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Strengthening Market Access for Small and Marginal Farmers Through Farmer Producer Companies in India: Issues and Way Forward

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Abstract

This review paper attempts to delineate the role of Farmer Producer Companies (FPCs) in providing market access and empowering small and marginal farmers in India. It focuses on pre and post FPC formation key issues raised by experts that hinder their effective participation in the agricultural value chain. In this context, it also highlights best practices from across the country emphasizing the criticality of factors such as the cluster approach, quality standards, use of technology, importance of inclusion and effective need assessment. It also points to the dire need of making access to credit easy by strengthening Bank-FPC linkages. Finally, the paper suggests the way forward to strengthen FPCs at the last mile through an ecosystem that fosters synergies, in agricultural produce clusters, with Panchayati Raj Institutions (PRIs) and Krishi Vigyan Kendras (KVKs).

INTRODUCTION

India's 'agriculture sector'[1] is a critical source of livelihood, especially in the vast rural geographies of the country. It plays a key role in making the nation food secure and generating exportable surpluses. Ever since the country's independence and the onset of the Green Revolution[2], the sector has been undergoing structural change in respect to farm size, cropping patterns and its share in the 'Gross Value Added (GVA).'[3] As per 'provisional estimates 2019-20, it accounts for 17.8% of the country's GVA.'[4] As per the Census 2011 54.6% of the total workforce in the country is still engaged in this sector. Approximately 85% of the operational holdings of farmers are small and marginal i.e., holdings of less than two hectare (and in some regions dependent on 'rainfed farming'[5]). The size of these operational holdings is continuously declining, raising serious questions on survivability of these small holders (Pandey, et. al., 2010). Despite this constraint, the country's food grain production as per 'provisional estimates, 2019-20 has touched an all-time high of 296.65 million tonnes and it has, infact, been surpassed by horticulture production of 320.48 million tonnes.'[6]

Agriculture is a 'state subject',[7] yet the central and state governments, in conjunction, have been active facilitators of the process of agricultural development. This includes strengthening of 'agricultural marketing infrastructure'[8] (rural roads, wholesale and periodic markets etc), 'research and development'[9] and outreach to farmers through technology ('direct benefit transfers'[10] and 'electronic national market'[11]) across the country. Besides, nurturing an apt ecosystem of incubation has enabled innovative agricultural 'start-ups'[12] to take roots.

In the recent decades, a few important trends have been witnessed. Change in lifestyles and consumption habits, in both rural and urban areas, has led to diversification in consumer diets. There is increasing substitution of traditional staples e.g. rice and wheat by non-staples such as fruits, vegetables, livestock, organic and processed products. As a result, issues of 'nutritional security i.e. access to diverse foods'[13] have come into sharp focus.

Another concern is the loss of agricultural produce, on its way from farm to consumers. Such loss, that is said to 'range between 15 to 20%, is attributed to bottlenecks in post-harvest connectivity'[14] to markets. Perishables such as livestock produce, vegetables and fruits form a significant part of this loss.

The adverse impact of climate change on crop production is another worrisome phenomenon. Integration of adaptation and mitigation strategies to encourage requisite investments in 'climate smart agriculture'[15] have become critically important. In this regard, the need for tapping clean renewable energy sources and more importantly promote water conservation has been emphasized to reduce the carbon footprint and hence the associated risks.

A target has been set by Government of India to double the farmers' income by 2022. Therefore, the 'Report of the Committee on Doubling Farmers Income (DFI)'[16] assigns the highest priority to interventions that will eliminate constraints faced by small and marginal farmers and other stakeholders in the 'agricultural value chain.'[17] Such a value chain includes input provision/use, production, post- harvest processing/ storage and transportation/marketing/sales through requisite investments. The Report further outlines the importance of improving net returns to such farmers in this chain by lowering costs through their aggregation into collectives.

In the above backdrop, there is a dire need, first and foremost, to further strengthen the access of small and marginal farmers to agricultural credit, inputs, technology and 'extension services.'[18] At the same time there is a need to plug bottlenecks in transaction costs associated with their market entry and attaining economies of scale. To do so, aggregation of farmers into Farmer Producer Organizations (FPOs) and more specifically Farmer Producer Companies (FPCs) has been suggested by experts as the way forward (Singh, 2013).

Herein, small and marginal farmers jointly access input resources and also market their produce. With other requisite backward and forward linkages, such as availability of credit and robust extension services, aggregated small and marginal farmers are to be the fulcrum of future agricultural growth in the country. This, experts contend, will empower them, as business entrepreneurs, to connect effectively to domestic and global markets and hence raise their incomes manifold.

Infact, unleashing of such agribusiness entrepreneurial spirits is at the core of the recent announcements made by Government of India for the agricultural sector under the '*Atma Nirbhar Bharat Krishi Package*'.[19] This package intends to transform small and marginal farmers into vibrant producers through a barrier free agricultural eco system and availability of funding for infrastructure.

STRUCTURE OF THE REVIEW PAPER

In the above context, this review paper is structured as follows. First, in the backdrop of the synergies between the Cooperative Movement and FPOs, it attempts to specifically delineate the role of FPCs in providing market access and empowering small and marginal farmers in India. Second, it outlines the legal framework to constitute such farmer companies and their essential statistics. It also highlights the guidelines and schemes announced by Government of India to support them from time to time including the cluster approach. Third, it probes some critical issues raised by experts in the setting up and last mile functioning of these producer companies especially easy access to credit. In this context, it also shares information about a few FPC best practices from across the country exploring key operational issues. Finally, the paper arrives at conclusions on the way forward to strengthen such producer companies by forging last mile convergences and plugging information asymmetries in produce clusters.

APPROACH AND DATA SOURCES

The approach of this review paper is essentially analytical. Through such an approach it aims to delineate issues and challenges in providing market access and empowering small and marginal farmers as members of FPCs in India. The study is based on secondary data of annual reports, books, journals and published articles including online resources.

COOPERATIVE MOVEMENT AND FPOs

The review of literature for this paper reveals that the discussion on FPOs and more specifically FPCs is embedded in the discourse, policy and practise of the 'Cooperative movement'[20] in India.

The first cooperative act was legislated in British India in 1904. Producer organizations in the form of producer cooperatives have existed over hundred years ever since then. Infact, 'Primary Agricultural Credit Societies (PACS) are one of the oldest forms of producer organization'[21] at the village level addressing the rural credit needs of small and marginal farmers. Similarly, *Amul* became India's largest dairy food product marketing cooperative. To replicate its success, the National Dairy Development Board (NDDB) was set up and it launched Operation Flood to create farmer milk cooperatives across the country.'[22] Hence, ever since independence, Government of India has provided massive financial, technical and administrative support to co-operatives both directly and indirectly through State governments (Dwivedi, 1996).

FPOs, in the above context, are aggregation institutions that aim at connecting the small and marginal farmer to both input and output markets. Such organizations are initiated either by the government, cooperative institutions, private sector, civil society, trusts and statutory societies. 'There forms include agricultural cooperatives, producer companies, self-help groups, federation of self-help groups, common interest groups, farmer interest groups, commodity interest groups, joint liability groups, farmers clubs etc. These forms vary in terms of membership and geographic spread.'[23]

A fundamental basis is that farmer producers with common interests agree to pool their resources and jointly manage farming issues of credit, input sourcing, deployment of farm technology and post-harvest handling. They also manage dissemination of market information, good agricultural practices, participation in 'commodity exchanges'[24] and 'exports'.[25] 'Farmer members, herein thus can seek reduction of transaction costs by leveraging their collective and bargaining strength to access financial inputs. At the same time, they can, on equitable terms, tap high value markets through business partnerships with myriad entities.'[26]

THE PRODUCE CLUSTER RATIONALE

Grouping farms together to operate as a produce specific cluster with contagious tracts of land has also been argued as the concept behind forming of FPOs. 'Such an approach is necessary to bring about a critical economy of scale at the farm gate so that farm inputs can be better managed, the cultivation gets consolidated care and the output from farms has a viable scale for post- production handling. More importantly, production from collaborative farming is to be linked to multiple demand centres (including proximity to urban centres) for quick evacuation of produce and to further maximize market opportunities.'[27] Such produce clusters can span across villages, blocks and even districts.

LEGAL PROVISIONS

As has been explained in the preceding paragraphs, while an FPO is a generic name that represents different forms of community organizations/enterprises, a "Producer Company" is a special case of a producer enterprise that is registered as a body corporate under Section IXA of the Companies Act, 1956 (now Companies Act, 2013 as amended in 2002).

An expert Committee led by noted economist Dr. Y.K. Alag recommended setting up of such companies by incorporating Part IXA in the Companies Act, 1956. Such a producer company's main activities consist of 'production, harvesting, processing, procurement, grading, pooling, handling, marketing selling, export of primary produce of the members or import of good and services for their benefit. It also includes promoting mutual assistance, welfare measures, financial services, insurance of producers or their primary produce.'[28]

FPCs constitute of only primary producers to participate in the ownership and management of the company. Thus, members necessarily have to be persons engaged in any activity with or related to primary produce which in the case of this review paper are agriculture and allied activities. Besides, 'primary producers share profits among its members. Such producers are shareholders in the company and remaining profits are added to the organizations owned funds for business expansion.'[29] It has been aptly stated that FPCs are formal autonomous, outward oriented organizations and can be regarded as a hybrid between private companies and cooperatives (Trebbin, 2014).

A study has been conducted by the 'National Bank for Agricultural and Rural Development'[30] (NABARD) to analyse design variables of FPOs (and FPCs) and their dynamic interrelationships. It states that 'the optimal position of key variables of size, scope, technology, ownership and management has to be such that the FPO (and FPCs) evolves as a sustainable community enterprise system. Also, that it can serve as a single window service centre to all farmers/producers in a cluster of villages or a Gram Panchayat.'[31] Thus, with the cluster approach as the growth driver, this review paper, in context of various policy variables, will delve deeper into the issue raised by NABARD study while suggesting the way forward to strengthen these companies.

AGENCIES INVOLVED IN PROMOTION OF FPCs

Over the years, FPCs have been supported by Government of India, NABARD, Ministry of Rural Development, Ministry of Agriculture & Farmers Welfare, 'Small Farmers Agribusiness Consortium (SFAC)'[32] and state governments. Several international organizations such as International Fund for Agriculture Development (IFAD), Food and Agriculture Organization (FAO), United Nation Development Program (UNDP), World Bank etc have also been supporting them.

A pilot project was launched by The Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India for promoting FPOs (including FPCs) during 2011-12. This was implemented through SFAC in partnership with the state governments. This involved mobilization of farmers into FPOs under two sub schemes of the Rastriya Krishi Vikas Yojana (RKVY) namely the National Vegetable Initiative for Urban Clusters and the Promotion of Pulses Development for rainfed villages. Subsequently, in 2013 the Ministry issued Policy & Process Guidelines 'detailing the vision, mission, scope and coverage of both FPOs and FPCs.'[33]

The Ministry of Food Processing Industries (MOFPI) is currently implementing schemes such as 'Operation Greens and Kisan SAMPADA Yojana'[34] that provides effective and seamless backward and forward linkages including agri- logistics for the processed food industry. This is to facilitate involvement of farmers and more importantly, farmer producer companies. Similarly, under the 'Deendayal Antoyada- National Rural Livelihood Mission (NRLM)'[35], the Ministry of Rural Development, Government of India has taken up value chain development interventions.

These too are to be taken up through farmer producer companies to enable small and marginal farmers to access markets for better price realization.

ESSENTIAL STATISTICS ON FPOs/FPCs

Review of literature reveals the presence of multitude sources for essential statistics on FPOs/FPCs. A National Institute of Agricultural Extension (MANAGE) report states that 'presently approximately 5000 FPOs (including FPCs) formed under various initiatives of the Government of India, SFAC, NABARD, State governments and other organizations are in existence in the country. Of these, around 3200 FPOs are registered as Producer Companies and the remaining as Cooperatives/Societies.' [36]

An Ernst & Young LLP and FICCI study highlights that 'there are approximately more than 2000 FPCs promoted by private institutions/ trusts such as Bill & Melinda Gates Foundation, TATA Trust, Reliance Foundation, Axis Bank Foundation, Ambuja Foundation, HDFC Foundation, Syngenta Foundation etc. These cover approximately 2% cultivars in the country.' [37]

Azim Premji University has published a study that states that "there are 7374 producer companies registered as on March 31st, 2019 with 4.3 million estimated members. 92% of these producer companies are farm based. The average number of FPCs per one lakh farmer is 2.6 that is for every 100,000 agricultural workers in India there are 2.6 farmer producer companies. These also include self- promoted FPCs by large farmers. Maharashtra has by far the largest number of producer companies followed by Uttar Pradesh, Tamil Naidu and Madhya Pradesh. The district with the largest number of producer companies is Pune followed by Ahmednagar and Nasik.' [38]

It is evident from the above that there is dire need for availability of a single source of such data and statistics on FPCs at the national level. More so, as an "e-platform," for use by various stakeholders, experts, professionals and scholars alike.

SCOPE OF FUNCTIONS OF FPCs

There is tremendous heterogeneity in the operations of FPCs. According to the Azim Premji University study 'FPCs can work either with a single agricultural commodity or multiple commodities. Many FPCs are engaged in bulk procurement of inputs while others are acting as intermediaries in the value chain by aggregating produce from small and marginal farmers and doing some primary processing (such as grading and sorting). A few FPCs are engaged in higher forms of value addition such as pulping or juicing of fruits, chopping and freezing of vegetables etc. Some FPCs are producing ready to eat/cook products and non-food items such as vermi-compost, mosquito repellent cow dung cakes' [39].

The study further adds that 'other FPCs have obtained a licence to become nodal agencies for procurement of agricultural commodities at Minimum Support Price (MSP). A few others have become licenced agencies of agricultural manufacturers or crop insurance companies. They sell their produce in wholesale mandis, to large traders, restaurants, hotels, corporate bulk buyers or directly to consumers. A few FPCs and their promotors go beyond business activities and do advocacy, education and knowledge creation.' [40]

It's quite evident from the scope of above operational functions that FPCs are working across the agricultural value chain spectrum in the country. It has been argued that despite a head start, they still require not just capital, infrastructure and market linkage backing but handholding too for sustaining their business operations. Infact, 'there is a need to establish incubators to handhold and support FPCs and different modes and categories for financing them.' [41]

CRITICAL ISSUES

Experts opine that FPCs have the potential to give higher income by reducing cost of production and higher price realization to farmer producers through better market access (Markelova et al., 2009; Valentinov 2007). But for this potential to be fully tapped, a few critical pre-formation and post-formation challenges have to be addressed.

PRE-FORMATION

Despite the fact that the role of the implementing/promoting agency is critical the 'business rationale for aggregation in an FPC is usually formed on the objectives laid out by the former.' [42] This at times is exacerbated by lack of a thorough pre-feasibility study and specific mission needs in the context of the 'agro-climatic regions.'[43] The FPCs growth is therefore quite dependent on handholding by the implementing/ promoting agency. Besides, many times, lack of State government incubators for handholding support limits the exposure of small and marginal farmers to modern technology and crop development.

POST-FORMATION

At times, access to credit from banks and financial institutions due to 'lack of financial literacy acts as a hinderance.' [44] There could also be bottlenecks in availability of timely market information. This has a direct bearing on non-preparation and implementation of feasible business plans. The lack of professional staff also hinders the latter. In addition, the lack of a well mapped eco system of 'storage' [45] and primary processing infrastructure is also an issue.

The key area of output marketing, experts add, has critical interdependencies with day to day management of and access to finance by the FPCs. Farmers usually are efficient producers but lack of a business sense inhibits them towards entering post- harvest management value chain activities. 'Many a times, lack of cash surplus limits the FPCs capacity to undertake marketing activities and infact, meet bulk and year-round orders. Rarely, do FPCs take up independent performance rating by outside agencies to access credit.' [46]

Finally, training, skilling and capacity building for FPC members, it has been argued, does not fully focus on execution of agricultural business operations. This includes knowledge areas both of 'soft and hard skills such as leadership, networking, negotiation, pricing, business planning, brand building etc.' [47]

The TATA-Cornell Institute for Agriculture and Nutrition in its 'Policy Brief 2019'[48] points out that the biggest challenge for FPOs/FPCs has been accessing credit since Bank-FPO linkages are poor. The major lenders, according to the Brief, have been Non- Banking Financial Companies (NBFCs) that provide short term advances and loans at high rate of interest to more established FPOs/FPCs.

THE NEW AGRICULTURE INFRASTRUCTURE FUND (AIF)

In this context, the setting up of the INR One lakh crore 'Agricultural Infrastructure Fund (AIF)'[49] by the Ministry of Agriculture & Farmers Welfare, Government of India is a step in the right direction. It aims at mobilizing investment, through both incentives and financial support, in viable projects relating to post harvest management and community farming assets. The Fund has two innovative features. One, its focus on creation of farm-gate infrastructure with appropriate technologies such as village warehouses, modern packhouses (for primary processing such as sorting, drying, grading etc.) and cold chains (integrated logistics supply of cold stores that includes, modern pack houses, refrigerated transport and ripening units). This will enable farmers to sell directly to bulk buyers, processors and consumers. Second, it provides both for provision of interest subvention and credit guarantee. Ultimately, through the aegis of this Fund what one is looking at is the creation of a robust ecosystem for agribusiness through funding of PACs, FPOS/FPCs, agri entrepreneurs and startups that in turn will empower farmers, especially small and marginal farmers.

Infact, in this context, experts have also flagged the importance of creation of employment opportunities for women and young farmers. They state that with requisite and well-planned pan India investments through AIF, 'logistics like aggregation, storage, processing etc. at the agribusiness upstream and food related services at the downstream can be leveraged as a channel of employment generation'. [50]

NEW FPO POLICY GUIDELINES

To supplement the above pan India instrument of funding, a dedicated 'Central Sector Scheme for formation and promotion of

10,000 FPOs'[51] across the country has also been launched in 2020 by the Ministry of Agriculture & Farmers Welfare, Government of India. It provides handholding and support to FPOs up to five years. There will be three implementing agencies, namely, SFAC, NABARD and the 'National Cooperative Development Corporation (NCDC).'[52]

The new scheme has a few distinctive features. First, it makes a produce cluster area an essential for FPO formation that includes organic and natural farming (making it possible to achieve synergies with the 'One District One Product'[53] approach for development of agri product specialization). Second, it provides for setting up special purpose Cluster Based Business Organizations. Such entities will assist the implementation agency in entry point activities, farmer mobilization, conduct of feasibility, baseline surveys and most importantly in preparation of core business plans for medium- and long-term development. Third, reimbursement of funds will also be available to value chain processing and export entities that are supporting FPOs through cluster approaches. Fourth, there is availability of equity grants and credit guarantee cover for accelerated flow of institutional credit to FPOs.

Existing FPOs will also be allowed to avail benefits, if they have not done so under any scheme of Government of India such as Credit Guarantee Fund and seeking advisory services from the National Project Management Agency (NPMA). Those FPOs that are already registered but have not been provided funds under any other schemes and have not started operations will also be covered.

Last but not the least**,** the Scheme also provides for robust capacity building interventions and a wholistic monitoring governance structure with central, state and district level committees. More importantly, in view of the lacunae pertaining to databases pointed out earlier, it provides for an integrated and interoperable national portal so that relevant databases on FPOs/FPCs are uniformly available to all concerned.

BEST PRACTICES

There are several examples of good practices in the field wherein FPCs, in a variety of institutional settings have enabled market access to small and marginal farmer members for both input supply and output marketing. These practices do address some of the critical pre and post formation issues mentioned earlier in this review paper. More importantly, they reiterate the importance of factors such as the cluster approach, quality standards, use of technology, the need for inclusion and effective last mile need assessment.

The Government of Haryana has recently launched an innovatively modelled 'Crop Cluster Development Program'[54] to give a big push to primary processing facilities in horticulture crop clusters through FPCs. These 140 clusters have been identified by surveying and mapping villages across the state for fruit and vegetable crops. Within these clusters, integrated pack houses for sorting and grading will be managed and run by FPCs. These are bank appraised projects with credit link subsidy. Inhouse information technology linkages through e-services and deployment of outsourced cluster/district-based project extension managers is the program's forte. With extensive incubating facilitation by the State SFAC, two FPCs namely, Javik Aahar Farmer Producer Company, Jhajjar and Safe Agro Producer Company, Hisar have begun operating integrated pack houses in their respective clusters.

World Bank's 'South Asia Agriculture and Rural Growth Discussion Note Series (2020)'[55] highlights the case of Jharkhand State wherein labour force relies on agriculture and allied sectors and small and marginal farmers practice rainfed single crop subsistence farming. The 'Johar Project' was initiated in 2017 by World Bank (it builds on the work of the National Rural Livelihood Mission-NRLM and the State Government) to aid targeted rural producer households to diversify and enhance their household incomes.

The Note Series state that the project has operationalized 19 out of 30 FPCs covering two lakh households by a marketing initiative for post- harvest management for tomatoes. Setting up of the FPCs led to putting in place of a technical support agency, package of practices, market intelligence system, business process, communication and marketing plan in addition to monthly group meetings of farmers. Bringing FPC and market leaders together through a buyer-seller meet was another intervention. Key results included selling of 263 metric tonnes of tomatoes worth INR 5.1 million by three piloting FPCs during the intervention period following the process driven aggregation and sales.

One of the key learning from the functioning of Johar Project FPCs, the Note Series observe, was that simple principles related to sorting, grading and packaging helped the FPCs to create a niche for tomatoes in wholesale markets. This also created a positive impact on farmers to supply graded products.

'Sahyadri Farmer Producer Company'[56] in Nasik, Maharashtra, on the other hand, is an example of a self-promoted entity that has built a value chain for small and marginal farmers. It exports grapes to the European Union, Russia and UAE and does domestic sales of processed and fresh grapes through its retail shops as well.

Parthasarthi Biwas, writing in the Indian Express on August, 2020, informs that the Sayhadari FPC has a three-tier structure comprising the apex organization itself, crop wise FPCs and farmers in the catchment area. The apex FPC handles post-harvest management, processing, distribution and marketing both for exports and domestic markets. The crop wise FPCs provides technical support to approximately over 6000 farmers apart from undertaking aggregation, grading, sorting and packaging of the produce.

Interestingly, Biwas adds that the plots of its individual farmer members are geo tagged to allow the company to keep real time update of the crop's growth that enables planning of the harvest calendar. Besides, remote monitoring of crop conditions makes it possible to complete traceability of farmer's produce by embedding the related information in its bar-coded packets

Over 4000 Women primary producers are members of the 'Dev Bhumi Natural Products Producer Company'[57] functioning in Pauri Garwal and five other districts of Uttarakhand. It is a community owned enterprise. Its core activities include sericulture, organic honey and eco-tourism. Besides, highly priced organic spices and kidney beans, indigenous to Himalayan regions are also grown, processed and marketed by the Company. Its hallmark has been an 'inclusive approach'[58] while 'accessing remote villages coupled with assisting primary producers to leverage financial resources from NABARD and Friends of Women World Banking (FWWB)'.[59]

Reliance Foundation has provided mentorship to the 'Kamareddy Progressive Farmers Producer Company' [60] in Telangana that has farmer members in 140 villages. 'The FPC has taken up procurement of paddy through aggregation and distribution centers. It has also diversified into seed production, farm inputs and renting of implements and micro irrigation interventions. Its forte lies in reducing cost of production for its members. More importantly, the Foundation has effectively engaged in grassroots need assessment (conducted amongst small and marginal farmers through village associations) on issues of food, nutrition and ecological sustainability.' [61]

The above good practices and many more in the countryside provide a snapshot of myriad institutional settings and operating models of FPCs. Experts have further pointed out two important issues. First that the 'rising demand for diversified foods has led to a growing emphasis on grades and standards to ensure quality, health, safety and differentiation of products based on tastes and preferences.'[62] This issue is in fact, extremely critical in context of the role of FPCs in providing farmer member producers access to the fast growing organized retail market in food and groceries based on requisite quality standards.

Second, experts also observe that viability of an FFC is a very critical issue and may depend upon its operating mode and availability of funds (the new FPO/FPC Guidelines and setting up of AIF in 2020 provide for very effective loan disbursement, interest subvention, equity grant and credit guarantee mechanisms). They suggest that to be a viable entity there should be 'a two-pronged FPC promotion strategy: the first of supplier FPCs by NGOs and resource institutions who are good at producer mobilization with good ground knowledge and second to bring in business expertise to establish smaller market facing companies with adequate capital and skilled talent.' [63]

WAY FORWARD

The nuts and bolts of above examples and issues raised bring us to the fundamental question of 'strengthening the sustainability of FPCs to provide a stable relationship between the small producer (farmers) and large markets.'[64] Sustainability of FPCs has to be seen from the perspective of forging last mile convergences and plugging information asymmetries for the cluster approach to succeed as a growth driver.

The first key issue is the need to strengthen the interface mechanism between the Indian Council of Agricultural Research (ICAR) institutes especially Krishi Vigyan Kendras (KVKs), the district administration (through District Magistrates/ Collectors/ Deputy Commissioners) and the small and marginal farmers as primary producer members of FPCs in produce clusters. They together have to take into account the changing agro-ecological ground realities. Especially the need for intensively adopting climate smart agricultural practices while planning and operationalizing input and primary processing activities. Such practices include zero tillage, crop residue management, micro irrigation, use of information and communication technologies-based weather advisories, energy efficient pack house operations etc.

KVKs/ATMAs will also need to effectively utilize advise of local agri-business/industry entrepreneurs in FPCs and Panchayat Raj Institution (PRI) leaders in districts. They must strive to formalize one key activity in their 'demonstration trial' and outreach functions in produce clusters. And this is the mapping, coordinating and sharing with small and marginal farmers, the work and experience of numerous agri startups in districts (specially in hilly, tribal and aspirational districts identified by Niti Aayog having low socio-economic indicators). These startups, like several FPCs, are using innovative methods and low-cost technologies to introduce automated supply chain efficiencies and hence ensure better price realization for farmers.

Second, the communication interface of FPCs with PRIs at all levels of administrative units- the village, block, and district (more so at the level of a village or group of villages) needs to be aligned in produce clusters. There is tremendous penetration of broadband connectivity and mobile usage at all levels of the administrative units. Despite that, physical reach of sufficient numbers of field extension officers of agriculture, horticulture, fisheries, forestry and animal husbandry departments at all levels can complement and supplement the extension work of FPCs. In addition, the efficient dovetailing of Common Service Centers (CSCs) to FPC operations is very critical. CSCs are essential single window access points in districts that provide high quality and cost-effective video, voice, data content along with public utility services to farmers.

Further, PRIs, as legally empowered decentralized institutions, have to work towards incubating databases and good practices of FPOs and more specifically FPCs. This can also include work of FPC being handheld by non-governmental organizations (NGOs). Deepening such a capacity within all levels of PRIs (*Zilla Parishad, Panchayat Samiti, Gram Panchayat*) in produce clusters is bound to enable them to make realistic assessment of the required appropriate pre- and post-harvest management agricultural practices and technologies. Thereafter, widespread availability and application of these interventions for small and marginal FPC member producers can be enabled by overcoming the constraint of funding through the aegis of the new FPO Guidelines and AIF.

Such a converged cluster approach can provide FPCs the robust ecology to empower small and marginal farmers who have no prior experience in business activities. This is more so in context of the nationwide enactment of two historic Acts namely the Farmers Produce Trade and Commerce (Promotion and Facilitation) Act 2020 and the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act 2020 under the *Atma Nirbhar Bharat Krishi Package.* Their guiding principle, as also envisioned by the DFI Committee Report, is creation of market access for small and marginal farmers through barrier free trade in agricultural produce and engagement with sponsors of their choice. Sushma Vasudevan and Aparna Bijapurkar, in their article published in the Financial Express on August 14th, 2020 aptly observe that the government at all levels needs to shift its role in agriculture from market-maker to market-facilitator.

ENDNOTES

[1] The agriculture and allied sectors consist of four sub sectors namely, crop sector, livestock sector, forestry and fisheries. These sub sectors share in value of production is 61.31%, 26.80%,7.39% and 4.50% respectively. Horticulture crops that include fruits and vegetables contribute 25.17% (second highest in crop sector). Field crops include cereals, pulses, oilseeds, sugars, fibres. For more information see *Report of the Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume I, Chapter 2 (New Delhi, August 2017), pp.26-29.

[2] The Green Revolution in India began in the mid-1960s through the introduction of high yielding varieties of crops. It increased farm productivity substantially over the years and turned India into a leading producer of food grains. For more information see. B.P. Bhatt, J.P. Mishra, Amitava Dey, A.K. Singh and S. Kumar, *Second Green Revolution in Eastern India: Issues and Initiatives*, (Bihar: ICAR, 2016), p3.

[3] Gross Value Added (GVA) is a measure of value of goods and services produced in an area, industry or sector of the economy. In national accounts, GVA is output minus intermediate consumption. It came to be introduced in January 2015. *State of Indian Agriculture*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India (New Delhi:2017). p.1.

[4] http://www.mospi.gov.in/sites/default/files/press_release/PRESS%20NOTE%20PE%and%20Q4%20 estimates %20of%20GDP.pdf last accessed on 7th September, 2020.

[5] Rainfed agriculture which is totally rain dependent accounts for 55% of the net sown area of the country. It influences livelihoods of small and marginal farmers and is most vulnerable to monsoon failures. *Report of Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume VI, Chapter 2 (New Delhi, November 2017), p.20.

[6] http://eands.dacnet.nic.in/Advance_Estimate/4th_Adv_Estimates2019-20_Eng.pdf last accessed on 9th September, 2020.

[7] Entry 14 of List-II (State List) of Constitution of India provides for agriculture including agriculture research, protection against pests and prevention of plant diseases to be in the preview of States. Hence, pre-production, production and harvesting clearly remains a state subject. When it comes to deal with harvested produce, States have enacted an Act on agricultural marketing by exercising powers conferred under Entry 28- "Markets and Fairs" of the VII Schedule of the Constitution of India. For more information see *The Constitution of India*, Government of India, Ministry of Law & Justice. (New Delhi, 2011), pp.270-272.

[8] The current marketing system comprises about 2,284 regulated Agricultural Produce Marketing Committees (APMCs) which operate 2339 principal markets. These markets have extended their footprint through 4276 sub-markets yards. On an average the market yards cover 463 square kms of geographic area or a radius of 12 kms. These are further categorized as primary, secondary or terminal markets depending upon their location and volume being handled. There are also 22,932 rural periodical markets owned and managed by State Marketing Boards, APMCs, Panchayats and Municipalities. For more

information see *Report of the Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume IV. Chapter 5 (New Delhi, August 2017), pp.58-59.

[9] As many as 113 Research Institutes/ Indian Council of Agricultural Research (ICAR), 77 State Agricultural Universities (SAUs)- Central Agricultural Universities (CAUs), 700 Krishi Vigyan Kendras (KVKs) in Districts Commodity Boards etc. are involved in generation of transferable technologies. For more information please see *Report of the Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, November 2017, Volume XI, Chapter 1 (New Delhi, November, 2017), p.1.

[10] There are 14 schemes of the Department of Agriculture and Farmers Welfare onboarded to direct benefit transfer including PM-KISAN under which Rs, 17,000 crore has been released to more than 8.5 crore farmers. *Annual Report 2019-20*, Department of Agriculture & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, (Krishi Bhawan: New Delhi. p.23 and visit link www.agricoop.nic.in last accessed on 9th September, 2020.

National Agricultural Market is a virtual market but has a physical market at the backend. Therefore, while one-time registration of farmers/sellers, lot details at the entry gate, weighment, quality essaying, auctions, payments will take place online, actual material flow will happen in the regulated market. For more information please see *Operational Guidelines for Promotion of National Agricultural Market* (New Delhi: September, 2016). p.1.

[2] There are approximately 450 agri-tech start-ups in India providing market linkage, digital access to inputs, financing etc such as Ninjacart, Crofarm, Cropin, Agnext, Agrostar, KhetiNext etc. NASSCOM Report on Agritech in India, 2019. Please visit link https://community.nasscom.in/download.php?file=wp-content/uploads/attachment/18174-agritech-in-india---emerging-trends-in-2019.pdf last accessed on 10th September, 2020.

[13] Prabhu Pingali, Anaka Aiyar, Mathew Abraham, Andaleeb Rahman, *Transforming Food Systems for a Rising India,* (Switzerland, Palgrave Macmillan, 2019). p.194.

[14] The pillars of post- production activities include: Market Expansion & Access (multiple market access/greater selling choice and volumes) Reducing Wastage (maximizing volume of farm produce that reaches gainful end) Upgrading Agri-Logistics (improve inventory management in warehouses, post -harvest care, empower with physical connectivity) Enabling Reform & Investment (unified market for produce, online marketing channels) Enabling Trade regime for Exports (ease of business at quarantine stations). Most critical is transportation, integrated packhouses for grading, sorting, farmgate warehousing capacity coupled with cold chains to mitigate food loss. *Report of Committee on Doubling Farmers Income,* Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume III, Chapter2, (New Delhi, August, 2017) pp.20-41

[15] Green House Gases including Carbon Dioxide emissions contribute to warming of temperatures. Heat and crop resistant crop technologies are the need of the hour. Op.Cite; Prabhu Pingali, p.247.

[16] Reports of Committee on Doubling Farmers Income, Ministry of Agriculture & Farmers Welfare, Government of India have been submitted between August 2017 and Sept

2018 in XIV Volumes. For more information please visit link http://agricoop.nic.in/doubling-farmers last accessed on 11th Sept, 2020.

[17] A cultivators value chain includes the primary function of input procurement (inbound logistics), the sowing, cultivation and on field care of the crop (production), the harvesting and carrying the produce to the local market (outbound logistics) and primary sale (marketing).The support activities in this value chain are the acquiring and managing of tools, equipment and manpower involved in the primary activities (deploying farm labour, weeding etc). The farmer can shift crops, can transact with another firm, the aggregator, transporter, wholesaler or processor (they are a separate value chain if not under the umbrella of a single capital or management but are a part of the larger value system that directs the value first produced to the final point of consumption*). Report of Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume III, Chapter3, (New Delhi, August, 2017) p.44.

[18] The Agricultural Technology Management Agencies (ATMAs) in conjunction with KVKs and three tier Panchayati Raj Institutions (PRIs) provide a robust extension system for outreach to farmers. Report of Committee on Doubling Farmers Income, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume XIII, Chapter 10 &11 (New Delhi, January 2018) pp.93-99.

[19] The major announcements pertaining to the Department of Agriculture & Farmers Welfare, Government of India include Rs.1 lakh crore Agri Infrastructure Fund, Rs. 500 Beekeeping Mission, Central Law for barrier free interstate trade and price & quality assurance agreement between sponsors and farmers. For more information please see link https://pib.gov.in/PressReleasePage.aspx?PRID=1624104 last accessed on 12th September, 2020.

[20] A cooperative is generally viewed as an autonomous association of persons united voluntarily to meet their common social and economic needs and/or objectives. In India, cooperatives are registered under a legislative act of either the Central or State government. For more information please see Kartar Singh and R.S. Pundhir *Cooperatives and Rural Development in India* (Anand, IRMA, 2000). p.5.

[21] Amar K.J.R. Nayak, *Designing Farmer Producer Organizations for Sustainability of Smallholder Farmer* in 'Rural India Perspective', eds NABARD (New Delhi: Oxford Press, 2018). p.100.

[22] Rohit Despande, Tarun Khanna, Namrata Arora, Tanya Bijlani, *India's Amul: Keeping Up with the Times*, Harvard Business School (June 2017) (9-516-116). p.1-2.

[23] Extension Digest, *Farmer Producer Companies – Issues and Challenges*, MANAGE, Vol 1. No.3. (Hyderabad: June, 2018). p.1-2.

[24] Farmers participate in futures markets other than physical or spot market. Commodity derivatives market has the potential to serve as an efficient tool by providing farmers with access to alternative modern market to hedge their price risk and ensure a minimum price for their produce. Taken together the national commodity exchanges help improve market efficiency and broaden market access in commodity supply chains by reducing transaction costs. Vijay Kumar, *Taking Small Farmers to the Market*, Handbook of Indian Agriculture, The Hindu Business Line, (2020). p. 137.

[25] The Agricultural Export Policy aims at doubling exports to USD 60 billion by 2022 and focus on developing clusters having export-oriented production of specific products. For more information see APEDA, *Agriculture Export Policy*, Department of Commerce, Ministry of Commerce and Industry, Government of India (New Delhi). p.4.

[26] Op. Cite; Extension Digest, MANAGE. p.2.

[27] *Report of Committee on Doubling Farmers Income*, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India, Volume IV, Chapter3 (New Delhi, August 2017). p.75.

[28] Op. Cite; Extension Digest, MANAGE. p5.

[29] FICCI: Ernst & Young, Inclusive Agricultural Development by Strengthening FPOs in India, (August 2019). p.9.

[30] NABARD is an apex agency that provides technical, managerial, financial support for handholding, capacity building and market intervention to FPOs. Please see *Strategies for Promoting Framer Producer Organizations (FPOs)*, MANAGE (Hyderabad: 2019). p.11.

[31] Op. Cite: Amar K.J.R. Nayak.p.99.

[32] SFAC is an autonomous society promoted by Ministry of Agriculture & Farmers Welfare, Government of India that implements central schemes for agribusiness and aggregates small and marginal farmers as FPOs/FPCs. Ibid; p.11.

[33] Policy & Process Guidelines for Farmer Producer Organizations, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India. (2013).

[34] https://mofpi.nic.in/Schemes/about-pmksy-scheme last accessed on 11th September, 2020.

[35] https://aajeevika.gov.in/en/content/welcome-deendayal-antyodaya-yojana-nrlm last accessed on 11th September, 2020.

[36] Op. Cite; MANAGE,2019. p.15.

[37] Op. Cite; FICCI: Ernst & Young. p.15.

[38] Richa Govil, Annapurna Neti, Madhushree Rao, *Farmer Producer Companies-Past, Present, Future*, (Azim Premji University, Bangalore, 2020). pp.37-48.

[39] Ibid.p.18-19.

[40] Ibid.p.18-19.

[41] S.P. Subash, Vinayak Nikam, Jaya Ohja, *Farmer Producer Companies in India: Trends, Patterns, Performance and Way Forward*, Paper presented at Regional Conference organized by ISAE (2019). p.14.

[42] Ibid; FICCI: Ernst & Young. p.25.

[43] The country is divided into 15 regions on the basis of agro climatic factors such as soil type, rainfall, temperature and water resources. For more information please visit link https://krishi.icar.gov.in/jspui/bitstream/123456789/1870/1/Agro-climatic%20region%20res%20%26%20dev%20planning%20%28central%20plauto-Hill%20region%29.pdf last accessed om 11th September, 2020.

[44] Op. Cite; FICCI: Ernst & Young.p.25.

[45] Storage in ware house systems is an essential instrument for agricultural marketing. There is a system of e-warehouse receipt in the country wherein farmers while storing there produce in a registered warehouse are issued an electronic receipt which functions as a derivative and can be traded or put up as collateral with banks for immediate cash needs. Op. Cite; Prabhu Pingali.p.204.

[46] Ibid; FICCI: Ernst & Young.p.25.

[47] Ibid; FICCI: Ernst & Young.p.29-30.

[48] TCI-TARINA Policy Brief No.13, TATA Cornell Institute of Agriculture and Nutrition, (August 2019). p.3.

[49]http://agricoop.nic.in/sites/default/files/FINAL%20Scheme%20Guidelines%20AIF.pdf last accessed on 11th September, 2020.

[50] Op.Cite; Prabhu Pingali. p.6.

[51] http://agricoop.nic.in/sites/default/files Operational%2Guidelines%2for%2Formation%20and%20Promotion%20of%2Farmer%20Producer%2Organizations%20%28FPOs%29-English.pdf last accessed on11th September, 2020.

[52] NCDC was established by an Act of Parliament in 1963 as a statutory Corporation under the Ministry of Agriculture & Farmers Welfare, Government of India. For more information please visit link https://www.ncdc.in/ last accessed on 11th September, 2020.

[53] It was announced in the 2020-21 Union Budget that for better marketing and support it is proposed to support States which adopting a cluster basis will focus on 'One District One Product'. For more information please visit link https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1601474 last accessed on 11th September, 2020.

[54] http://www.sfacharyana.org.in/ last accessed on 11th September, 2020.

[55] Paresh Sethy & Bipin Bihari, *Leveraging Farmer Producer Companies to Transition to Market Based Production Systems in Jharkhand*, (World Bank Group: 2020). p.7-12.

[56] http://www.sahyadrifarms.com/ last accessed on 11th September, 2020.

[57] https://devbhumi.com/ last accessed on 11th September, 2020.

[58] For more information on the inclusive linkages needed for small and marginal farmers to be a part of the agricultural value chains please see Siobhan Kelly, Nataila Vergana, Heika Bammann, Food and Agricultural Organization (FAO)'s document *Guidelines for Inclusive Business Models*, (Rome,2015). p. ix.

[59] Op. Cite; MANAGE.pp.19-20.

[60] https://www.outlookindia.com/newsscroll/fpo-in-telanganas-kamareddy-bringing-growers-out-of-farm-distress/1466392 last accessed on 11th September, 2020.

[61] Op. Cite; FCCI: Ernst & Young.p.32

[62] In 2017 India's retail sector was values at 641 billion USD. The share of food and grocery retail in this share was about 380 billion USD. Along with organized retail such as D Mart, Big Bazaar etc, the growth of e-retail such as Big Basket, Flipkart etc are expected to show high level of growth. Op. Cite; Prabhu Pingali. pp.193-194.

[63] Op. Cite; Richa Govil, Annapurna Neti, Madhushree Rao. p.92.

[64] Op. Cite; NABARD: Oxford Press, 2018. p.103.

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