounting Framework

Books to be maintained:

- Sales & Purchase Details – Sales Invoices and Purchase Bills should be maintained by FPC.
- Cashbook & Bankbook – Recording of day-to-day cash and bank transactions to avoid misappropriations of funds.
- Stock Register – To give a clear picture of Inward and Outward movement of Stock.
- Payroll Registers – Recording the daily attendance of employees and calculations of Salaries based on such records.
- Fixed Assets Register – This register is to be maintained to comply with statutory requirements. It should provide details of Assets Purchased, Date of Purchase, Amount of Purchase, Name of Supplier

Recording of Day-to-Day Transactions

- Importance of daily updating of A/C's – Daily updating of accounts help in early detection of mistakes and help in better monitoring of business.
- Tallying Balances of Petty Cashbook – Keeps a check on cash movement and helps in identifying unusual movements in cashflow.
- Stock in & Stock out – Monitoring of Goods purchased and sold to have better Inventory Control.
- Delivery Challan v/s Tax Invoice – Every Sale of Goods must be compulsorily accompanied by Tax Invoice and goods cannot be sold on basis of Delivery Challan.

Accounting Reports

- Profit & Loss A/C – This Report shows profitability of the Company. It is a comparison between the Income and Expense of the business
- Balance Sheet – It is the Asset and Liabilities Report of business
- Cashflow Statement – This Report shows the Cash Inflow and Cash Outflow pertaining to Operating, Investing and Financing Activities of the Company

Various Acts applicable

- Income Tax Act,1961 – Income Tax is the Direct Tax in India. It is payable on Income i.e., Profit earned by Company
- Goods & Service Tax Act – GST was introduced in India on 1st July 2017.GST is the Indirect Tax and payable on Supply of Goods and Services
- Companies Act,2013 – New Companies Act was introduced in 2013 incorporating many changes and modifications in the old Companies Act of 1956

Compliances under Income Tax Act

- Filing of Income Tax Return of Producer Company (Annually) – Each Company has to file its Income Tax Return Annually
- Payment of TDS (Monthly) – TDS is to be deducted from payments made and deposited to Government
- Income Tax Audit – Income Tax Audit is applicable if Turnover is more than Rs. 1 Crore annually.
- Income Tax Exemption for FPO – Income Tax Exemption is applicable only if transactions are entered into with member farmers only

Compliances under GST

- GST Registration – GST registration needs to be obtained on Turnover crossing Rs. 40 lakhs
- GST Invoicing- Proper Format for GST Invoice needs to be ensured
- GST Payment – Reconciliation of GST on Sales and Purchases is to be done and GST Liability to be discharged accordingly
- GST Returns – Monthly/Quarterly GST returns are to be filed
- Cross Matching of Sales & Purchases – In order to claim GST Credit, it is necessary that the GST has been paid and uploaded by the Supplier. Matching of GST between Customer and Supplier is the backbone of GST System

- GST Rates Classification as per HSN Code – GST Rates are classified into 5 categories – 0%,5%,12%,18% and 28% based on GST Rate Notifications and list
- GST Annual Return and Reconciliation Statement – Company needs to file GST Annual return if the Annual Turnover is above Rs. 2 Crores and Reconciliation Statement is to be filed if the Annual Turnover is above Rs.5 Crores

Compliance under Companies Act

- Maintenance of Minutes of Board Meeting, Shareholders Meeting-Board Meetings are to be held 4 times in a year and Shareholders Meeting to be held once in a year. Summary of points discussed at such meetings is to be maintained
- Filing of Annual Returns with ROC – Annual returns are to be filed with ROC as per the required formats
- Creation of Charge for Loans taken from Financial Institutions – Companies must create and register charge with ROC for all the Loans taken
- Director Resignation/Appointment – Resolution duly signed by 2 Directors should be passed in case of Appointment and Resignation of Directors
- Allotment of Shares – Shares must be allotted and Share Allotment process must be completed within 60 days from the date of receipt
- Director KYC Compliance – Each year Director KYC Compliance has to be completed
- Reporting of MSME & Loans Taken – Company has to report the transactions carried out with MSME registered Vendors and also disclose all the Loans taken during the year

Various Due Dates

Due dates under Income Tax Act:

1) TDS Payment (Monthly): 7th of the next month.
2) TDS Return filing (Quarterly): 31st of the next month.
3) Advance Tax: 15th June,15th September,15th December & 15th March
4) Income Tax Return & Audit of Company: 30th September of the succeeding financial year.

Due Dates under GST:

1) GSTR-3B (Monthly): 20th of the next month
2) GSTR-1 (Monthly/Quarterly): 11/13th of the next month
3) GST Audit (Yearly): 31st December
4) GST Annual Return: 31st December

Due Dates under ROC:

1) Annual Returns & Compliance: 30th October/30th November
2) Any other compliance: Within 30 days from the date of respective event
3) Director KYC: 30th September every year
4) DPT-03 for Loans taken: Yearly Return- 30th June
5) Date for AGM: on or before 30th September

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Chapter 5

Sustainable Value Chain Development through Agri-Warehousing for FPOs

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Indian agriculture has made a significant progress over last several decades, mainly due to improvement in technologies (seeds, fertilizer, plant protection chemicals, etc.), practices (line sowing, mono-cropping, mechanization, irrigation, etc.), and policy environment (price support, input subsidy, market infrastructure, credit, insurance, etc.). Consequently, the total production of food grains has increased by 5.6 times, fruits by 16 times, vegetables by 11 times, oilseeds by 6 times, milk by 10 times and so on in last 70 years (1950/51 to 2019/20). During the same period, the number of farm households has also increased significantly, leading to fragmentation of land holdings and declining size of average land holding. Currently, more than 85 per cent of the farmers are smallholders cultivating on an average about 1.01 hectare of land. They own only 47% of total cultivated area. According to Situation Assessment report (NSS 77th Round), average monthly income per agricultural household is ₹10,218 only in 2018-19 (NSO, 2021). It becomes quite difficult for individual smallholder farmers to ensure their livelihood besides coping with climate change impacts and market risks. Small holders do not have enough bargaining power to negotiate in input or output market in their favor. Small landholdings also increase the transaction costs for the producers as well as for the bulk buyers, like processors, retailers, traders, etc. Earlier, farmers were brought together in co-operatives to counter some of the above challenges due to aggregation/ collectivization of inputs. These cooperatives were in the form of 3-tier structure, Primary Agricultural Cooperative Societies (PACS) at village level, which were federated at district and state level. These co-operatives mainly focused on providing easy credit and/or inputs like fertilizers and seeds to the farmer-members. Moreover, over the years due to in-built governance structure, these cooperatives provided significantly more management control and power to local influential persons without contributing to the business of the co-operatives. Over time, they used their influence for self-serving interests, leading to in general disenchantment among the farmer-members. Consequently, except for dairy sector cooperatives and to some extent

in sugar sector which became highly successful at grass root level, by-and-large cooperatives in agriculture sector have failed. Moreover, Shah (2016) argued that had there been such strong member-controlled cooperatives in agriculture sector, like in case of dairy and sugar in western India, the agrarian distress would have been far less severe.

Introduction

India today is not only self-sufficient in respect of demand for food, but is also a net exporter of agro-products occupying seventh position globally. It is one of the top producers of cereals (wheat and rice), pulses, fruits, vegetables, milk, meat and marine fish. However, there remain some chinks in the production armory, when evaluated against nutritional security that is so important from the perspective of harvesting the demographic dividend of the country. The country faces deficit of pulses and oilseeds. The availability of fruits, vegetables and milk, meat and fish has increased, thanks to production gains over the decades, but affordability to a vast majority, including large number of farmers too, remains a question mark.

Various avenues or market channels are available for farm produce, such as food or Agro processing industry, wholesale into retail and other consumer channels, institutional sales, etc. Yet, the farmers' primary earning capacity is typically restricted to their first point of sale, usually to agents, or near-farm mandis (primary wholesale agricultural markets), which are not always the best of options. All transactions, further up the value system, are remote from a farmer's viewpoint. There is scope to create immediate options for farmers to undertake next level activities, to connect directly to the wholesale market or processor, or at least a level above their current stage of transaction.

Post-harvest food loss is defined as measurable qualitative and quantitative food loss along the supply chain, starting at the time of harvest till its consumption or other end uses (Hodges *et al*., 2011). Every year, an estimated 1.3 billion ton - roughly one-third -of the food produced for human consumption worldwide is lost or wasted. In industrialized countries, significant waste occurs at the consumption stage, while in low-income countries, food losses take place primarily during the early and middle stages of the supply chain (FAO, 2011). Empirical evidence on the extent of post-harvest food losses is scarce and estimates vary substantially, between countries and regions as well as between different types of products. Some estimates for average losses in East and Southern Africa, for instance, put post-harvest losses for grains at 10-20 per cent (in term of weight loss), with some regions reaching as high as 25-35 per cent. In South and Southeast Asia,

rice physical losses are 10□25% and quality losses can discount prices by up to 30 per cent (Gummert, 2013; Manners-Bell and Miroux, 2013; FAO, 2011).

In India, the production is about 450 million tons of raw food materials of plant and animal origin which are refined, stored and transformed into various usable products using conventional and modern post-harvest and food processing technology, out of this amount there is 10 per cent post-harvest losses in durables (Cereals, pulses and oilseeds), 20 per cent losses in semi-perishables (Potato, onion, sweet potato, tapioca) and around 25 per cent in products like milk, meat, fish and eggs. Furthermore, In India, annual storage losses estimated to be 14 million ton of food grains worth $16,000 million every year. About from 30 per cent to 40 per cent of the fruits and vegetables grown in India (40 million tons amounting to US$ 13 billion) get wasted annually due to gaps in the cold chain such as poor infrastructure, insufficient cold storage capacity, unavailability of cold storages in close proximity to farms, poor transportation infrastructure, etc. This results in instability in prices and farmers cannot get remunerative prices beside rural impoverishment and farmers frustrations (Rajasri *et al.*, 2010; Maheshwar and Chanakwa, 2006; Rolle, 2006; Ali, 2004).

About the Organization

Maharashtra Cooperative Development Corporation limited (MCDC) (An autonomous institute of Govt. of Maharashtra) Maharashtra Cooperative Development Corporation Limited (hereafter referred to as "MCDC" or "the Company") is the Maharashtra State Government Company registered under the Companies Act, 1956

MCDC works for the development of the Cooperative sector in Maharashtra. It provides:

1. Financial Services - Acting as Non-Banking Finance Company (NBFC) for the Co- operative Societies
2. Consultancy services- To provide handholding support to Community Based organizations (CBOs-Co-operatives, FPCs, SHGs) through Consultancy services in Maharashtra.
3. Marketing services – Buyer Seller E-interface for the CBOs
4. Capacity Building Services- Through Trainings, Seminars, Exposure visits & workshops

On the basis of above services MCDC has initiated various income generating schemes for the development of Co-operatives & Farmer Producer Companies:

- MCDC is Nodal agency for World Bank assisted SMART (State of Maharashtra Agribusiness and Rural Transformation) Project. MCDC has started to implement SMART project through Pilot of 10 PACs in Warehouse Receipt concept. In order create marketing avenues through this concept MCDC further replicate same in 201 more locations of PACs in Maharashtra. Further MCDC has a plan to implement more than 100 Value chain development projects for CBOs.
- MCDC is a NABARD sponsored POPI (Producer Organization Promoting Institution) & Resource Support Agency (RSA) for all POPIs in Maharashtra. MCDC is catering to 30 Farmer Producer Organizations under PODF scheme, 31 FPOs in Central Sector Scheme of 10,000 FPO formation & catering to more than 2000 FPOs in Maharashtra.
- MCDC also supports Agri-Entrepreneurship in rural area through Market linkage, Bank Linkages, technical interventions and handholding support. The organization has a plan to develop more than 300 Co-operative shops (Coop-Shops) in major Cities in Maharashtra. This would be the unique & alternative supply chain model which can be a great avenue for the progress of Co-operatives & FPOs.
- MCDC has developed the MAHAFARM brand to avail the platform to the products of CBOs (FPCs, SHGs Cooperatives.) Organization is also trying to build the relationships with the renowned food industries to avail the Market to CBOs in Maharashtra.
- MCDC have dedicated Capacity Building Division for Cooperatives & FPOs and imparted trainings to more than 3500 beneficiaries. More-ever some of the beneficiaries have started small scale units. i) MCDC is a registered with ASCI-Agriculture skill council of India. ii) Nodal training agency for MIDH for implementation of Polyhouse, Nursery, and Organic farming. iii) Nodal agency of PMFME trainings for food processing training programs, iv) Nodal agency for Honey Bee Training programs v) Nodal Agency for world bank assisted POCRA project in Vidarbh and Marathwada region.vi) Nodal Training agency for Training to FPOs in SARTHI.
- MCDC is a Nodal agency for Jal Samruddhi Abhiyaan for Maharashtra and supported 318 entrepreneurs to start business of Water-shade development projects through Earthmovers.
- MCDC has developed an Agribusiness Growth Cell (ABGC), dedicatedly supporting to various FPCs, SHGs and Cooperatives for Generation of Business ideas, designing of Business plan, Skilled Trainings, Technical support, Bank Linkages and Market linkages & various other need-based components etc. a) In order to provide CA and CS services to FPOs in reasonable service charges MCDC have form panel of 135 CA and CS in ABGC Cell. b) After

the minute study of Warehousing Scenario of Maharashtra for FPOs, MCDC have formed separate Warehousing Division to provide warehouse related support to all the CBOs in Maharashtra.

- MCDC has a dedicated Input Division through which MCDC has created alternative supply chain of Agri Inputs. Till date MCDC has supported 20000 farmers, 400 PACS and FPOs and distributed 50,000 tons of Agri inputs in wholesale rates directly to the farmers.
- In order to promote Rural Agri-tourism and marketing support, MCDC has signed MoU with Department of Tourism (DoT).
- MCDC has set up a dedicated warehousing Division to cater warehouse related services to all the segments in Agriculture. In order to reach to common farmer, division has published 33 Articles on Agriculture Marketing-Warehouse management in Agrowon daily Newspaper in Maharashatra.
    - Conceptual Clarity about Value chain development in Agriculture through CBOs
    - Community Based Organizations in India and Maharashtra
    - Community based organizations are consisting of Farmer Producer Organizations (FPOs), Cooperative Societies and Self Group and their federations. Farmers Producers Organizations (FPOs) are considered to be one of the most imminent tools of intervention for upliftment of the farmers' condition in India. The collectivization of farmers through FPOs help in bringing economies of scale in different on-farm as well as off-farm activities at all three stages- pre-production, production and post-production levels
    - Currently, farmer organizations in India have various legal forms
        -as a Producer Company (under Companies Act, 2013),
        -as a Cooperative (under Cooperative Societies Act),
        -as a Non-profit entity (under Companies Act, 2013),
        -or as a Trust (under Indian Trusts Act, 1882).

The Primary Agricultural Cooperative Society (PACS) is one of the oldest forms of producer organizations in India. In addition to these, there are many other forms of producer organizations catering to specific or multiple function(s) such as self-help groups (SHGs), Federation of SHGs, Common Interest Groups (CIGs), Joint Liability Groups (JLGs), Farmers' Club etc. However, failure of collectivization of farmers through co-operatives in agriculture sector, growing agrarian

crisis and simultaneously rapid growth in private sector through corporatization led to beginning of new thinking of bringing best attributes of co-operatives and the corporates together.

Farmer Producer Organizations

In the year 2000, the concept of producer companies was recommended by a committee chaired by Prof. Y. K. Alagh. In 2002, the Companies Act of 1956 was amended and new section 'Part IXA' was inserted for 'Producer Companies', a new form of corporate entity (MCA, n.d.). These companies were designed on 'mutual assistance principles' and 'patronage1' basis, to bring together desirable aspects of the cooperative and corporate sectors for the benefit of primary producers, especially small and marginal farmers (Alagh, 2019).

Initially, Small Farmers' Agribusiness Consortium (SFAC), a Society promoted by Ministry of Agriculture and Cooperation, Govt. of India was designated as the nodal agency for promotion of FPOs in India. In 2013, FPO Formation Guidelines were issued by Government of India and next year i.e., 2014 was declared as "Year of Farmer Producer Organizations (FPOs)" by the Ministry of Agriculture, Government of India with special package allocation of ₹ 200 crores to NABARD2 as PRODUCE Fund3 to promote FPOs. Consequently, the formation of FPOs got further boost through funding support from both the agencies- NABARD and SFAC.

Apart from this, agriculture departments of most of the states also took keen interest in aligning their schemes through FPOs and in turn the departments of agriculture, horticulture and/or animal husbandry also got involved in formation and promotion of FPOs.

Apart from this, several FPOs are self-promoted by progressive rural youth or NGOs, while agriculture/ horticulture/animal husbandry departments of several states are also promoting the formation of FPOs. Many agricultural universities (SAUs) and some ICAR institutes are also helping the farmers in mobilization for FPO formation through their KVKs. Currently, there are more than 17,000 FPOs in India registered under different legal structure and more than 7000 FPOs in Maharashtra. Majority of them are registered as a company under the Companies Act, while second largest categories are under Cooperative Societies Act of respective states. Some are also in the form of Society or Trust. In several case studies/literatures, success stories have been documented demonstrating the benefits realized by the farmer-members from the FPOs in the form

of reduced input cost and Market linkage as aggregation allows better bargaining power for the FPOs.

Advisory and value addition services offered by the FPOs have also benefitted the farmers in timely decision making. There exist many challenges for the long-term growth and viability of any organization specifically FPOs when the scale of operation increases. Majority of the FPOs are new and small in terms of number of producer-members and their own equity capital, which makes them less attractive for funding by the financing agencies. Lack of understanding about business plan, lack of funding support for many FPOs, less importance towards hiring of skilled persons with managerial abilities, poor governance structure, difficulty in regulatory compliances and marketing difficulties need proper attention to provide enabling ecosystem for the FPOs.

In 2019, Government of India has announced formation of 10,000 new FPOs on cluster basis under Central Sector Schemes (CCS). These FPOs get supported by the promoting agency (NABARD/ SFAC/NAFED/NCDC) in terms of technical, managerial and financial aspects. However, the challenges with the existing FPOs and/or many other FPOs formed outside the ambit of CCS remain the same. They are not able to move to next stage of their lifecycle to become economically viable business unit to create value for their shareholders and the society as a large.

Current status of FPOs

Several studies have been conducted by many researchers in India which gave different estimates about the total number of FPOs in India. Since the FPOs are promoted by different agencies, there is no single unified source of information about all the existing registered FPOs in the country. These FPOs are registered under different legal structure

- mostly are either under Companies Act or
- Co-operative Societies Act,
- while some are also as Mutually Aided Cooperative Society (specially in Andhra Pradesh and Telangana),
- as Trust or
- Section 8 company

The list of FPOs registered under the Companies Act can be found with the Ministry of Corporate Affairs (MCA), Government of India however, there the list includes all the producer companies (PCs) registered which may include non-farm producer companies as well. In case the FPO is registered as a Trust or a Society registered under section 12AA of the Act, or in the case of Sec 8 Company, the income earned cannot be distributed to its members. Therefore, majority of the FPOs

are registered either under Companies Act or under Cooperative Society Act. Among all the promoting agencies, NABARD claims to promote almost 5100 FPOs across different states, majority as Producer Companies and about 10-15% as Co-operative Society. Similarly, SFAC has registered total 897 FPCs as on 31st March 2021. Therefore, we may assume that currently there are about 16,000 registered FPOs operating in India in different forms and supported by different agencies. Although, several of these FPOs might be in dormant stage.

Currently, almost 60 per cent of total registered FPOs are located in only four states (Maharashtra, Uttar Pradesh, Haryana, and Bihar), and another 30 per cent in seven states (Tamil Nadu, Andhra Pradesh, West Bengal, Telangana, Odisha, Karnataka, and Madhya Pradesh). Moreover, several studies also indicate that about 60 per cent of them have ≤500 members. Hardly, 10-15 per cent of FPOs have 1000+ members. Similarly, almost 50 per cent of the FPOs have authorized capital up to only ₹1 lakh (Raju et al, 2016; Govil et al, 2020).

In order to doubling farmers' income and to create rural employment among farming community, it is recommended to make focused efforts on FPOs, PACs and SHG federations in Maharashtra. As we have seen there are more than 7000 FPCs, 1000 SHG Federations and 20644 PACs in Maharashtra, and further govt. is planning to form one village one society. With the help of this movement, we can concentrate on Agri-entrepreneurship development of the farming Community in Maharashtra.

Role of Warehousing in Agriculture Marketing through CBOs

Earlier, farmers were brought together in co-operatives to counter some of the challenges due to aggregation/ collectivization of inputs. These cooperatives were in the form of 3-tier structure, Primary Agricultural Cooperative Societies (PACS) at village level, which were federated at district and state level. These co-operatives mainly focused on providing easy credit and/or inputs like fertilizers and seeds to the farmer-members. Moreover, over the years due to in-built governance structure, these cooperatives provided significantly more management control and power to local influential persons without contributing to the business of the co-operatives. Over time, they used their influence for self-serving interests, leading to in general disenchantment among the farmer-members. Consequently, except for dairy sector cooperatives and to some extent in sugar sector which became highly successful at grass root level, by-and-large cooperatives in agriculture sector have failed. Moreover, Shah (2016) argued that had there been such strong

member-controlled cooperatives in agriculture sector, like in case of dairy and sugar in western India, the agrarian distress would have been far less severe.

Warehouses in India were broadly classified based on the sector to which they pertain i.e. Public Sector Warehouses (CWC, SWCs, State Civil Supply Corporation), Private Sector Warehouses (Warehouse Service Providers, Collateral Management Companies, Standalone individual Warehouses), Cooperatives (PACS, LAMPS, Cooperative, Federations, etc.). Lately, the concepts of silos, cold chains, container freight stations (CFS) and inland container depots (ICD) have been gaining importance.

Marketed surplus is the "gross quantity of produce actually sold by the farmers" and therefore may be inferred to have a link with demand and distinct from the marketable surplus in hands of farmers.

Studies have indicated that small farm holdings contribute about 54 per cent of marketable surplus. These farmers, for want of with-holding ability, are compelled to undertake a sale immediately after harvest, such sales accounting for about 50 per cent of the marketable surplus. Their inability to hold on to harvested stocks is largely due to financial compulsions. Another factor assessed is the lack of direct access by farmers to warehouses due to low level of initial aggregation of produce at the village level, low number of accredited warehouses for issuance of NWR and low level of post-warehousing market linkages for farmers, having little capacity to divert attention for transacting sales for small lots at a later date.

What is Warehousing?

- Warehousing is the storage or preservation of large quantities of goods from the time they are purchased or manufactured until they are used or sold
- The agricultural warehousing and food processing industries make significant contributions to warehousing
- They are typically large plain buildings located on the outskirts of cities, towns, or villages.
- For most types of businesses that deal in physical goods, warehousing is an essential part of the supply chain
- This could be a consumer business storing a product that will eventually make its way to a retail customer, or it could be a business to business (B2B) company storing products that will eventually make their way to business customers

- Warehousing is critical to promoting agriculture marketing, rural banking and financing, and ensuring the county's food security
- It allows markets to relieve pressure during harvest season while maintaining an uninterrupted supply of agricultural commodities during the off season
- Warehousing is now recognized as an essential component of the supply chain, where goods are not only stored for safekeeping, but also other value processes are implemented, reducing waste and costs
- Agricultural warehousing accounts for 15% of the Indian warehousing market, which is estimated to be worth Rs 8,500 crore.

Need of Warehousing

- During good harvests, smallholder farmers, who account for nearly 70% of India's agricultural strength, use traditional home storage methods
- Traditional storage is susceptible to natural obstacles such as moisture, temperature, rodents, and so on, and agricultural produce can only be stored for a limited time
- As a result, the farmer is forced to compromise and sell his produce at low prices, accept meagre profits, and continue farming with insufficient funds to purchase better seeds, fertilizers, and equipment
- In India, warehousing has been linked to food security and agricultural growth
- Warehousing is now recognized as an essential component of the supply chain, where goods are not only stored for safekeeping, but also other value processes are implemented, reducing waste and costs.

Types of Warehouses

i) On the Basis of Ownership

- Private Warehouses: Individuals, large corporations, or wholesalers own private warehouses for the storage of their own inventory. They also keep other people's products.
- Public Warehouses: These are warehouses that are owned by the government and are used to store goods
- Bonded Warehouses: These warehouses are specially built at a seaport or airport and accept imported goods for storage until the importer of goods pays customs. Bonded warehouses provide the following services: The importer of goods is relieved of the burden of paying customs duty all at once because he can take delivery of the goods in installments
- Spraying and dusting are performed on a regular basis to maintain the quality of the goods

- It is now possible to engage in re-export trade (the re-export of imported goods).

ii) On the Basis of Type of Commodities Stored

- General Warehouses: These are standard warehouses used to store most food grains, fertilizers, and other commodities
- Special Commodity Warehouses: These are warehouses that are specifically designed to store specific commodities such as cotton, tobacco, wool, and petroleum products
- Refrigerated Warehouses: These are warehouses where the temperature is kept at a specific level and are intended for perishable goods such as vegetables, fruits, eggs and meat

Benefits of Warehousing

- For starters, warehouse receipts have transformed financing for small-scale farmers
- Using Commodity Based Financing (CBF), various RBI-regulated banks and NBFCs have simplified the loan process by introducing new collateral avenues
- Farmers can store their produce in dedicated warehouses and receive storage receipts in lieu of land or machinery, which can be used by banks/NBFCs to provide immediate financial assistance
- Warehouse storage allows farmers to keep their produce safe
- Warehouse depositors benefit from improved and scientifically managed warehousing spaces provided by private Warehouse Service Providers (WSP), as well as electronic platforms for sale and purchase
- This directly translates to increased farmer income and, as a result, food security
- Furthermore, it serves as a replacement for home storage techniques, resulting in reduced post-harvest losses
- Warehousing also creates jobs
- Despite the goal of maximum automation, the system requires manpower to constantly monitor management systems, implement an efficient network for commodity transportation, and maintain on-the-ground awareness support
- Local village community members may be the best candidates for each of the aforementioned branches, and the resulting financial empowerment will improve food security

Warehousing in India

- In recent years, India's warehousing sector has experienced rapid growth
- Its first major stimulus was the implementation of the GST regime in 2017, which saw the sector grow from 35 million square feet (MSF) in 2015-17 to 77 MSF in 2018-20

- And, since last year, Covid-19 has been accelerating its ascent as one of India's rising industries
- India has become a more active player in the global manufacturing supply chain as a result of improved domestic capabilities in recent years, aided by government initiatives such as Make in India, Aatmanirbhar Bharat, and the PLI scheme
- As a result, demand for industrial and warehousing (I&W) has increased
- The e-commerce sector, along with the third-party logistics sector, has been driving demand for logistics and warehousing across global markets and has emerged as the most prominent driver of Indian warehousing market volumes
- This sector's transaction share has increased from 18% in FY17 to 31% in FY21.

New Warehousing Policy

The importance of good quality warehousing for agricultural produce cannot be understated, as it helps to smoothen the inter-temporal availability of seasonally produced crops. Inadequate availability of warehousing can adversely affect supply chain participants—particularly, small farmers. The importance of storage facilities for agricultural production was recognized in India as early as 1928 in the Royal Commission on Agriculture (1928) report. Good quality and affordable warehousing infrastructure for agricultural commodities would allow the farmers to avoid distress sale of their produce as they can store their produce without quality loss and avail credit through pledging. Warehouses help reduce post-harvest losses, enabling producers/traders to take advantage of inter-temporal price differences and thereby arbitrage opportunities and ensuring food security. However, after nearly a century, we cannot claim to have reached sufficiency in quality agricultural storage facilities for both the short and long term. Post-harvest management and cold storage facilities for agricultural produce are still inadequate in India.

i) To understand the extent to which agricultural warehousing policies have achieved the intended outcomes
ii) There is need to examine the evolution of warehousing policies in India, the trends in growth, and warehousing technologies, as the specific context of agriculture in India has changed along with the stages of the green revolution
iii) We need to examine the impact of policies on the availability and quality of warehouses and allied industries and the gaps that are yet to be addressed in the agricultural supply chain
iv) We need to also examine the economics of operating warehouses and the challenges faced by warehouse operators by considering the revenue and costs of a few samples' warehouses

v) We have a scope to explore the innovations in agricultural warehousing. How do institutional innovations such as Negotiable Warehouse Receipt (NWR) and public-private partnerships affect the warehousing industry?

vi) We try to understand whether institutional or policy innovations help expand the availability or quality of warehousing in India

vii) We seek to understand the possible regulatory changes that might help to improve the quality and access of warehousing in India

viii) We examine the technological and process innovations related to warehousing and examine their suitability and policy support needed

ix) We need to analyze the impact of warehousing capacity and asymmetry of information on price volatility and wholesale-retail price spreads. Lack of availability of warehouses or poor information about their availability creates uncertainty for buyers and sellers, affecting the price discovery process. This, in turn, affects the volatility of prices and price spreads between wholesale and retail

x) We have to examine the key constraints in agricultural warehousing and provide the consequent policy suggestions. In order to take further steps needs to examine new warehousing policy decided by Govt. of India.

- To ease transportation and reduce logistics costs in India, the government has proposed a new warehousing policy that will lay the groundwork for the development of exclusive warehousing zones through public-private partnerships (PPPs)
- The National Highways Authority of India (NHAI) will develop and implement a new policy to improve logistics across the country
- The modern warehouses will house cold-storage chains and will be capable of storing both wet and dry cargo
- The goal is to reduce pollution and traffic congestion in major metropolitan areas
- These facilities are expected to be built outside of city centres so that large trucks transporting cargo do not have to enter the city to unload their cargo
- Because these large vehicles can transport more goods than smaller trucks, they will help increase bulk carrying capacity and save fuel
- The NHAI has land banks along the country's highways and expressways
- Tenders for such land parcels will be issued, inviting private players to develop warehousing zones in PPP mode on a revenue-sharing or fixed fee basis

- The proposed warehousing zones are part of the government's efforts to reform the transportation sector, which accounts for the majority of goods movement in India
- Warehousing zones will help reduce India's logistics costs, which are 14%-16% of GDP, compared to 8%-10% of GDP in China and 12%-13% in the US
- The NHAI is establishing warehousing zones and multi-modal logistics parks (MMLPs).

The warehousing zones will assist FMCG companies, steel and cement manufacturers in stocking inventory near major hubs.

Infrastructural development in various schemes and international funding agencies in India

State of Maharashtra's Agribusiness and Rural Transformation Project (SMART)

A) Warehousing and Warehouse Receipt Financing for PACS. (PACS – CMA – MCDC Partnership Plan):

An important and proven way of mitigating price risk is 'Warehousing and Warehouse Receipt Financing'. It holds immense potential for benefitting growers for variety of crops. Storage in modern warehouses following scientific storage practices can bring down the post-harvest losses to 1per cent or less, adding to farmer's income. The reason for storage before sale is compelling. The difference in price received at the time of harvest and after storage for few months can be as high as 10 to 20per cent. In addition to possibility of better prices, availability of pledge loan, lending against collateral (stored crop) can offer timely access finance. In spite of such direct benefits, it is estimated that just 74 per cent of farmers store their produce in modern warehouses. The major beneficiaries of warehousing are traders, processors, exporters and by State and Central agencies. In addition, reluctance of FIs have resulted in slow progress of pledge finance. However, with the entry of a number of professional private warehouse operators /Collateral Management Agencies (CMA), the situation is slowly turning around with FIs coming forward to extend pledge finance.

Some key reasons for farmers not availing the warehouse facilities: a) Lack of awareness /handholding support specially for pledge finance b) Lack of public warehouses close to producers' location c) Need for cash to meet immediate expenses d) Uncertainty about prices during off-season e) Lack of market intelligence to help him take 'hold' or 'sell' decision 245. Present status of agriculture crop warehousing in the State the SWC is the largest warehouse operator in the State

with an estimated 1.7 plus lakh MT capacity (2018-19). Of this 80per cent or so are used for storage of agricultural crops by traders, processors and few large farmers. The facilities are mainly used to store commercial crops like Soybean, Tur and Gram, and essential food grains for public distribution. The average capacity utilization is around 70per cent. The availed pledge financing was Rs. 277 crores during 2017-18. 246. Besides there are also warehouses set up by MSAMB, Buldhana Urban Credit Cooperative Society and many Private companies. A number of warehouses are set up and or operated by Central agencies like CWC and FCI, who are involved in public procurement on behalf of Government and in distribution purposes. 247. A large number of Co-operatives in the State (out of a total of 21000) have small capacity warehouses (250 to 500 MT storages) with an estimated 4 lakh MT storage capacity at Village level. However, many of them are in bad state or unused or used for purposes other than storage of food grains. But there is scope to operationalize a number of this decentralized warehouse for use by small and marginal farmers with little investment. This is one of the priorities under the Project. 248. The following are the key objectives of the component: a) Benefit marginal and small farmers or Community Based Organizations (CBOs) to 'Warehousing, Warehouse Receipts Financing' b) Facilitate access by creating additional modern warehouse capacity at village level by operationalizing Co-operatives warehouses and or by setting up new warehouses. c) Improve farmers holding capacity by making available pledge loan from FIs d) Improve realization by farmers through better prices by holding and selling.

Overview of the Plan

Phase-I Period Details Remarks

I	Year-0-1	10 PACs	Pilot Study (small sized existing warehouses)
II	Year-2-5	158 PACs	Expansion
III	Year 2-5	33PACs	Creation of additional WH cap. (33000 MT in all)

B) Warehousing and Warehouse Receipt Financing for CLFs/FPOs (CLF/FPO-CMA-MSRLM Partnership):

Warehousing and Warehouse Receipt Financing is an important part of the agri value chain. Storage in modern scientifically designed warehouses benefits the CLF /FPO and its women member farmers through reduced post-harvest losses and avoid distress sale at harvest time. Participation in warehousing and value addition activities by women farmers is even less common than men farmers. Though active at production stage, women farmers lack opportunity to

participate in subsequent or higher levels of value chain. Ownership of land is one of the limiting factors that is a barrier for benefitting from women farmers currently in India. 253. Maharashtra State Rural Livelihoods Mission (MSRLM) society registered under Rural Development Department, Government of Maharashtra, and has mobilized more than 4 million households into self-help groups (SHGs) and federated them into institutions like Village Organizations (VOs) at village level and Cluster Level Federations (CLFs) at cluster level engaged in agricultural and agro-based production activities. CLFs are working exclusively with women farmers across the State in diverse livelihood opportunities, including agriculture, livestock and poultry. 254. MAVIM is the state women's development corporation of the Government of Maharashtra. It organizes women through 97301 SHGs or Self-Help Groups (including SHGs set up under Tejaswini, CAIM, MSRLM and Minority) across all 34 Districts and in 11326 villages. SHGs in turn are grouped into VLCs (8851) and VLCs into CMRCs (310). MAVIM has also operationalized as many as 3036 Micro Livelihood Plans (MLPs) with a total membership of 74658. Thus, activities of MAVIM impacts a large number of women in the State and deserves all the support. 255. Many of the SHGs and CMRCs are engaged in a variety of Agro-based food processing activities that is based on food grains, pulses and other agricultural produce. A number of the SHGs and CMRCs benefit from bulk purchase of raw materials that results in savings in terms of procurement, transportation and price advantage due to scale of operation. For this they need storage space or modern warehouses that reduces storage losses and in turn helps them improve their realization. The warehouses can also be used to store or distribution center for their finished products. Keeping this in mind, MAVIM which does not own any warehouse currently, plans to set up at key locations across the State. A detailed plan would be developed and shared for financial support under SMART Project. 256. Presently, very few CLFs/CMRCs are renting space in public warehouses in their vicinity to store their member farmer's crops. MSRLM aims to give better opportunities to women farmers under SMART Project in order for them to move up in the value 159 chain. Making warehousing accessible to women through CLFs/CMRCs can be a pathway to women inclusion in higher value chains. Some of the constraints faced by CLF/CMRC member farmers: a) Lack of access to warehousing facilities: For most CLFs/CMRCs access to modern warehouse storages is not easy, especially since CLF/CMRC member farmers have small marketable surpluses /volumes to store and find it costly to transport to distant public warehouse. Warehouses demand documentation such as land record for availing rental discount in MSWC warehouses. b) Marketing of produce: small crop volumes do not interest most traders with a result the women farmers end up selling to aggregators at low prices. This cuts into their

possible profit or income. c) Market Intelligence: Lack of real-time market intelligence often results in not knowing the real value of the crop and they end up selling at low or less than fair prices. Objectives a) To improve access to storage in modern, scientific warehouses by CLFs/CMRCs and their member women farmers. b) To improve their access to credit through warehouse receipt financing c) To create women-friendly warehouse management system, which eases understanding of market parameters and facilitates their participation d) To add value to crops through creation of cleaning and grading facility/ies at or near warehouses.

Sr. No.	**MSRLM**
1.	Setting up of New Warehouse (1000 MT capacity each)
2.	Setting up of New Warehouse 250 MT capacity each)
3.	Establishment of Cleaning & Grading shed (2 TPH capacity)
4.	Agriculture warehousing support through Agriculture marketing Infrastructure scheme (AMI)
5.	National food security mission (NFSM)
6.	Project on Climate Resilient Agriculture (POCRA)

Warehousing - Challenges

- Rising land prices and a lack of suitable land parcels with good connectivity are posing significant challenges to India's warehousing and logistics sector
- The increasing competition for a suitable land parcel, combined with different state-specific land laws, complicates matters for the institution
- Incorrect Warehouse placement, combined with the inability to supervise Warehouse conditioning, would result in increased costs and disrupted Warehouse Services
- Inability to maximize warehouse space is a current issue in storage, resulting in a variety of issues such as slower mobility and higher prices
- Poor Warehouse planning is one of the most recent issues confronting Warehouse Services, along with a lack of effective space use, resulting in performance in limited Warehouse space despite the presence of unused space, which has a direct impact on the installation's earnings
- Future of value chain in Agri-warehousing

- Focus on private participation: Growing demand for storage space, the need for efficient produce handling, and supportive regulations have all encouraged private players to invest in the warehousing sector
- To build a profitable business, companies have used various models. Private players are also focusing on premium warehousing services by constructing sophisticated large-scale storage facilities
- End-to-end logistics service providers have also begun to capitalize on the government-created opportunities in the Agri-warehousing segment
- Focus on scientific storage methods: In order to modernize the storage of wheat and rice, FCI and other government agencies are building steel silos
- Grain storage in these silos has several advantages over traditional storage methods
- FCI has implemented an online depot system to automate, simplify, and effectively manage its depot-level operations
- This will aid in the tracking and control of foodgrain procurement, storage, and movement within a depot by managing all related transactions such as the lorry weighbridge, quality control, storage/transit loss, and gunny inventory
- Real-time data ensures accurate inventory and improves visibility into the quantity, location, and age of available stock
- Logistic Parks and the Unified Logistics Interface Platform, which were announced in Budget 2022, require proper execution for efficient warehousing logistics.

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Chapter 6

Branding and Digital Marketing for successful Agri-business of FPOs

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Brand and its meaning

Kevin Keller in the book, "Strategic Brand Management" defines brand as "name, term, sign, symbol, or design or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition". Further, the word brand as the book suggests is derived from the old Norse word meaning to burn. This refers to a practice of producers burning or marking (or brand) onto their products (animals). Humans for time unknown has been in practice of branding things animals and almost everything around them. The principal reason is that humans as they evolved started depending on more visual identification than identification based on smell or sound. As human evolved and communicated. It became necessary for humans to identify and differentiate as to make meaning for others to understand. Languages as such is an outcome of trying to create a common code for communication.
So, brands essentially are code for describing a particular product or services as much as table or chair would be.

As Kevin Keller suggests in order to identify the owner of the livestock, cattle breeders used hot ironing of the cattle and differentiate it from others. We can Infer that the key purpose of branding things or animals etc. is to identify and differentiate. The purpose of giving a name is to communicate all the other attached meanings like colors, marks, sign and symbols to another person. Thus, humans remember, the associated values to a particular name. When we collectively refer to a tiger, all associated properties come to one's mind of the top predator, the ferociousness, the power and so on and so forth. Similarly, when we refer to Maggie all associated properties/attributes come to one mind. Which can be the color the flavors or even sometimes memories associated with it.

Let us examine some other concepts and try and combine them to make meaning and the essence of branding and its importance. This understanding would be useful while we conclude why

branding becomes such a powerful instrument in our modern world. This is so much true of unbranded products like farm produce.

The 4 Ps

The other concepts which is very critical and have implication when we try to understand brand and branding activities is the concept of 4 Ps. E Jerome McCarthy proposed the concept of the 4 Ps as the marketing mix in his 1960 book *Basic Marketing: A Managerial Approach.* In this book, McCarthy defined the 4Ps conceptual framework for marketing decision-making, which used product, price, place (or distribution), and promotion in the marketing mix. McCarthy organized his text along managerial lines using the four Ps framework. The book's emphasis was on the problems facing the marketing manager, rather than looking at the characteristics of marketing systems and their functions. Essentially, he was merely describing or categorizing the types of activities that takes place in a business scenario. Dr. Philip Kotler has however, further elaborated and brought more meanings, which were slightly unknown of the concept four Ps. He emphasized on how valuable the 4 Ps. He called the 4 Ps as marketing mix and is defined it as a set of marketing tools that the firm uses to pursue its marketing objectives in the target market. So, Dr Kotler has taken the meaning further from categorization to being tools in the hands of the marketers. A marketer thus has these tools to communicate to the consumers about a solution that is being provided to the needs and wants of the consumer.

The concept gains more clarity in reference to concept of Robert Lauterborn's 4 Cs. He's very clear that product is essentially customer's solution. Thus, a product is as good as long it satisfies the needs and wants of the customer or it provides a solution to customers problem. He further illustrates that place is customers convenience, promotion is customers communication and price are customer's cost. Once we grasp this, we the marketer are able to get out of the thought of loving our own products or brands.

Thus, if we combine the Marketing mix and 4 Cs. E Jerome McCarthy and Dr. Kotler are more on the manufacturer or producer or marketer side while Robert Lauterborn is giving more importance to the consumer. Eventually, it is consumer who decides what sells and what doesn't sell. If it makes sense to consumer, it should make sense to the producer and not vice versa.

Often marketers like to believe that a product is an ultimate expression of creativity, like a scientist or engineer or a designer would like to believe or on the other hand there is somehow a prestige attached to a brand. Which is not true. Extending the thought of Jerome McCarthy and Robert Lauterborn's understanding we can easily see that consumer is actually more in loyal to its own needs and wants then the product or the brand. We can understand this through a particular example like a fairness cream. As much as Hindustan Unilever Limited would like to believe that the product fairness cream or Brand in its new avatar glow and lovely has a powerful following or loyal customer, which may change. On examining it closely we could discover that it is not the brand or the product but this entire desire to look fairer dominates the consumption of the product. The needs and wants here are to look fair.

As long as consumer is satisfied with a brand or a product and is able to satisfy the needs and wants of the consumer. The product would be bought. In case a better product is made available the consumer would very easily move on to the next product.

In continuation to my argument, I would like to suggest that customer solution is the only significant point It may have inputs from customers convenience or customers' cost.

The customers convenience

Let us examine why and how a brand on the digital platform like Amazon has become a successful model. In the world of Brick and Mortar. In marketing we often say "Jo dikta hain,woh bikata hain". So, Marketers make so much effort on the place of purchase. The competition would happen there; hence visibility became such a critical component. Amazon completely changed this game and the product were now available or were seen on the website or the application and not in the physical store.

In this business model one can see that the consumer's value proposition came through the concept of customers convenience and not the product. The products Amazon sells are available in a physical store or a brick-and-mortar store too. Yet the consumer found value in making the purchase at Amazon. The model became a universal template for others to follow. In the present times and the consumer is busy convenience becomes of utmost importance. This is more pronounced in the urban scenario and yet it makes sense even in the rural markets too. The distances are large from the market place and hence consumer is keener to have the convenience of product being delivered at home.

I would also like to add another element in India, is of that of heat. It is normally very hot to a larger extent of the days and most part of the year and thereby consumer is not very keen to be outside during the heat hours. Somebody dropping the product at home is definitely most welcome.

Yes, we can see models based on equation of marketing mix the consumer 4Cs and thereby brand building is done incorporating the elements. So today Amazon is become a brand not for its product but largely for the convenience and to some extent the cost.

Extending the whole idea to the rural development programs and FPO's. It would be very interesting that we apply some of the models we are discussing. it will be further illustrated at a later part of this write up.

So, products are good as long as customer sees them in solutions find them convenient to purchase and the values are well communicated and the product is bringing values that customer is willing to pay.

Dr. Philip Kotler in his book principles of marketing Management has advocated the word Value as another tool to understand the customer. He has gone to define value as the benefits that a product brings in comparison to the cost that the consumer pays or is willing to pay. He's very clear that customer doesn't mind paying as long as the benefits exceeds or equalizes the cost. He has further gone to elaborate these benefits and the cost. Benefits can be of several time Functional, monetary, Time, Effort, Emotional and psychic.

Quintessentially, the emotional benefit and the psychic benefit are the major operative in the value equation. A customer is willing to pay 150 thousand rupees for an I-Phone. The reason is not the communicative (Functional) benefit or Time or effort benefit that one would expect but it is the emotional value (The joy of owning a brand like I phone) and the Psychic benefit (of sense of superiority or Status among the peer group). In another example we can examine that consumer experience of tooth-paste is based on functional aspect and not so much on emotional and psychic benefit. We can conclude that human consumption of products and services is a complicated set and combination of factors.

Brand

Now from the above discussion and the definition of brand in the beginning of this article. We can Clearly, see that brand is more complicated concept than merely being a case of identity and

differentiation. As marketers we must we must recognize and build our brands keeping in mind these particular aspects.

While, so much has been said I would like to bring to the attention another complicated reason why eventually consumer buys a brand. The concept talks about lowering of risk. The consumer risk is of several times functional risk, monetary risk, physical risk, psychological risk etc. Eventually, the consumer picks up a brand over other products because the he or she wants to reduce different types of risk. By buying an unbranded or an unknown brand consumer faces the risk. We often purchase an expensive brand because we don't mind paying the premium or extra cost to ensure that we don't have the risk of that particular product not functioning and thereby losing my time and money.

This particular concept is critical in branding for both rural products and Farm produce. We can see that when consumer purchases products which are unbranded save vegetables or fruits, the consumer foresees a risk of whether the farm produce is guarantees safety of the consumer and its family.

Amul Model

Milk was a commodity just like any other. The Amul movement Having the objective of helping the farmer women folks Has become such a powerful brand. Consumer today trust the brand more than his own self wherein I mean to say earlier milk was purchased by the consumer only when the farmer would milk the cow in front of the consumer. The consumer has no worry today.

Commodities like rice salt have also been branded and we can see how consumer loves purchasing these brands. The preference is clearly in favor of the brand only to reduce the risk. The product may be the same but the brand brings in the guarantee.

Farm producer organizations need to understand this and the earlier concept and work towards a model of a brand. Now the brand has to become powerful which will take little time but is not impossible. Once the brand is created market communicated, we will see consumers favoring the brand against the purchase of unbranded commodities. In my opinion even potatoes and onions can be branded and must be branded. In Indian market where there are trust issues as consumers are different from what is there abroad.

The FPO MODEL

It is very well understood that FPOS and farmers in general in India face a daunting task of creating a brand. The reasons are several lacks of understanding, thin margins, a larger role of middleman.

There is a bigger challenge of farms and smaller land holdings. The land holdings are as small as an acre of land per few acres of land. The principle of Economies of scale just doesn't apply. The farmers cannot afford creating brands while they are barely managing to sell their products.

The solution lies again in the model created by Amul. Collective and cooperative branding. The printing can be created not by individual farmers or even for by the FPO itself. It would make more sense to create brands based on a complete distinct (Though it's not necessary the brand has to be in the name of the district but it might do also.) This model could be doable I hadn't yet and yet made so much sense for consumers because not only they are assured quality but definitely would see lowering of its risk in purchases of products which are branded.

Digital world

In the end I would like to talk about the digital world. As it has been already established that consumer is busy especially the urban consumer. They do not have time to go out make and make purchase us often all the members of the house are occupied and yet want to have quality ingredients and here I am referring to farm produce. So the way forward could be creating Amazon kind of model of distribution. The amazing thing is consumer now is experimented and is ready to experience newer brands as it sees and understands that there can be value in these brands too. So why they trust the old Tata Birla Brands. They also trust newer brands like Amazon, Flipkart or Ajio.

Creation of digital platform is very easy. Does not require much expertise as several of us create our own social media platforms like Facebook, Instagram, Twitter, LinkedIn etc. The challenge in the digital world remains only of three kinds one first creation of a website two of tying up with payment modules and the last are the most important is the marketing understanding. In my opinion there are several technical skill people who can create a website for you so I think that's not such a big challenge. Payment gateways have improved tremendously in India. The impetus given by government of India on digital payment has suddenly Remove the hurdles that were earlier there in make picking of digital payments.

The Marketing challenges

It is not difficult to see that marketing is marketing. Do I have to do something to be more visible? Yes. Will I have to learn search engine optimization? Yes, I will have to. Will I have to learn, what is the concept of click per pay, yes I will have to. Today professional who can aid right, guide

and make sure that the digital model for the farmers or the FPO's are created. It is a challenge but not an impossible one. It will lead some learning but not something which is not possible at all.

In the end, I can only say that the future of marketing is in the world of digital. I foresee the brick-and-mortar model being completely abandoned and move to digital. The real state cost, the commuting costs are too heavy and are good enough reason for everybody to move to digital marketing. Maybe baby steps have to be taken, some hand holding would be required and some guidance of experts would become essential but the future lies in creation of brands or digital brands for the FPOs.

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Chapter 7

National Agriculture Market (e-NAM)

Prabhal Pratap Singh

Ministry of Agriculture & Farmers' Welfare, Department of Agriculture & Farmers' Welfare (DA&FW) has mandated Small Farmers' Agribusiness Consortium (SFAC) as the Lead Implementing Agency of NAM. www.enam.gov.in

Email id - nam@sfac.in

National Agriculture Market is a pan-India electronic trading (e-trading) portal which seeks to network the existing physical APMCs through a virtual platform to create a unified national market for agricultural commodities. NAM is a "virtual" market but it has a physical market (mandi) at the back end. The NAM Portal provides a single window service for all APMC related information and services. This includes commodity arrivals, quality & prices buy & sell offers, provision to respond to trade offers and electronic payment settlement directly into farmers' account, among other services. While material flow (agriculture produce) shall continue to happen through mandis, an online market which aims at reducing transaction costs, bridging information asymmetry and help in expanding the market access for farmers.

Scheme Design:

Under the scheme a robust common e-market platform has been set up and deployed in 1361 regulated wholesale markets in 23 States & 04 Union Territories by March 2023.

Department of Agriculture, Cooperation & Farmers Welfare grants onetime fixed cost subject to the ceiling of ₹ 75.00 lakhs per Mandi for related equipment / infrastructure. Initially ₹ 30.00 lakhs per mandi was allotted as onetime fixed grant for computer hardware, internet facility, assaying equipment. While, additional ₹ 40.00 lakhs per mandi was sanctioned for creation of facilities such as sorting, grading, cleaning and packaging and for bio-composting unit per mandi ₹ 5.00 lakhs were allocated.

Besides providing free software to trade on e-NAM platform, one-year ground support for hand holding of the mandi staff is given. In addition, two trainings & awareness camps are organized for the benefit of farmers, Farmer Producer Organisations, traders, commission agents & mandi officials by the Strategic Partner.

Objectives of e-NAM:

The main objectives of the Scheme are:

- to promote better marketing opportunities for farmers/farmer producer organisations / sellers through online access to more buyers / markets, removal of information asymmetry between farmer and trader, better and real-time price discovery based on actual demand and supply of Agri-commodities, transparency in auction process, prices commensurate with quality of produce, online payment etc. that contribute to marketing efficiency;
- to establish quality assaying systems for quality assurance to promote informed bidding by buyers;
- to streamline marketing / transaction procedures and make them uniform across all markets to promote efficient functioning of the markets;
- to integrate regulated wholesale agriculture markets first at the level of the States and eventually across the country through a common online market platform, to facilitate pan-India trade in agricultural commodities;
- to promote stable prices and availability of quality produce to consumers.

Benefits to Farmers

a) Farmer can access the prevailing commodity prices information on e-NAM mobile application prior to even going to the mandi.

b) Farmer may see the live online bid value of their produce through mobile.

c) The details of final bid rate of commodity of farmer are received through SMS by Farmer.

d) Online payment gateway is available for transfer of bid value directly to bank accounts of the farmers.

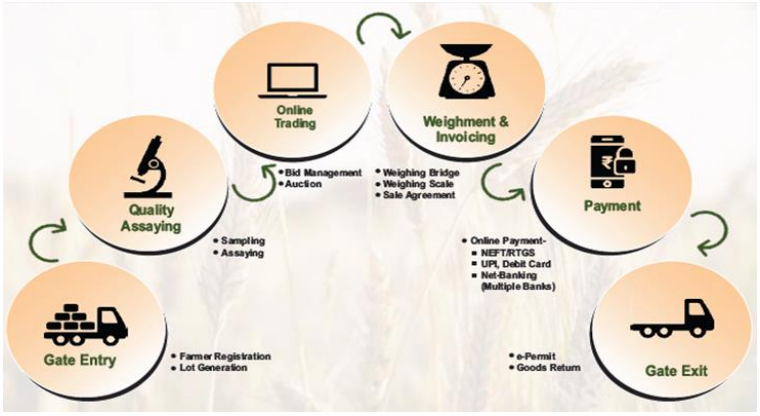
e) Facility of pre-registration of lot is available through mobile app., to facilitate quick gate entry of the lot, during peak season.

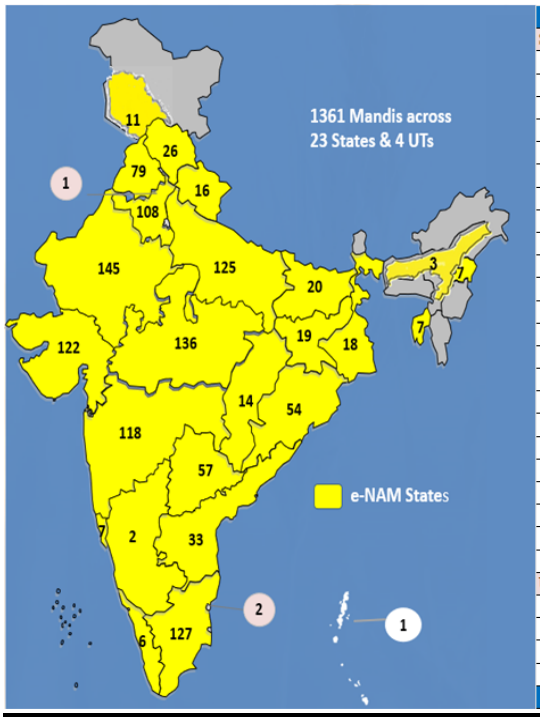
f) Farmers may sell their produce in more than one market.

g) e-NAM facilitates direct trade between buyers/ traders and farmers across the country.

h) Prices based on quality assayed parameters.

e-NAM Process Flow





S.No	State/UT	Mandis Integrated
States		
1	Andhra Pradesh	33
2	Assam	3
3	Bihar	20
4	Chhattisgarh	20
5	Gujarat	144
6	Goa	7
7	Haryana	108
8	Himachal Pradesh	38
9	Jharkhand	19
10	Karnataka	5
11	Kerala	6
12	Madhya Pradesh	136
13	Maharashtra	118
14	Nagaland	19
15	Odisha	66
16	Punjab	79
17	Rajasthan	145
18	Tamil Nadu	157
19	Telangana	57
20	Tripura	7
21	Uttar Pradesh	125
22	Uttarakhand	16
23	West Bengal	18
Union Territory (UT)		
1	Andaman and Nicobar Islar	1
2	Chandigarh	1
3	Jammu & Kashmir	11
4	Puducherry	2
	Total	**1361**

Key Features of e-NAM

1. Farmer friendly Mobile App:

i) Multilingual (12 languages)

ii) Geo-tagged e-NAM mandis to help farmers in locating the nearest e-NAM mandi in the 100 km radius along with last three days traded price of commodities

iii) Push notification

iv) Advance Gate Entry

v) Track Lot Progress

vi) Sampling and Assaying Facility

vii) Online Payment Facility for Trader

viii) SMS Alert on Receipt of Payment

2. Unified trading licensing system for inter State

This feature has been created for traders to apply for interstate trade license in their e-NAM Login to enable them to participate across e-NAM mandis in the country.

3. Discounts to Traders in mandi fee at the time of e-Payment

To incentivize the move towards a cashless economy, the various state Governments have come up with incentives of discounts on digital transactions. Thus, e-NAM introduced with Discount facilities on e-Payment. To avail the facilities, application administrator of the state can configure desired discount percentages in the application and in case of e-Payment mode selected by buyer; configured discount facilities will be automatically applicable in the transaction to avail such benefits in mandi fee while e-Payment.

4. Auto Sale Agreement

Auto sale agreement feature has been added to reduce e-NAM workflow execution time. This has benefitted in farmer's transaction waiting time.

5. BHIM payment facility

Currently e-NAM portal facilitates direct online payment to farmers through RTGS/NEFT, Debit Card and Internet Banking. Facilitation of Unified Payment Interface (UPI) through BHIM helped in easing out the payment to farmers by reducing the payment realization time from buyers account to pool account and in turn disbursal to farmers.

6. Website & Mobile App in 12 languages

Website & Mobile App has been upgraded enabling stakeholders from different geographic and linguistic regions to avail such benefits. Languages are – Hindi, English, Bengali, Marathi, Gujarati, Tamil, Telugu, Punjabi, Odiya, Dogri, Malayalam and Kannada.

7. Shopping Cart feature

This feature has been created to ease traders in choosing multiple lots from daily auction. Once chosen, a shopping cart would be created. Thereafter, trader may choose to make bid/ make payment accordingly.

8. Bunching of Multiple Invoices

This feature enables the trader to select multiple invoices and make single one-time payment for combined amount of all invoices, instead of selecting each invoice and completing the payment one by one. This has substantially reduced time for concluding trade online and provided smooth user experience to the stakeholder.

9. Part Payment Feature

Facility of part payment of invoice by the farmer/trader giving him the option of Full payment, Partial Online Payment with Mandi Fee, Partial Online Payment without Mandi Fee and Full Online Payment excluding Mandi Fee has been made available. This is a choice-based module and would be applicable as chosen.

10. Farmer Incentive Feature

This feature has been deployed enabling mandi to allow incentives to farmers for choosing online payment mechanism (% of Mandi fee), for promoting e-payments at their respective mandi. Successful pilot run done at Mandawari and Jodhpur Mandi in Rajasthan and is now available for all e-NAM mandis of Rajasthan.

New Initiatives on e-NAM

1. **e-NAM Platform of Platforms** – e-NAM Platform of Platforms (PoP) was launched on 14th August 2022 by Hon'ble Union Minister of Agriculture & Farmers Welfare, during State Agriculture & Horticulture ministers meet at Bangalore, Karnataka. Platform of Platforms (PoP) is a new framework developed under e-NAM ecosystem which aims to integrate various Service Provider Platform like Trading, Assaying, Transportation, Warehousing, Fintech, Market Information, Sorting and Grading, Agri Input & Advisory Services, which will enable Farmers, FPO, Traders, and other stakeholders to access larger market ecosystem through a single window.

2. **Coffee Table Book -** It was launched on 14th August 2022 by Hon'ble Union Minister of Agriculture & Farmers Welfare, during State Agriculture & Horticulture ministers meet at Bangalore, Karnataka. The Coffee Table Book (CTB) exhibits the attempt and journey of e-NAM in bringing transparency and efficiency in trading of agricultural produce in India through innovation and technology.

3. **e-NAM Blog** – A blog page has been created on e-NAM website to showcase achievements, news clips and events related to marketing and promotion of e-NAM.

4. **New features of e-NAM** – On the occasion of 'Bharat Ka Amrut Mahotsav' celebration & 5th Anniversary of e-NAM (14th April) Union Agriculture Minister launched the following new features of e-NAM:

a) IMD Weather Forecast for Mandis

Integration of Weather forecast information from Indian Meteorological Department (IMD) with e-NAM, providing minimum & maximum temperatures along with "current day" forecast for e-NAM mandis and nearby areas. This weather information will help farmers in planning farm operations and marketing decisions.

b) Real Time Price Dissemination System

'Market Information Page' designed as a single source of information providing farmers with the current price of the commodities being traded in e-NAM mandis of the respective states.

c) Cooperative Module

Cooperative Trading module facilitates Cooperatives to register themselves on e-NAM and to trade their produce directly from their collection centre / warehouses without bringing the produce to the APMCs.

d) e-NAM Directory

A directory with compiled information on e-NAM processes and respective mandi information.

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Chapter 8

Nutri-Cereals (Millets) Farmer Producer Organisations: Connecting Dots Between Consumers for Achieving Nutritional Security

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Millets are full of dietary fibre and nutrients and serve as a good source of vitamins, protein and micronutrients. Millets (Shri Anna) are group of small grained cereals having nutritionally rich grains cultivated at climate-resilient, hardy, semi-arid tropics, and low rainfall hence called as Nutri-Cereals. Agriculture is the mainstay of livelihood for about 60% of Indian rural households. The aggregation of farmers is the need of an hour as Farmer Producer Organizations (FPOs) to support farmers with the goal of bringing them together, maximising the effectiveness of work, strengthening the bargaining power, and supporting farmers in becoming the agricultural entrepreneurs. In the traditional supply chain of millets, farmers are not getting the remunerative prices for the millets because of existence of excess intermediates. To overcome the constraints faced by millet farmers, FPO will alter the existing supply chain and assures better prices to the produce and bring back the bargaining power of the farmers. ICAR-IIMR Millet model helps farmers to attain economies of scale, by developing business models for each of the FPOs based on the crops grown. This model will also help farmers to identify direct markets, marketing of produce in bulk & elimination of middle men.

Millets (Shri Anna) are group of small grained cereals having nutritionally rich grains cultivated at climate-resilient, hardy, semi-arid tropics, and low rainfall. Millet cultivation promotes sustainable agriculture and nutritional security. The broader classification of millets puts them into two groups – major and minor millets. The major and minor/small millets constitute Sorghum, Finger millet, Pearl millet, Little millet, Kodo millet, Barnyard millet, Foxtail millet, Proso millet and Brown top millet. Presently these crops are receiving renewed attention owing to their short duration, and distinctive capacity to yield even under poor and insignificant soils where other crops usually fail to produce any economic yield. They offer better crops under drylands especially in tribal agriculture contributing to food, fodder and nutritional security. Because of their superior nutritional qualities, the millets are called as “Nutri-Cereals”.

Why Millets?

Millions of the poorest people is still primarily rely on millet crops for their calories, protein, vitamins, and minerals. They are cultivated in harsh environments where the yield of other crops is less and grown with limited water resources, usually without application of any fertilizers or other inputs by a multitude of small-holder farmers. They are sometimes referred to as "coarse grain" or "poor people's crop" since they are mostly consumed by disadvantaged groups.

Health Benefits of Millets

Millets are full of dietary fibre and nutrients and serve as a good source of vitamins, protein and micronutrients. The millets are high in dietary fibre 15-20%, 7–12% protein, 2-5% fat, and 65–75% carbohydrates. Compared to other grains like maize, millet protein has a better essential amino acid composition. Millets are highly nutritious, non-glutinous, and acid-free foods. Millets can be also be used as a substitute for wheat or gluten containing grains for the celiac patients. By hydrating the gut, millets prevent us from constipation. Millets also have Niacin, which help in lowering the cholesterol. Compared to the fine cereals, millets are more nutrient-rich and mostly the small millets are good source of phosphorus and iron.

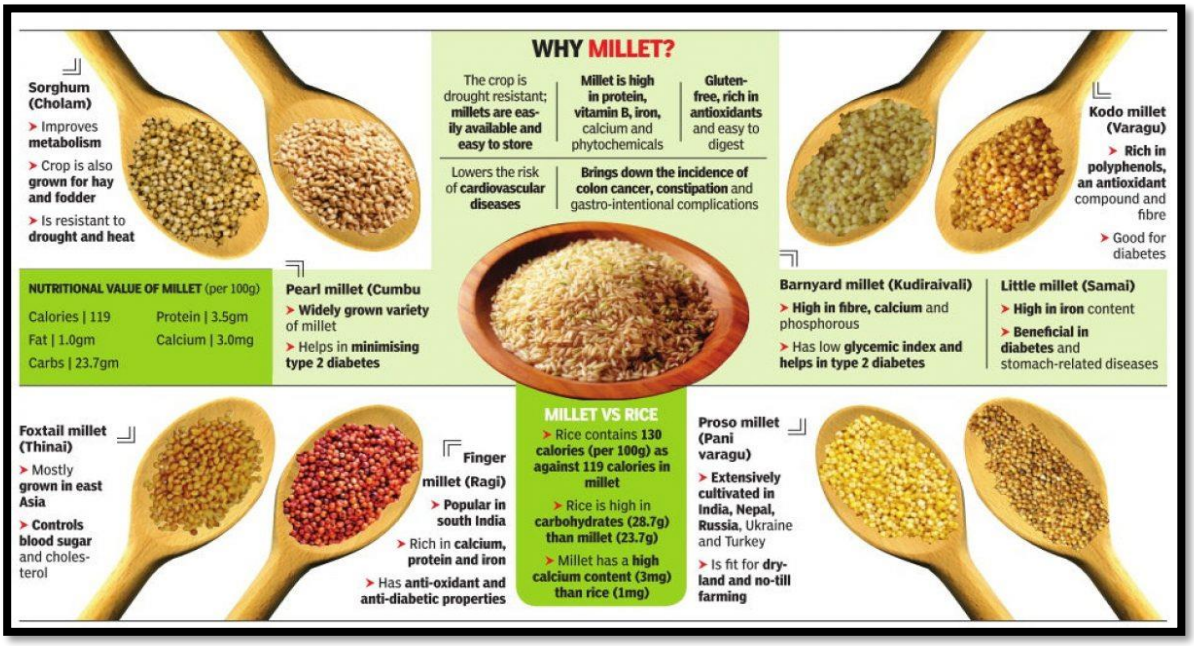

Fig. 1 Why Millets

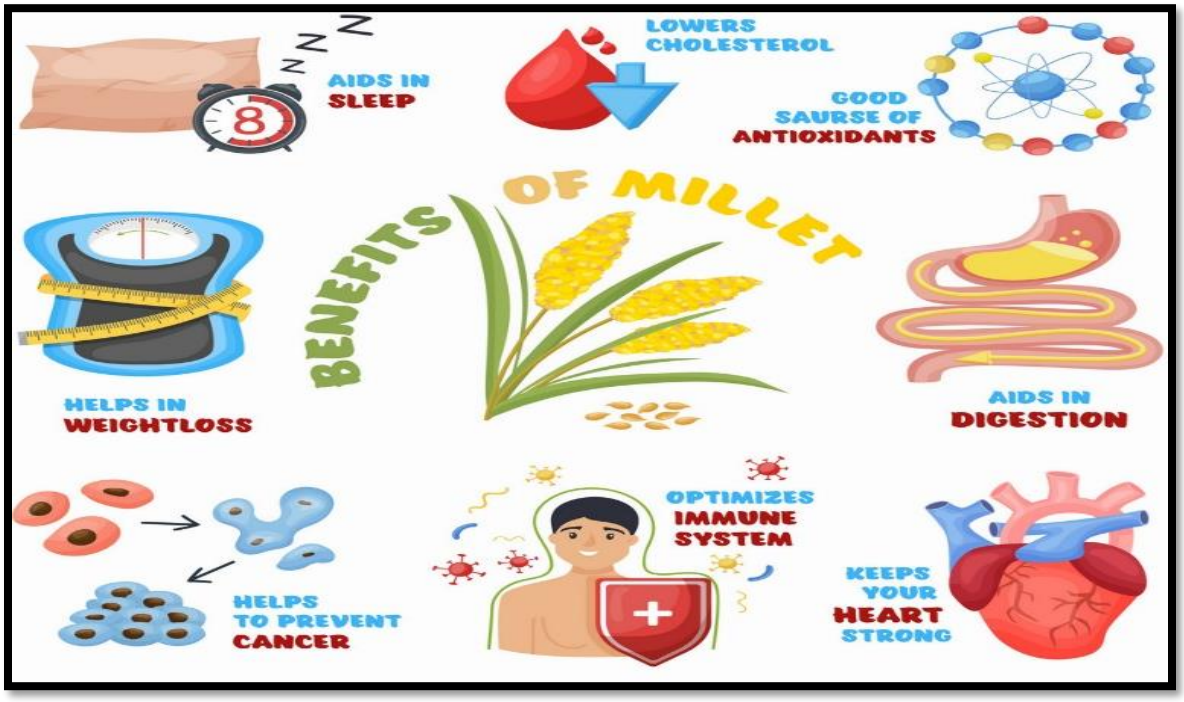

Fig. 2 Health Benefits of Millets

Millets in Ensuring Nutritional Security

Rising population is placing enormous pressure on the food security of most regions of the world and potential food security challenges are going to affect all the world residents, regardless of the location. During independence, traditional agriculture was followed where small Indian farms were protected by windbreaks, followed organic husbandry, crop rotation and leave fields fallow for long periods to allow soil to retain its nutrients. These practices lowered the demand on land and maintained soil equilibrium. The crops grown were Rice, Millets, Sorghum, Wheat, Maize, Pearl millet and barley. In traditional agriculture production of rice and millets were higher than wheat, barley and maize.

Afterwards, the green revolution came in the country which increased the production of rice, wheat, pulses and other crops leading to the self-sufficiency of food in the country. High Yielding Varieties increased the growth rate of food-grain output from 2.4% per annum before 1965 to 3.5% after 1965. Initially, major increase in food grain production increased because of wheat. It increased from 50 million tonnes in 1950 to 79 million tonnes in 1964, 95.1 million tonnes in 1968 and later to 308.65 million tonnes (2020-21). During this time, crop productivity increased by application of chemical fertilizers, pesticides and using groundwater resources. Mismanagement and overuse of chemical fertilizers, pesticide and lack of crop rotation led to infertile soil and loss

of groundwater that increased expenditure on crop cultivation and made farmers more miserable. The impact of green revolution resulted in our diet also. Finer cereals and processed foods took place in diet that resulted in deficiency of the Iron, Zinc, Calcium, Vitamin A, and Riboflavin causing anaemia, night blindness and infertility. Indian diets based on cereals and pulses are qualitatively deficient in micronutrients. Crops consumed by humans earlier became fodder crops in post Green Revolution era.

According to the fourth advance estimate released by Directorate of Economics and Statistics (2020-21), the total area covered under Nutri/ coarse cereals is 23.83 million ha, while, the total production produced under Nutri/coarse cereals is 51.15 million tonnes, with productivity of 2146 kg ha-1. Millets play a pivotal role in nutritional security. They are often referred as 'Nutri grains' since they are the sources which are rich in protein, micronutrients, minerals and B-complex vitamins. They are good source of sulphur containing amino acids viz., methionine and cysteine, dietary minerals (Ca, Fe, Zn & P). Finger millet contains nine to tenfold higher calcium than others. Barnyard millet contains highest amount of crude fibre among the cereals. Per 100 gm of pearl millet contains 11g protein, 11.5 g dietary fibres, 5.4 g fat and 62g carbohydrates. Considering the significance of these nutritious small grain crops, the U.N. General Assembly declared 2023 as INTERNATIONAL YEAR OF MILLETS put forward by India supported by more than 70 other countries.

Table 1: Nutrient composition of millets per 100g

Grain/ nutrient	**Bajra**	**Jowar**	**Ragi**	**Foxtail millet**	**Proso millet**	**Barnyard millet**	**Kodo millet**
Energy	361	349	328	331	341	397	309
Protein (g)	11.6	10.4	7.3	12.3	7.7	6.2	8.3
Fat(g)	5.0	1.9	1.3	4.3	4.7	2.2	1.4
Calcium(mg)	42.0	25.0	344	31.0	17.0	20.0	27.0
Iron(mg)	8.0	4.1	3.9	2.8	9.3	5.0	0.5
Zinc(mg)	3.1	1.6	2.3	2.4	3.7	3.0	0.7
Thiamine (Vit. B1) (mg)	0.33	0.37	0.42	0.9	0.21	0.33	0.33
Riboflavin(Vit.B2) (mg)	0.25	0.13	0.19	0.11	0.01	0.10	0.09

Folic acid (mg)	45.5	20	18.3	15.0	9.0	-	23.1
Fibre (g)	1.2	1.6	3.6	8.0	7.6	9.8	9.0

(Source: NIN, 2017)

Farmer Producer Organisations (FPOs)

Agriculture is the mainstay of livelihood for about 60% of Indian rural households. The aggregation of farmers is the need of an hour, as they are cultivating in a small patch of land, which is not economical to purchase inputs and market their produce. However, the green revolution has improved the production and productivity of major food crops like, Wheat and Paddy in India, this has enabled the country to overcome widespread hunger and starvation, further was successful in achieving self-sufficiency in food. Despite of this, it is still observed that, malnutrition, undernutrition, hidden hunger and obesity among the people, which is due to the deficiency of micronutrients, vitamins and other essential components in the food system. Hence, the demand for nutri-cereals or millets is raising in the market for their nutritional value and capacity to combat the lifestyle ailments. **Farmer Producer Organizations (FPOs)** are the farmers' collectives, formed by the farmers to support themselves with the goal of bringing farmers together, maximising the effectiveness of work, strengthening bargaining power, and supporting farmers in becoming the agricultural entrepreneurs.

Government of India aims to create and promote 10,000 new FPOs across the nation, amounting to a total investment of Rs. 6865 crores, The shareholders number ranges from 300 and 1000 farmers. Majority (60.00%) of the farmers in India rely on rain-fed farming, and the millets cultivation suits to their Agro-climatic conditions. To its members, the FPO will provide a wide range of services and offers almost end-to-end services to its members, addressing nearly all aspects of cultivation (from inputs, technical assistance, to processing, and marketing). The FPO will establish linkages between farmers, processors, traders, and retailers in order to coordinate supply and demand and to get access to key business development services including input supplies, market information and transport services.

What is FPO?

- A producer company is basically a corporate entity that has been incorporated under the Companies Act, 1956 (as amended in 2002), as a Producer Company. Production, harvesting, processing, procurement, grading, pooling, handling, marketing, selling, exporting the principal products of the members, or importing products or services for their advantage, are

its key operations. In addition, it also includes, promoting mutual aid, welfare activities, financial services, and insurance for producers or their primary produce. According to the Proviso to Section 465(1) of the Companies Act, 2013, states that provisions of Part IX A of the Companies Act, 1956 shall be applicable mutatis mutandis to a Producer Company in a manner as if the Companies Act, 1956 has not been repealed until a special Act is enacted for Producer Companies.

Main Objectives of FPOs

The objectives of producer companies include

- Production, harvesting, purchasing, classifying, pooling, handling, marketing, selling, exporting primary produce of members or importing goods or services for their benefit
- Processing, including the preserving, drying, distilling, brewing, venting, canning, and packaging of the produce of its members
- Rendering technical support, consultancy services, training, education, research and development, and all other activities for the promotion of the interests of its members
- Manufacturing, selling, or supplying machinery, equipment, or consumables primarily to its members
- Generation, transmission, and distribution of power; regeneration of land and water resources; their use; conservation of these resources; and communications relating to primary products
- Promoting mutual support, welfare measures, financial services, and insurance of producers or their primary produce

MILLETS Based FPOs Promoted by ICAR-IIMR

With the above background its conceptualized to form a Nutri cereal based FPOs to support millet farmers. ICAR- IIMR prepared a detail project proposal on formation of 50 FPOs on Millets under Sub- mission of Nutri cereals of National Food Security Mission (NFSM) and submitted to Department of Agriculture, Cooperation & Farmers Welfare, Govt. of India. Further, Department convinced and sanctioned formation of 50 new FPOs on nutri-cereals through Small Farmers Agri Business consortium (SFAC). It was also decided by DAC & FW to allot 6 FPOs to ICAR-IIMR, Hyderabad to create Model FPOs in Millets in the six districts of four states viz., Koppal and

Bagalkot districts in Karnataka, Anantpur and Vishakhapatnam districts in Andhra Pradesh, Mahabubnagar district in Telangana and Dindori district in Madhya Pradesh. These FPOs will be supported in the terms of Millets Production Technologies, Millet's value-added Technologies and Market linkages for enhancement of farmers' income.

ICAR-IIMR is acting as CBBO for 41 millet FPOs in four states vis., Andhra Pradesh, Karnataka, Telangana and Madhya Pradesh. Through its FPOs ICAR-IIMR promoted the millets model for providing better market linkages, subsidised inputs, CHCs, capacity, buildings etc. As a CBBO, IIMR is organizing capacity-building programs for BoDs and CEOs of newly formed FPOs further helping them in infusing the same skills to its shareholders. It is also supporting FPOs to connect to line departments of the state to avail the facilities and support. To transform farmers and their organization into business entities, IIMR has trained FPOs to undertake processing and value addition of millets and connecting to markets to sell their raw as well as the value-added products. An effort was also made by IIMR to connect FPOs to e-marketing channels like e-NAM, ONDC and GeM (Government e-Market) to sell their products directly to the intended consumers. The formation of FPOs can harness better profit from the small and marginal farmers by way of its collective approach.

Traditional Supply Chain of Millets vs FPOs Intervened Supply Chain

In the traditional supply chain of millets, farmers are not getting the remunerative prices for the millets because of existence of excess intermediates. Farmers were not linked to markets directly in the existing supply chain as the quantum of produce available with the farmers is less and the transportation costs remains high. So, to overcome this constraint farmer as a collective (FPO) will alter the existing supply chain and assures better prices to the produce and bring back the bargaining power of the farmers.

A supply chain is a network between a company and its suppliers to produce a specific product and distribute it to the buyers. The supply chain mechanism includes producers, vendors, warehouses, transportation companies, distribution centres, and retailers. The main functions involved in the supply chain model are, marketing, operations, distribution, finance, product development and customer service.

Fig. 3 Traditional Millet Supply chain vs FPO Intervened SCM

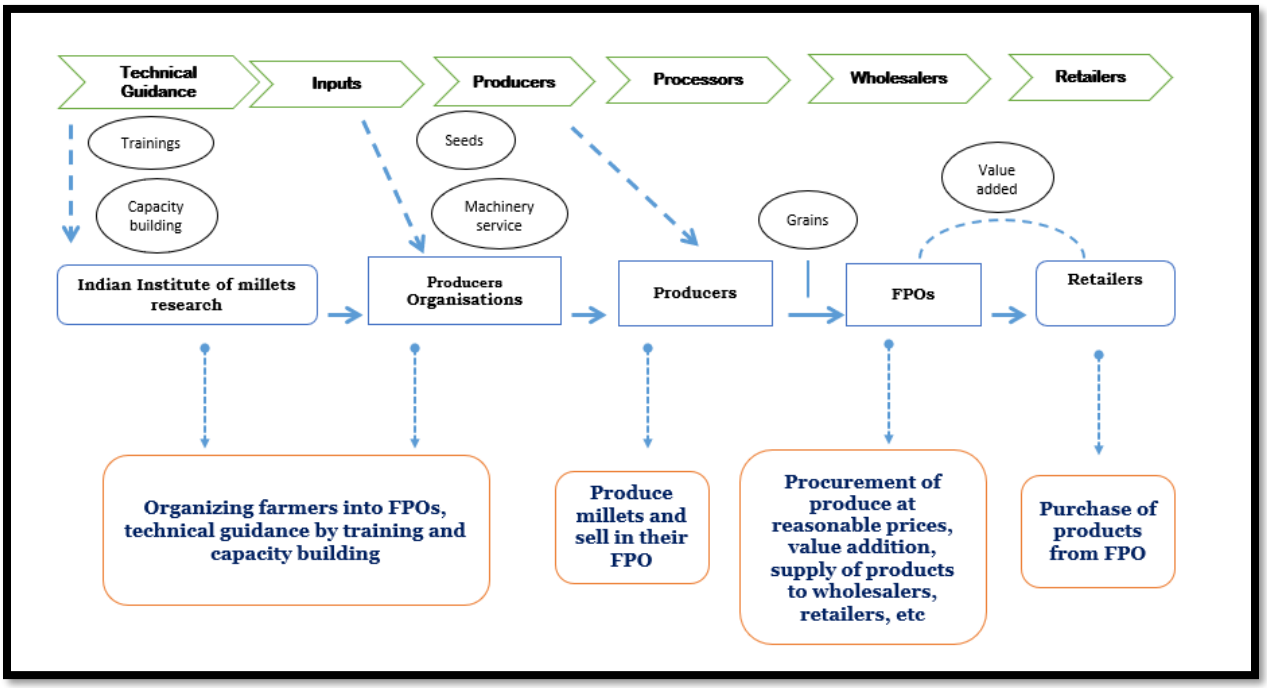

Fig. 4 Supply Chain of Millets and FPOs

Due to the existence of more intermediaries in the prevailing millets supply chain, farmers are not receiving fair pricing for their millets. Farmers were not linked to markets directly in the existing supply chain as the quantum of produce available with the farmers is less and the transportation costs remains high so to overcome this constraint farmer as a collective (FPO) will alter the existing supply chain and assures better prices to the produce and bring back the bargaining power of

farmers. This millets model will help FPOs to look into various businesses like primary processing unit, millet value addition, seed entrepreneur, millet aggregator, retail business, confectionary industry, millet hotel business, business models with FPOs, exporting millets and e-commerce activities.

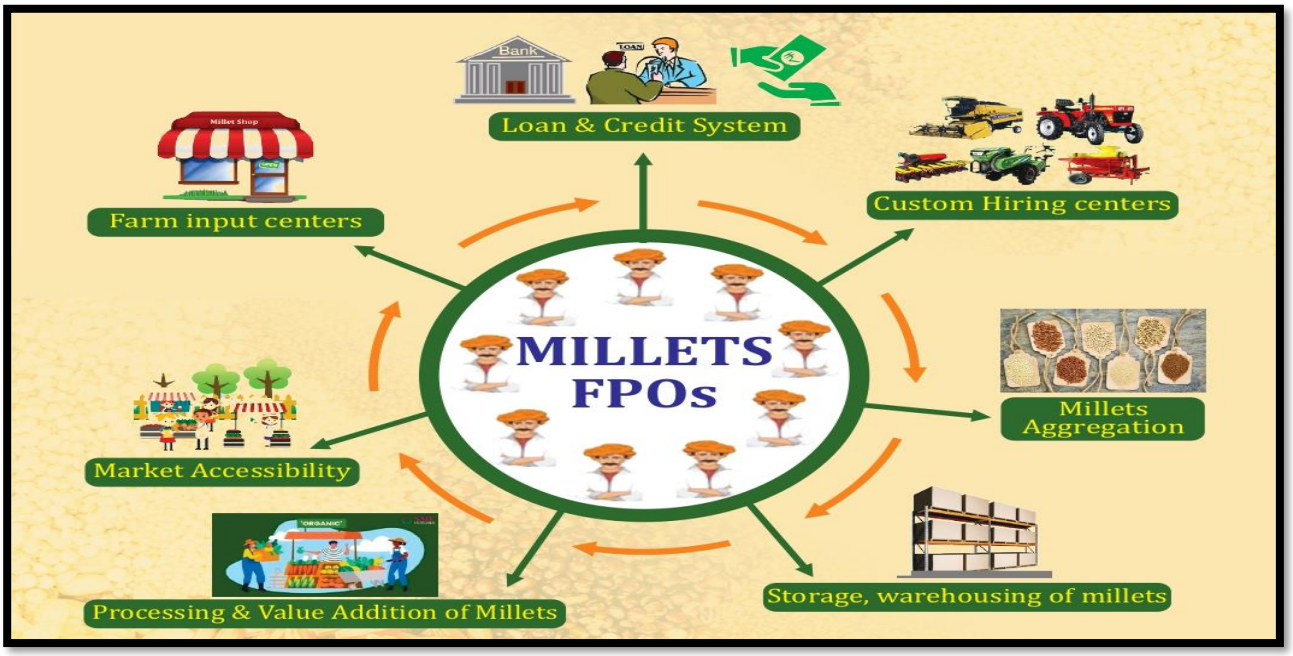

Fig. 5 Millet Farmer Producers' Organisation

Role of the Millet FPOs in Agriculture

1. Supply high-quality production inputs at affordable prices, such as seeds, fertiliser, insecticides, and other inputs
2. Offer custom-hired manufacturing, post-production machinery and equipment to members based on need to lower per-unit production costs
3. Provide facilities for value addition, such as cleaning, sorting, grading, packing, and farm level processing, on a user-pay basis and at a lower cost. The provision of storage and transportation facilities is also possible
4. Engage in higher-paying jobs like mushroom farming, beekeeping, and seed production.
5. Aggregate smaller lots of produce produced by farmer-members; adding value to increase their marketability
6. Facilitate the market knowledge needed to make informed manufacturing and marketing decisions

7. Provide logistics services, including loading and unloading, transportation, and storage, at a reduced cost
8. Offer better and more lucrative prices when marketing the combined produce to customers and through marketing channels.
9. Bargaining power is with farmers
10. Directly linked to markets by eliminating the middle men

Conclusion

Millets (Shri Anna) are group of small grained cereals having nutritionally rich grains cultivated at climate-resilient, hardy, semi-arid tropics, and low rainfall hence called as Nutri-Cereals. FPOs are connecting vehicles between producer and final consumers along with all the value chain, financial institutions, and research institutions to reap the economies of the scale. The collective purchase of the required inputs, collective packaging, transportation, value addition will reduce the cost of the each of the farmers and the collective marketing of their products will fetch better price than the farmers selling individually. Through this millet model FPOs can come out with the varieties of value-added millet-based products by creating their own brand to trade their products in the market. These FPOs can be replicated in all the districts of the country to support the cultivation of millets, which are now in high demand for various health benefits. Cultivation of millets will assure farmers in both food as well as nutritional security, apart from in improving their financial conditions. Millet model helps farmers to attain economies of scale, by developing business models for each of the FPOs based on the crops grown. This will also help to identify markets, creating a unique platform for collective purchase, marketing of produce in bulk & elimination of middle men. Through this Millet model, better market linkages exist between the members of FPOs - Food Industries-Organizations-Startups-Millet Entrepreneurs.

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Chapter 9

Strengthening Farmer Participatory Value Chain in Onion: Opportunities for FPOs

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Around the world, agriculture is seen as a potential force for sustainable development and poverty eradication. In agriculture, integrated market systems or chains are quickly replacing fragmented production and marketing ties. Agri-food systems are rapidly changing in India as well, and the emergence of integrated food supply chains is a noticeable shift in the market. In all supply chain areas, a growing emphasis on processing, trading, marketing, and retailing is visible. The conventional methods of food production are being replaced by ones that are more in line with manufacturing techniques, with better coordination between farmers, processors, merchants, and other value chain participants. Additionally, customer demand for convenience foods including frozen, pre-cut, pre-cooked, and ready-to-eat goods is growing as a result of demographic and income trends. Systems for production, processing, and distribution are therefore changing to reflect such changes.

Onion is a significant horticultural commodity which is grown worldwide for culinary as well as medicinal purposes. The world's annual production of onions now amounts to 106.6 million tons. The main producers are India, China and the United States. Onion is one of the most market-sensitive products and is also (reportedly) the vegetable most consumed in India. Due to its large role in diets across all economic brackets and its role as a key component in the majority of Indian cuisines, any significant price shift has broad-reaching consequences. The state of Maharashtra produces the most onions in the nation and is also home to some of the largest onion mandis, including Pimpalgaon and Lasalgaon in the Nashik district (Setiya & Muthuselvan, 2018).

1. Current Status

India is the largest producer of onion in the world. The onions from India are famous for their strong flavour. In the country, onions are grown in two crop cycles. The first harvest is between November and January and the second harvest is from January to May. Maharashtra, Karnataka,

and Madhya Pradesh are the three top onion producing states of the country. India's diverse climate ensures availability of all varieties of fresh fruits and vegetables. It ranks second in fruits and vegetables production in the world, after China. As per the data published by MoA & FW 2021, India produced 266.41 lakh tonnes of onion in an area of 16.24 lakh ha, with a productivity of 16.4 ton/ha during 2020-21. Although largest onion producer in the world, relative stagnation in onion productivity is still a challenge to the researchers. One of the major reasons may be because 98% of domestic market in India is unorganized. When it comes to the onion export, India is the 2nd largest exporter with 12 % of Market Cap. According to MoA & FW, in the year 2020-21, India has exported 15.37 Lac MT which is worth 449.5 MUSD.

Table 1: Onion Export Status of top 5 exporting countries (in USD M$)

Country	Share in Export Value 2021	Export Value 2021, USD	1-Year Growth in Export Value 2020-2021	3-Year Growth in Export Value 2018-2021
Netherlands	19.23%	$743.16M	-8.86%	+9.38%
India	11.63%	$449.50M	+29.61%	+7.09%
China	11.28%	$435.89M	-12.04%	-14.51%
Mexico	11.12%	$429.48M	+3.49%	+11.01%
United States	6.84%	$264.21M	+5.51%	+13.90%

(Source: FAOSTAT 2021)

In last two decades where area, production and productivity had increased by 3 times, 5 times and 1.6 times respectively, export quantity and value has also made a huge leap i.e., 3 times increase in the quantity and 10 times increase in the value of the export. The flow of the onion is mostly destined to South Asian countries and gulf countries only, we are still unable to make a good export market in the USA and European countries where we can get good prices for the crop, it is due to the preference of Milder and Long day onions by European countries which causes a major constrain to export of Indian onion to Europe. Therefore, exploration and cultivation of long-day onions in temperate regions of India should be prioritized.

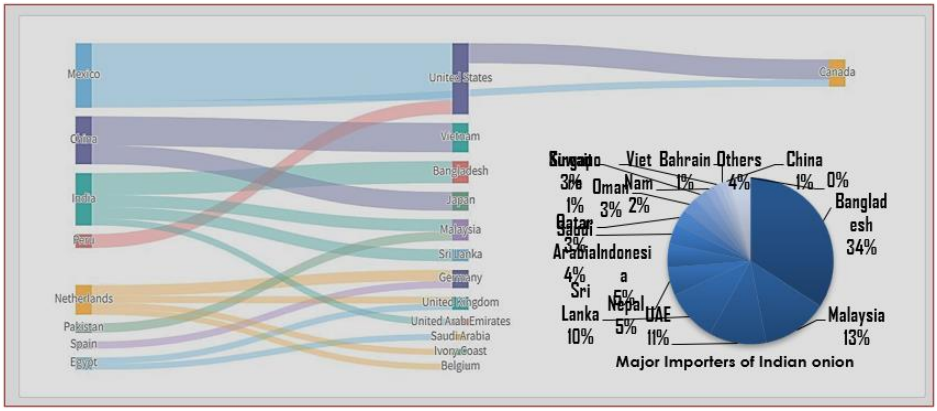

Fig. 1 Flow of Onion Export (*Source: FAOSTAT & MoA & FW 2021*)

2. Onion production scenario of India

In recent years, onions have become one of the high value crops in India with quickest growth rates (Ghosh *et al*., 2022). With an output of 26.6 million tonnes and an area of 1.6 million hectares, India is the largest producer of onions (MoAFW GOI, 2020). The states of Maharashtra (39%), Madhya Pradesh (17%), Karnataka (10%), Gujarat (6%), Rajasthan (5%) and Bihar (4%) account for more than 80% of the nation's total onion production. The yearly consumption of onions in India is around 205 lakh tons in 2017-18 (MOAFW GOI, 2018). Since establishment of ICAR-DOGR, production of garlic in India has increased more than five times and productivity is almost doubled.

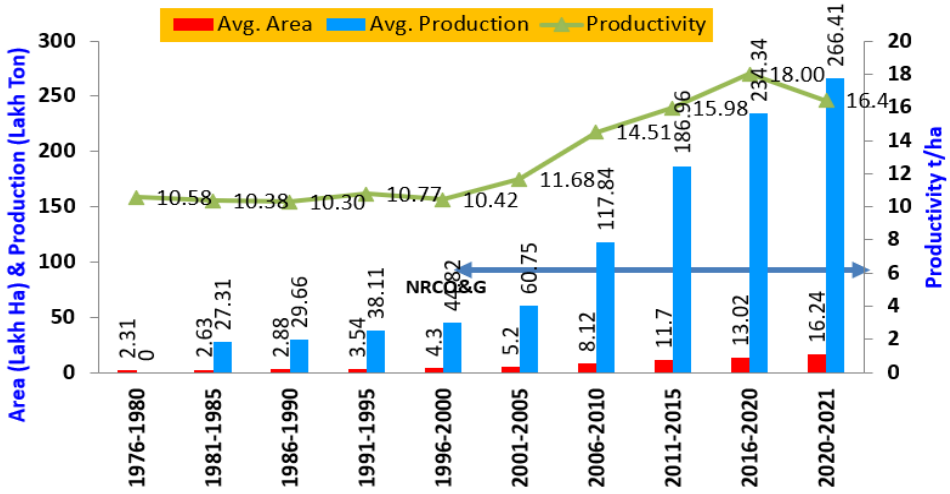

Fig. 2 Trends All India area and production (1976- 2021) trends of onion (*Source: MoAFW, GOI*)

According to the data of MoAFW, GOI, 2020, the state of Maharashtra shared 43.3%, highest area under onion cultivation in '000 ha with production share of 39.3% in '000 MT and highest productivity of 28.48% by the state of Haryana.

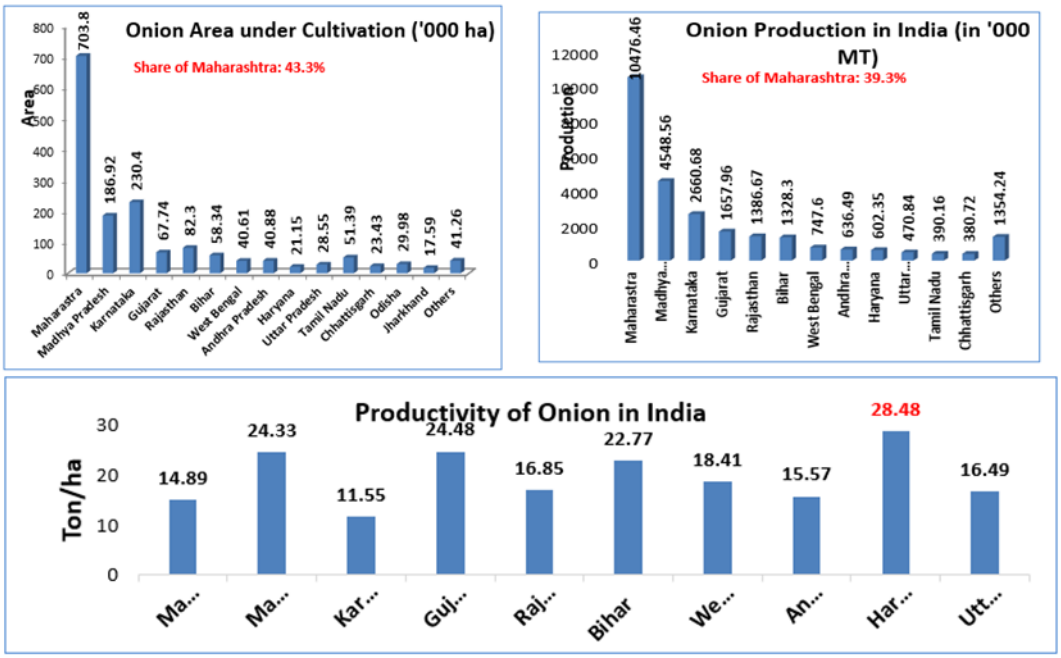

Fig. 3 Area, Production & Productivity of onion in India (*Source: MoAFW, GOI*)

3. Export of Onion processed products

India accounts a **31.1 %** share of total export of onion based processed products earning **1588.91 lakh USD** foreign currency**.** The market size of onion processed product was **233.84 thousand tonnes** in year 2021. Asia's largest plant of onion dehydration is **Jain Food Park** in Jalgaon Maharashtra. India's 90 % dehydration industries are located in Gujarat state. A strong export supply chain with 130 Plants, 85 Cost storages have been developed in Bhavnagar.

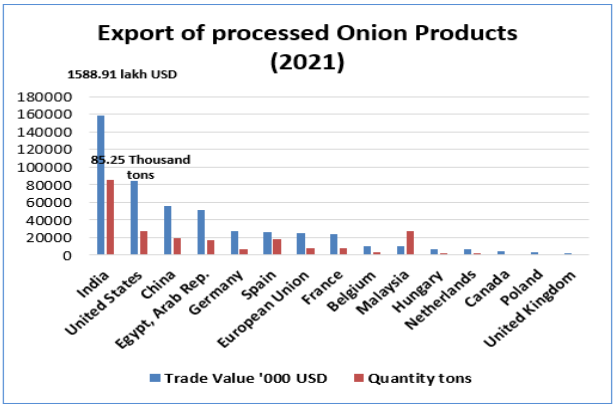

Fig. 4 Export of Onion processed products (*Source: WITS 2021*)

4. Onion availability and price fluctuation

In addition to being grown in a variety of Agro-climatic conditions, onions are grown in three distinct seasons: *Rabi* (December-January planting, post-March harvest), *Kharif* (June-July sowing, post-October harvest), and late *Kharif* (September sowing, post-December harvest). One of the reasons for the high price fluctuation could be the seasonality of their production. The winter crop, or *Rabi*, accounts for about 67% of all onion output, followed by the *Kharif* crop (23%), and the late *Kharif* crop (10%). The seasonality in production is presumably to blame for the higher prices towards the end of the year and the lower prices throughout the summers. Due to the fresh arrival of *Rabi* onions in the market, onions are most affordable from April to July. After July, a progressive drop in onion supplies causes prices to increase along with the rotting and sprouting of stored onions, growers' inability to hold onto their crop, and unrestricted exports. Despite the fact that *Kharif* onions typically arrive in October through December, poorer production due to excessive rain and water stagnation, disease outbreaks, and poor storability lead to an acute scarcity of supply, which causes prices to soar during October to December (Ghosh *et al*., 2022). Storage of onion with minimum storage losses & *Kharif* Production play a crucial role in stabilizing the onion prices.

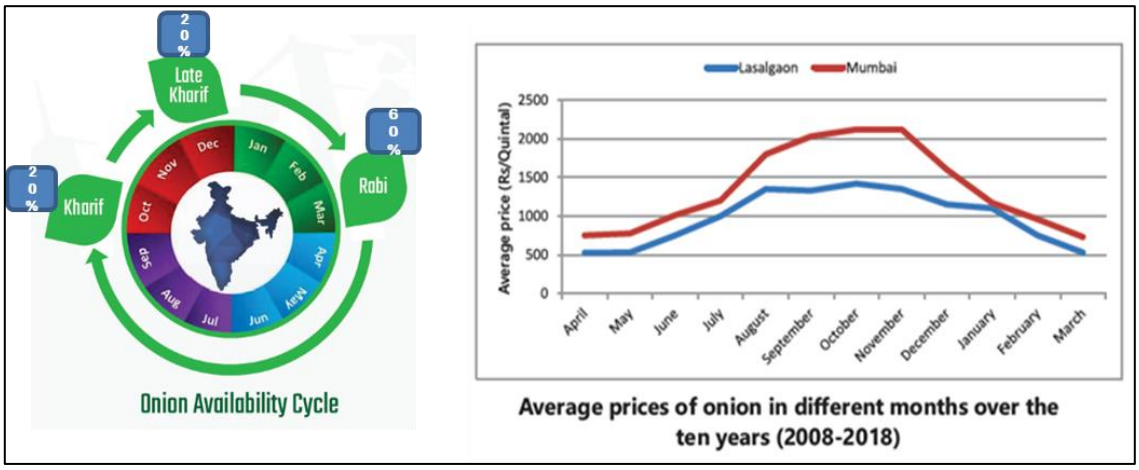

Fig. 5 Onion availability cycle and price fluctuation graph

5. Agricultural Value Chain

A value chain is not an object or thing which can be seen. A value chain is simply a practical way to comprehend how the world of making, acquiring, and selling goods operates. As stakeholders including producers, consumers of goods and services, processors, merchants, financial providers, etc., we are all involved in value chains in some capacity. We are all consumers who buy food and clothing, and as a result, we are connected to the numerous value chains, including those involving grain crops, roots and tubers, fruits and vegetables, legumes, oils, and textiles. From the producers

to our kitchens, dining tables, apparel, and beyond, these networks extend. The producers, or the farmers who raise crops, are at one end of the agricultural value chain. In other words, an agricultural value chain can be defined as people and processes involved in the fundamental agricultural commodity like onion for bringing it to market through steps like processing, packaging, and distribution. These people and processes are referred to as "agricultural value chain."

The final users of the products are the consumers who consume them. Numerous thousands of men and women, as well as small and major organizations, are situated in the middle. Each individual and company completes a single tiny task and contributes value along the route by cultivating, purchasing, selling, processing, moving, storing, inspecting, and packaging.

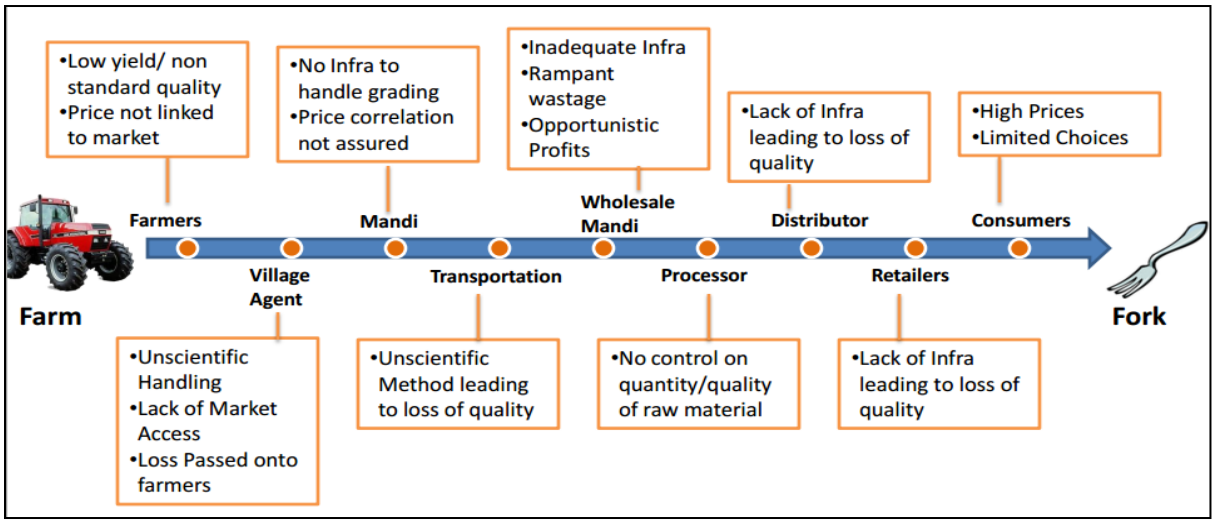

Fig. 6 Challenges of inherent Farm to Fork Food Value Chain in India

Existing Value Chain in India

From production to consumption, India's agricultural value chain is a multistage, complicated system (Vaghela and Thaker, 2022). The main elements of India's current agricultural value chain are listed below:

a. **Input suppliers**: Farmers receive agricultural inputs from input suppliers, including seeds, fertilizer, herbicides, and machinery. These providers include seed suppliers, fertilizer producers, pesticide producers, and producers of agricultural machinery.

b. **Farmers and Producers**: In India, the agricultural value chain is centered on farmers. They raise livestock, cultivate crops, and create agricultural products. In India, smallholder farmers predominate, although there are also commercial farmers and large-scale farmers.

c. **Primary Market/ Consolidator**: Following harvest, farmers deliver their harvest to the primary market, which may be a village-level collecting centre or a nearby wholesale market. Here, produce is bought from farmers by traders, commission agents, and intermediaries, frequently at auction.
d. **Traders and Commission Agents**: In the primary market, commission agents, play a vital role. They serve as a bridge between farmers and consumers, speed up business transactions, extend financing, and manage logistics. Traders buy agricultural products from the primary market to distribute further.
e. **Secondary Market/ Wholesaler**: Wholesale marketplaces, mandis, and agricultural produce market committees (APMCs) are all parts of the secondary market. These markets act as important commercial centers where large purchases and sales of agricultural products are made. They aid in price discovery and are governed by state governments.
f. **Processors**: Food processing businesses transform agricultural items such fruits, vegetables, cereals, and dairy goods. Raw agricultural resources are processed into value-added goods including dairy, packaged foods, beverages, and oils.
g. **Retailers and Distributors**: Retailers, such as supermarkets, grocery stores, and small-scale sellers, get processed items from distributors. The final link in the value chain, retailers are responsible for selling agricultural products to customers.
h. **Exporters**: India is a significant exporter of agricultural products. Exporters acquire agricultural goods, such as grains, spices, fruits, and vegetables, from different links in the value chain and ship them abroad.
i. **Consumers**: The agricultural value chain is not complete without the final users. They buy agricultural items to consume, either as raw materials or as finished things.

The agricultural value chain in India is complex and varies among areas and commodities, which is a crucial point to make. In addition, there are continuous initiatives to reform and develop the agricultural value chain in the nation, such as the use of digital platforms, e-marketing, contract farming, and the formation of farmer producer organizations (FPOs) to improve farmers' access to markets and revenue.

FPO based farmer participatory value chain of onion

An FPO (Farmer Producer Organization) based value chain of onion involves various stages, from production to consumption, where the FPO plays a pivotal role in ensuring the smooth functioning of the entire process. FPO based farmer participatory value chain development involves the active

engagement of farmers in the various stages of the value chain, from production to consumption. For onions, this approach can be highly beneficial in ensuring that farmers have a significant role in decision-making and benefit directly from the value created along the chain. Below is a general outline of how a farmer participatory value chain development for onions might be structured:

***i. Production Stage*:**

Participatory Planning: Encourage farmers to actively participate in planning production strategies, including the selection of onion varieties, suitable cultivation practices, and the use of appropriate technologies.

Training and Capacity Building: Provide regular training programs to enhance farmers' skills in areas such as seed selection, soil management, irrigation, and pest control.

Access to Inputs: Facilitate access to quality seeds, fertilizers, and other necessary inputs at reasonable prices through cooperatives or collective purchasing arrangements.

ii. Harvesting and Post-Harvest Handling:

Harvesting Techniques: Educate farmers on best practices for harvesting onions to ensure minimal damage and maximum preservation of quality.

Storage Facilities: Encourage the establishment of community-based storage facilities equipped with adequate ventilation and temperature control to minimize post-harvest losses.

Value Addition: Promote the development of small-scale processing units for activities such as sorting, grading, and packaging, adding value to the final product.

iii. Marketing and Distribution:

Market Information: Facilitate the provision of timely market information to farmers, enabling them to make informed decisions on when, where, and how to sell their produce for the best prices.

Formation of Farmer Collectives: Encourage the formation of farmer cooperatives or associations to strengthen bargaining power and facilitate direct access to markets, thereby eliminating the need for intermediaries.

Linkages with Buyers: Foster direct linkages between farmers and buyers, such as retailers, processors, or exporters, to ensure fair prices and stable market access.

iv. Policy and Advocacy:

Representation: Empower farmer groups to advocate for policies that support their interests, such as access to credit, infrastructure development, and fair trade practices.

Government Support: Collaborate with government agencies to implement supportive policies for the onion sector, including initiatives for infrastructure development, research and development, and market access.

v. Monitoring and Evaluation:

Data Collection: Implement a robust system for collecting and analyzing data on production, market trends, and farmer income to assess the impact of interventions and make informed decisions.

Feedback Mechanism: Establish mechanisms for obtaining feedback from farmers, incorporating their suggestions and addressing their concerns to continually improve the value chain development process.

By actively involving farmers at each stage of the value chain, the farmer participatory approach can contribute to the sustainable development of the onion sector, fostering improved livelihoods and a more resilient agricultural system.

6. Modern Onion Storage: Opportunities for FPOs

India is the largest producer of onion in the world. However, the bulk handling of onions and the storage of bulbs for 5-6 months is cumbersome. Losses of fresh onion in storage have been reported to exceed 25-30% (Chadha and Sidhu, 1990). Taking into account the high likelihood of reduced freshness and declining quality, both crops need to be disposed of quickly in both domestic and international markets. Moreover, the supply chain for processing and value addition must also be addressed. Modern onion storage facilities can present Farmer Producer Organizations (FPOs) with a variety of advantageous prospects. FPOs can improve the quality and market value of their onion produce, lower post-harvest losses, and enhance the onions' shelf life by implementing cutting-edge storage techniques.

ICAR-DOGR in collaboration with Kala Biotech Pvt. Ltd. has developed a controlled onion storage structure for onion and other agricultural commodities which various features.

The Centralized / Hired storage facilitation:

- The controlled atmosphere (CA) storage structure carries an individual unit of bean of four cells of 12.5 tons capacity each.
- So, it can be advanced to the farmer who has 12.5 tons and more of onions in exchange of fees
- It has an operating cost of **0.60 rupees/kg /month**.
- A fully operatable model consists 2000 to 2500 tons capacity with multiple beans carrying 50 tons onions each.

Fig. 8 Controlled Onion Storage Structure at Kala Biotech

It may be useful for:

- FPO level farmers can collectively construct CA structure to raise a centralized storage for themselves.
- For which FPCs, FPOs or cooperative approaches can be implied.
- It can be a sole enterprise facilitating storage to the farmers in the vicinity or bulk storage to the highly procuring value chains e.g., NAFED procured onions.

Fig. 9 Alternate Uses of the Controlled Atmosphere Storage Struc*tur*e at Kala Biotech

The Alternate Uses

- In CA storage the storage conditions can be altered as per requirement of different commodity

- So, it can facilitate storage of different fruits, vegetables etc.
- As an enterprise, any CA storage facilitator can advance storage facility for different fruit or vegetable supply chains. e.g., Apples, Citrus etc.

6. Government Initiatives for FPOs

Governments all across the world are aware of the value of Farmer Producer Organizations (FPOs) in fostering agricultural growth, empowering farmers, and ensuring food security. In order to assist and strengthen FPOs, a number of government initiatives have been put into action.

Here are some common initiatives undertaken by governments:

- E-NAM Extension
- Kisan Rath
- Krishi Udaan

These government programmes are designed to strengthen FPOs, boost their output, raise their income, and support the growth of agriculture. Governments play a critical role in developing the ability of FPOs and empowering them to become self-sufficient and sustainable enterprises by offering financial, technical, and policy support.

List of Successful Agri-startups in Value Chain

- SFarms India
- BIJAK
- BigHaat.com

7. Commercialization of technologies by ICAR-DOGR, Pune

ITMU section of ICAR-DOGR, Pune has been commercializing the technology developed by the institute as per the details given in the table. 2. Out of the 151 licensing of the technology, more than 25 are done by the FPCs. Farmers growing onions all around the nation follow the recommendations by ICAR-DOGR, Pune. Total 9 states in the country have granted licenses for our technology, particularly onion varieties developed by ICAR-DOGR. Since Maharashtra is the highest onion producing state, 119 MoUs for technology licensing have been done here.

Table. 2 Revenue generation by Commercialization of technologies by ICAR-DOGR, Pune

S. No.	Name of Technology	No. of Companies/ FPOs
1	Bhima Shakti	69
2	Bhima Dark Red	27
3	Bhima Kiran	25
4	Bhima Super	19
5	Bhima Red	4
6	Bhima Shubra	4
7	Bhima Raj	2
8	Onion Grader	1
Total		151

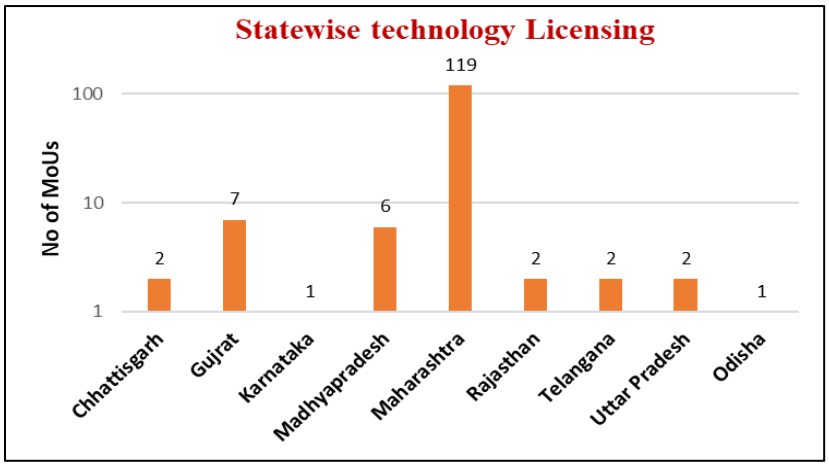

Fig. 10 Revenue generation by Commercialization of technologies by ICAR-DOGR, Pune

8. Agri-Business Incubation Centre

Agri-Business Incubation (ABI) programs are initiatives that foster innovation and entrepreneurship in the agricultural sector. These programs provide a supportive ecosystem for aspiring agricultural entrepreneurs by offering mentorship, training, infrastructure, and access to networks and resources. Agri-Business Incubation programs aim to nurture and guide startups or early-stage enterprises in agriculture, helping them develop viable business models, commercialize innovative ideas, and scale their operations. By bridging the gap between research, technology, and market, ABI programs play a crucial role in driving agricultural transformation, promoting

Agri-preneurship, and creating sustainable agribusinesses that contribute to food security and economic growth.

Agri-Business Incubation (ABI) centre at ICAR-Directorate of Onion and Garlic Research (DOGR) was sanctioned in the year 2019 by ICAR Incubation Fund (Component II) under XII Plan scheme of IP&TM unit, ICAR i.e., National Agricultural Innovation Fund (NAIF). Through this ABI centre, ICAR-DOGR extends support to prospective entrepreneurs by providing technical assistance, consultancy, infrastructure facility, guidance and training for sustainable business establishment.

Objectives of ABI Centre

- To provide incubation facility and technical assistance for Agri-business development;
- To scale up the technologies in collaboration with stakeholders;
- To impart training and capacity building to prospective entrepreneurs in agribusiness ecosystem;

Services offered at ABI Centre, ICAR-DOGR, Pune

- ✓ Office space and Lab space
- ✓ Consultation
- ✓ Scientific Knowledge
- ✓ Capacity Building and Training
- ✓ Business Facilitation
- ✓ Industrial connects for business development support

Focus Areas of the programme

- Support onion and garlic-based start-ups/business models
- Organic and Precision Farming
- Agri Clinics and Farm Health services
- Agricultural Supply Chain management
- Agricultural Biotechnology
- Post-Harvest Management & Food Technology
- Agriculture Engineering
- Waste Management & Secondary Agriculture
- Internet of Things (IoT) and Communication
- Agri. Extension Education

- Information and Technology in Agriculture

9. Establishment of Agro Processing Facilities (APC) for onion and garlic processing and value addition under ABI programme at ICAR-DOGR, Pune

The establishment of Agro Processing Facilities (APC) for onion and garlic entails the creation of specialized infrastructure and machinery to process, preserve, and add value to onion and garlic products. APC at ABI centre ICAR-DOGR is primarily established for onion and garlic entrepreneurs which offers a platform for value addition and diversification in the agricultural sector. By using the facilities available in our APC, onion and garlic entrepreneurs can transform their raw produce into a range of processed products such as dehydrated onion flakes, garlic paste, onion powder, pickled onions, and more. This facility is made to provide access to specialized equipment, infrastructure, and technical expertise, enabling entrepreneurs to enhance the quality, shelf life, and marketability of their onion and garlic products. By venturing into agro processing, entrepreneurs can expand their product offerings, tap into new markets, increase their revenue streams, and contribute to the growth of the agribusiness sector while promoting sustainability and reducing post-harvest losses.

Fig. 11 Machineries available at APC established at ABI centre, ICAR-DOGR, Pune

Conclusion

In this chapter, an attempt has been made to identify emerging opportunities for onion in India and to find ways in which the existing market challenges can be overcome using technology and experience. The chapter includes reviewing the current state of the agricultural industry in India, the marketing situation and the supply chain of onion for both fresh and value-added products, the supply chain clusters and private initiatives, existing market challenges and opportunities, and possible ways to overcome constraints. Strengthening farmer participatory value chains in the onion sector presents promising opportunities for Farmer Producer Organizations (FPOs). By actively involving FPOs in the onion value chain, farmers gain greater control over their production, processing, and marketing activities. FPOs can facilitate knowledge sharing, provide access to modern farming techniques, and help farmers adopt sustainable practices. They can also aggregate the produce of small-scale farmers, enabling collective bargaining power in negotiating fair prices and accessing input and credit services. Furthermore, FPOs can establish linkages with market intermediaries, retailers, and exporters, enabling direct market access for farmers and reducing their dependency on middlemen. Through collaborative efforts and inclusive approaches, FPOs can enhance the competitiveness, profitability, and socio-economic well-being of onion farmers, fostering a sustainable and resilient agricultural system.

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Chapter 10

Online Trading of Agriculture Commodities and Understanding Future Market: Opportunities and Challenges

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A commodity is a product which has a commercial value. It can be produced, bought, sold and consumed, such as precious metals, coal, natural gas and everyday products like spices, pulses, plantation crops, sugar etc. To be traded on the exchanges, a commodity must meet certain specifications regarding shelf life, quality standards, demand and supply and many more.

Commodities are products that can be bought, sold or traded in different kinds of markets. Commodities are the raw materials that are used to create products which are consumed in everyday life around the world, from food products in India to building new homes in Europe or to running cars in the US.

There are two main types of commodities

1) Soft commodities – agricultural products such as corn, wheat, coffee, cocoa, sugar and soybean; and livestock
2) Hard commodities – natural resources that need to be mined or processed such as crude oil, gold, silver and rubber.

Throughout history, commodities have played a major role in shaping the global political economy and have affected the lives and livelihoods of people. History is replete with examples of how shortage of critical commodities sparked huge public outcry and social unrest. Of late, the world community is concerned over the environmental and health costs of production and consumption of certain commodities and impact on society.

Commodity Market

Commodity market is a physical or virtual marketplace for buying, selling and trading raw or primary products. Commodity market is a place where trading in commodities takes place. It is similar to an equity market, but instead of buying or selling shares one buys or sells commodities.

Types of Commodity Markets

- Spot market: Contracts for the purchase or sale of a commodity with immediate delivery (or within few days) is known as Spot Market
- Forward market: Contracts for the purchase or sale of a commodity with deferred, i.e., future, delivery is known as Future Market.
- Futures market: Standardized forward contract which represents an obligation to make or take delivery of a fixed quantity and quality of a commodity at a specific location

Benefits of Online trading market

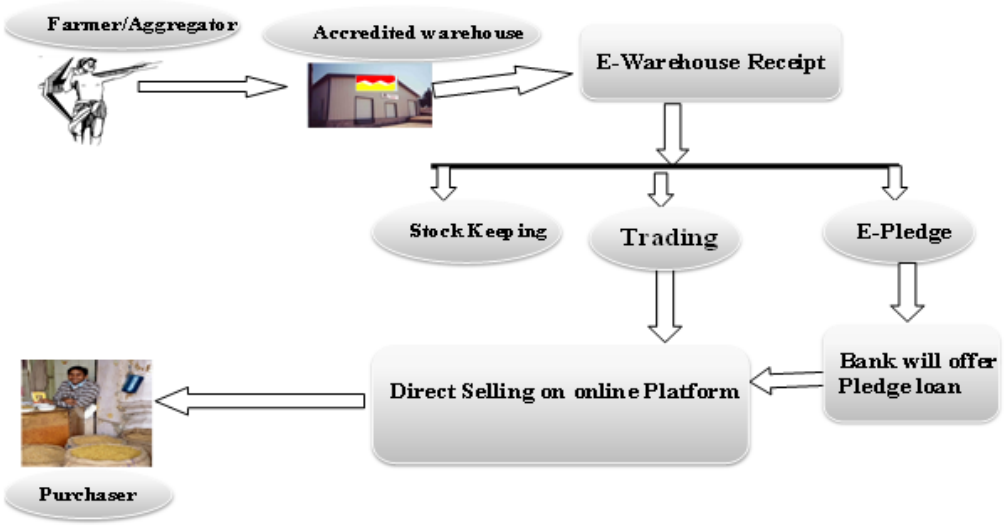
- Better Price Transparency
- Pan India Geographical Reach with respect to buyers
- Cartelization of Brokers not possible
- Broader market participation like corporate /supermarkets / bulk processors
- Counter party risk mitigation
- Alternative marketing and distribution channel
- High chances of better realization for sugar
- Efficient and quick Settlement with flexibility
- Low transaction charges
- Avoiding manual intervention and biasness

Scope of Online Trading

- Online Trading is an internet-based investment activity which eliminates the association of a broker. Anyone who has a computer, enough money to open an account and good financial background has the ability to invest in the market
- The person has to get registered with the online trading portal and get into an agreement with the company to trade in different kinds of commodities by accepting the terms and conditions
- Such online trading offers the trader an opportunity to check live online commodities prices which they can either check through mobile via SMS, mail or the interface. Also, ample amount of research data is provided which helps the user make their own decisions as to whether to invest in particular commodities or not

- The online trading companies allow the users to invest in a number of financial products and services like no. of Agro base commodities trading and financial planning
- Due to this invent, the market has become more accessible, but that doesn't mean that it should be taken lightly
- When you trade online, you use the services of an online broker. You use actual money, but instead of talking to the broker about which investments to make, you yourself decide which commodities to buy since you have resource to the online stock prices

Online Commodity Trading Model:



Commodity Futures

Commodity Futures are contracts to buy/sell specific quantity of a particular commodity at a future date. It is similar to the Index futures and Stock futures but the underlying happens to be commodities instead of Stocks and indices.

a) Arbitrage: The simultaneous purchase and sale of similar commodities in different markets to take advantage of a price discrepancy
b) Basis: The difference between the spot or cash price of a commodity and the price of the nearest futures contract for the same or a related commodity. Basis is usually computed in relation to the futures contract next to expire and may reflect different time periods, product forms, qualities, or locations.

Basis = Cash –Future

Commodity futures market has been in existence in India for centuries. The Government of India banned futures trading in certain commodities in 70's. However, trading in commodity futures has been permitted again by the government in order to help the Commodity producers, traders and investors. World-wide, commodity exchanges which are originated before other financial exchanges. In fact, most of the derivative's instruments had their birth in commodity exchanges.2

a) Bull spread (futures) - In most commodities and financial derivatives market, the term refers to buying contracts maturing in nearby month, and selling the deferred month contracts, to profit from the wide spread which is larger than the cost of carry.
b) Bear spread (futures) - In most of commodities and financial derivatives market, the term refers to selling the nearby contract month, and buying the distant contract, to profit from saving in the cost of carry.

Trading hours for all agricultural commodities on Monday to Friday are 10:00 a.m. to 3:30 p.m. The exchanges however, can change or modify the timings, by notifying the members as and when a need to do so arises.

Benefits of future trading

A variety of investors find it beneficial to trade in commodity futures although their objectives vary. While hedgers (who could be farmers, producers, traders, consumers 10etc.) hedge their risk against adverse price movements, speculators and arbitrageurs trade in commodity futures in order to obtain returns. In general, the following features make trading in commodities an attractive proposition.

a) Easy to understand- In comparison to the stock market, trading in commodity is easy as price analysis is less complex. In the case of the stock market, there are various parameters that have to be considered before inverting, like the performance of the company over a period of time, the balance sheet and profit loss account analysis, threats from competitors, the performances of the industry in which it operates, etc. In the case of commodities, on the other hand, a mere understanding of the fundamentals of demand and supply help you to trade in commodities
b) Balance portfolio management- Usually, investors invest their funds in diversified stocks (varying companies and industries) to spread their risks. However, irrespective of this diversification, most stock prices move up during boom periods and down when business cycles are facing a recession or depression. An effective diversification strategy is possible only when you invest in those assets whose prices display a negative correlation to stocks. In

fact, theoretically speaking, when there is an increase in commodity a result of increasing raw material prices, especially in the case of manufacturing industries. Thus, including commodities in your portfolio of investments gives you a wider base and a more balanced portfolio. Commodities like gold are increasingly being used as an investment avenue for diversification of portfolios and to improve returns at reduced risk

c) Transparent and fair prices- Futures trading in commodities results in transparent and fair price discovery on account of large-scale participation of entities associated with different value chains. It reflects views and expectations of a wider section of people related to a particular commodity. Diversity of requirements and opinions of market participants lends credibility and leads to efficient price discovery in the market

1. Platform for risk management- It provides effective platform for price risk management for all segments of players ranging from producers, traders, processors to exporters / importers and end users of commodities/ consumers
2. Helps to improve cropping patterns- Future trading helps in improving cropping pattern of farmers thus minimizing losses to the farmers. An efficient futures market provides reasonably accurate indications of futures spot prices and thus helps in production planning
3. Aids in portfolio diversification- It helps in enhancing portfolio diversification and investment choice by providing hedging, trading and arbitrage opportunities to players. Historically pricing in commodities futures has been less volatile compared with equity, providing an efficient portfolio diversification opinion. As an assets class commodity futures have been seen to exhibit negative correlation with stock futures and bonds and positive correlation with inflation. Hence commodity as an asset class provides a degree of stability under volatile market conditions
4. Assures hedgers fixed prices- Commodity futures enable producers to obtain insurance for the future value of their outputs or inputs
5. Inventory management- Futures markets also play a role in inventory management. The basis or price spread, which is the price difference between futures contracts of different maturities, signals the availability of stocks to the market. As the basis gets larger, the incentive to store increases as the level of inventories held in the spot market is determined by the basis. Futures markets also provide price support for credit needs to small producers. The collateral value of inventory is substantially enhanced if it is hedged enabling farmers/ firms to borrow a larger proportion of inventory values on more attractive terms

6. Replaces minimum support prices as a means of hedging- Price volatility has always been the most pressing issue facing producers of primary commodities. Concerns about commodity price fluctuations also led to pervasive commodity policy interventions by national governments in the past in our country. However, government interventions to provide Minimum Support Price (MSP) and artificially stabilize prices pre-empted the development of a market-based price risk management system. However, recommendations of the ka bra Committee in 1990s and National Agriculture Policy issued in July 2000 have come a long way and paved the way for development of commodity markets in India which finally got its due recognition. Thus, the MSP mechanism of price hedging may be replaced with futures markets conditional on these markets providing safety, liquidity and efficient pricing
7. Means of implementing food security- Extreme rise in prices can cause problems to the food security program in any country. Since commodity derivative products can help hedge against sharp price movements they can be used as an effective tool to implement the food security program more efficiently
8. Security against default- Futures markets provides the guarantee system that protects the futures users from contract default. The guarantee system is in place via the third party or the clearing house which is the connecting link between the buyers and sellers of futures. Buyers and sellers are thus free to transact independent of each other and thus do not create financial obligations to one another but rather to their clearing member firms which in turn have obligations to the clearing house

Role of a commodity futures exchange

A commodity Futures Exchange plays an important role in building a country's economy. It renders a platform for efficient price discovery by bringing together participants from different backgrounds and with different objectives.

Some of the important roles that a typical commodity exchange plays are summarized as follows-

a) Providing reliable market intelligence and information- both pre and post harvesting of agricultural commodities
b) Improving market access for a large number of participants
c) Encouraging competition between buyers and sellers to arrive at a pertinent price
d) Setting higher standards for enhancing the quality of traded commodities
e) Acting as an arbitrator to solve disputes among participants

f) Evolving more efficient and cost-effective markets
g) Creating awareness among participants and educating the trading community for a better price discovery mechanism and for minimizing risks

Option Market and its Types

An option is a financial derivative that represents a contract sold by one party (the option writer) to another party (the option holder). The contract offers the buyer right,but not the obligations, to buy (call) or sell (Put) a security or other financial asset at an agreed upon price (the strike Price) during a certain period of time or on a specific date(Exercise date).

Call Option

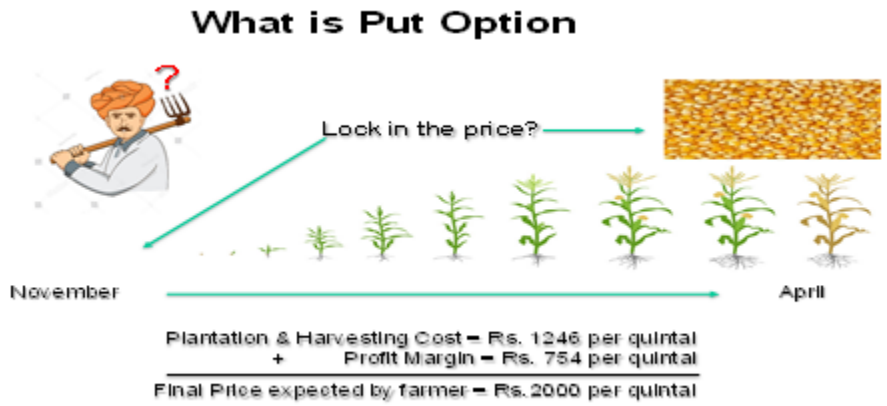
The buyer of the call option has the right, but not the obligation, to buy an agreed quantity of a particular commodity (underlying) from the seller of the option till/ on a certain time (expiration date) for a certain price (strike price). The seller has the obligation to sell the commodity to the buyer if the buyer decides to exercise his right.

Since the Call options give the option to buy at a certain price, so the buyer would want the commodity to go up. Conversely, the option writer needs to provide the underlying commodity in the event that the commodities market price exceeds the strike due to the contractual obligation. An option writer who sells a call option believes that the underlying commodity's price will drop relative to the option's strike price during the life of the option, as that is how he will reap maximum profit.

Put Option

The buyer of the put option has the right, but not the obligation, to sell an agreed quantity of a particular commodity (underlying), at a specified price (strike price), by/ on a pre-determined date (expiration date) to the seller of the Put option. The seller has the obligation to buy the commodity if the Put option buyer decides to exercise his right. Since, Put options give the option to sell at a certain price, so the buyer would want the commodity to go down. The opposite is true for put option writers. For example, a put option buyer is bearish on the underlying commodity and believes its market price will fall below the specified strike price on or before a specified date. On the other hand, an option writer who shorts a put option believes the underlying commodity's price will increase about a specified price on or before the expiration date.

Concept of Put Option



Calculation Table of Put option advantages in both upward and downward in market Price

Total Cost =1246+70= Rs 1316/per quintal

Strike Price (Rs. per qt)	Cost to grow (Rs. per qt)	Premium paid (Rs. per qt)	Total Cost (Rs. per qt)	Price Trend	Scenario of price on expiry (Rs. per qt)	Profit/Loss with Options (Rs. per qt)	Profit/Loss without Options (Rs. per qt)
A		B	C		D	D-C	(D-C)+B
2000	1246	70	1316	If price increases by Rs. 200 per quintal	2200	884	954

Strike Price (Rs. per qt)	Cost to grow (Rs. per qt)	Premium paid (Rs. per qt)	Total Cost (Rs. per qt)	Price Trend	Scenario of price on expiry (Rs. per qt)	Profit/Loss with Options (Rs. per qt)	Profit/Loss without Options (Rs. per qt)
A		B	C		D	A-C	(D-C)+B
2000	1246	70	1316	If price decreases by Rs.200 per quintal	1800	684	554

Terminology of Commodity Market

a) Hedger

Hedger is a user of the market, who enters into futures contract to manage the risk of adverse price fluctuation in respect of his existing or future asset

b) Arbitrage

Arbitrage refers to the simultaneous purchase and sale in two markets so that the selling price is higher than the buying price by more than the transaction cost, so that the arbitrageur makes risk-less profit

c) Speculator

A trader, who trades or takes position without having exposure in the physical market, with the sole intention of earning profit is a speculator

d) Market maker

A market maker is a trader, who simultaneously quotes both bid and offer price for a same commodity throughout the trading session

e) Day-traders

Day traders are speculators who take positions in futures or options contracts and liquidate them prior to the close of the same trading day

f) Floor-trader

A floor trader is an Exchange member or employee, who executes trade by being personally present in the trading ring or pit floor trader has no place in electronic trading systems

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Chapter 11

Export Potential of Indian Agricultural Commodities – Opportunities & Challenges of Farmer Producer Organizations

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India's share in world exports has remained low despite its inherent strength in agriculture. While India's share in world production of most of agricultural commodities is high, its export share in total world exports is very low for some agricultural commodities. During the 1950s and till the mid-seventies, India's trade policy was restrictive with plethora of quantitative restrictions on agricultural exports and imports. High levels of protection coupled with an overvalued domestic currency resulted in a growing demand for imports which also discouraged exports. However, there has been appreciable increase in agricultural exports and reduction in imports in the post WTO due to devaluation of rupee and other trade liberalization measures, which led to the elimination of many structural constraints operating on the demand as well as supply side, which were slowing down export growth (Ramakrishna et al., 2002). As opined by Gulati (2002) and Chand (2004) from 1997 onwards the collapse of world prices of most of the agricultural commodities in the wake of East Asian crisis encouraged Indian agricultural exports. Keeping this background in mind, this paper has analyzed the export performance of agricultural commodities in the pre and post WTO periods.

Objectives

1. To discuss the world scenario of production of agricultural commodities
2. To analyze the world scenario of exports and imports of agricultural commodities
3. To discuss about international policies and concerns of agricultural commodities trade
4. To examine the trend and composition of agricultural exports of India in the pre and post WTO period
5. To analyze the growth performance of agricultural commodity exports in the pre and post WTO period

6. To document the APEDA measures of traceability and challenges and opportunities to enhance agricultural exports to farmer producer organizations

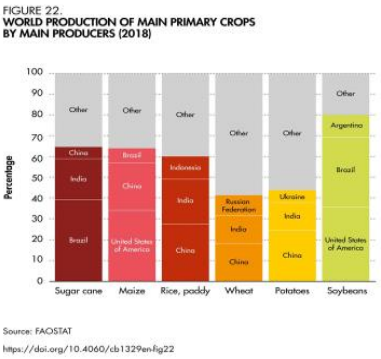
Methodology

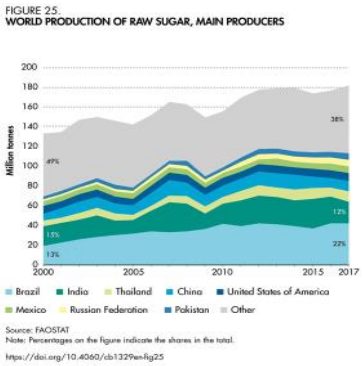
The study covers 33 years period from 1994-95 to 2021-22. Further, the study period is divided into I Period (Pre-WTO; 1990-91 to 1994-95), II period 1995-96 to 2005-06 (Initial years of post-WTO) and 2006-07 to 2021-2022 III Period (Later years of Post WTO) to estimate the growth rate of exports from India. Data is obtained from www.indiastat.com. The growth rates were analyzed using the exponential growth function. Composition agricultural export basket was calculated with by calculating the share of each agricultural commodity export to total agricultural exports.

1. World Production of Agricultural Commodities

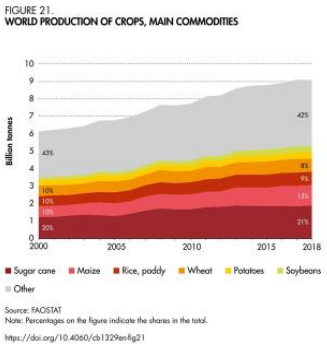
The production of primary crops such as sugar cane, maize, wheat and rice has gone up by 50% from the year 2000 to 2018. These four crops occupy more than 50% of world production of agricultural commodities. The vegetable production particularly palm oil production has gone by 108% during 2000 to 2017. Meat production has gone up by 47% during the same period with chicken meat growth has contributed more than 50%. Among the meat pig meat is the most produced kind of a meat.

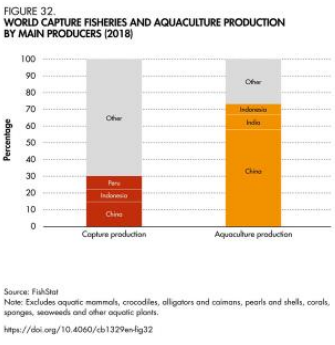
The country wise contribution of each primary commodity shows that the largest producers of sugar cane are Brazil, India and China with more than 60 percent of production of sugar has emanated from three countries in the year 2018. Largest producers of maize are US, China and Brazil; paddy and wheat are China, India and Indonesia and Russian federation and soybeans are US, Brazil and Argentina. During 2000-2018 the share of sugar cane production in total agricultural production in the world has increased from 20to 21 percent, maize from 10 to 13 percent, paddy, wheat and soybeans shares have fallen slightly by one percent.



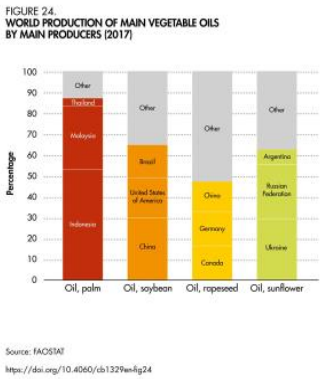


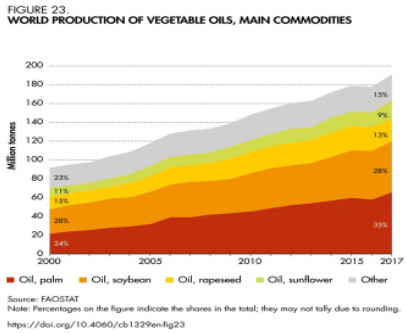
Among the meat items pig meat and chicken meat have occupied highest share with increase in shares of both the items in total meat production in the world during 2000-2018. Among the vegetable oils pal oil production has 24 percent share in 2000 and increased significantly to 35 percent in 2017. Next to palm oil soybean oil production has occupied 28 percent share and maintained its share throughout the period. The palm oil producing countries are Indonesia, Malaysia and Thailand. Indonesia has produced more than 50 percent of the world palm production. For Soybean oil the major producers are China, US and Brazil.

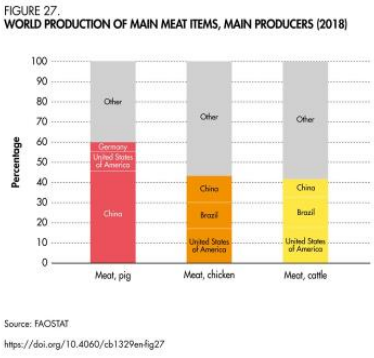


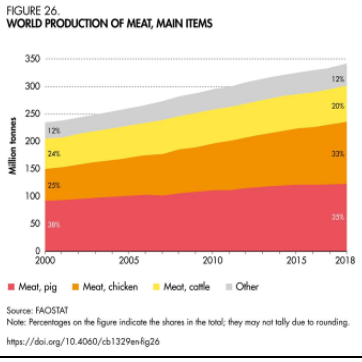


Major producers of raw sugar are Brazil, India, Thailand and China. Brazil has produced 27 percent of raw sugar production during 2017-18. This is followed by India with 17 percent share.

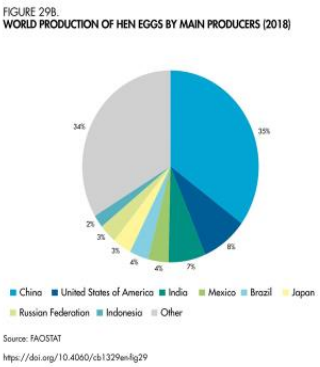


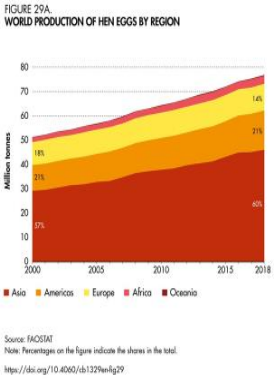


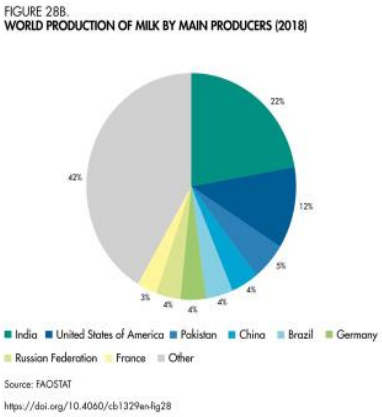


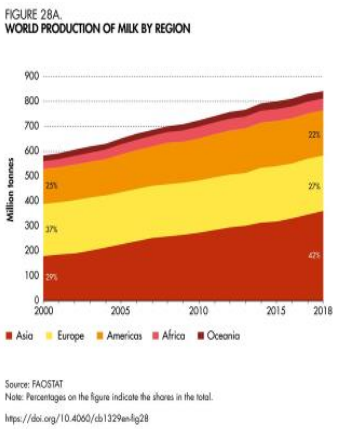


In the production of eggs particularly hen eggs the major countries are China, US and India with China alone contributed 35 percent of hen egg production in the world. Asian countries are the largest producers of hen eggs in the world as China and India has contributed more than 50 percent of world hen egg production. With regard to milk production India has produced 22 percent of world milk production and stood as number one country in the world as far as milk production is concerned.



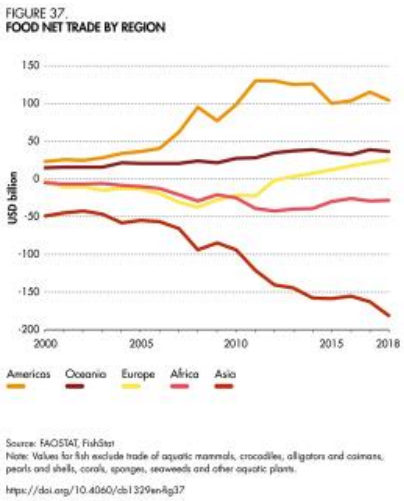






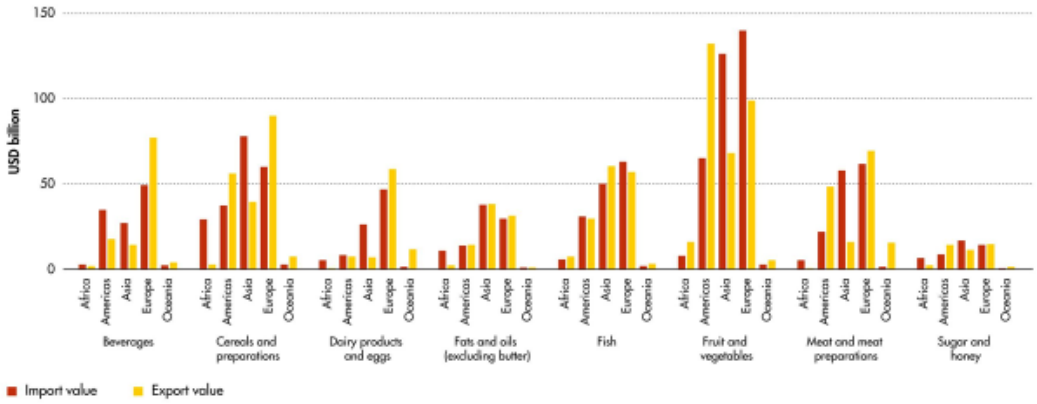
Trade Scenario of Agricultural Commodities in the World

Though Asian countries are largest producers of many of the agricultural commodities due to larger population resulting in growing demand for agricultural commodities these countries are net importers of a large number of agricultural commodities. The net trade of food in Asian countries has shown a declining trend during 2000 to 2018. Whereas US and European countries have exhibited an increasing trend.



The diagram below shows the imports and exports scenario in each region for important agricultural commodities. The value earned through exports is less than the value paid towards imports in Asian region for major crops. Major exporters of wheat are Russia, Canada and US and importers are a large number of countries with small quantities. This is also true in case of rice imports. India has emerged as the largest exporter of rice in the world pushing Thailand to second position.

FIGURE 38.
FOOD IMPORTS AND EXPORTS BY MAIN CATEGORIES AND REGION (2018)



Source: FAOSTAT, FishStat
Note: Values for fish exclude trade of aquatic mammals, crocodiles, alligators and caimans, pearls and shells, corals, sponges, seaweeds and other aquatic plants.

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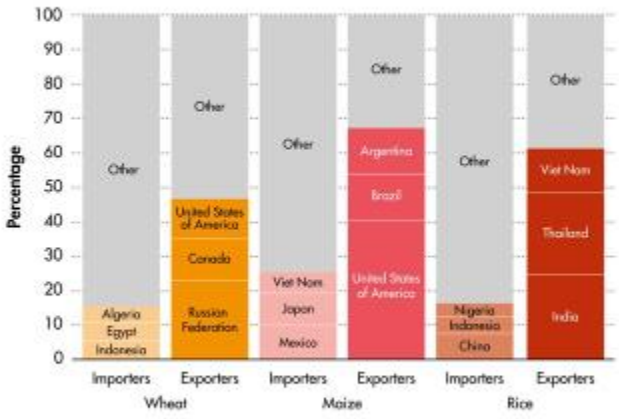
FIGURE 40.
MAIN TRADED CEREALS, TOP IMPORTERS AND EXPORTERS (QUANTITIES, 2018)



Source: FAOSTAT

https://doi.org/10.4060/cb1329en-fig40

3. Exports of Agricultural Commodities from India

Agricultural exports show a continuous increasing trend since 1990-91 to 2021-22. Though the value of total exports and agricultural exports have increased from pre-WTO period to post WTO period, the increase is faster in case of total exports (Fig 1). Up to 2000-21 both exports were increasing almost at the same rate but during later periods of WTO the growth in total exports is much faster to agricultural exports. The share of agricultural export in total exports was 17 per cent in pre WTO period and but fallen drastically in the post WTO period to 14 per cent in the

initial years of WTO to 12 per cent in the later years of WTO. The overall share of agricultural exports in total exports is 12.5 per cent. The fall in the share of agricultural exports to the total exports was due to the faster increase of non-agricultural exports when compare to agricultural exports during the post WTO period (Table 1).

Table 1: Annual Average Exports from India (Rs in Crores)

Year	Phase	Total Exports	Agricultural Exports	Share (%)
1990-91 to 1994-95	Pre-WTO Period	56535.9	9740.1	17.2
1995-96 to 2005-06	Early Periods of WTO	2444754.1	341341.8	14.0
2006-07 to 2021-22	Later Periods of WTO	26313724.2	3241851.0	12.3
1990-91 to 2021-22	Overall Period	29041157.9	3631893.3	12.5

Source: Annual averages and shares are computed using the data from www.indiastat.com

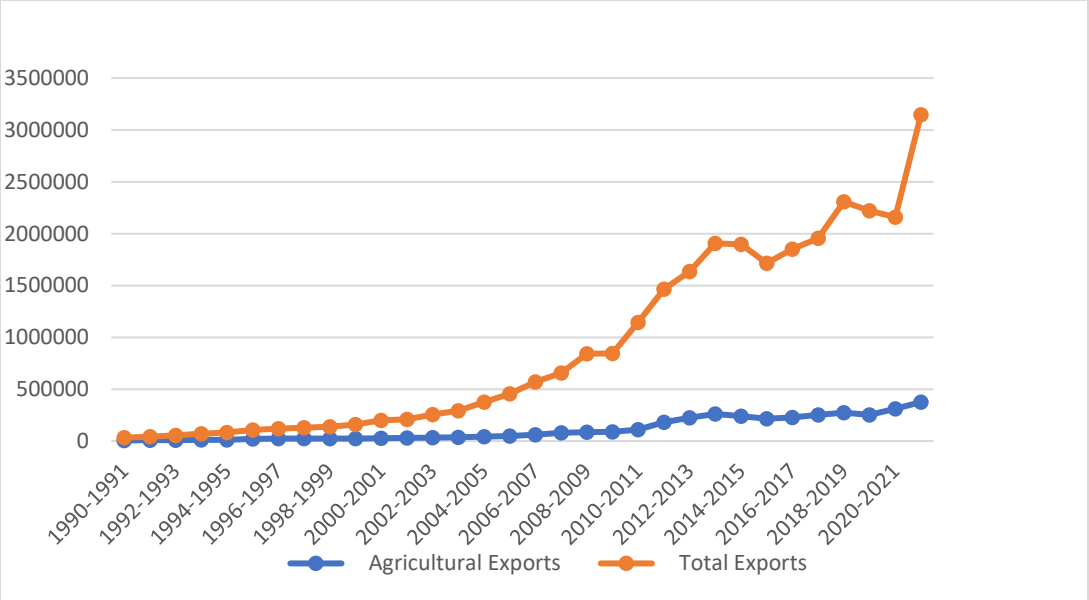


Fig. 1: Trends in Exports from India

The estimated growth rates of agricultural exports revealed that the growth rate of total exports is higher than the growth rate of agricultural exports during 1990-91 to 2021-22. From Table 2 it is clear that the growth rate of agricultural exports picked up fast in the initial WTO years when

compared to later years of WTO where in there is only a slight increase in per annum growth rate during 2001 to 2021 (Table 2)

Table 2: Annual Rate of India's Agricultural Growth (%)

Period	Agriculture Exports	Total Exports
Pre-WTO 1990-91 to 1994-95	8.73	10.43
Initial WTO years 1995-96 to 2005-06	9.92	11.49
Post WTO Years 2006 to 2021-22	11.28	13.49
Overall Growth Rate	9.10	10.84

Source: Computed

4. Composition of India's Agricultural Exports

The major commodities of export include oil cake, marine products, tea, cashew, basmati rice etc. These commodities together account for 60 per cent of total agricultural exports in pre-WTO period. Among these, tea is a traditional item of export while other items like oil cakes, marine products, rice are relatively new items of export. The share of various commodities during the three phases is presented in Table 3 and Fig 1. It is apparent that there is an increase in the exports of manufactured tobacco in the post WTO period with a share of 11 per cent in contrast to almost negligible share in the pre-WTO period.

Table 3: Commodity Wise Annual Average Agricultural Exports from India (Rs in crores)

	Pre WTO	**Post WTO**		**Overall**
		Initial Years	Later Years	
Commodity	**1990-1994**	**1995-2005**	**2006-2021**	**1990-91 to 2021-22**
Rice Basmati	648.63	1217.00	7057.31	8922.94
Rice (other than Basmati)	276.33	2475.86	7307.98	10060.17
Tea	894.73	1061.71	2512.16	4468.59
Coffee	327.15	804.51	2176.74	3308.39
Tobacco Unmanufactured	254.70	393.99	1906.02	2554.71

Tobacco Manufactured	Nil	103.78	8468.00	8571.78
Spices	344.52	945.67	5419.11	6709.31
Cashew	596.01	1058.25	2655.22	4309.48
Oil cakes	2161.93	4138.01	13989.61	20289.55
Fresh Fruits		313.38	1558.23	1871.61
Fresh Vegetables		355.47	1742.46	2097.94
Meat & Preparations	243.33	1025.75	5704.19	6973.26
Marine Products	1403.67	2830.09	9275.02	13508.77
Cotton Raw including Waste	413.36	160.91	9043.02	9617.28
Total Agricultural Exports	9740.10	24813.03	78951.81	113504.94

Source: Annual averages and shares are computed using the data from www.indiastat.com

4.1 Trends in Rice Exports:

The share of basmati and non-basmati has increased continuously with non-basmati rice exports which were 2 per cent in the pre-WTO period have increased to 12 per cent in the post WTO period. The growth rate of basmati rice exports has declined from nine percent to seven percent from pre-WTO period to post WTO period while the growth rate of non-basmati has increased from five per cent to eight percent. The removal of export restrictions on non-basmati rice in 1994 has been a factor in growth of rice exports during post-WTO period. India has registered its presence in a very big way in rice export in some years however these exports show very large year to year fluctuations (Tables 3, 4, 5 & Fig 1)

Table 4: Composition of India's Agricultural Exports (Percent)

Commodity	**1990-1994**	**1995-2000**	**2001-2012**	**2018-19**	**2019-20**	**2020-21**
Rice Basmati	6.7	4.9	8.9	11.9	6.1	
Rice (other than Basmati)	2.8	10.0	9.3	7.7	3.2	
Tea	9.2	4.3	3.2	2.1	2.3	2.2

Coffee	3.4	3.2	2.8	2.1	2.1	2.1
Tobacco Unmanufactured	2.6	2.0	2.4	2.5	2.5	2.6
Spices	3.54	3.81	6.86	8.5	10.1	5.7
Cashew	6.1	4.3	3.4	1.7	1.6	1.2
Oil Cakes	22.2	16.7	17.7			
Fresh Fruits	Nil	1.3	2.0	2.0	0.8	
Fresh Vegetables	Nil	1.4	2.2	2.1	1.2	
Meat & Preparations	2.50	4.13	7.22	9.5	9.2	9.4
Marine Products	14.4	11.4	11.8	17.4	18.8	17.5
Cotton Raw including Waste	4.24	0.65	11.45	5.3	3.0	5.5

Source: shares are computed using the data from www.indiastat.com

4.2 Trends in tea, coffee and spices Exports:

India is the largest producer and consumer of tea in the world. Over the years it has continued to be an important foreign exchange earner of the country. This is the only industry where India has retained its leadership over the last 150 years. The percentage share of tea in India's total agriculture export during pre-WTO period was 9.2 per cent, during post WTO period it has come down to 3.92 per cent. The reasons for this fall in share of tea is that over a period of time, the global supply of tea became more than demand and large decline in imports by the major developed countries of the world as result of the shift in consumption to cold drinks both hard and soft (Nagor, 2009). The estimated growth rates of tea were negative in the pre-WTO period despite its share of nine per cent but has grown positively at the five per cent in the early years of post WTO but decreased to two per cent in the later periods of WTO (Table 5).

Table 5: Growth Rate of Agricultural Commodity Exports in India

S.No.	Commodity	Pre WTO-1990-91 to 1994-95	Initial WTO years 1995-96 to 2000-01	Post WTO Years 2001-02 to 2021-22
1	Rice Basmati	9.2	7.2	6.9
2	Rice Non-Basmati	4.8	-9.9	8.0

3	Tea	-1.2	4.9	1.7
	Coffee	14.5	-1.4	2.6
4	Fresh Vegetables	-	2.5	8.5
5	Fresh Fruits	-	3.7	8.5
6	Cashew nuts	-1.3	5.7	1.5
7	Spices	10.9	6.0	6.2
8	Tobacco	0.5	4.8	6.2
9	Cotton Raw including Waste	-12.4	-12.4	2.2
10	Marine Products	13.8	4.8	2.5
11	Meat and meat Preparations	10.9	5.8	8.5
13	Oil cakes, oil and oil seeds	15.0	-0.01	5.4
15	Total Agricultural Exports	8.9	2.3	3.3
16	Total National Exports	10.1	5.1	7.7

Source: computed using the data from www.indiastat.com

Coffee exports have constituted three per cent of total agricultural exports during 1990-91 to 2020-21 with a slight decline in its share from pre-WTO to post WTO period. There is a drastic fall in the growth rate of coffee from pre-WTO period to post WTO period.

4.3 Trends in Oil Meal Exports:

During 1990-94 oil meal products are the most important items of agricultural exports from India. Export of oil meal increased from Rs 2162 crores per annum during the pre-WTO period to Rs 14000 crores per annum during the post WTO period. The share of oil cake exports decreased from 20 per cent in the pre-WTO period to 18 per cent in the initial periods of WTO and further to 15 per cent in the post WTO period. The share of tea exports fell down from 11 per cent to seven per cent and further to three percent during the same period. Trend in export of castor oil is a pointer to the important role of technology that enabled India to raise castor yield in some states which enabled the country to increase exports.

4.4 Trends in Marine Product Exports:

Marine products remained the second most important item in most of the years. Marine products export during 1990-94 which were Rs 1404 crores per annum recorded an increase to 2830 crores of rupees in the initial years WTO. The marine exports have finally reached to Rs 6973 crores per annum in the later years of WTO. The share of marine products in total agricultural exports has been falling continuously from pre-WTO period to post WTO period. Its share has reduced by 7 per cent. The USA, EU and Japan continued to be the major destination of marine exports from India. Marine products got a big boost with economic reforms in the initial years. During the post WTO period marine products export did not show much increase.

4.5 Trends in Horticultural Exports & Tobacco Products:

Export of horticultural products though maintained a mild upward trend during the first phase of WTO has shown a visible increase only in the second phase of post WTO. Before signing of the WTO, the country used to export mostly un manufactured tobacco with almost nil export of manufactured tobacco. The share of manufactured tobacco has increased from 0.4 per cent in the initial years of WTO to 11 per cent in the later years of WTO. The share of un manufactured tobacco was found to be almost same through the period.

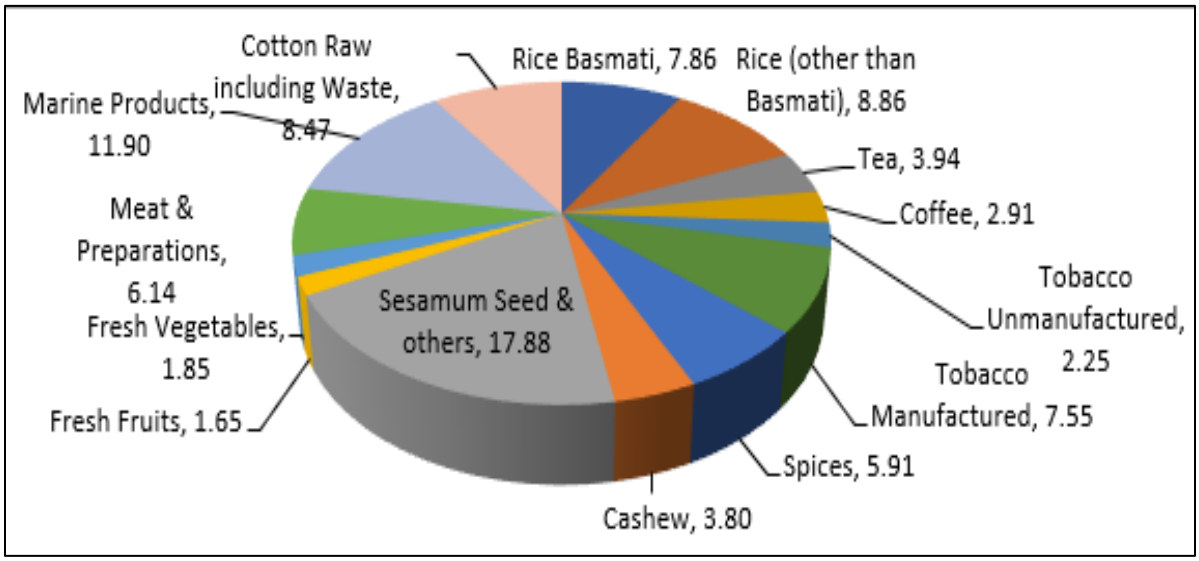


Fig 2: Commodity wise share of exports to Agricultural Exports from India: During 1990-91 to 2020-21 (Percent)

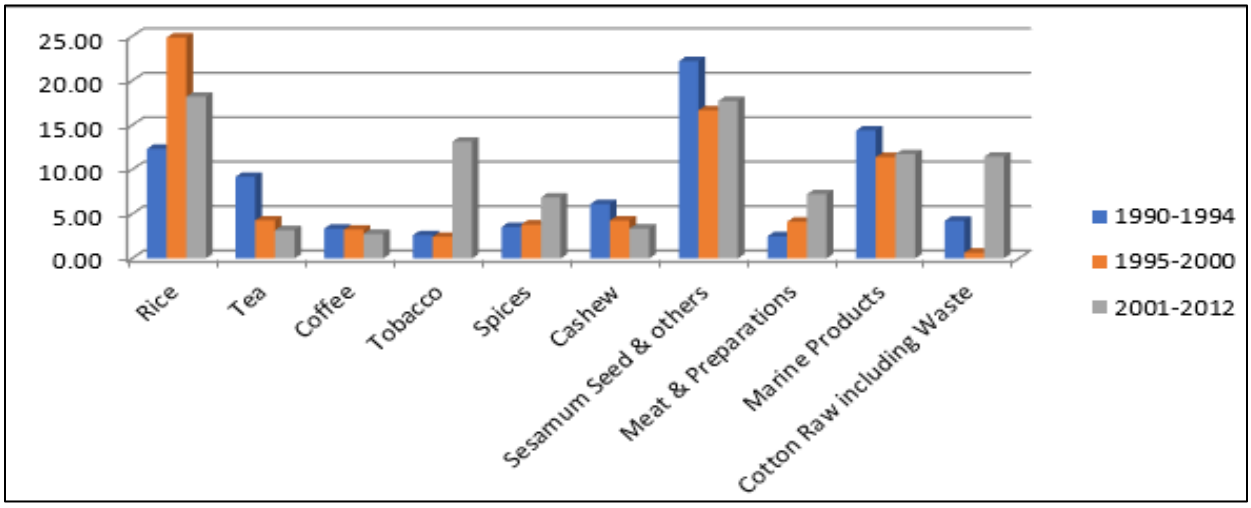


Fig. 3 Change in Pattern of India's Agricultural Export Basket in Pre and Post WTO Period

5. Present System of Agricultural Exports from India – Concerns:

While India occupies a leading position in global trade its total agricultural export basket accounts for litter over 2 percent of world agricultural trade. An important reason is inward looking policies of India are largely aimed at food security and price stabilization. Majority of its exports are low value, raw or semi processed and marketed in bulk. Share of India's high value added agri produce is less than 15 percent compared to 25 percent in US and 49 percent in China. India has very high export potential for shrimps, meat, basmati, non-basmati rice, grapes, bananas, pomegranate, vegetables, Cashewnut, herbal medicines, spices and so on. India is unable to export its vast horticultural produce due to lack of uniformity in quality, standardization and its inability to curtail losses across the value chain.

The international trade agreements of WTO such as Agreement on Agriculture (AoA), Sanitary Phytosanitary measures, Technical Barriers to Trade (TBT) and traceability concerns are throwing challenges to small and marginal farmers of India. The market access clause under AoA has resulted in entry of large of number of imports in to India but at the same time Indian farmers unable to penetrate into export markets due to SPS. SPS agreement is a challenge to our small holder economy where these farmers unable to produce and export quality product. Government of India has organized these small and marginal farmers into farmer producer organizations. These organizations can meet the challenges of WTO.

6. APEDA Measures of Traceability

Traceability is the ability to identify the origin of food and feed ingredients and food sources, particularly when products are found to be faulty. A traceability system allows an organization to

document and / or to locate a product through the stages and operations involved in the manufacture, processing, distribution and handling of feed and food, from primary production to consumption. It can therefore facilitate the identification of the cause of nonconformity of a product, and improve the ability to withdraw or recall such product if necessary and prevent unsafe products from reaching the customers.

- Low cost of operations for Stake holders. These systems can be easily accessed - anywhere, anytime, 24 by 7, by all authorized stakeholders. All they need to use is a commonly available web browser through their Internet connection
- Ensuring Compliance to International Standards as No document can be issued without going through the software and the inbuilt checks in the system to ensure that the succeeding step can be carried out only if the preceding steps were successfully complied with
- Grapenet is the solution APEDA developed to a major crisis that hit Indian grapes sector. India, a major exporter of Grapes to Europe for a number of years, was suddenly faced with serious threat of nearing a ban, due to pesticide residues. Consignments were held up at the ports, exporters faced huge financial losses and India's position as a quality fresh product supplier was under threat
- Grapenet, a web-based software, covering all stakeholders in the grapes export supply chain including Farmers, exporters, State Government Horticulture/Agriculture departments, Accredited Laboratories, Agmark, Pack houses, Phyto-sanitary Certification Departments, National Referral Laboratory (NRL), APEDA, etc., through a centralized web-based monitoring software
- Anarnet For monitoring the quality assurance being maintained in the supply chain of Pomegranate export, a similar traceability system has been developed in line with the Grapenet which has been successfully implemented
- Tracenet (For Organic Products)
- The Tracenet system covers certification of all horticulture and agriculture crops including cotton / cotton products, processed foods and wild harvest. Eventually, it will be used in all livestock products like meat, poultry, dairy, honey and aquaculture products after the standards are notified in the near future. APEDA has already initiated steps to extend the present traceability software from certification to the accreditation process

- Peanut.net
- Higher levels of aflatoxins in groundnuts have been major concern of the importing countries. Therefore, it was essential to establish adequate controls to minimize possibilities of presence of the aflatoxins in groundnuts in excess of prescribed levels

Conclusion

The global agriculture trade regime under the World Trade Organization (WTO), which came into force 17 years ago in 1995, has led to an increase in the import of farm products into India more than exports. Barring the first three years after the enforcement of the agreement, agriculture imports continued to grow faster than exports. Exports have also increased in absolute terms but the share of our traditional agricultural exports such as Marine, tea, coffee, cashew nuts and spices has come down in the post WTO period mainly due to the increase of exports of rice and horticultural exports. Not only the shares of these commodities but also their growth rates have fallen during the post WTO period. Farmer Producer Organizations will face all the challenges of WTO by converting them into opportunities

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Chapter 12

Overcoming Challenges: Enhancing Agri Exports in Developing Countries

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Agriculture plays a crucial role in the economies of many developing countries, providing livelihoods for a significant portion of the population. Exporting agricultural products presents an opportunity for economic growth and development. Importance of the fruits and vegetable segment: Fruits and vegetables are highly sought-after commodities in both local and international markets due to their nutritional value and culinary versatility. However, the perishable nature of these products poses unique challenges to exporters.

Challenges faced by Agri Exporters

a. **High Demand but Perishable Nature:**
   The perishability factor: Fruits and vegetables have a limited shelf life and require prompt transportation to preserve their freshness and quality. Impact on reaching distant markets: Developing countries often struggle to access long distance markets due to inadequate transportation infrastructure, logistical constraints, and the lack of cold storage facilities
b. **Documentation and Certifications Understanding export requirements:**
   Exporting fruits and vegetables involves complying with various documentation and certification processes, from the farm level to the export stage. Time-consuming and tedious processes: The complex paperwork, including export documentation, initial registration, and traceability charts required by importers, can be overwhelming for farmers and exporters, hindering their willingness to participate in the export market.
c. **Lack of Information and Data Insufficient knowledge of cultivation techniques:** Farmers in developing countries often lack access to comprehensive information on modern cultivation techniques, such as high-yield practices, appropriate fertilizer schedules, optimal harvesting time, maturity indexes, and shelf-life extension methods. Importance of traceability: Traceability is crucial for ensuring product quality, meeting international standards, and building trust among importers and consumers.

d. **Infrastructure Limitations Cooling sheds and cold storage facilities:** The availability and accessibility of proper infrastructure, including cooling sheds and cold storage facilities, are vital for maintaining the freshness and quality of fruits and vegetables throughout the supply chain. Transportation challenges: Internal transportation, such as the use of refrigerated vans from the farm to the packhouse, can be problematic in developing countries, leading to delays and potential quality deterioration. Power supply issues: Inadequate and irregular power supply, including lengthy periods of load shedding, adversely affect water supply to crops and storage conditions, resulting in compromised product quality and increased wastage.

e. **Coordination among Border Agencies Inefficient coordination and multiple border controls:**

   Lack of effective coordination among border agencies can lead to delays, bureaucratic hurdles, and redundant inspections, affecting the overall efficiency and quality of perishable exports. Impact of long waiting times: Prolonged waiting times at border checkpoints can contribute to product deterioration, increased spoilage, and reduced market prices.

f. **Digital Processing and Data Harmonization Absence of online documentation processing:**

   The absence of digital platforms for processing export-related documentation increases paperwork and manual processes, further elongating the export process. The importance of cross-border data harmonization: Harmonizing data and adopting international standards facilitate smoother customs procedures, enhance transparency, and streamline cross-border trade.

Target Export Countries and High-Demand Vegetables

Overview of major export destinations: Developing countries often target specific regions and countries for their agricultural exports. Key export destinations include the Middle East (Dubai, Qatar, Doha, Saudi Arabia, Oman), Europe, the UK, Singapore, Russia, and Iran.

Identification of high-demand vegetables: Analyzing market trends and consumer preferences, certain vegetables such as Green Chilly, Drumstick, Tomato, Potato, Lime, Bitter-gourd, Bottle-gourd, Onion, Villarrica, Okra, Yam, and Ash-gourd have consistently high demand in these target countries.

Key Documentation and Certificates

Explanation of essential export-related documents:

This section provides a detailed description of key export documents, their purpose, and the responsibilities of exporters and shipping lines.

Examples of required certificates: IEC code, RCMC Certification, Invoice, Packing List, Phytosanitary certificate, Certificate of Origin, and MRL & GAP certificates are explored, highlighting their importance in meeting importers' requirements, and ensuring compliance with food safety and quality standards.

Pricing and Trade Dynamics

Consignment-based sales and prevailing market rates: The concept of consignment-based sales is explained, whereby exporters sell their products based on prevailing market rates at the time the container arrives at the destination. The factors influencing pricing are discussed.

Minimum Guarantee Price (MGP) concept: The MGP concept, where exporters and farmers agree upon a minimum price to protect against drastic market fluctuations, is explored. Fixed-rate scenarios: Instances, where fixed rates are established for certain products or markets, are examined, considering their implications on exporters' profitability and market stability.

Conclusion

Recap of challenges and potential solutions: The chapter concludes by summarizing the challenges faced by agricultural exporters in developing countries in the fruits and vegetable segment. It emphasizes the importance of addressing these challenges to enhance agricultural exports and promote economic growth.

Call for innovative solutions: Encouragement is given for the exploration of innovative approaches, including improved infrastructure, streamlined processes, knowledge-sharing platforms, and international collaboration, to overcome the identified challenges.

Final thoughts on the significance of agricultural exports: The chapter ends with a reflection on the critical role of agricultural exports in the development of developing countries and the potential benefits of addressing the outlined challenges.

Case-Studies

Farmer Participatory Value Chain (FPVC) in Agriculture

A farming strategy known as the Farmer Participatory Value Chain (FPVC) intends to actively involve farmers at every stage of the value chain, from production to marketing and distribution. It places a strong emphasis on involving farmers in decision-making processes so they can influence the value chain's operations and gain from its outcomes. According to the FPVC approach, farmers have valuable knowledge and experience regarding their regional agricultural systems and can offer insightful advice on how to boost output, quality, and profitability. It seeks to empower farmers, increase their incomes, and develop sustainable and inclusive agricultural systems by actively incorporating them in the value chain.

Case Study 1

Reinvigorating Primary Agricultural Credit Societies into Multi-Service Societies: An Instigators Case of T. Narsapuram Society From Andhra Pradesh

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Primary Agricultural Co-operative Credit Societies (PACSs) operating at the village level are the cornerstone of the cooperative credit structure in India. However, in recent times, they are facing many challenges and most of these societies are involved in their traditional role of credit disbursement to the members. As these societies have well-established structures, membership, infrastructure etc., converting them into multipurpose service centers/societies is seen as one of the major policy initiatives of the government of India. Therefore, the present study was taken up to highlight the case of T. Narsapuram Primary Agricultural Co-operative Credit Society Limited located in West Godavari district of Andhra Pradesh, which is functioning effectively by successfully diversifying its business activities. It was established in the year 1995, has a membership of about 4039, employs more than 300 persons, and has a business turnover of 128 crores in the financial year 2020-2021. This case shows a path to other PACSs in the country to diversify their activities and provide ancillary services to the members to remain viable and

functional in changing agricultural situation. This provides various insights and lessons that can be kept in mind by policymakers while reinvigorating PACSs into multi-service entities.

Introduction

Agriculture is the main source of livelihood for more than 50 percent of the Indian population and one of the main income-generating sources. Small and marginal farmers account for 86.08 percent of the total holdings while their share in the operated area stood at 46.94 percent (Agriculture census, 2015-16). Few challenges faced by small and marginal farmers are allocating a large portion of land for cultivating food crops for subsistence, low marketable surplus, more need for consumption credit, inability to offer security due to small size of the holdings, etc. that drives the farmers to poverty, and making small holding-based agriculture unprofitable and unviable. Despite the challenges, right from sowing of the seed to harvesting the final produce, there is a need of credit which is rightly called the lifeblood of Agriculture. To develop agriculture and therefore, to prosper the nation as a whole, a proper system of rural credit is essential. The Cooperative societies are one among the system of rural credit functioning at the district, sub-divisional, and village levels for the benefit of farmers mainly regarding the provision of loans. According to Hubert Calvert, a cooperative society is a form of organization, wherein the persons voluntarily associate together as human beings on the basis of equality for the promotion of the common economic interest of themselves.

The State Co-Operative Bank (SCB), District Central Co-Operative Bank (DCCB), and Primary Agricultural Co-operative Credit Societies (PACS) operate at State, district, and village levels respectively. The DCCB is the link between SCB and PACS, and the SCB is the link between RBI and PACS. Primary Agricultural Co-operative Credit Societies (PACS) are the foundation of the cooperative credit structure and the root of India's cooperative moment. It is known by different names viz. PACS, Service Cooperative Banks, Farmers Service Societies (FSS), Large-Sized Adivasi Multipurpose Societies (LAMPS), and Multi-Purpose Service Cooperative Societies (MPSCS), etc, while in India they are generally known as PACS. The major functions of primary agricultural credit societies are to borrow adequate and timely funds from DCCBs and help farmers in financial matters, to attract local savings in the form of share capital and deposits thereby inculcating the habit of thrift, distributing inputs to the needy farmers, providing storage facilities, supplying consumer goods at fair prices, etc.

Out of 95,509 Primary Agricultural Credit Societies operating at the village level, few societies are functioning effectively. Most of them are busy in their traditional role of credit disbursement to the members. With the advent of other credit sources and easy availability, their

credit role also declining in some states. As these societies have well-established structures, membership, infrastructure, etc.; converting them into multipurpose service centers/societies is seen as one of the major policy initiatives of the government of India. Therefore, presenting a case on PACS which is functioning effectively by successfully diversifying its business activities, would serve as a lighthouse for the other PACS to diversify their activities and provide ancillary services to the members. With this backdrop, the present study highlights the success case of T. Narsapuram Primary Agricultural Co-operative Credit Society Limited located in the West Godavari district of Andhra Pradesh. In this case study, we provide details about the overview of PACS in India, genesis, organization aspect of the T. Narsapuram PACS, various services provided to the members, infrastructure available, business turnover, SWOT analysis, and how the T. Narsapuram PACS is different from other PACS. The study also provides valuable policy inputs for Government and other cooperative societies for successfully converting PACS into multipurpose service societies.

Status of PACS in India

As per The National Federation of State Co-operative Banks Ltd. (NAFSCOB) data, a total of 95,509 PACS as one of the world's largest rural financial systems are working in the country, with a huge membership of 138 million, covering more than six hundred thousand villages. Among them, 47,027 societies are in profit and 17,384 societies are potentially viable (March 31, 2020). Among the many challenges faced by these societies, the availability of infrastructure remains prominent, as is evident from the fact that only 56,182 PACS have their godowns. Many primary societies face a range of organizational and managerial issues, especially when it comes to governance.

T. Narsapuram Primary Agricultural Co-operative Credit Society Ltd: The Genesis

In 1995, with a business volume of Rs. 45.00 lakhs, The T. Narsapuram Primary Agricultural Co-operative Credit Society Ltd was established in T. Narsapuram village in T. Narsapuram Mandal, in the West Godavari district of Andhra Pradesh. In Andhra Pradesh, this is the first district, in which the Intensive Agricultural District Programme (package programme) was launched. The district is called the 'Rice bowl' of Andhra Pradesh. Being an agrarian district with rich natural resources, over 70% of the district's population relies on agriculture for their livelihood. There are 265 PACS / Large Sized Co-operative Society (LSCS) in the District. Out of which 72 societies have turnover more than 10 Crores. (https://westgodavari.ap.gov.in/)

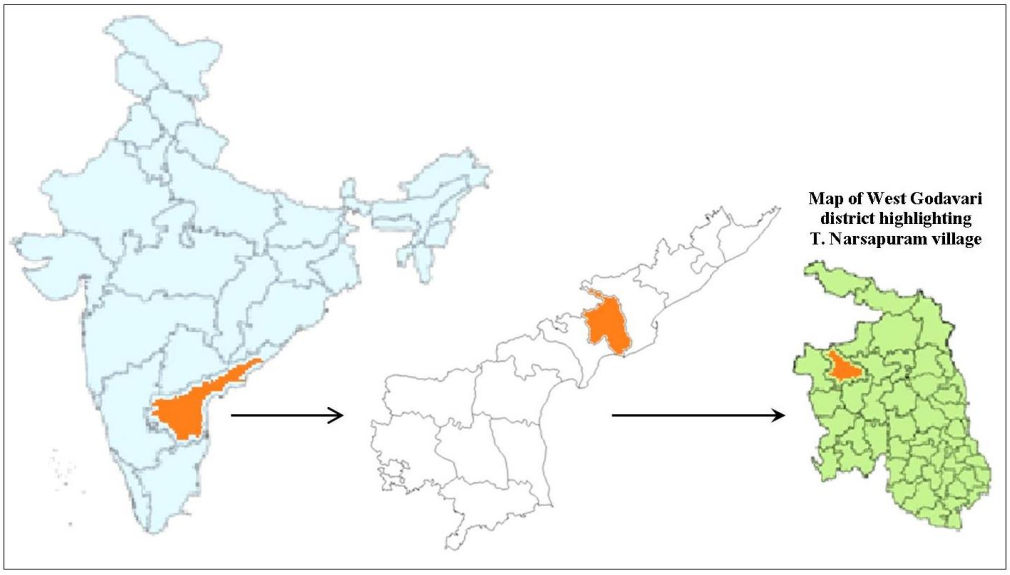

Fig. 1: Location of T. Narsapuram village

The T. Narsapuram Primary Agricultural Co-operative Credit Society Ltd was registered under the Andhra Pradesh Cooperative Societies Act and is affiliated with the district cooperative central bank limited, Eluru, Branch, Chinthalapudi. Initially, with the support of Shri Vidhyadhar and Shri Prakash Babu, and the cooperation of the farmers the society started working with 04 permanent employees in the rented tiled house with no basic infrastructure. In 2010, the society has built an office building with locker facilities and a shopping complex. Narsapuram, R.K.R Gudem, and Krishna Puram are the villages covered by the society. The main occupation of the members is agriculture. Major crops cultivated in the area are paddy, maize, sugarcane, banana, oil palm, and lemon orchards.

Main Objectives:

- To improve the economic standards of the members through timely credit provision.
- To engage in several non-credit business activities and provide employment to the villagers.
- To cater to the needs of the society irrespective of profit motives.

- **Fig. 2:** T Narsapuram PACS Office Building

Fig. 2: T Narsapuram PACS Office Building

Organization aspect of the society

Organizational structure

The chief executive officer of the society is Shri T. Kishor Kumar. A three-member committee is comprised of Shri Muthayya (chairperson), Shri Mallikarjuna Rao, and Shri Rambabu. All the officials are nominated by the government.

Employment generation activities of the Society

A total of 311 people are employed by the society, 150 of whom are employees, 150 milk dealers, and 11 drivers. With 04 employees at its inception, the society now ranks first among the PACS in the district in terms of providing employment. In 2014, society computerized its accounts. Having acquired the necessary training, they are using profound software.

Membership and Share capital

Regardless of caste, creed, religion, or any other social and political affiliation, admission to society is open and voluntary. A cooperative society's strength is its membership. The benefit of having more members is to easily obtain a discount on supplies and other materials and services. Share capital constitutes an important resource of the society to undertake any business activity. Share capital is 10% of the crop loan amount, which varies with the loan's purpose. The authorized share capital is two crores. The share capital value is Rs. 300 per share per member. Table 1

represents the details of membership and share capital of the society over the last five years. It can be observed that over the past five years there is an increasing trend in the share capital.

Fig 3: Employees Working in PACS

Table 1: Details of the membership and share capital of the society

Year	Members	Associates	Total Number	Share capital (Rs. in lakhs)
2016-2017	2309	0	2309	166.43
2017-2018	2631	0	2631	185.11
2018-2019	2911	739	3650	219.01
2019-2020	2801	749	3550	228.28
2020-2021	3278	761	4039	237.21

(Source: Final Audit reports for the last 05 years of PACS)

Meetings

For every six months, general body meetings are conducted. The meetings are presided over by the CEO, and the three-member committee. The members are invited by sending notices to the members, newspaper advertisements, and announcements. There is the active involvement of the members in the meetings and the purpose of the meetings is to inform the members about the status of the various business activities undertaken by the society and to share the details of the disbursed loans & recovered loans. The attendance of the members in the meetings is more than 75%. At the end of the meetings, booklets will be distributed to the participants.

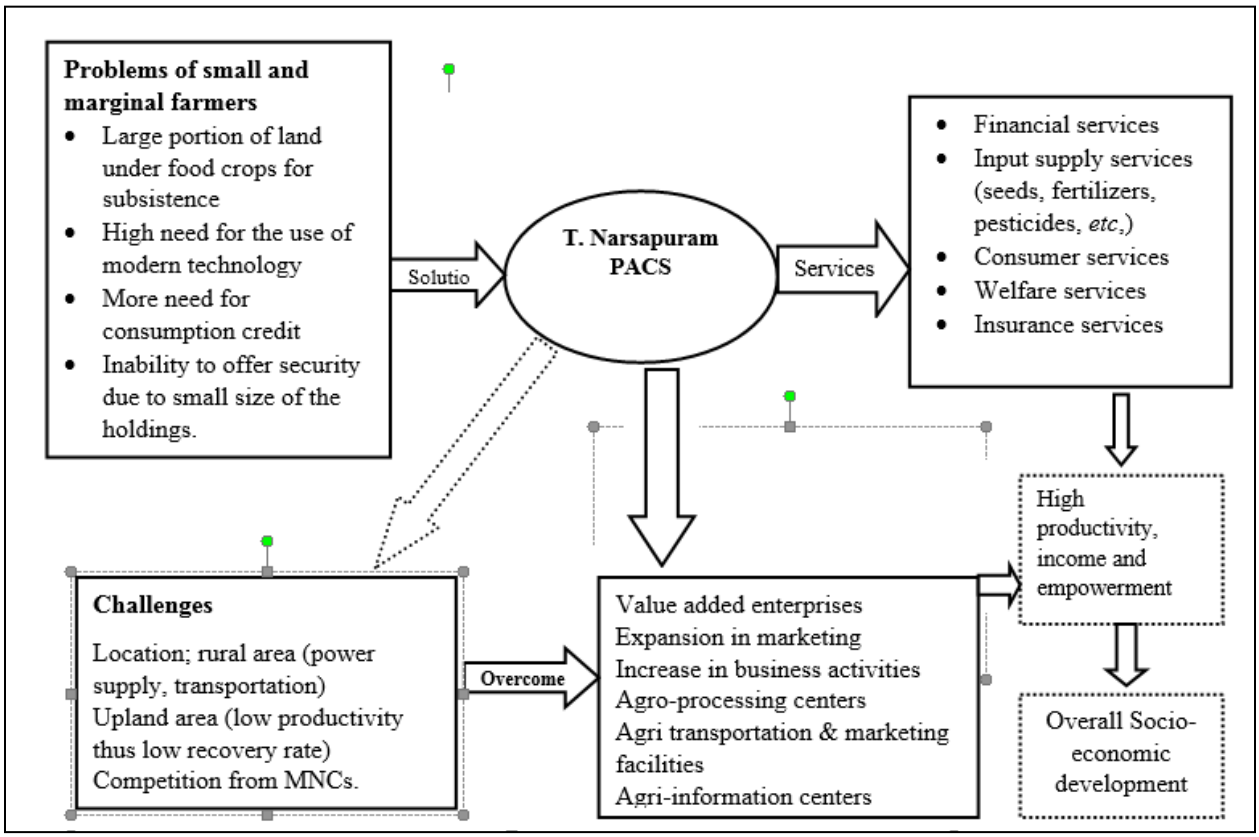

Fig. 4 Framework showing various aspects of studied Narsapuram PACS

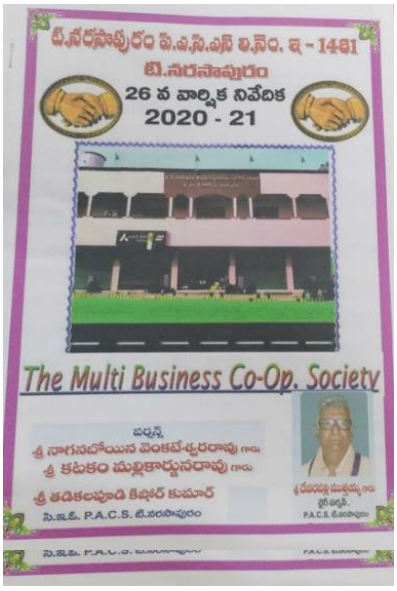

Fig. 5 Booklets distributed at the end of the meetings

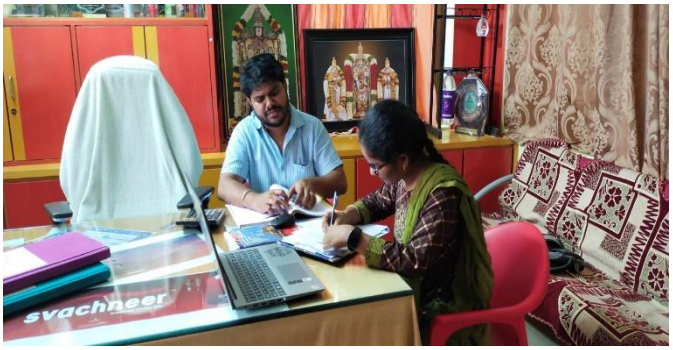

Fig. 6 Personal interview with Mr. Bharat, P.R.O, PACS

Narsapuram PACS as Multi Service Providers

The Narsapuram Primary Agriculture Co-operative Credit Society Limited offers many services with the help of Integrated Co-operative Development Project (ICDP) for the welfare of its members, and that sets it apart from others. Services include financial services, input supply services, consumer services, and welfare services. “The society, with good management, is carrying out a variety of business activities with a service motive and employing many villagers”, says a member of the society. The present CEO of PACS Mr. T. Kishor Kumar says “Hard work is our way, we are in the middle pathway, expecting for smooth running with transparency, and bright future in the nearest fine day”**.**

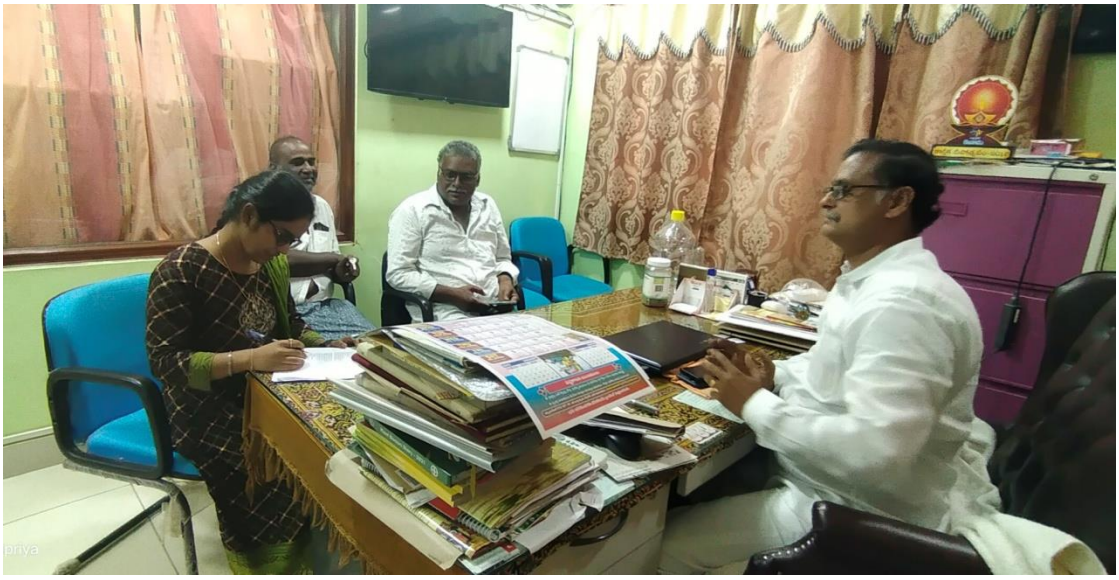

Fig. 7 Author taking personal interview of Mr. T. Kishor kumar, CEO, Narsapuram, PACS

Financial services

For the benefit of needy farmers, the society provides short-term/seasonal agriculture loans, medium-term loans, long-term loans, gold loans, milk loans (to purchase milch animals), business loans, etc. The most sought loans are short-term loans/seasonal agriculture loans. The members are highly satisfied with getting loans timely. Small and marginal farmers who lack capital of their own to invest in agriculture are more benefitted by society. It also accepts the deposit from members with more interest rate than the commercial banks. In deposit collections, it ranked 1st in the Chinthalapudi subdivision. The Recovery percentage for crop loans is 90-95% and for long-term loans, it is around 60-70%.

Table 2: Loans and advances and deposits

Year	Loans & advances (Rs. in lakhs)	Deposits (Rs. in lakhs)
2016-2017	3154.19	990.83
2017-2018	3764.95	1174.89
2018-2019	4671.84	1536.27
2019-2020	5405.58	2122.07
2020-2021	7278.59	3177.708

(Source: Final Audit reports for the last 05 years of PACS)

Sources of finance to the society are:

- Capital
- Reserves and funds
- Grants and other funds
- Deposits
- Borrowings from DCCB Bank, state government, other entitles(institutions)
- Others

Input supply services

The society supplies quality seeds, fertilizers, pipelines required for bore wells, and others. Over a period of 2-3 months, they do seed business. They purchase inputs directly from manufacturers and make them available to the farmers at the lowest possible price, thereby making the inputs available to members at less than the market price. This helps in saving their cost of cultivation and improving the B: C ratio and income. To obtain subsidies and other schemes, society has been in constant contact with the agriculture department and other institutions, indicating its functional linkages with other organizations. Society has got the good infrastructure for input provision also as it owns a fertilizer godown with a capacity of 500 MT for the timely distribution of fertilizers to farmers.

Fig. 8 Supply of fertilizer to the members from godown

Super market (S Mart)

On 14th June 2020 society has started a super bazaar business with an investment of Rs.30 Lakhs in the society Building. It employs 15 persons including both male and female. Good infrastructure, using the latest technology, and providing quality products at a fair price are the distinguishing features of this business when compared to other shops operating in the village that attract more consumers. The consumers are highly satisfied with the wide range of products available and for their quality.

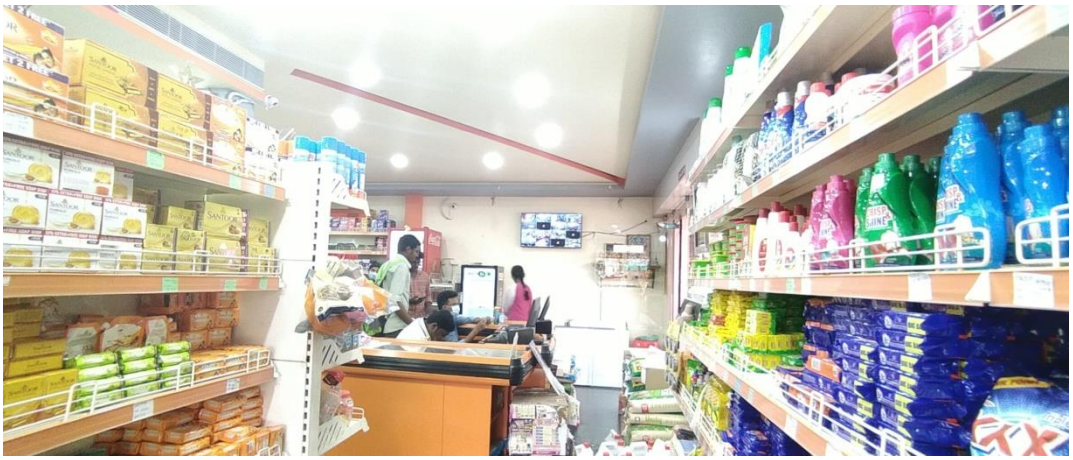

Fig. 9 Super market established by society

Petrol and Diesel Pump

With the help of Bharat Petroleum, the society has established a petrol and diesel pump in 2012 with an investment of Rs.15 lakhs. This was opened for the benefit of society and the welfare of the farmers. It is employing 09 people. “Despite the existence of another petrol and diesel pump in the village, we are doing a good work”, says an employee working there.

Fig. 10 Petrol and Diesel Pump

Milk Chilling Centre

With the support of ICDP, the society has built a milk chilling center with a capacity of 10,000 liters for the welfare of dairy farmers. Every day, it collects 6000 liters of milk and employs about ten persons. Based on the fat content of the milk, the prices are fixed. The center's main activities include: (i) Collecting milk from 03 milk collection centers owned by the society and from 150 milk collection dealers from different districts; (ii) Preserving the collected milk and transporting it to any processing company that will offer a better price and (iii) Conducting meetings for the dealers and giving them targets. Trainings have been given to the dairy farmers by the processing companies to maintain good quality milk. At present, the society is supplying to Godrej Jersey Company. In 2012 and 2014, the society distributed milk cans to dairy farmers to encourage them. The chilling center started earning profits in the very first year of its commencement.

Fig. 11: Author interacting with General Manager, Milk Chilling Centre, PACS

Weigh Bridge

Taking into consideration the needs of farmers, in 2012-2013, with Navabharat's collaboration, the Society installed an electronic weighbridge with an investment of Rs.22.71 lakhs after getting the land to an extent of 0.6 acres from the T. Narasapuram Panchayath. A total income of Rs.19.22 lakhs was received after the completion of the contract. Currently, the Society is receiving a minimum income and providing services to needy farmers to weigh their produce (Maize, paddy, sugarcane, oil palm etc.).

Fig. 12 *Weigh Bridge*

Water, Soda and Bottling Plant

A water processing plant with a capacity of 7000 liters/hour was built using advanced filtering technology in 2017-2018. As there was a huge investment, it reached a break-even point in 2020-2021. The inputs are purchased from multinational companies. They are selling water packets and bottles under the trademark SVACHNEER in a few districts in both Telangana and Andhra Pradesh. “We provide 20-liter water cans to the villagers for Rs. 05/- without minerals and Rs. 10/- with minerals, which cost Rs. 50/- in the market”, says the manager of the water plant”.

Fig 13: Water plant of society

Their motto is to provide quality products at the lowest possible price. Print media, distributing pamphlets, as well as digital media are used for advertisements. In the year 2019-2020, the Society started soda business under the trademark "BarqKing". A total of 54 employees are working in the water, soda & bottling plants. Training is provided to the employees through service providers.

Fig. 14 Soda plant of society

Solar power station

In the year 2018-2019, with the assistance of New & Renewable Energy Development Corporation of A.P. Ltd (NREDCAP), the Society has installed 200KV Solar Power Station with an investment of Rs.93 Lakhs and a subsidy of Rs.30 Lakhs. It can produce 5 lakh units of current per year. It was sold to the Grid of Andhra Pradesh State Electricity Board (APSEB) and received Rs.25 Lakhs as income to deduct the current bill. In the year 2020-2021, with an investment of Rs. 75 lakhs, the Society has extended its solar power station with the capacity of another 200 KV solar power. The total capacity of solar power has now reached 400 KV.

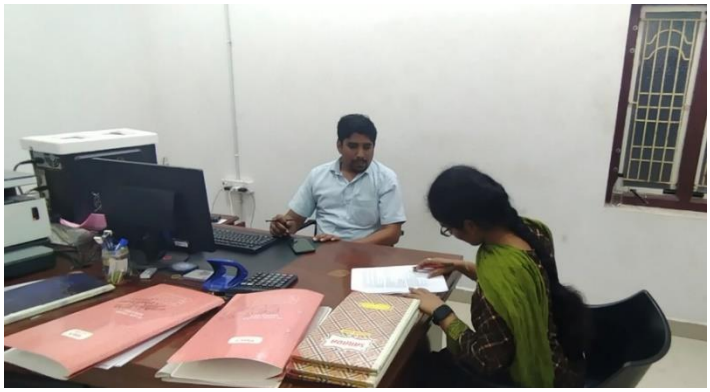

Fig. 15 Personal interview with Mr. Ganesh, Manager, Water plant, T. Narsapuram PACS

Welfare services

As part of their welfare activities, they provided school bags to children and blankets to elderly people. They have donated Rs.50,000/- as a medical fund to the District level, Rs.60,000/- to the Red Cross , Rs.30,000/- to the local library Society, and Rs.1.50 Lakhs for the class benches to the high school. Additionally, they have organized blood donation camps with the active participation of employees as well as medical camps with the support of local NGOs. Fortunately, the society has a meeting hall in their building, so it provides space for meetings conducted by other agencies for the benefit of farmers. The society also extends insurance services to the members.

Infrastructure available with the society

Under the Gramin Bhandar Yojana, "Mahathma Gandhi Godown" was constructed in 2012 with a capacity of 1500 MT. Also, the society provides loans to the farmers by storing their produce in the godown. It has a shopping complex that generates revenue. The Society acted as paddy procurement agent as per Government policy for a year. It has an R.O water plant.

Fig. 16 Mahatma Gandhi Godown of society

Business turnover

Starting with a business volume of 45.00 lakhs in the year 1995, the society has now grown to a business turnover of 128 crores in the financial year 2020-2021. Over the last five years, the business turnover is increasing.

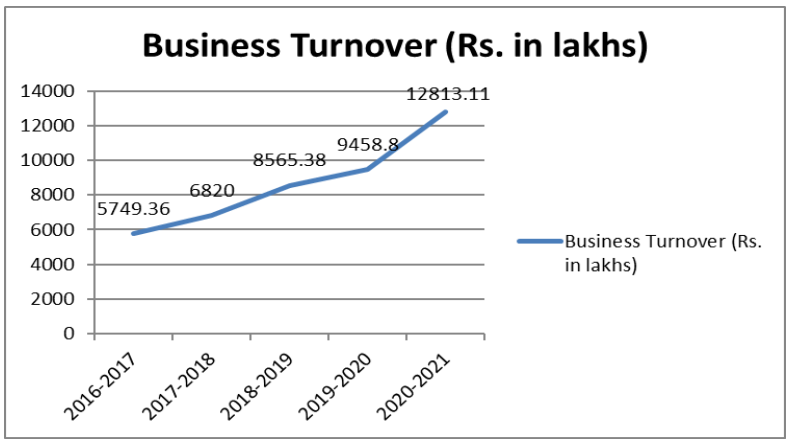

Fig. 17 Business turnover (Rs. In lakhs) **(**Source: Final Audit reports for the last 05 years of PACS)

SWOT analysis of the PACS

To analyze the performance of the PACS, SWOT analysis was employed to know the intricacies of the functioning of the PACS. The different aspects related to internal (strength and weakness) and external (opportunities and threats) were analysed and presented in Exhibit 16.

Strengths

Strengths are the internal characteristics and resources that drive the successful functioning of the PACS. They are: The society owns property worth 30-40 crores. There is good work and service culture of employees. Several officials from NABARD, NCDC, APCOB, BIRD, CTI, and DCCB

visited the society which motivated them. They have cooperation links with the NABARD officials, political leaders, and other organizations. Farmers' cooperation, their sense of belonging, and their trust in society are the main pillars of society. The society has autonomy in performing four activities: interest-rate fixing, staffing pattern fixing, investment in different business activities, deposits, and loaning policy determination. As a result of a change in DCCB guidelines, the area restriction for marketing has been removed. As society has computerized its accounts, transparency has increased.

Weaknesses

Weaknesses are the internal characteristics that hinder the successful functioning of the PACS. They are: As the society's area of operation is upland area and groundwater level is low, the farmers have low productivity. Society struggles to achieve a 100% recovery rate. Internet banking has not been implemented. Issues of power supply also affect the functioning of society.

Opportunities

These are the external factors that can be used to give itself a competitive advantage over its peers and to create a favourable environment or reduce the obstacles in the functioning of the PACS. They are: Society has good opportunities to expand the marketing at large scale. Society has ample opportunity to venture into the flavored drinks business. In the area of operation, lemon orchards are abundant. A value-added enterprise with by-products like lemon juice and syrup can be set up as a part of Atma Nirbhar Bharat. Society has an opportunity to set up Rythu Barosa Kendras in the upcoming years. There is also scope for the society to establish a rice mill (processing plant).

Threats

These are the external factors that have the potential to harm PACS. They are: Building trust with the people in the operation area is very important for society to thrive. Hence, while selling products, the aspects of competition from multi-national companies, quantity, and quality should be considered. The functionaries of the society must have a constructive and positive attitude to conduct all its affairs. A high level of taxes is another major threat. As the society is in a rural area, there is a problem with connectivity and transport for heavy packs, such as 20-liter water bottles.

How Narsapuram PACS is different from other PACS

Strengths (Internal, Positive)	Weaknesses (Internal, Negative)
• Owns property worth 30-40 crores. • Work and service culture of employees. • Several officials visit to the society which motivated them. • Support from the NABARD officials, political leaders, and other organizations. • Farmers' cooperation, their sense of belonging, and their trust in society. • Autonomous in performing 4 activities: interest rate fixing, staffing pattern fixing, investment in different business activities, deposits, and loaning policy determination. • Removal of area restriction for marketing. • Increased transparency in accounts.	• Area of operation is upland area and groundwater level is low. • Low farm productivity and as a result, can't achieve 100% recovery rate. • Lack of implementation of Internet banking. • Issues of power supply.
Opportunities (External, Positive)	**Threats (External, Negative)**
• Expansion of the marketing at larger scale. • To venture into flavored drinks business. • To set up a value-added enterprise with by-products like lemon juice and syrup as a part of Atma Nirbhar Bharat as lemon orchards are abundant. • To set up Rythu Barosa Kendras in the upcoming years. • To establish rice mill (processing plant).	• Competition from multi-national companies. • High level of taxes. • Problem with connectivity and transport for heavy packs, such as 20-liter water bottles.

SWOT ANALYSIS

Fig. 18 SWOT Analysis of Narsapuram PACS

In deposit collections, the society ranked 1st in the Chinthalapudi subdivision. It was found that the society which started with 04 permanent employees now ranks first among the PACS in the district in terms of providing employment. Water & soda plant are functioning profitably under the trademarks SVACHNEER & "BarqKing" respectively. The society is providing multiple services rather restricting to providing credit facilities only. The society which started in the rented tiled house with no basic infrastructure now has its office building with locker facilities. One can also see modern facilities and technologies available with the society. It is providing employment directly to more than 300 persons and indirectly to many persons in the district.

Policy suggestions for rejuvenating other PACS into multipurpose service societies

Some of the suggestions for rejuvenating other PACS into multipurpose service societies from our analysis are listed below.

- Creating awareness, mobilizing farmers with a variety of communication aids, creating leadership are the measures to be taken to increase the membership and their level of participation. This helps to increase share capital which drives PACS to diversify their business activities. It is also important to provide training and capacity building for PACS members.
- Exposure visits to well-performing PACS of nearby areas can also be organized for the PACS members to have a better insight and know-how of the functioning of other PACS.
- To promote PACS as multipurpose service societies, capacity building of board of directors, employees for imparting technical and managerial skills should be undertaken. NABARD, DCCB, or Cooperative training institutes can impart such training. The benefits of converting PACS as multipurpose service societies such as financially strengthening the PACS, creating economic linkages with various sectors of the rural economy, to sustain and maintain the tempo of the society are to be highlighted.
- Democratic functioning with a good governance system is been the major contributor to transforming PACS as multipurpose service societies.
- To promote PACS as multipurpose service societies, it should have both forward and backward linkages and must act as a one-stop solution for both goods and services. Therefore, it requires the active cooperation of various stakeholders. Through

diversification of business activities and deployment of technology, PACS can sustain and financially viable.

- To promote PACS as multipurpose service societies, the financial support, contributions
- in the field of cooperative education and training from the government, and NABARD is to be utilized that helps members to become self-reliant and to promote rural entrepreneurship that strengthens rural economy's transformation.
- Well planning, market research, finding the potentiality of demand in the market, choosing the right project based on SWOT analysis, are needed to transform PACS into multipurpose service societies. This can be done by NABARD, SCB, and DCCB technical and other forms of support.
- Convergence of PACS as multipurpose service societies with other groups/companies, linkages with agriculture universities/ institutes can expand the business potential of these PACS.
- Promoting PACS as multipurpose service societies should be seen as employment generation activities for youths in rural areas.

Thus, the case of Narsapuram PACS is a perfect manifestation of the government's vision to convert PACSs into multipurpose service providers. Starting with the very less share capital and with four employees in 1995 to its present large scale, it has shown how effective diversification of the activities of the PACS can help them to accrue more profit. Ancillary services provided by the society not only satisfy the need of members but also give additional benefits to the society. This study shows the way for a large number of PACSs in the county, which are, involved in the only traditional role of credit delivery to diversify their business activities. At the same time, it provides valuable insights and lessons to the policymakers to formulate policies for reinvigorating PACSs into multipurpose societies.

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Case Study 2

Sahyadri Farms: A sustainable FPO based agri-business model

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The solution to many of the long-standing problems in the agriculture industry has been recognized as the grouping of farmers, particularly small and marginal ones, into producer organizations. It goes without saying that the small holdings' access to markets, inputs, and technology is essential for ensuring the sector's success. Cooperatives, SHGs, FIGs, and other outdated kinds of

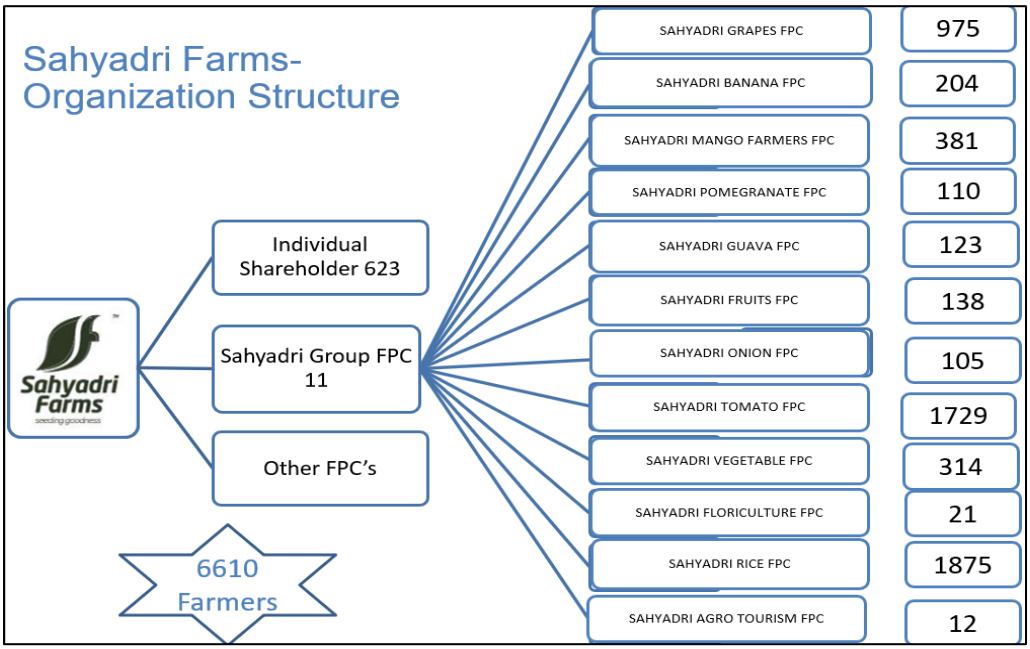

Fig. 1 Organizational Structure of Sahyadri Farms

aggregation tools each have their own drawbacks. Sahyadri Farms is a successful example of a Farmer Participatory Value Chain (FPVC) initiative in India, located in the Sahyadri mountain area of the Western Ghats in the state of Maharashtra, Sahyadri Farms is a farmer-owned cooperative. It has taken advantage of its position throughout the entire value chain by getting involved in every step of the supply chain, including processing and export. The company's main goal was to enable farmers to participate in the value chain by giving them access to the best infrastructure and suitable production and processing facilities. It was started by Sh. Vilas Shinde

in 2010 with an investment of Rs 1 lakh and with 100 farmers as a Farmer Producer Company (FPC) with the goal of empowering small-scale farmers and building a sustainable and lucrative value chain for horticultural products. The company is still entirely owned by farmers and non-farmers cannot be a part of it. Today making it a massive success story with 10,000 farmers collectively owning about 25,000 acres in Nashik region of Maharashtra and producing 1,000 tons of fruits and vegetables daily. They are the biggest exporter of grapes in India. The company has exported 23,000 metric tons of grapes, 17,000 metric tons of banana, and 700 metric tons of pomegranates in 2018-19. Sahyadri farms initially concentrated mostly on grapes because they were in high demand on the international market. Sahyadri now manufactures a variety of value-added fruits and vegetable products in addition to growing fruits and vegetables. (Source: https://www.sahyadrifarms.com/).

Sahyadri Farms: Value Chain

Sahyadri Farmer Producer Companies has a thorough marketing approach that targets both domestic and foreign markets. Such a method aids the business in guaranteeing farmers a fair price for their produce. Due to its strategy for offering clean and hygienic products, the company has developed its own brand throughout time. It has been able to forge connections with reputable retail chain owners throughout the nation, guaranteeing that its members receive fair prices for their produce. By adhering to safety and quality requirements that meet international standards, the company has established itself on the global market. It distributes the money generated from processing and exports among its members.

The company is able to significantly decrease transaction costs as a result of its collective strategy, and the benefits are trickling down to its farmer members. In order to create more seamless supply chains, Sahyadri Famer Producer Company has also entered in the retail market through one of its subsidiaries, Sahyadri Agro Retail Limited.

Table 1: Farmers involved in Associations of Sahyadri Farms

Total Association	Linkage @ 100 % Utilisation		YoY Linkage 31.12.2019	
	Acre Holding/	No. of Farmers	Acre Holding/	No. of Farmers
Fresh Fruit & Vegetable - Export	12825	4710	7300	2681
Fresh Fruit & Vegetable - Domestic	8628	4968	2025	1046
Processing	30404	16633	11725	5314
Total Association	**51857**	**26311**	**21050**	**9041**
Grape	7845	1569	7500	1500
Pomegranate	2070	1035	1100	550
Banana	555	278	300	150
Mango	6260	3130	1800	900
Papaya	1925	963	300	150
Strawberry	471	471	50	50
Guava	3889	1556	625	250
Others Fruits	2988	1494	0	0
Onion	990	990	650	650
Tomato	12491	6245	5550	2775
Okra	1144	763	225	150
Chilly	1144	763	225	150
Potato	630	540	125	107
Corn	1944	972	1150	575
Leafy Vegt	4300	2867	750	500
Other Vegt	3210	2676	700	584
Total Association	**51857**	**26311**	**21050**	**9041**

Sahyadri Farms: Export

In addition to generating income from production, processing and marketing of different agriculture produce, the Grape export stands a major contributor to the company's revenue.

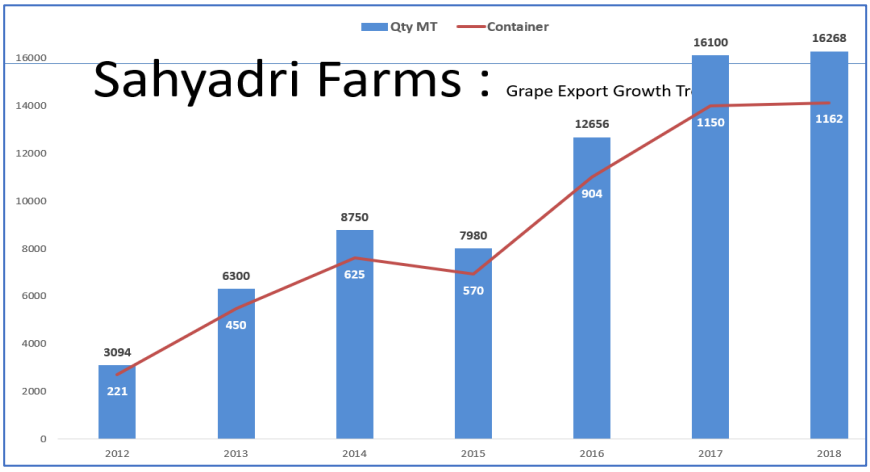

Fig. 2 Grape Export Growth: Sahyadri Farms

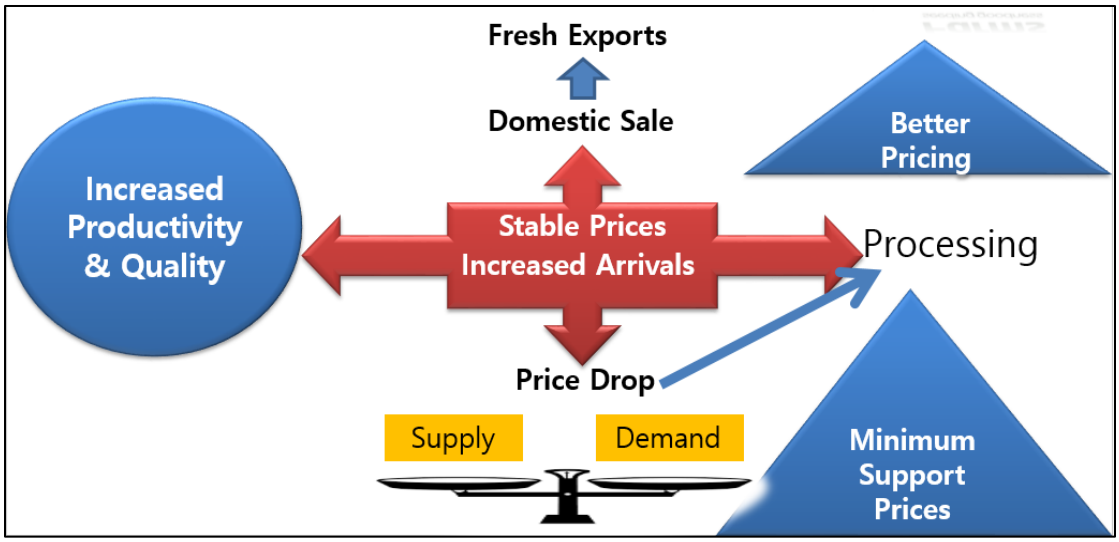

Fig. 3 Sahyadri Marketing Strategy Model

Sahyadri's Global Marketing Partners	Sahyadri's Domestic Marketing Partners
Dole, EDEKA, TESCO, coop, REWE, ALDI, LIDL, Kaufland, Waitrose, Sanlucar, Hindustan Unilever Limited, GREENYARD FOODS, UNIVEG, jupiter, Al Kabeer, Spinneys, orana	CHITALE BANDHU, MOTHER DAIRY, fieldfresh, NILON'S, Foodhall, BIG BAZAAR, HyperCITY, STAR Bazaar, NATURE'S BASKET, big basket, Reliance, METRO, Mapro, VEEBA, Pj Foods

Fig. 4 Marketing partners of Sahyadri Farms

Conclusion

In less than ten years, the Sahyadri Farmer Producer Company developed itself and rose to prominence as one of India's top grape exporters. In the Indian agricultural setting, it has shown to be a viable model for management and operation of a Farmers Producer Company. The company's success offers several lessons that can be applied. It is worthwhile to use the ability of a company's CEO to conceive of an idea, transform it into a business, and push it ahead through its ups and downs as an example for others. Only the team's leader can inspire the group and persuade farmers to join in on the partnership's establishment. A FPC's culture must also be supportive of farmers if it is to succeed in the long run. Other business ethics that an FPC must adhere to include the capacity to seize opportunities through diversification and a balanced produce mix that meet

domestic and international market demands, as well as methods for delivering those products to customers on schedule and at cost-effective prices. The democratic ideal of "for the farmers, by the farmers, and of the farmers" counts as a vital condition for maintaining a company's long-term success, even while diverse stakeholders functioning at different levels may have varied interests, including financial stakes.

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Case Study 3

Organic vegetable value chain model through FPO: experiences of Abhinav Farmers Club

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Abhinav Farmers Club is a national award-winning group for integrated organic farming and direct marketing initiative located in Mulshi Taluka, of Pune district of Maharashtra a state in India.

Vision

- To ensure an income of Rs.1000.00 per day per family from at least 1 acre land.
- To develop the best relationship between Urban & Rural people.
- To encourage young generation for Business development through Hi-Tech Farming
- Women Empowerment through SHGs.
- Doing agriculture as a business view.

Mission

1. Mobilizing Small and Marginal Farmers in Farmers Groups
2. Awareness Creation About Protective Cultivation on Very Small Land
3. Training of Small and Marginal Farmers on Protective Cultivation of Exotic/ Indian Vegetables and Dairy (Geer Cow)
4. Management of Production schedule as per the Consumer Needs
5. Procurement of quality inputs and supply to farmer members
6. Survey of Housing Societies in Metros for Assessing daily requirement of consumers
7. Linking Women SHGs in planting, harvesting, sorting, grading, packaging, transporting and actual selling to consumers as per (Voice SMS & Mobile App) demand registered with system developed by Abhinav Farmers Club / IIT Powai.

The Club was started by Mr. Dnyaneshwar Bodke, who is its chief volunteer also. The club started with 11 farmers in Maharashtra cultivating about 153 hectares of land and set up as on 15 August

2004. It was conceptualised by National Bank for Agriculture and Rural Development (NABARD) and ATMA (Agriculture Technology Management Agency). Now, the club has national presence with more than 1,56,000 farmers who follow the practice of organic farming and use only deshi cows' dung, cow urine & Nimastra to grow the crop. The club has certified organic farmers belonging to the states of Maharashtra, Madhya Pradesh, Gujarat, Uttar Pradesh, Andhra Pradesh, Karnataka and Telangana. The club has received a national award for its activities in 2008.

Traditional farming compelled the farmers to wait for the required weather conditions to start farming. But, not fully depend on the open cultivation only, Abhinav Club follow the practices of Greenhouses and Polytunnels too at least on small part of farm area to get assured income in worse and unfavourable climate conditions. Hence, all farmer members are able to control the conditions in which the crops grow. That's the reason why we farmers are able to excel as we don't have to depend on nature for the right time to begin.

Operational Management System - Harvesting to Marketing

- ✓ Collection of vegetables from farmer members
- ✓ Cleaning, sorting, grading and packaging of vegetable at collective centre
- ✓ Supply of packaged vegetable in societies and offices
- ✓ Vegetable sale through identified outlets in Pune and Mumbai (Malls & Hotels) IT Companies & housing societies
- ✓ Refrigerator vehicle indicating for transporting by ABHINAV SIGN BOARD

Fig. 1 Harvesting to Marketing

To understand the market and logistics, Club decided to market agricultural products directly to customer instead of relying on the middlemen and follow the practice of door-to-door home delivery all over Maharashtra.

Involvement of SHGs

- AFC promoted 112 SHGs in 26 villages
- Women members of SHGs were given responsibility of harvesting, collecting vegetables, cleaning, grading, packaging
- Women members could get some work in business of SHG

Fig. 2 Working in SHG

Online platform

Hence by using online platform and by developing mobile app "ABHINAV CART" for order taking process to serve customer better, Abhinav Farmers club provide home delivery of organic vegetables, fruits, grains and pulses, A2 milk and dairy products over 3 lacks household customers all over Maharashtra.

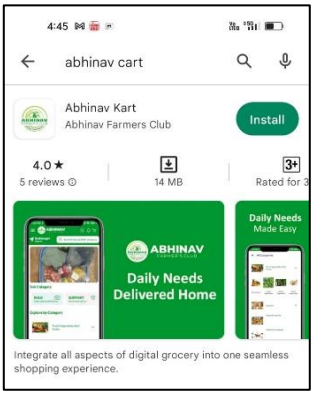

Fig. 3 Online Platform of SHG

Proper packaging ensures that the products remain fresh and reach their destinations without any damage. We, the farmers are trained in the appropriate methods of sowing, planting, and handling the produce. Organized farming has helped the farmers in not only clearing debts but also earning handsomely. Every farmer in the group earns around Rs. 1,000 to Rs. 2,000 per day. There are farmers who earn Rs 3,000 to 5,000 per day. Farmers work from 7 am to 10 pm happily without complaints. Club focuses on hard work resulting in fair deal. Club is implementing such project spread across India with different farmers groups. So, the life of the farmers is elevated (both financially and health wise) as a result of this project all these farmers involved can lead a happy and a satisfied life

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