EXTENSION STRATEGIES AND MODELS IN AGRI TRADING THROUGH FARMER PRODUCER COMPANIES (FPCs): A WAY TOWARDS SUSTAINABILITY

ABSTRACT

Despite this rapid growth, many FPCs are grappling with nascent stages of development and are encountering numerous challenges. The current emphasis on promoting 10,000 FPCs has brought to light a pressing issue: the sustainability of existing FPCs within the agricultural value chain. Thus, this study aims to scrutinize the prevailing extension strategies and trading models employed by FPCs through a detailed case study analysis. Additionally, the study proposes models for fostering the sustainable growth of FPCs, aimed at mitigating market risks. The extension strategies and models under discussion advocate the collaboration of commodity and value chain-specific FPCs under an institutional leadership framework for a federated approach. This involves linking FPCs to markets through startups facilitated by incubation centers and digitally connecting FPCs to direct marketing channels via ICT interventions. The study delineates models such as the BOTT model, Federated model, and ICT-FPO model. It suggests that a commodity and value chain-specific marketing channel can be effectively managed by an Anchor Institution (AI) in partnership with FPCs, which act as suppliers of quality produce adhering to mutually agreed standards. This underscores the importance of adopting a flexible approach tailored to the unique needs of producers, ensuring the long-term viability and success of FPCs. Additionally, FPCs can collaborate with startups in their early years to procure agricultural produce and market their products through startup outlets. FPCs in their initial stages can also act as procurement agencies, similar to the Food Corporation of India (FCI), with government licensing to reduce risk. Implementing a pre-order system for early booking, coordinating with other FPCs for regular supply under an Anchor Institution, and providing adequate storage facilities through warehousing are further steps to enhance FPO sustainability. Training farmers in order management and using technology for uninterrupted material and information flow along the supply chain are also crucial. Lastly, funding and technical support from institutions like NABARD and SFAC are essential until the FPO reaches the break-even point. Flexibility is key in catering to producers' needs, and therefore, scaling up FPCs is a significant endeavor.

Keywords: Farmer collectives, Sustainability, FPO, FPC, Agri trading, Value chain

1. INTRODUCTION

Since gaining independence, Indian agriculture has made significant strides, transitioning from a state of chronic food scarcity to attaining self-sufficiency in food grain production. Presently, the agricultural sector engages 45.00 Per cent of the workforce [1]. In terms of its contribution to the Gross Domestic Product (GDP), agriculture accounted for 19.9 percent in 2020-21 at constant (2011-2012) prices. Notably, a large proportion of farmers, approximately 86.21 percent, belong to the small and marginal categories, with an average landholding size of 1.08 hectares [1]. Several studies and reports have demonstrated the major problems of the sector includes distributed and small-scale landholdings, paucity of high-quality seeds, insufficient supply of manures, fertilizers, and biocides at appropriate time and quantity, inadequate irrigation infrastructure, lack of mechanization, soil erosion, inadequate storage, processing and transport facilities, capital scarcity, lack of communication networks, exploitative practices by local traders and middlemen abound [24, 14]. Further smallholders are more efficient in per hectare output and cropping intensity than the large farmers [25]. However, despite

this significant contribution to production, their link with the market is very weak [2]. Thus, smallholders face numerous challenges in accessing land, water, inputs, credit, technology, and markets. Furthermore, there are emerging challenges like risk and vulnerabilities due to climate change and natural calamities [5]. In this quest the current pandemic, brought by COVID-19 and its resultant restrictions, has further aggravated the farmers' issues [18,35].

Ensuring farmers receive remunerative prices for their produce is crucial, involving two key aspects: Minimum Support Price (MSP) and the producer's share in the consumer rupee. MSP is applicable to specific commodities and is implemented in only certain producer states [22]. However, commodities such as fruits and vegetables, characterized by high perishability, are often undervalued due to the localized nature of their markets. This sector suffers from a fragmented supply chain, low operational scale, and excessive intermediary presence [21].

The Government of India has introduced various interventions to organize farmers into different forms of producer collectives. These included the Cooperative movement (since the 1900s), Self-Help Groups (since the 1980s), followed by joint liability groups, Farmers clubs, Federations of SHGs, and Common interest groups (CIGs), among others. The Government of India has implemented several measures to tackle agricultural marketing issues, aiming to positively impact farmers' income. One such initiative was the Electronic National Agricultural Market (eNAM) [22], which established a unified market through an online platform, promoting the marketing of agricultural products at both state and national levels. Additionally, the Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act of 2017 reflected changes to support the creation of a unified national agricultural market. This act also facilitated alternative market channels, including opening up the system to the private sector and enabling the use of alternate online marketing platforms. There was a renewed focus on Farmer Producer Companies (FPCs), which represented a hybrid model combining cooperative and corporate principles. FPCs involved the collectivization of producers, particularly small and marginal farmers, into producer organizations [28]. They have emerged as highly effective mechanisms for addressing various agricultural challenges, particularly in terms of enhancing access to investments, technology, inputs, and markets [30].

1.1 Development of Farmer Collectives initiatives in India

Based on the findings of the Prof, Y. K. Alagh Committee, the Indian Companies Act of 1956 was amended in 2002 and Producers Company as a separate chapter has been added to the Indian Companies Act [8]. With a provision for setting up Farmer Producer Companies, primarily to address the challenges faced by small and marginal farmers, paving the way for the integration of farming with business.

The Department of Agriculture and Cooperation (DAC), launched a pilot program for promoting member-based Farmer Producer Companies (FPCs) during 2011-12, in partnership with state governments. The result was such that more than three hundred lakh farmers were mobilized into village-level Farmer Interest Groups (FIGs), which were further federated into registered Farmer Producer Companies. Further policy guidelines to FPCs were laid out in 2013 to encourage the formation of FPCs. Producer Organization (PO) is a legal entity formed by primary producers, viz. farmers, milk producers, fishermen, weavers, rural artisans, and craftsmen. The FPO is one type of PO, where the members are farmers [16]. In India FPCs are registered under the Cooperative Society Act 1904, Indian Companies Act 1956, or the Indian Trust Act 1882.

1.2 Institutional Support

State governments, domestic and world aid agencies, corporate sector, and NGOs provide financial or technical support to Resource Institutions (RIs) for the promotion of FPO [16]. Resource Institutions (RI) are those that provide various inputs on training and capacity-building to FPCs, SFAC is the nodal agency for the identification of RIs, and RIs can directly approach SFAC to submit a project proposal to take up FPO promotion [23]. Over time SFAC and NABARD have facilitated training to the Board of Directors (BODs), and Chief Executive Officers (CEOs) of FPCs to enable them to function effectively.

The Indian Council of Agricultural Research (ICAR) is also providing technical support to FPCs through the Krishi Vigyan Kendra in the form of capacity development to the members [9]. Besides FPO can also avail assistance under various schemes of the Government of India such as Agriculture Marketing Infrastructure (AMI), Venture Capital Assistance (VCA), and Mission for Integrated Development of Horticulture (MIDH) scheme for promoting their agri-business activities [17]. Many tool banks have been started in the state of Maharashtra, and various types of tools and equipment are easily made available to the farmers' companies on an easy rental basis [11].

The most recent form is the FPC. FPC allows the farmer cooperatives to function as a corporate entity. The objective of the FPC is related to the production, harvesting, procurement, grading, handling, and marketing of primary produce.

Every FPC has a minimum of five boards of directors and a maximum of 15 directors. The FPC provides a direct network for the marketing of food products and helps in sustaining AVC. FPC is registered under the Company Act 1956. It is an effective approach to sustaining the AVC through a collective approach. In a study on the impact of FPC in the Bundelkhand region, it was found that members of cooperatives have experienced a significant increase in their social capital, human capital, and economic as well as political capital [13].

1.3 Status of FPCs

The very first company registered as a Producer Company in India was “Farmers Honey Bee India Producer Company Ltd.” which was registered on June 6, 2003 in Chandigarh [4]. Five producer companies were registered in the first Financial Year (FY) April 1, 2003 to March 31, 2004. Only 445 companies were formed in the first ten years after the statute was passed (FY 2004 to FY 2013). In FY 2014, the number of producer enterprises registered increased to 497, surpassing the preceding ten years combined. In FY 2016, the number of registered businesses surpassed 10,000 for the first time and reached 1691[5]. In the last three financial years (FY 2017, FY 2018, and FY 2019) the producer enterprises registered were 1477, 909, and 1804 respectively. Maharashtra stands first with 1940 Producer Companies outnumbering the falling three states combined i.e., Uttar Pradesh, Tamil Nadu and Madhya Pradesh.

Table 1: Number of FPCs registered in SFAC, NABARD and self promoted

State	SFAC promoted FPO	NABARD promoted FPO	Self promoted	Total
Andhra Pradesh	16	8	1	25
Arunachal Pradesh	6	95		101
Assam	18	40		58
Bihar	38	118	2	158
Chattisgarh	26	7	1	34
Delhi	4			4
Goa	2	2		4
Gujarath	25	118	6	149
Haryana	23	50		73
Himachal Pradesh	8	51		59
J& K	2	13		15
Jharkhand	10	60		70
Karnataka	125	159	3	287
Madhya Pradesh	149	160	1	310
Maharastra	105	119	20	244
Manipur	8	5	1	14
Meghalaya	3	11		14

(Source: SFAC website)

1.4 Important activities of FPCs

Farmer Producer Companies (FPCs) play a crucial role in establishing strong forward and backward linkages within the agricultural supply chain [13]. They procure farm inputs in bulk from the market, reducing the overall cost of input supply. FPCs also disseminate technology and innovations to improve farm cultivation practices and increase the income of their members. This includes advancements such as improved farm implements, machinery, and innovations in crop varieties, creating new business opportunities. Furthermore, FPCs provide financial support to their members, enhancing their purchasing power for inputs. They also aggregate and store produce, collecting all farm produce from members and storing it to minimize damage and waste. Additionally, FPCs engage in primary processing activities such as drying, cleaning, and grading of produce. They also focus on brand building, labeling, packaging, and standardization, ensuring that the farm produce is packed under the FPO's brand name with appropriate labeling and quality standards. Quality control measures are implemented to maintain the quality of farm produce and their by-products. Lastly, FPCs participate in commodity exchanges and export activities, facilitating the export of farm produce outside the district, within the country, and internationally [16].

Against this backdrop, the study aimed to examine the current extension strategies and trading models in agricultural trading through Farmer Producer Companies (FPCs) using a case study approach. It also proposes models for the sustainable development of FPCs, aiming to mitigate market risks. Following this introduction, the second section of the

study presents Agri trading, extension strategies and models through case studies, while the third section discusses the conclusions.

2. AGRI TRADING

Agriculture focused on perishable products like fruits and vegetables has witnessed significant production but inadequate utilization [6]. This has raised concerns about the substantial wastage of these products [10]. In India, farmers rely on various supply chains to reach consumers, each of which has evolved. The oldest model is the Agricultural Produce Market Committee (APMC) supply chain, where crops are sold to traders at local agricultural markets (mandis). These products pass through several transactions between traders before reaching wholesalers and eventually retailers in cities and towns [30]. The second model is contract farming, a form of vertical integration that is used in agricultural commodity chains wherein the farmer contracts to sell his crop to a manufacturer who sells the final product to the retail market after processing [3,30]. While cooperatives provide benefits to farmers through state intervention, Farmer Producer Companies (FPCs) empower farmers by enabling collective bargaining and fostering entrepreneurial skills. This approach offers small and marginal farmers a means to engage in the imperfect markets of developing countries [30]. Research findings suggest that FPCs offer significant opportunities for small and marginal farmers to engage more efficiently in markets [27]. The third model involves Farmer Producer Companies (FPCs), which represent the collective efforts of farmers to directly sell their goods to consumers in retail markets [16]. This approach differs from traditional marketing methods used by farmers, as the intervention of FPCs results in a shift in how produce is marketed. This change is characterized by the elimination of middlemen, leading to economies of scale.

A hypothetical model is depicted in Figure 1, which showcases the current situation where farmers sell their produce to local aggregators and receive Rs. 25 per kg for ragi. However, if farmers were to leverage the potential benefits of Farmer Producer Companies (FPCs) and directly market their processed products to consumers, they could potentially sell at Rs. 90 per kg [22]. Thus, by utilizing FPCs in agricultural marketing channels, there could be an increase in farmers' share in consumer rupee.

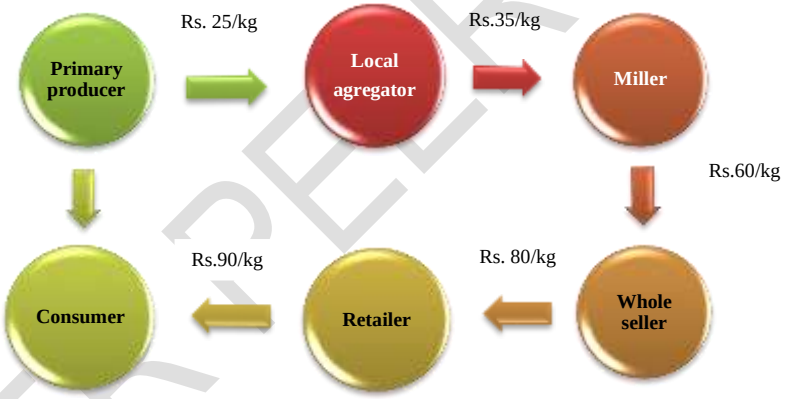

Figure 1: Millet farmers' share in consumer rupee, Source: [22]

2.1 Extension Strategies and models in Agri trading through FPCs

Farmer Producer Companies (FPCs) can introduce vertical integration into the traditional food chain by carefully planning long-term business strategies based on the needs of the market. This approach enables producers to engage in the entire value chain and gain from the value added at each stage of agricultural operations [20]. The following are some of the strategies and models in agricultural trading through FPCs:

2.1.1 Collaborative Approach of Commodity and Value Chain-Specific FPCs with Institutional Leadership for Federated Operations

The proposed strategy involves managing commodity and value chain-specific marketing channels through collaboration between an Anchor Institution (AI) and Farmer Producer Companies (FPCs), with FPCs supplying quality produce according to mutually agreed standards. The AI could be NGOs, consulting firms, research institutes (such as the Indian Institute of Millet Research, Indian Institute of Rice Research, Central Tuber Crop Research Institute, etc.), or Krishi Vigyan Kendras (KVKs). The selection of the AI should be done carefully, focusing on the most suitable business strategy for specific value chains in five to ten states, and providing financial support. Commodity-specific FPCs can be

consolidated at the state level, with FPCs specializing in production and post-harvest activities, while AI specializes in commercial and market requirements, managed by a team of independent professional organizations responsible for the business plan. FPCs in the early stages can focus on procurement, while those beyond the break-even point can focus on processing, ensuring a consistent supply in the value chain marketing channel. Cluster-Based Business Organizations (CBBOs) can promote the AI through the Build Operate Train Transfer Model (BOTT model) as suggested by [31].

2.1.1.1 Build Operate Train Transfer Model (BOTT model)

According to the BOTT model, FPCs would supply quality produce for a period of four years, while the commercial and market aspects would be the responsibility of the AI, managed by a team of independent professional organizations that develop the business plan. Once the business is established, the AI would transfer ownership to FPCs in the state, more or less equally.

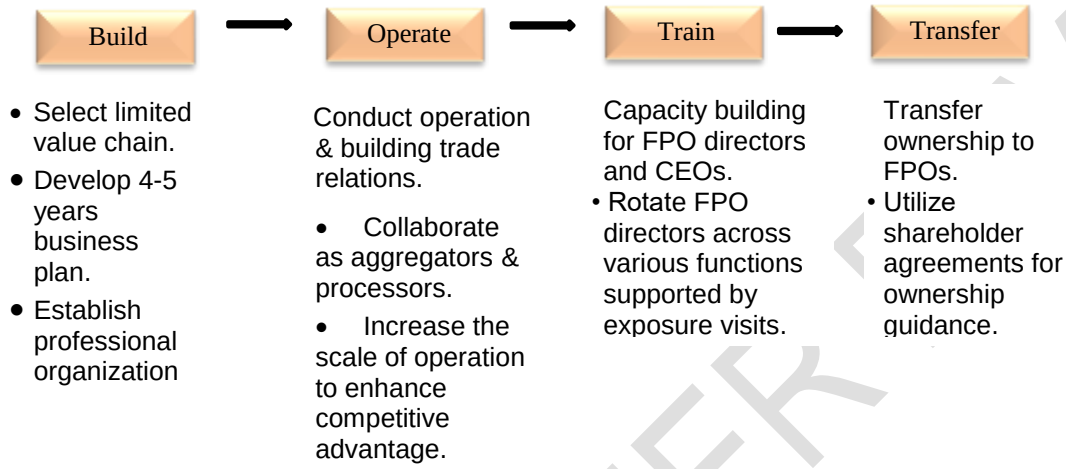

Fig 2: BOTT model, Source: [31]

The BOTT model of FPCs offers several advantages, including the collective management of market risks by AI, equal opportunities for participation for all FPCs, and practical, hands-on training at the grassroots level with real-world business applications for FPCs. Some state governments have recognized the need for AI for FPCs. For instance, the government of Karnataka is in the initial stages of developing and implementing AI for FPCs at the district and state levels [31]. In Nagpur district, administrators utilized FPCs as distribution channels for fruits and vegetables, with 220 FPCs collaborating to sell 2000 quintals of produce daily at 223 designated locations allocated by the district administration [26]. The government could also issue licenses to nascent FPCs to act as procurement agencies, similar to the Food Corporation of India (FCI), which would help reduce risk.

2.1.1.2 Federation model

Commodity-specific FPCs can be consolidated at the state level, with FPCs specializing in production and post-harvest activities. The specialization in commercial and market requirements should be managed by an AI and a team of independent professional organizations responsible for the business plan. FPCs in the early stages can focus on procurement, while those beyond the break-even point can concentrate on processing, ensuring a regular supply in the value chain marketing channel, which is diagrammatically explained in Figure 3.

Vasundhara Agriculture Horticulture Producer Company Ltd (VAPCOL) is a federation of FPCs established by the Bharatiya Agro Industries Foundation (BAIF), an NGO. The VAPCOL model initially organizes farmers into collectives, forming various Farmer Producer Companies (FPCs), which are then integrated into a federation. VAPCOL comprises members from 15 cooperatives in Gujarat, 28 producer organizations in Maharashtra, and 12 producer organizations from states like Madhya Pradesh, Uttar Pradesh, Rajasthan, and Chhattisgarh. It focuses on agriculture and horticulture crop production, marketing, and branding, serving as a multi-state second-tier farmer organization for procurement, grading, marketing, selling, and exporting agricultural commodities[10].

The procurement of produce occurs at the block level and is then processed further, including boiling, cutting, and processing, at village-level processing units. The semi-processed products are transported to the headquarters for grading, sorting, and packing under the brand name Vrindavan. Mango processing is centralized in a single processing unit. Any individual engaged in production and processing can become a member of VAPCOL. VAPCOL has expanded into e-market channels such as Snapdeal and Amazon under the brand name 'Vrindavan'.FPCs in their early stages can procure products from farmer members and engage in contract farming, with the Anchor Institution overseeing the agreement between the FPO and the processing company[10].

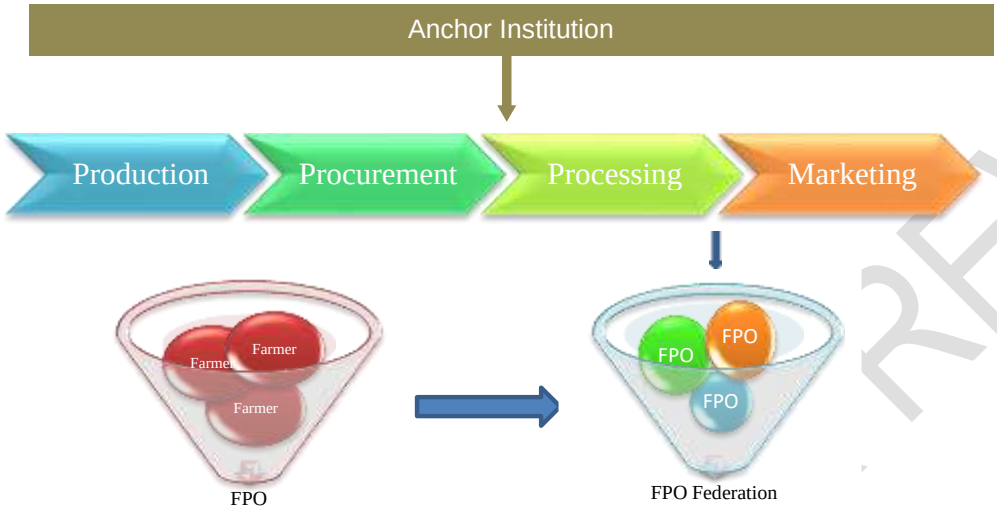

Fig3: Federated model of FPOs (VAPCOL), Source: Created by authors

2.1.2 Linking FPCs to market through Startups via Incubation centers

Startups are typically small ventures initially funded and operated by a few founders or an individual. They offer a product or service that is either not available elsewhere in the market or is perceived by the founders to be offered in a subpar manner [7]. An agritech startup is characterized as an individual or a segment of companies utilizing technology in agriculture to enhance productivity, efficiency, and output. Agritech solutions can be applied across the agricultural value chain, taking the form of a product, service, or application[13].

Various institutions such as the Indian Institute of Management Ahmedabad (IIM-A), National Academy for Agricultural Research and Management (NAARM), National Institute of Agricultural Extension Management (MANAGE), International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Indian Institute of Management (IIM-C) Calcutta Innovation Park, SIDBI Innovation & Incubation Centre (SIIC), NASSCOM Centre of Excellence for IoT, Indian Institute of Millet Research, Central Tuber Crop Research Institute (CTCRI), Tamil Nadu Agricultural University (TNAU), and University of Agricultural Science Bangalore are actively supporting agritech startups through incubation and acceleration programs.

Incubation centers play a vital role in facilitating market access for FPCs. They procure produce from FPCs and connect individual FPCs with traders, buyers, food industries, startups, and other stakeholders. FPCs can collaborate with startups during their early stages by supplying agricultural produce and marketing their products through the outlets provided by startups. The incubation center's role is to facilitate market linkages and oversee agreements between FPCs and agritech startups. This collaboration benefits both parties, as it helps FPCs find the right markets while providing startups with quality produce for further processing and value addition [22]. It is diagrammatically represented in figure 4.

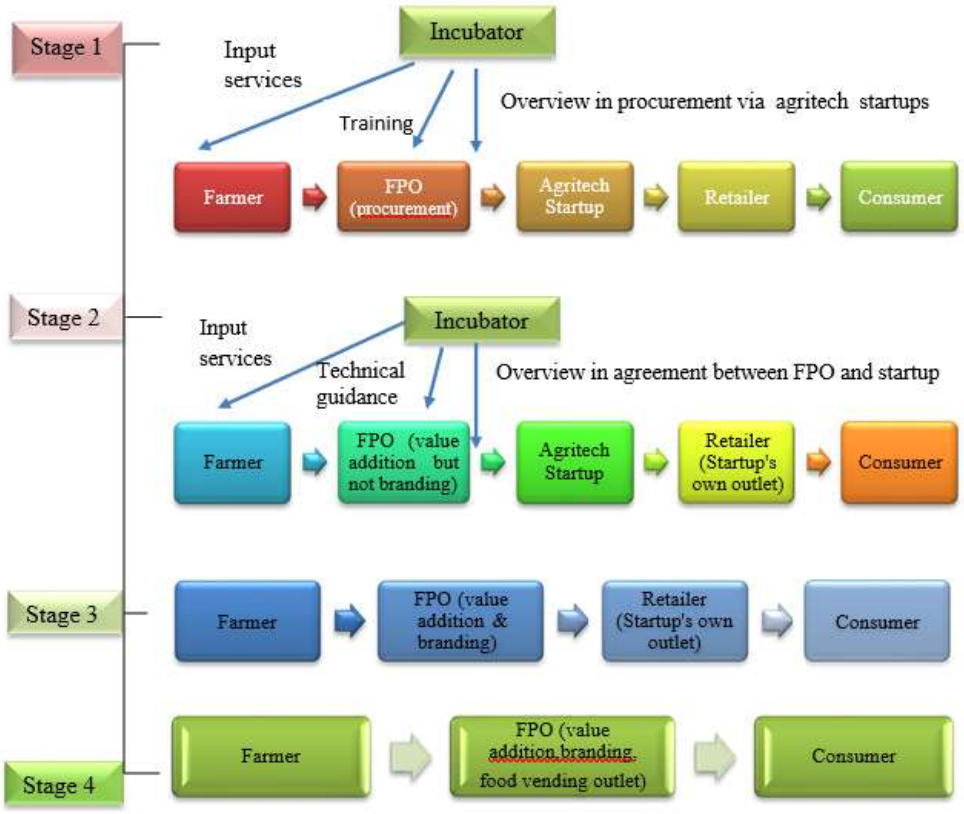

Fig4: Model showing various stages of value chain in sustainable FPO development via Agritech

Source: Created by the authors

The Indian Institute of Millet Research (IIMR), the primary organization focusing on millet research, development, and value addition, has incubated 15 startups through Nutri Hub. These startups have initiated businesses centered around the value addition of millets and are marketing their products under their brands [22]. IIMR has endeavored to connect Millet FPCs with these startups to facilitate the sale of millets produced by the FPCs associated with IIMR.

2.1.3 Linking FPCs to direct marketing digitally through ICT interventions

Online platforms have emerged as a prime marketing solution for various products, necessitating ICT interventions. The COVID-19 crisis has underscored the role of digital technologies in improving the efficiency of supply chains [1]. However, there are limited platforms utilized for effectively selling agricultural produce on a large scale. FPCs can seize this opportunity by collectively selling the agricultural products of their members online. During the lockdown, certain FPCs collaborated to sell their produce through online platforms.

Abhinav Farmer Producer Organization originated as Abhinav Farmer's Club; a cooperative of farmers based in Pune. Over its 15-year existence, the FPO has expanded to encompass 45,000 farmers across multiple states, including Maharashtra, Madhya Pradesh, Gujarat, Uttar Pradesh, Andhra Pradesh, Karnataka, and Telangana. During this period, it has diversified its agricultural portfolio, focusing particularly on fruits and vegetables such as flowers, Indian and exotic vegetables, fruits, milk, and other services [10].

As the organization's workload increased, it decided to involve women in the club and began forming self-help groups (SHGs). These SHGs assisted the organization in expanding its services, particularly in activities like harvesting, sorting, grading, and packaging of fruits and vegetables. Initially, a direct marketing model was effective when the production volume was low. However, as the club grew and the number of members increased, they revised their strategy. They partnered with IIT Mumbai and adopted an application developed by the institute for managing the supply chain of their produce, which eventually led to the development of "Lokacart." Previously, SHG women would manually collect orders from 7,500 customers via phone calls under the DND mode, which sometimes led to miscommunications regarding the quantity ordered and received [10].

Lokacart allows customers to view out-of-stock items and provides information on the remaining balance for previous deliveries. The application incurs a cost of just 50 paise per customer for the club. Operations are managed by

the daughters of their members, who are paid INR 30,000 [10]. However, there were issues with the management of the app, particularly regarding order management.

In response, they decided to develop their application, named "Abhinav Cart," through which they now manage all aspects of the supply chain. They have designated days for each area, and customers can place orders through the app, receiving their products on the scheduled delivery day [10]. The workflow model is depicted diagrammatically in the following figure 5.

Fig 5: ICT FPO model, Source: Created by the authors

4. CONCLUSION

The study indicates that the sustainability of Farmer Producer Companies (FPCs) can be achieved through several key strategies. Firstly, the management of commodity and value chain-specific marketing channels can be entrusted to an Anchor Institution (AI) in collaboration with FPCs, with FPCs supplying quality produce according to agreed standards. Secondly, merging commodity-specific FPCs at the state level can help prevent a market glut. Thirdly, FPCs can leverage e-marketing and e-NAM (National Agricultural Marketing) platforms to collectively sell their agricultural products online. Additionally, FPCs can collaborate with startups in their early years to procure agricultural produce and market their products through startup outlets. FPCs in their initial stages can also act as procurement agencies, similar to the Food Corporation of India (FCI), with government licensing to reduce risk. Implementing a pre-order system for early booking, coordinating with other FPCs for regular supply under an Anchor Institution, and providing adequate storage facilities through warehousing are further steps to enhance FPO sustainability. Training farmers in order management and using technology for uninterrupted material and information flow along the supply chain are also crucial. Lastly, funding and technical support from institutions like NABARD and SFAC are essential until the FPO reaches the break-even point. Flexibility is key in catering to producers' needs, and therefore, scaling up FPCs is a significant endeavor.

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