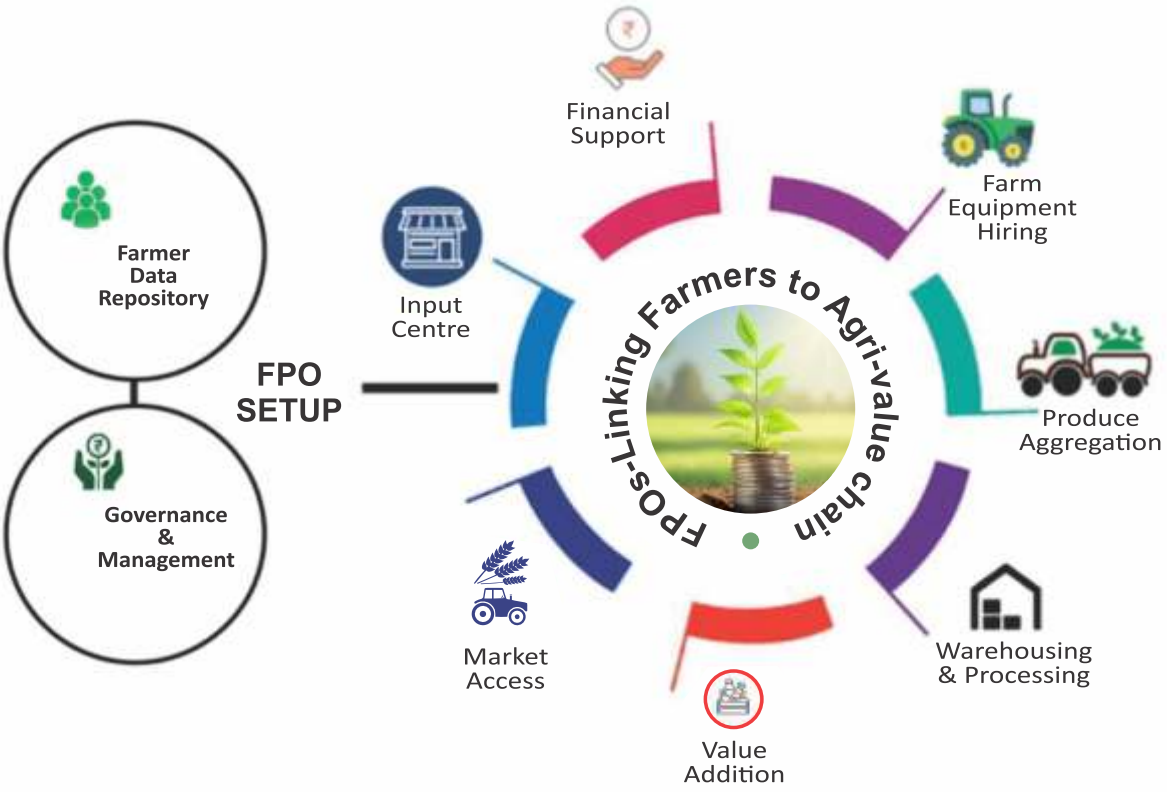
FPO PULSE

September 2023 Issue -1

Farmer Producer Organizations

Growth Engine of Indian Agriculture



Bankers Institute of Rural Development (BIRD)

(Designated Nodal Training Institution at Central Level by GOI under CSS on Formation and Promotion of 10000 FPOs)

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Preface

Indian agriculture is structurally small farm and small farmer based. The average area operated per farmer (holding) declined from 2.30 hectares in 1970-71 to 1.57 hectares in 1990-91 and further declined to 1.08 hectares in 2015-16 reflecting the pressure of the rising population on the limited land base. Even with a decreasing average land holding size over the decades, the country has achieved a record production of foodgrain and horticulture production. This is attributable to the hard work of the farmer majority of whom are the small and marginal farmers. However, going forward would require innovative interventions and strategies to overcome the constraints that marginal and small farmers face.

Farmer Producer Organizations (FPOs) offer a proven pathway to successfully deal with a range of challenges that confront small and marginal farmer producers today. This publication brings together under the theme 'FPOs are the Growth Engines of India Agriculture" a collection of ten articles. The articles have addressed various dimensions that FPOs grapple with viz., overcoming the supply side constraints imposed by continued land fragmentation, shrinking farm income and viability issues, how FPO members are able to leverage collective strength and bargaining power to access financial and non-financial inputs and services, achieve economies of scale to reduce cost of inputs, have access to better technology & post-harvest management facilities and enter into partnership with private entities on more equitable terms. A unique feature of most of these articles is the fact they are in many ways reflect the voices from the field and are empirically driven.

The publication 'FPO Pulse' by BIRD intends to fill a critical gap that is being felt by the sector. There is a need for discussing, sharing and disseminating the experiences based on the developments in the field among various stakeholders of the FPO ecosystem. This is the first issue and we hope to come out with theme based issues in the future.

I congratulate the authors for the insightful articles. I also thank the Faculty Members of BIRD who reviewed the articles and provided valuable suggestions which enriched the issue. My appreciation to Shri Prafulla Ranjan Jha and Shri Rajesh Yadav, Faculty Members, BIRD, Lucknow for taking proactive initiative to start 'FPO Pulse' by BIRD, Lucknow.

I hope the publication will aid in strengthening the FPO ecosystem in the country.

Nirupam Mehrotra
Director, BIRD

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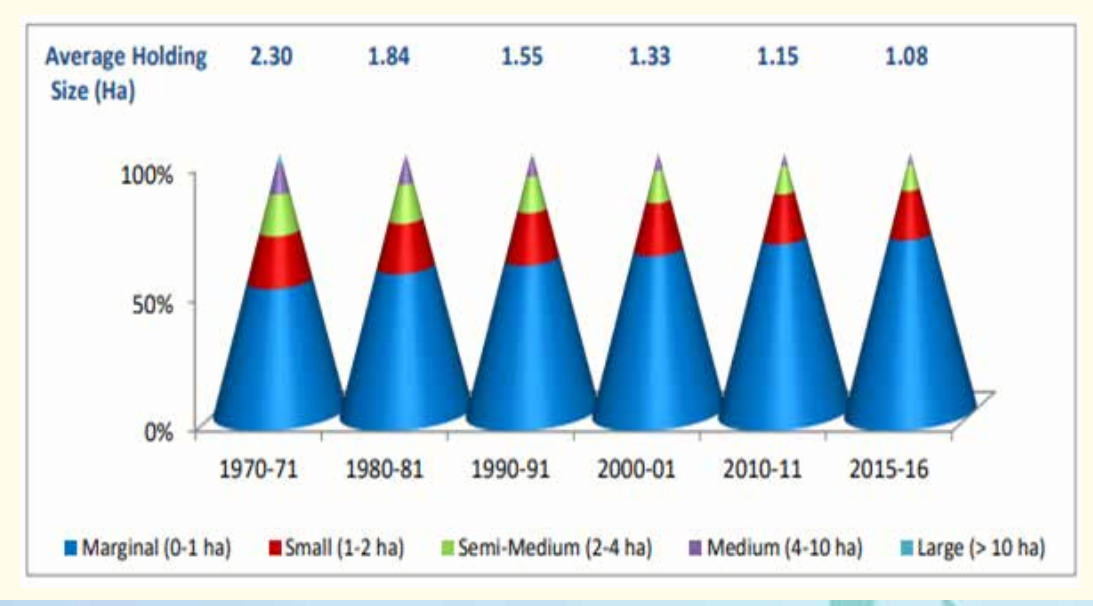
Farmer Producer Organizations (FPOs)
Growth Engine of Indian Agriculture

Rajesh Yadav
Faculty Member, BIRD, Lucknow

Introduction

According to Agriculture Census, 2015-16, (DoAC&FW, 2019), small and marginal farmers with less than 2 ha of land, account for 86.2 percent of the total 14.6 crore operational land holdings in India. There has been an increase in their share from 70 percent in 1970-71 to 82 percent in 2000-01. Of these 12.6 crore operational land holdings, 68.5 percent belong to only marginal farmers (less than 1 ha), highlighting the fact that Indian agriculture is dominated by small and marginal landholdings. Moreover, in terms of area, small and marginal farmers accounted for nearly 47 percent of the total operated area in 2015/16, pointing towards significant land inequalities. Increasing fragmentation of land is another major concern of Indian agriculture (MoAFW, 2019). The average size of land holdings has reduced from 2.28 hectares in 1970-71 to 1.08 hectares in 2015-16 (Figure 1).

Fig 1 : Diminishing average land holding size in past years



Source : Agriculture census, 2015-16

Fragmentation of land and associated diseconomies of scale have implications for the profitability and viability of agriculture.

Fragmentation of the land resources (reduction in farm size - the cost of means of production) and *increased price spread* (lesser opportunity price segment in consumer price) of the producers have an avalanche effect on the viability

of the agricultural ecosystem. Fragmentation of the land resources increased the cost of value addition (cost of means of production) per unit of the produce.

Limited business participation of producers and involvement of more productive and unproductive value chain actors in downstream of agri and agri-allied value chains results in an increase in price spread (difference of consumer price and farm gate price), which is the main reason for the fragmentation of the economic rent. Increased price spread, business participation of the farmers reduced to the level of about 1/3rd of consumer price especially in grain crops resulting in reduced market margins available to producers.

Effect of fragmentation of land holding on production economics

- Total cost of production per ha increased due to diseconomies of scale of the production system.
- Due to reduction in capacity of capital investment it results in reduction of yields.
- Reduction of marketable farm surplus
- Increase in marketing cost due to fragmentation of farm and enhanced in cost of aggregation

What is the solution to reverse the situation of smallholdings into large land holdings?

Now in the present scenario, we have to overcome the diminishing profitability of the smallholders by aggregating part of the cost of means of production to gain economies of scale in the production system and aggregation of economic rent on downstream value chains. This is possible through developing agri and allied value chains (AAAVCs) through the integration of economic activities, replacement of one or combination of value chain actors, infusion of innovative technology, outreaching agri-value chain financing, digitalization, input management, value additions and strengthening of forward market linkages with an demand orientation.

- One solution is land may be pooled into common unit for collective production (Gambhira Model of Gujarat) however, this may not be possible in the Indian context because of the social structure and ecosystem of the tenancy Act.
- Another solution is pooling the cost of means of production. Nevertheless, this is not possible without applying an ***aggregation*** mechanism by the formation of a unit of any formal and informal group. Since the viability of aggregation depends upon the ***economies of scale,*** hence bigger group is required to achieve the breakeven point (BEP). The bigger the group, the higher the reduction of the cost of production up to the threshold limit. This led to the formation of bigger groups like Cooperative Society, Farmers Federation, and Farmer Producer Organization.

Farmers Collectives – Some Experiences

From time to time several models evolved to overcome the disadvantages faced by the smallholders due to diseconomies of scale and lack of bargaining power in prevailing agri-and allied agri value chains. These models are based on participatory mode working through group dynamics, allowing smallholders for more inclusive participation in up and down streams of prevailing agri, and allied agri-value chains (AAAVCs) to benefit from achieving economies of scale by organizing themselves into formal and informal groups and synchronizing and harmonized selected operations.

Large Field Model (LFM) of Vietnam

The term "Large Field Model" was first introduced by the Ministry of Agriculture and Rural Development (MARD) in a workshop organized in the Mekong River Delta on March 26, 2011 (Thang et al., 2017). The LFM development programs also attracted the participation of large rice production companies and farmer cooperatives. The major companies included Loc Troi group and Vinafood2. The Loc Troi Group in 2014 facilitated the establishment of 471 farmers' cooperation groups, with a total production area of 40,000 hectares. According to Dang (2016), technical support was also provided to farmers by these companies and this helped to increase their profits by VND 2.5–4.0 million per hectare (USD 110–180 per hectare). In Vietnam, the LFM has also contributed to improving the quality of rice production for export. As farmers followed standardized crop schedules, these companies could maintain harvesting dates in their production zones in a sequence, thereby optimizing capital investment, labor supply, and storage (Thang et al., 2017). Over the years, different forms of the LFM have been operational in Vietnam (Ba et al., 2019). Some of them are very formal, with actual land pooling from farmers to set up a company, operating like a private business with farmers as shareholders, and others operating as an informal entity with synchronization and harmonization of only selected operations for improving efficiency and lowering cost (Mohanty et al., 2018).

Small Farmers Large Field (SFLF)" model

The ***informal LFM*** with synchronization and harmonization of only selected operations was customized to work in Indian situations and is called the "*Small Farmers Large Field (SFLF)" model*.

Item	Dry (Rabi) 2016 Baseline	Dry (Rabi) 2017 SFLF	Dry (Rabi) 2017 SFLF	Wet (Kharif) 2016 Baseline	Wet (Kharif) 2017 SFLF
No. of farmers		54	77		35
Yield (tons/acre)	2.2	2.8	2.5	1.8	2.2
Price (INR/quintal)	1250	1336	1304	1350	1452
Gross income (INR/acre)	27,500	37,394	32,587	24,300	31,936
COST and Return per Acre (in 2016 price)					
Seed	320	310	298	500	387
Seed treatment	40	39	37	40	39
Nursery bed preparation	400	194	279	340	242
Land preparation	2400	2129	1955	2400	2129
Irrigation	2000	1936	1862	0	0
Crop establishment	2100	1839	1397	1800	1548
Gap filling	400	387	372	200	194
Manual + chemical weeding	1050	765	993	1321	873
Fertilizer application	2500	2661	2551	2803	2141
Pesticide	1400	842	1303	1648	1496
Harvesting (machine hiring cost)	2500	1936	2514	3000	2419
Cost incurred on storage of produce until sold	260	281	279	300	290
Total Cost per Acre	15,370	13,319	13,840	14,352	11,758
Net Return per Acare	12,130	24,075	18,747	9948	20,178
T statistics (p value)		9.08 (<0.0001)	8.58 (<0.0001)		15.04 (<0.0001)

This model is based upon the principle of aggregating farmers to achieve bargaining power by strengthening backwards and forward integration along the supply chain. Thus, under this model, the participating farmers organize themselves into groups to purchase inputs, contract a machine service provider for transplanting and harvesting, and synchronize their operations by adopting a single variety, establishing a group nursery, and transplanting and harvesting around the same time, thus essentially converting their small landholdings into a large field or patch.

As per the published report in an article on "*Small Farmers Large Field (SFLF): a synchronized collective action model for improving the livelihood of small farmers in India"* following benefits have been accrued due to this group based interventions :

This approach enables small farmers to cut cost by bulk purchases, improve efficiency by synchronizing operations, and improve quality by having a single variety of certified seed and improved production practices. Each participating farmer collectively commits as a group to follow the same cropping calendar, production practices, and product selling plan. Timelines need to be managed as a group so that, during mechanized steps such as transplanting and harvesting, a single machine can be maneuvered in the entire patch. Within a patch, which is formed by individually owned contiguous plots, every farmer is responsible for cultivating his/her own plot. Also, timely accomplishment of farming activities and arranging the investment for one's own plot are an individual's responsibility and thus there is no profit sharing for a patch, but each participating farmer earns individual profit from his/her own plot.

Farmers Cooperatives

Many different organizational forms of collective enterprises have been promoted at different times in India. The oldest formal collectives are the credit cooperatives promoted since the early 1900s under the Cooperative Credit Societies Act with the primary objective of addressing farmers' indebtedness. Subsequently, the formation of non-credit societies was enabled through the Cooperative Societies Act of 1912 and organizations such as consumer cooperatives, marketing cooperatives, cooperatives of handlooms weavers and others were termed. Later Multi-Unit Cooperative Societies Act and the Andhra Pradesh Mutually Aided Cooperative Societies (APMACS) Act also came into being. While in their early stages, cooperatives created an expected positive impact in ameliorating the situation of smallholder farmers, in recent times, cooperatives have not been able to maintain their identity as member-controlled and self-sustainable business organizations. This has been attributed to low involvement of members, governance issues, high dependence on government support, political interference, bureaucratization and mismanagement.

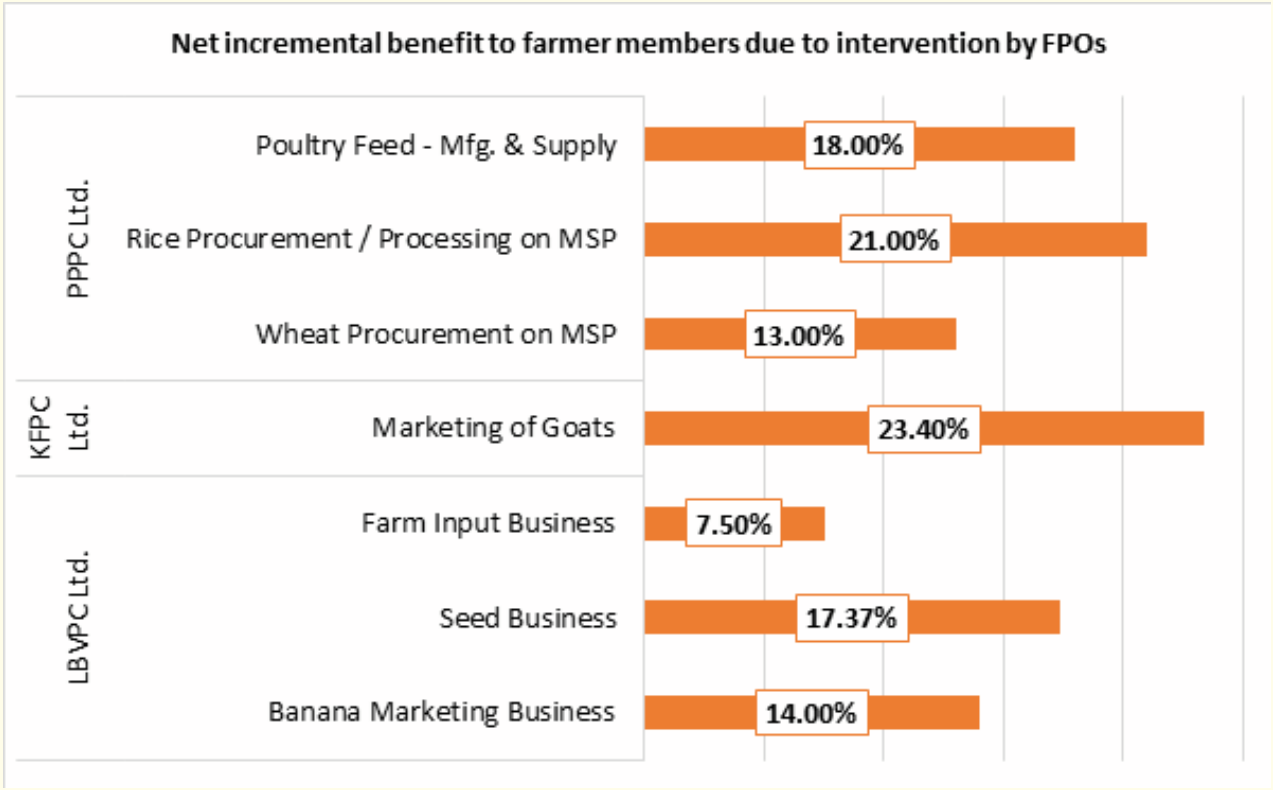
Farmers Producer Organizations

In order to address these shortcomings, a 'high-powered committee' chaired by Dr. Y. K. Alagh introduced the concept of producer companies to combine together the desirable aspects of cooperatives and corporate sectors. In 2002, the Companies Act of 1956 was amended to allow for a new form of corporate entity, namely, Producer Companies (PCs). While membership in a cooperative is open to any individual or another cooperative, Central or State Government and other entities who may or may not be primary producers, shares in producer companies can only be owned by primary producers or their collectives (such as SHGs, producer cooperatives and other producer companies). In addition, Producer Companies may require shareholders to transact with the company ("patronage") as a condition for maintaining their membership. In cooperatives, the government has representation on the governing board and sometimes exercises indirect control over the Board's decisions. In contrast, in producer companies there exists no provision for government representation on the Board of Directors. Due to these and other advantages of producer companies, they are seen as a better alternative to cooperatives. It is believed that the producer companies (PCs) would enable small producers to pool their resources and establish inclusive businesses benefiting small farmer members in enhancing their incomes and reducing risks. As member-based institutions, they would be inherently embedded in local communities and have the potential to become strong local institutions of marginalized producers (Govil, Neti and Rao, 2020).

Central Sector Scheme on Formation & Promotion of FPOs: Realising the importance of FPOs, Department of Agriculture, Cooperation & Farmers' Welfare (DAC&FW), Ministry of Agriculture & Farmers' Welfare (MoA&FW), GoI, launched a pilot programme for promotion of FPOs during 2011-12 under two sub-schemes of Rashtriya Krishi Vikas Yojana (RKVY) viz. National Vegetable Initiative for Urban Clusters and Programme for Pulses Development for 60,000 rainfed villages. The initiative got real momentum in 2013 with the formulation of National Policy and Process Guidelines for FPOs and with introduction of Equity & Credit Guarantee Scheme for FPOs. This was followed by setting up of a dedicated 'Producers Organization Development and Upliftment Corpus' (PRODUCE) Fund with NABARD in 2014 for the formation of 2000 FPOs. With an objective of bringing more farmers particularly the marginal & small farmers under the FPO fold to address the challenges being faced by them viz. lack of market access, credit linkages, inadequate financial support, lack of managerial skill, etc., the DAC&FW launched a dedicated Central Sector Scheme 'Formation and Promotion of 10,000 Farmer Producer Organisations (FPOs) in 2020 with an aim of grounding 10000 FPOs in coming 5 years.

Recognizing the strength of Producer Organisations (POs), NABARD also created a dedicated fund "Producers Organization Development Fund (PODF)" in 2011 to support these organizations. The aim of the funds was to promote FPOs and support their initial financial requirements, to make them credit-worthy, commercially vibrant and sustainable business enterprises of farmers.

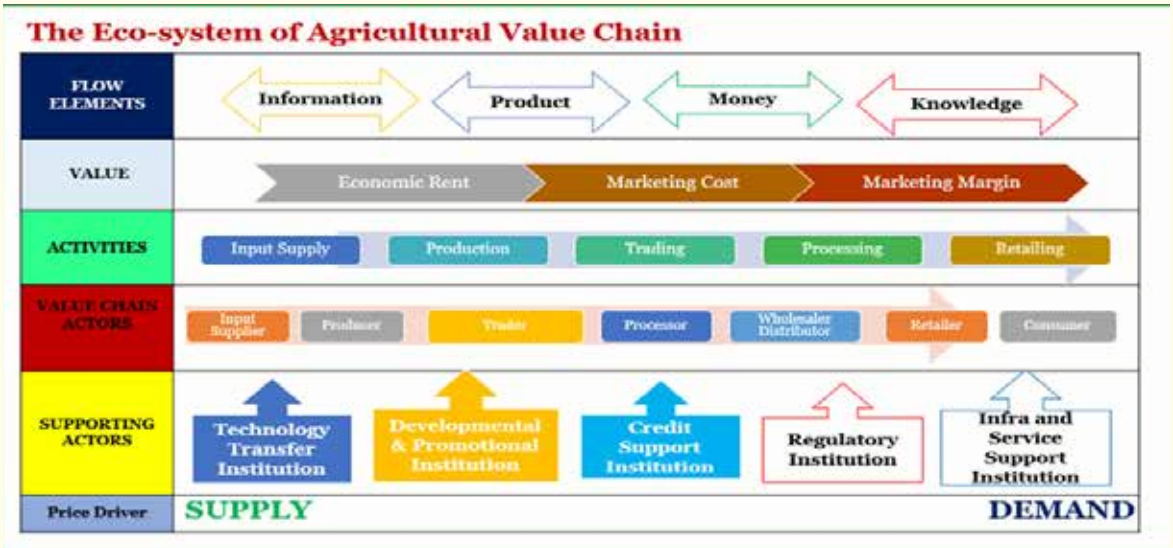
The study titled "*An Empirical Evidence on Business Opportunities, Sustainability Strategies and Value Propositions in Eastern UP*" conducted by BIRD, Lucknow revealed that well-oriented FPOs can pave the way for the enhancement of economic rent of producers. The incremental benefits accrued to farmer members from various interventions of different FPOs are summarised below:



Source : Reproduced from a study conducted by BIRD, Lucknow

Developing Agri and Allied Agri-value chains involving FPOs as key value chain actor

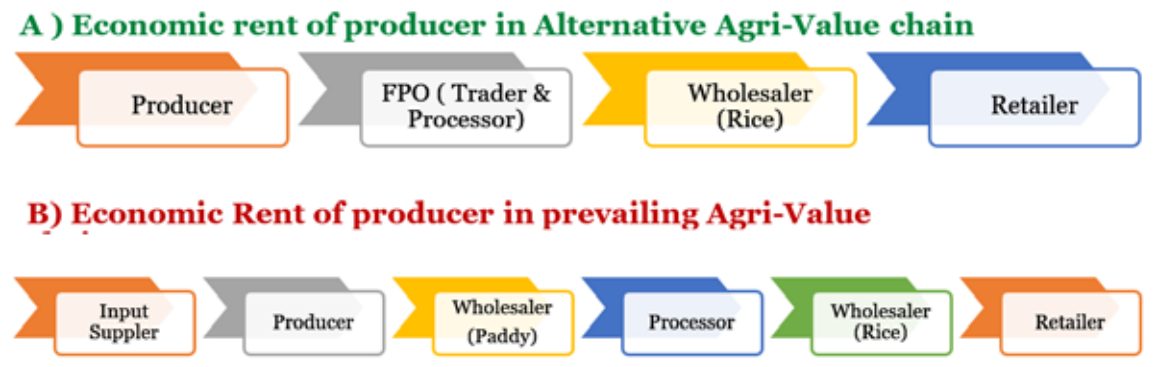
The present generation of agri-value chains is multidimensional comprising four types of flowing elements namely product, money, knowledge and information. A larger number of value chain actors added to the ecosystem of the present generation agri and allied agri-value chains under three major categories i.e. main value chain actors, supporting value chain actors and influencer (competitive value chain actors). Further, in a particular cluster number of supply chains have been developed and working simultaneously with different competitive advantages and barriers of the ecosystem.



These value chains are dynamic in nature changing day-by-day and become very complex in nature. Complexity, dynamism, involvement of multiple value chain actors led to enhanced price spread in prevailing agri and allied agri-value chains, which led to fragmentation of the economic rent of the producers.

Farmer Producer Organization (FPO) is a business entity comprised of primary producers that replace one or more value chain actors in existing agri-or allied agri-value chains in order to increase the producers' economic rent. FPOs, which are a hybridization of cooperative and corporate institutional models, create an enabling environment by allowing producers to participate in alternative agri-value chains through the aggregation of input resources, collective procurement and the creation of common infrastructure and services for processing and supply chain management.

The economic viability of the FPOs is a function of *agri value chain*, *supply chain management* and economic sustainability. The extent of enhancement of the economic rent of the producer on account of modifications of the



(A) – (B) = Incremental Economic Rent (IER)

prevailing agri and allied agri value chains and the extent of business participation of the producer through FPOs, as a competitive value chain actors, will decide the economic viability of the FPOs.

If the incremental economic rent is sufficient to meet the annual administrative cost of the FPOs and meet provisions for *instant benefits to the producer* (reduction of input cost and increase in opportunity price at the farm gate) and manage satisfactory profit margins then one can assume that the proposed institutional model is economically viable.

Further, if FPOs are able to maintain competitive advantage with continuous efforts to remain competitive value chain actors through one or a combination of factors namely price advantage, differentiated products, improving quality, branding, extending good services to the downstream value chain actors then FPOs would be able to attained economic sustainability in due course of time.

Part pooling of the cost of means of production through aggregation will reduce its cost to the extent of 2 to 10% depending upon the skewness of the distributions of the average land holdings under marginal, small, medium and large farmers and the extent of fragmentation, efficiency and effectiveness of prevailing agri and allied agri-value chains.

Business participation of the producers beyond the production system will reduce the cost of value addition at different stages in the downstream side of prevailing agri and allied agri value chains through value chain integration. This will reduce price spread and cost-cutting of repeated and common services like loading/unloading. transportation, transit losses etc.

Further, producer organizations as processor value chain actors will give further opportunities to harness business opportunities in allied agriculture. Mix cropping is a common characteristic of Indian Agriculture. An FPO having a cluster of wheat, paddy, maize and mustard (which are major segments of Indian agriculture) will produce 75-80% raw materials for animal feed. FPO is supplier and producer are purchasers of animal feed hence; they can easily earn gross margins of 4-7% without any market barrier.

Conclusion

Though, socio-economic factors restrict the land pooling but part aggregation of cost of means of production in upstream value chains and business participation of producers in downstream value chains through FPOs are game changers institution development model. Economically viable FPOs can be set up by developing alternative agri and allied value chain approach with evolving competitive advantages. Despite the adverse boundary conditions, market barriers and non-enabling environment, self-promoting FPOs are picking up and the awareness level of FPOs among the producers is also increasing. Support from policy makers, promotor stakeholders creation of an enabling environment in areas of statutory and legal compliances, infrastructure and support service, financing and convergences with customized schemes, will lead to making vibrant FPO ecosystem in the country.

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Economic cluster size (ECS) of FPOs for tapping input business potential under food grain crops : Barriers, challenges and business opportunities for FPOs in the State of Uttar Pradesh

Rajesh Yadav
Faculty Member, BIRD, Lucknow

1. Introduction

Uttar Pradesh is one of the country's leading state in grain production. Gross Cropped Area(GCA) under food grain crops was 19.93 mha during 2020-21 includes four major food grain crops paddy, wheat, maize and sugarcane, which were grown in 5.68 mha (30.74%), 9.85 mha (53.30%), 0.77 mha (4.17%) and 2.18 mha (11.80%) respectively with total GCA of 18.48 mha constituting 92.72% area of GCA under food grain. Net sown area of the state is 16.57 mha.

Analysis of prevailing agri value chains (AVC) revealed that primary producers have limited business participation up to upstream value chains. Moreover, an increase in price spread (difference in farm gate and consumer prices) largely because of large number of productive and/or unproductive value chain actors is one of the factors for the fragmentation of the economic rent of producers.

The attempt has been made to identify the quantum of aggregate-able inputs in the total cost of cultivation, its segmentation, assessment of the gross margins in aggregate-able inputs; minimum cluster size of FPOs and minimum quantum of input business needs to be undertaken by FPOs to achieve economies of scale to reach breakeven point (BEP). Primary data on cost of cultivation, published by the *Department of Economics and Statistics (MoA &FW, GoI) for the Year 2020-21* has been used for value chain analysis.

2. Assumptions used

1. The size of the cluster may be considered keeping in view that business participation of a FPO as an input supplier (upstream value chain actor) has to meet its annual fixed administrative cost along with provisions of extending cheaper inputs (direct benefits to producers) to make social capital as well as to sustain especially in the initial years.
2. FPOs will reach to the breakeven level and become profitable only through business participation as one or in a combination of value chain actors in downstream value chain actors namely trader, wholesaler, processor, distributor and retailer in the later stage of the business path line.
3. This is justifiable on account of limited financial resources in initial years in conjugation with lower risk in input business in comparison to the participation in downstream value chains, which require bigger financial resources and competitive advantages to face market challenges.

3. Cost of cultivation of major principal crops in Uttar Pradesh

The cost of cultivation of paddy, wheat, maize and sugarcane has been segmented first into fixed and variable costs and the variable cost of cultivation is further segmented in non-aggregate-able and aggregate-able inputs and presented in Table 1.

Table 1 : Cost of Cultivation (Rs./ha) – various crops (2020-21)

S. No.	Input Cost	Paddy	Wheat	Maize	Sugar-cane	Average Cost
I	**FIXED COST**					
Ia	Land Revenue	13	15	10	27	16
Ib	Rent Paid for Leased in Land	33	222	0	110	91
Ic	Imputed Rent	16792	21843	13144	49742	25380
Id	Total Depreciation	4350	3947	4754	11242	6073
	Total of Fixed Cost	**21188**	**26027**	**17908**	**61121**	**31561**
II	**VARIABLE COST**					
IIA	**Non-Aggregate-able Inputs**					
IIA (i)	Family Labour	7595	7378	5696	14784	8863
IIA (ii)	Attached Labour	145	31	0	0	44
IIA (iii)	Casual Labour	14107	5876	11159	37052	17049
IIA (iv)	Hired Animal Labour	1	33	0	141	44
IIA (v)	Owned Animal Labour	20	101	0	539	165
IIA (vi)	Own Machine / implements	1225	1742	1242	1830	1510
IIA (vii)	Owned Irrigation machine	3673	3693	1344	10321	4758
IIA (viii)	Canal and Other Irrigation Charges	0	0	0	0	0
IIA (ix)	Crop Insurance	0	0	0	0	0
IIA (x)	Payment to Contractor	0	0	0	0	0
IIA (xi)	Miscellaneous Cost	31	67	29	93	55
	Total	**26797**	**18921**	**19470**	**64760**	**32488**
IIB	**Aggregate-able Inputs**					
IIB (i)	Hired Machine/Implements	6007	9056	6433	1707	5801
IIB (ii)	Hired Irrigation Machine	2535	3732	1180	1322	2192
	Mechanization Segment	**8542**	**12788**	**7613**	**3029**	**7993**
IIB (iii)	Seed Cost	4460	4079	4939	9356	5709
	Seed Segment	**4460**	**4079**	**4939**	**9356**	**5709**
IIB (iv)	Fertiliser (N)	1689	1713	1300	2054	1689
IIB (v)	Fertiliser (P)	2709	2951	2493	2522	2669
IIB (vi)	Fertiliser (K)	38	103	0	117	65
IIB (vii)	Other Fertiliser	39	26	94	0	40
IIB (viii)	Manure	37	9	0	411	114
	Fertilizer Segment	**4512**	**4802**	**3887**	**5104**	**4577**
IIB (ix)	Insecticides /Pesticides etc.	639	258	269	2293	865
	Plant Protection	**639**	**258**	**269**	**2293**	**865**
	Total	**18153**	**21927**	**16708**	**19782**	**19144**
IIA+IIB	Total Variable Cost	44950	40848	36178	84542	51632
I +II	**Total Cost of Cultivation**	**66138**	**66875**	**54086**	**145663**	**83193**

4. Segmentation of the aggregate-able input business of FPOs

Disaggregated inputs are given in Table 1 from S. No. IIB(i) to IIB(ix), which can be aggregated based on the potential reduction of input cost through aggregation by FPOs have been identified and separated from the total cost of cultivation and presented in Table 2.

Table 2 : Aggregate-able Input Business Potential (IBP) for FPOs (Rs./ha)

S. No.	Aggregate-able Inputs	Paddy	Wheat	Maize	Sugar-cane	Average
I	Mechanization Segment	8542	12788	7613	3029	7993
II	Seed Segment	4460	4079	4939	9356	5709
III	Fertilizer Segment	4512	4802	3887	5104	4577
IV	Plant Protection Segment	639	258	269	2293	865
	Total	**18153**	**21927**	**16708**	**19782**	**19144**
	% of the Variable Cost of Cultivation	40.38%	53.68%	46.18%	23.40%	37.08%
	% of the Total Cost of Cultivation	27.45%	32.79%	30.89%	13.58%	23.01%

It is observed that the business potential for FPOs on input sales varies according to the cropping pattern of the cluster. On aggregating out-of-pocket expenses, we arrived at **Rs. 19,144 per ha** under all four crops can be aggregated at the FPOs level which is around **37.08% of the average variable cost** and 23.01% of the total cost of cultivation.

5. Profitability Aspects

Based on the study conducted and value chain mapping of input suppliers doing business in Uttar Pradesh it is found the average gross margins in the seed business segment vary from 15-35%, 1-2% in the fertilizer business, 15-25% in plant protection segment and CHC yields gross margins of 8-10% of turnover. Considering the lowest margins available in all segments of input business, gross margins have been determined and presented in Table 3.

Table 3 : Gross margins-Input Business (Rs./ha)

Input Segment /Gross Margins	Paddy	Wheat	Maize	Sugarcane	Average
Farm Mechanization (8-10%)	683	1023	609	242	639
Seed (15-35%)	669	612	741	1403	856
Fertilizers (1-2%)	45	48	39	51	46
Insecticides (15-25%)	96	39	40	344	130
Total Gross Margin	**1493**	**1722**	**1429**	**2040**	**1671**

It is observed that available gross margins in input business is Rs.1493 per ha, Rs.1722 per ha, Rs.1429 per ha Rs.2040 per ha under paddy, wheat, maize and sugarcane crop, respectively with average gross margin of Rs.1722 per ha. From these available gross margins every FPO needs to meet the following expenses, which are as under :

6. Estimated Average Annual Fixed Cost of FPOs

Like any other agri-business operation, FPOs have to make provisions for fixed costs, which must be compensated from gross margins from input business before getting profit over and above the breakeven point. Estimated average annual fixed administrative cost and other provisions of FPO have been worked to Rs.9.00 lakh and given in Table 4.

Table 4 : Estimated Fixed Cost of FPO

S. No.	Particulars	Amount (Rs.)
A	**Annual fixed Administrative**	
1	Office Rent @ Rs.5000/month	60000
2	Salary of CEO @ Rs.25000/Month	300000
3	Salary of Accountant @ Rs.10000/month	120000
4	Utility Charges @ Rs.2000/month	24000
5	Travel Cost @ Rs.2000/month	24000
6	Audit Charges @ Rs.20000/Year	20000
7	Other Expenses	
8	Repayment of Principal	
9	Repayment of Interest	
10	Miscellaneous Charges @ Rs.5000/month	60000
11	Total Fixed Cost Farm Machinery @Rs.1.0 Lakh/Year	100000
	Sub Total	**708000**
B	**Additional Provisions**	
12	10% margin for providing cheaper inputs	70800
13	05% margin for reserve and surplus	34500
14	10% margin for Risk Mitigation in estimated business	70800
15	Other Items (Annual Fixed Cost of Machinery and Implements)*	As per CHC Model
	Sub Total	**177000**
	Annual fixed Administrative cost & provisions	**885000**
	Say	**900000**

**Depreciation, interest cost on capital investment, housing, insurance and taxes on CHC*

7. Economic Cluster Size

To meet annual fixed administrative cost & provisions of Rs.9.00 lakh from accruable average gross margins of Rs.1671 per ha in input business, FPO have to supply a minimum quantum of inputs required in the particular net sown area (minimum area of cluster) under crop/s. This minimum average net sown area under various crops is nothing but FPO's economic cluster size to become a viable business entity. The estimated economic cluster size at which the FPO business will be viable for the individual as well as for mixed average crop area has been presented in Table 5.

Table 5 : Requisite size of Cluster and Number of shareholders

Particulars	Paddy	Wheat	Maize	Sugarcane	Average
Size of Cluster (Ha)	**603**	**523**	**630**	**441**	**539**
Requisite NO of Shareholders ALHS : 0.263Ha	2293	1989	2395	1677	2049
Requisite NO of Shareholders ALHS : 0.760 Ha	793	688	829	580	709
Requisite NO of Shareholders ALHS : 1.22 ha	494	429	516	361	442
Requisite NO of Shareholders ALHS : 1.925 ha	313	272	327	229	280

The economic cluster size(ECS) of a grain crop varies from 441 to 630 Ha with the average size of **539 Ha**. Accordingly, the number of shareholders would vary according to the average land holding size in that cluster.

8. Economic Cluster Size (ECS) determining factors

The extent of the purchase of the seed, fertilizer and pesticides will vary depending upon the concentration, distribution and purchasing power of marginal, small and medium farmers in the cluster. Hence, the characteristics of the economic cluster will also have bearing on the size of the cluster. Apart from that, business participation of one or a combination of horticulture crops and allied agriculture sectors along with food grain crops will reduce the economic cluster size.

Based on the study, it is observed that in Uttar Pradesh, 85% of producers prefer to purchase wheat seed from the market compared to 82% of marginal farmers and 93% of small and medium farmers, respectively. The role of input credit seems limited as 93% of input purchased transactions were "spot" transactions and paid in cash.

Similarly, 64% of farmers purchased paddy seeds from the market wherein 59% are marginal farmers, 71% are small farmers and 80% are medium farmers.

Around 66% of all farmers bought chemical pesticides from the market comprising 53% marginal, 74% small and 86% medium farmers.

Segmentation of plant protection measures comprises 53% pesticides, 38% herbicides, 07% fungicides and 2% growth promoters.

Small farmers paid 18% higher price for pesticides during the year 2011 @ Rs.716 per liter compared to medium and larger farmers @ Rs.607 per liter.

Hence, the economic cluster size of the FPOs may vary according to the quantitative and qualitative characteristics of identified clusters. Major factors may be one or a combination of economic activities – grain crops, horticulture crops, allied agriculture; mechanization level and its diversifications, composition and distribution of marginal, small and medium producers, level of using own produced inputs, quantum of input credits being extended by input supplier etc. However, it will not have much effect on the deviation of the minimum cluster size as most FPOs are facing a financial crunch to start entire business opportunities in one go.

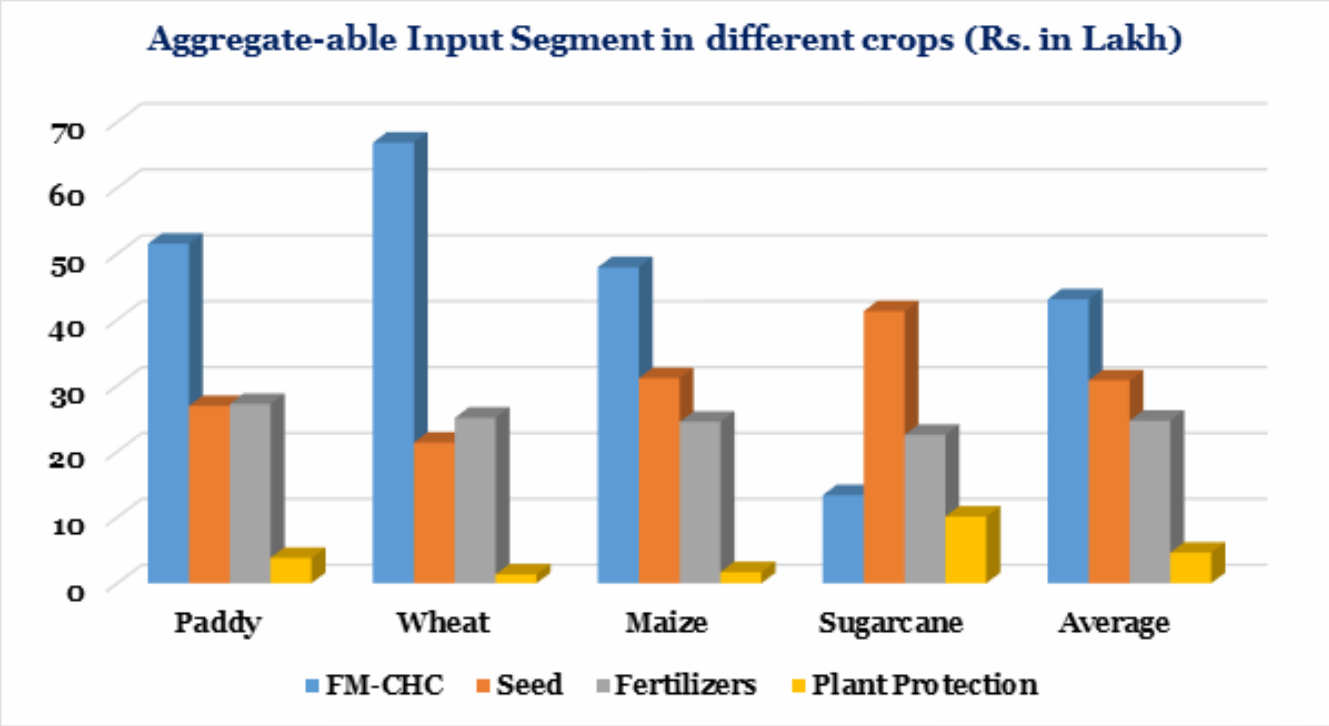
9. Minimum Turnover of FPOs for input business

For estimated economic cluster sizes presented in Table 6, FPOs have to undertake minimum turnover of Rs. 109.46 lakh, Rs.114.67 Lakh, Rs.105.26 lakh and Rs.87.24 Lakh for clusters of paddy, wheat, maize and sugarcane, respectively with average turnover of Rs.103.18 lakh in case of mix crops. Aggregate-able input-wise turnover for clusters of various crops has been worked out and given in Table 6.

Table 6: Minimum Input business required in Economic Cluster Size (Rs. Lakh)

Aggregate-able Inputs	Paddy	Wheat	Maize	Sugarcane	Average
Hired Machine	36.22	47.36	40.53	7.53	31.27
Hired Irrigation Machine	15.29	19.52	7.43	5.83	11.81
Total of FM on CH	**51.51**	**66.88**	**47.96**	**13.36**	**43.08**
Seed Value	26.89	21.33	31.12	41.26	30.77
Total of Seed	**26.89**	**21.33**	**31.12**	**41.26**	**30.77**
Fertiliser (N)	10.18	8.96	8.19	9.06	9.1
Fertiliser (P)	16.34	15.43	15.71	11.12	14.39
Fertiliser (K)	0.23	0.54	0	0.52	0.35
Other Fertiliser	0.24	0.14	0.59	0	0.22

Manure	0.22	0.05	0	1.81	0.61
Total of Fertiliser Segment	**27.21**	**25.11**	**24.49**	**22.51**	**24.67**
Insecticides	3.85	1.35	1.69	10.11	4.66
Total Plant Protection	**3.85**	**1.35**	**1.69**	**10.11**	**4.66**
Requisite Turnover of Aggregate-able Inputs	**109.46**	**114.67**	**105.26**	**87.24**	**103.18**



10. Use of Economic Cluster size for potential mapping FPOs in the State of Uttar Pradesh

Based on the economic cluster size approach estimated potential of FPOs in the Uttar Pradesh is about **30,000** with an estimated "**Aggregateable Input Business Potential" of Rs.37,508 crore** under four major cereal crops of the State**.** Financing opportunities for the bank would be about **Rs.7500 crore** to meet working capital requirements apart from the investment credit opportunities for tapping the 42% segment of farm mechanization on custom and hiring business. This would result in the retention of gross margins up to the extent of **Rs.3099 crore**, which is essential for the sustainability of FPOs and meeting the annual fixed administrative cost of FPOs. Details of the potential mapping are illustrated in Table 7.

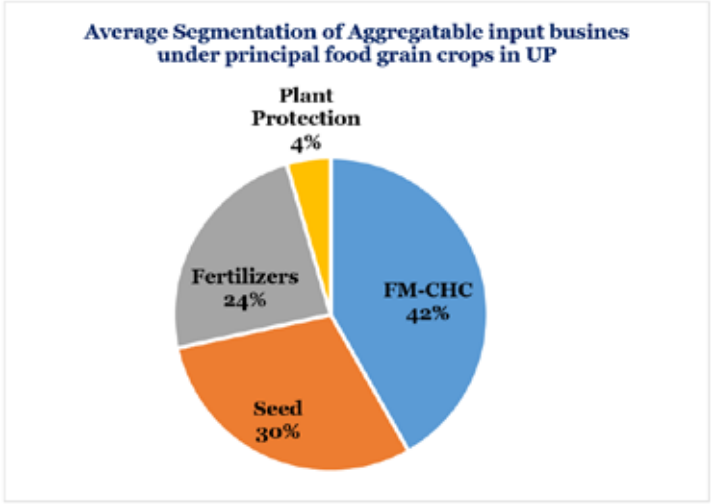
Table 7 : Potential of the FPOs under principal crops in Uttar Pradesh

S. No.	Name of Cereal Crop	Net Sown Area (Lakh Ha)	Aggregate-able Inputs (Rs./Ha)	Aggregate-able Input Business Potential for FPOs (Rs. in Crore)	Gross Margin for FPOs (Rs. in crore)
A	Paddy	56.8	18153	10310.9	848.02
B	Wheat	98.5	21927	21598.1	1696.17
C	Maize	7.7	16708	1286.52	110.03
D	Sugarcane	21.8	19782	4312.48	444.72
	Total	**184.8**		**37508.00**	**3098.94**
E	Net Sown Area of Uttar Pradesh (hectare)				16573478
F	**Number of FPOs potential in Uttar Pradesh @ 539 Ha per FPO***				**30749**

**Horticulture and Allied agriculture value chains are not taken into consideration while estimating FPOs potential.*

11. Issues, constraints and challenges in Input Business of FPOs

1. Farm Mechanization in the custom hiring segment varies from 15 % to 58 % with an average proportion of **42 %** of the total aggregate-able input business requiring large investment which FPOs lack.
2. The fertilizer segment varies from 23% to 27% with an average proportion of **24%** of the total aggregate-able input business coming from fertilizers, which have a thin margin (1-2%), but it is an essential component of input business, which blocks 24% of FPO's working capital.
3. Only the remaining 20% to 59% with an average proportion of **34%** of total aggregate-able seed and plant protection business is available for meeting its annual fixed administrative cost, thereby need to further increase the economic cluster size of FPOs.



However, there are strong evidence from various research and studies it is found that the Cooperative Agro Machinery Service Centres (AMSCs) have improved the economic viability of farming and CHCs are technically feasible and economically viable propositions. CHCs were generating profits to the extent of 2% to 30% of their annual cost. Services were cheaper by 16% and 35% when compared with private service providers and self-ownership, respectively. Average expenditure on CHC is higher in private service providers than AMSCs followed by owing machines. Fixed cost for self-owned machines made the cost of use 35% higher than that incurred in case of hiring from AMSC. The capital investment of the farmers using self-owned machines was 12 and 13 times higher than those hiring machines from private owners and AMSCs. Permanent labour was used 12 hr/annum/acre in the case of CHC compared to 29 hr/annum/acre in the case owning machines. In Raichur district of Karnataka CHC was established for 11 villages having a coverage area of 10386 ha and caters to 2626 producers. Though there is marginal income for CHC, it helped in improving farmers' income by 10-15%. (Hiremath, et.al, 2014).

Though, the Sub-mission on Agriculture Mechanization (SAM) scheme is going on for the establishment of subsidised farm machinery centres (FMCs) FPOs are unable to harness full convergence opportunity due to the non-availability of the margin money, lack of collaterals, lack of skilled manpower. Hence, *the biggest bottleneck for setting up the CHC by FPOs is limited resource mobilization from members as well as from the Financial Institutions.*

Conclusion

In Uttar Pradesh, like in other parts of the country, FPOs have undoubtedly emerged as community based business organizations. It not only addresses their input requirement constraints by providing them such services at their doorsteps but also helps them in aggregate their marketable surplus for better price realization. Generally, most of the FPOs undertake input business initially, since it is considered as low-risk business and such business activity also wins the confidence of the shareholders, if it is undertaken properly to address the issues of the farmers. Therefore, while promoting and nurturing new FPOs, it is important to estimate the viable cluster size of the FPO keeping in view the potential input business available in the cluster area which may vary as per the qualitative and quantitative characteristics of the cluster and the farmers. Further, the sustainability of FPO should be judged keeping in view the extent of input business opportunities and aggregation potential available in the cluster area to meet the minimum administrative cost of the FPO.

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Panch Sutra – Five "R"s for sustainability of nascent Farmer Producer Organizations (FPOs)

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Introduction

Farmer Producer Organisations (FPOs) are basically farmers' aggregate, an organizational mechanism for mobilizing farmers' collectives that seeks to improve their own economic and social situation and that of their community. Of late, FPOs have emerged as one of the most effective institution to address the challenges of agriculture sector in India where more than 86% farmers belong to small and marginal category. It provides them improved access to input, technology, credit, market and has potential to act as a catalyst of change in Agricultural sector of our country. In fact, now FPOs have become the new paradigm in Indian farming system.

Issues

In the last decade, various agencies like NABARD, SFAC and State Governments, NGOs etc have intensively promoted and nurtured FPOs to help small and marginal farmers to increase their income. The ongoing support for FPOs and promoting Agencies for a duration of 03 to 05 years includes administrative costs to run the FPOs, capacity building and handholding cost, equity support and in few cases credit guarantee cover to lending institutions. Keeping in view the success of the FPOs in various parts of the country, Government of India launched an ambitious scheme to promote 10000 FPOs in next five years starting 2019-20. If implemented well, the scheme could mobilize almost five million farmers (assuming that each FPO has a minimum membership of 500 farmers) into economically sustainable collectives. This has given a major thrust to the FPO movement.

As per an estimate India has approximately 24000 FPOs today out of which approximately 7000 have been promoted by NABARD and a majority of them are registered as Farmer Producer Companies (*Source : 2023-State of sector report, FPOs in India, NAFPO*). However, the experience shows a mixed performance of these FPOs. Some estimates show that 20 per cent of these are operating viably and have shown encouraging results while 30 per cent are struggling to survive. The remaining 50 per cent are still in the initial phase of mobilization and business planning. FPOs are primarily community based organizations controlled by their farmer-members who actively participate in setting their policies and making decisions. They are supposed to be managed by the primary producers who are proficient in Agriculture and allied activities but not proficient in the intricacies of running a business venture. On the other hand a new venture that too in the form of a company has generally a higher propensity to fail because it is new to the existing ecosystem and it has to tackle multiple issues at a single point of time like mobilization of new members, fund mobilization for the new business, getting licences for new business, marketing, convergence, networking etc. While there is no recipe to turn one FPO into a successful business establishment overnight, it is important to stay consistent and unified and follow at least some key sutras (5 "R"s) for their sustainability.

PANCH SUTRA for sustainability of a nascent FPO

The Panch sutra (5 "R"s) for sustainability of a nascent FPO are as follows –

- Resource mapping
- Resource planning
- Resource mobilization
- Role Model
- Resource synergising

Resource mapping: Resource mapping in the cluster area where an FPO is promoted and nurtured, is the foundation stone for making a vibrant business plan for the FPO. Before starting any economic activity of FPO, it is always advisable to first map the resources available in the cluster area and also identify the problems and issues faced by the farmers/members so that a clear road map can be drawn for selecting viable economic activities to be undertaken by the FPO as their business.

For resource mapping, diagnostic study of cluster area should be undertaken to assess the preliminary situation of the farmers and the status of agriculture and allied activities in that area. Diagnostic study is basically like diagnosis of an ailment. When we are sick, we undergo for various pathological tests as advised by Doctor. Based on the report, the Doctor diagnoses the disease and prescribe suitable medicines. In case of FPO, we have to do the same thing. Generally, a new FPO dealing with agricultural activities should broadly follow six steps for its sustainability as outlined below -

The diagnostic study of cluster area will facilitate in identifying the potential interventions required and understanding the specific context of project implementation. The facts and figures that are to be captured, must be comprehensive and must lead to an action. The process of diagnostic study involve -

- Collection and analysis of secondary data
- Collection of primary data through Baseline survey and Participatory Rural Appraisal (PRA)
- Feasibility analysis of the identified business activities

Resource planning – Resource planning for a nascent FPO is nothing but preparation of a viable business plan for the FPO. Based on the baseline survey & PRA exercise, the FPO should analyse what are the problems faced by the farmers in the cluster area such as unavailability of inputs, quality of inputs, marketing issues, high cost of

cultivation, storage issue etc. Focus should be laid on to overcome these challenges with the help of the FPOs, so that FPOs are recognised not only as a business entity but also as a knowledge institution in the cluster. One should also remember that the problems faced by the farmers are basically the business opportunities for FPO in general. While selecting the economic activities for the FPO, focus should be on reducing the cost of cultivation as well as reduction in marketing cost of member farmers. For a nascent FPO, input business of fertilizer, seeds and plant protection measures have very low margin however it is very essential component for a farmer to get the quality input at right time, such initiative by the FPO shall definitely built organic link between FPO and the member farmers. While selecting the economic activities as business of the FPO, it is important to envisage whether the FPO can provide round the year activities to its members with the proposed business area.

FPO should do ranking and selection of most potential economic activities based on their financial resources, capacity of the FPO and prevailing socio-economic conditions of the member farmers to augment their livelihood and income with minimum risk. In the beginning, it is wise to select 4-5 viable economic activities for better output but provide end to end solution to the member farmers. Scaling of the business activities should be taken gradually depending on increase in reserve and surplus and capacity of the FPO. This involves preparation of crop calendar for each selected crops/ allied activities. For example the variety of crops, date of nursery raising, transplantation, sowing, weeding, harvesting etc. to be fixed by mutual consent of farmers to bring business discipline among the farmers.

Resource mobilization

Resource mobilization for a nascent FPO includes both human resource mobilization and financial resource mobilization. Until the FPO has a sound member base who can contribute to the share capital of the FPO, it is nearly impossible to start a business. So membership mobilisation and fund mobilization both are important for a nascent FPO.

Business participation of a new FPO in the prevailing agri-value chain is not possible without entering as a value chain actor to perform collective economic activity to enhance scale of the economy. Hence, before entering FPO as a value chain actor in the prevailing agri-value chain it is important to understand the business model/s of different value chain actors in terms of value chain characteristics. To harness the economic rent's distributions among the long, ineffective and inefficient agri-value chain, strategy of increasing scale of economy through business participation of producer as a value chain actor is necessary. Hence, before undertaking vertical up- gradation of the prevailing agri-value chain, knowledge of value chain dynamics in terms of the business model of the value chain actor /s is pre-requisite. This will provide following vital information for decision making:

- Requirement of the financial resources to perform business activity of the particular value chain actor.
- Assessment of infrastructure and support services required for loading / unloading, processing, packing, weighing, assaying, transport, establishment of shop and storage.
- Assessment of the economic rent / mark-ups (Marketing cost and Marketing Margin) to analyse technical feasibility and economic viability of the prioritised business activity.
- Networking / business relationship mechanism with input and output value chain actor to perform business activity.
- Assessment of market dynamics / market intelligence (variation in demand, price, segment, quality, etc.) in correlations with the business activity.
- Extent of operation and market risk involved in particular business activity and how value chain actor overcome with the undertaking risk mitigation strategy.

The identification of economic activities, products and services should be based on market demand, scalability and enabling environment in the region. As regards, financial resource mobilization to start a business by the FPO, it should be in a position to clearly answers the following questions related to business selected by the FPO-

- How much money FPO has?
- How much FPO wants?
- How the gap, if any, will be filled and from where it will come?
- How will FPO use it?
- What returns are FPO promising to its shareholder members and others?

Role Model: If we analyse success story of any FPO, it is driven by good leadership which may be an entrepreneur, a competent CEO, an enabling board, charismatic president or a promoting Agency. The basic difference between a successful FPO and a failed one is the handling of the issues related to governance and management. In a nascent FPO, member/s from the board, CEO or the promoting agency need to come forward to lead the team with good governance, transparency, innovative thinking, orientation to serve the community, transparent transaction and dedication to scale up the business of the FPO. Such leaders or role models in the FPO should also think to make the FPO market makers through orientation, training and capacity building of the member farmers.

Resource synergising: The FPO should be resourceful and have a cordial relationship with all the stakeholders in the ecosystem of FPO. In this regard, networking with various agencies help the FPO to operate smoothly. Exploring scope for convergence i.e. making various support available (cash/kind) under the various ongoing schemes of the government and other agencies are accessible to the members. A nascent FPO needs to build network with institutions to mobilise essential resources like finance, agricultural inputs, information, marketing & liaison, value addition and other services required for the activities of FPO and its members. Through convergence and networking they may have access to new technologies from private and government institutions, research and development institutions, etc. The critical gaps viz. time & knowledge constraint existing at individual level in accessing benefits under such programs can be circumvented through an aggregation model and here FPOs can play a very important role. Therefore, the FPO should provide extension services to member farmers for input supply, technology transfer, aggregation, strategic marketing and bring new technologies/practices/innovation (including JUGAD) in the business activities of the FPO for which Board of Directors shall be instrumental to build sound relationship and management skills across the stakeholders connected with the FPOs. Convergence with the State & centrally sponsored schemes and networking with corporates along with making FPO grid would pave the way for business offtake and minimising market & operation risk.

To summarise, no single or any particular business model would be applicable for all the FPOs. Every identified cluster is different as per the socio-economic-geographic-agriculture background and the subsequent needs should be identified based on human capital and aspirations. Therefore, cluster based needs and prevailing value chain needs should be considered in promotion and nurturing of any particular FPO. Each FPO will have to study in detail its own specific characteristics and then draw implementable and sustainable business plan. The Business Plan for example, of a FPO located close to a metro would be different from a FPO located in the hinterland or located in a tourism centre.

Experience and a constant review would enable a learning process and also enable more inputs and knowledge from the stakeholders, provided sound relationship management is there. Increased exposure to the markets would facilitate familiarisation with the prevailing business ethos and mode of doing business. The financial aspects and understanding of financial terms and the context is of the essence of the FPO and for its BODs and the CEO. This must be well understood, even if it takes an effort to be absorbed and internalised. Continuous skill building, training and learning are the key parameters for making good entrepreneur and a vibrant FPO. Lastly, and crucially, continuous monitoring & evaluation of the business performance is prerequisite for effectiveness, efficiency and financial sustainability of the FPOs.

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Farmer Producer Organizations (FPOs): Growth Engine of Agricultural Development in Jammu & Kashmir

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Introduction

The Indian Agriculture sector has progressively become predominantly smallholder-driven as 86 per cent or farmers possess less than two ha of land, having a share of only 46 per cent of the area. The Agricultural Census (2015-16) indicates that the average size of a landholding had declined to 1.08 ha from 1.41 ha (Agricultural Census, 1995–96), which is hardly enough to eke out a livelihood opportunity for a family. Smallholders often suffer from poor access to quality inputs, institutional credit and other resources, organised markets, modern farming technologies, etc. Economies of scale are not available to most smallholders, which becomes a weakness as overheads on inputs and services purchased are very high. Their bargaining power in the marketplace for outputs too remains limited due to their low individual marketable surplus.

Scenario of Agriculture sector in the Union Territory of Jammu & Kashmir

Agriculture sector is an important sector in the economy of the UT with a contribution of 18.4% in SGDP. Over 70% of the population in the UT of J&K is directly or indirectly dependent on agriculture and allied occupations. However, the scenario of the agriculture sector in the UT of J&K is no different than the one mentioned above. Around 95% of the total landholding in the UT are small & marginal, with an average landholding size of 0.61 ha. Some of the major challenges faced by the agriculture sector in the UT are marginal & fragmented land holdings, low level of farm mechanization, low resource use efficiency, inadequate access to institutional credit, inadequate market structure, absence of value chain etc.

Despite the above challenges, the agriculture sector of the UT has inherent strengths in the form of Diverse Natural Capital such as soil uniqueness, quality water, biodiversity & micro-climatic variations, Niche crops etc. It also offers huge opportunities in the form of comparative advantage in several agri-commodities, huge potential for processing, scope for off-season agriculture, pristine production environment etc. In order to effectively utilize strengths and opportunities offered by the agriculture sector to overcome the challenges hampering the development of this sector, promoting collectivization through formation of FPOs may emerge as a game-changing step in the transformation of the agriculture sector in the UT.

Farmer Producer Organizations

Bringing together farmers to form Farmer Producer Organisations (FPOs) is considered a promising approach to address the challenges facing the smallholders by providing them with the benefits of economies of scale. FPOs facilitate the aggregation of input required for agriculture and allied activities as will as output/ produce for sale in the market. With aggregation, through FPO, benefits accrue to the farmers, due to economies of scale i.e. procurement of inputs at lower cost and sale of produce at higher price due to increased bargaining power. Aggregation is also an effective method to mitigate risk in agriculture.

Role of NABARD in promotion of FPOs

Recognizing the importance of FPOs as a means of linking farmers to agri value chain and increasing the farmers' income, the Hon'ble Union Finance Minister, in his budget speech for 2014- 15, announced setting up of "Producers Organization Development and Upliftment Corpus (PRODUCE) Fund" of Rs.200 crore in NABARD to be utilized for the promotion of 2000 Farmer Producer Organizations (FPOs). Accordingly, PRODUCE Fund Scheme for promotion of Farmer Producer Organizations (FPOs) was operationalized for implementation over next 3 years' period.

Central Sector Scheme on Formation & Promotion of 10,000 FPOs

The success of the FPOs promoted under the PRODUCE Fund encouraged the Govt. of India (GoI) to announce a Central Sector Scheme on Formation and Promotion of 10,000 FPOs in the Union Budget of 2019-20. The scheme aims to provide a holistic and broad-based supportive ecosystem to form 10,000 new FPOs to facilitate development of vibrant and sustainable income-oriented farming and for overall socio-economic development of the farming community. NABARD has been designated as one of the Implementing Agencies (IA) by GoI under the scheme. NABARD has also set up a credit guarantee fund of Rs. 1000 crore to provide guarantee cover to eligible lending institutions to enable them to extend collateral-free direct loan to these FPOs.

FPOs as growth engines for transformation of Agriculture Sector in the UT

NABARD has promoted around 80 FPOs in the UT of J&K under various schemes, benefitting around 10,000 farmers of the UT. These FPOs are involved in various diversified products such as Saffron, Walnuts, Almonds, Maize, Basmati-Rice, Mushrooms, Organic Vegetables, Honey etc. These interventions are likely to rejuvenate the agriculture sector of the UT in multiple ways such as area expansion under various crops, increased production, cost rationalisation, better price realisation, increased level of farm mechanization etc.

The success of the FPOs can be measured through various quantitative indicators like; the number of farmer members, amount of equity mobilised from members, turnover, net profits and qualitative indicators like; how the quality of members' produce improved, how they captured the local market and export market, how FPOs were awarded licenses by government agencies for selling fertilisers and pesticides etc. are often used. Among the various FPOs promoted by NABARD in the UT, there are FPOs which are close to reaching an annual turnover of Rs. One Crore selling their products throughout the country, granted various types of licenses such as licenses for the sale of fertilizers, export licenses, packaging and processing licenses etc. These FPOs have been successful in increasing the income of their members by 20-40%.

Getting into niche crops

A niche product for a niche market usually assures success. The UT of J&K is bestowed with various unique and niche products such as Saffron, Kashmiri Lal Mirch, Basmati, Bhaderwah Rajmash, Kala Zeera etc. which have got high commercial value in the national and international markets. Already many FPOs have been sanctioned by NABARD which are involved in the production, aggregation and marketing of these products under the ambit of their own branding and packaging. This has helped these FPOs in achieving better price realisation by providing traceability of such produce (such as GI-tagged saffron in Kashmir valley). FPOs will also be successful if a marketing company uses them as procurers and aggregators of commodities.

Further, the FPO model may prove to be a success in addressing various challenges associated with such crops such as lack of commercial value chain & traceability, lack of adequate quality planting material, decreasing area under

cultivation etc. As this market of niche crops has the potential to augment agriculture income of the farmers of the UT manifolds, the FPO model may be utilized for boosting integrated, multi-commodity approach aggregation and value addition.

Way forward

The future of Agriculture sector in the UT will depend upon the success of the FPOs. These entities have the potential to transform marginal and small farms from subsistence farming to market-oriented commercial farming provided that their promotion and nurturing are implemented in a mission mode. Even the Mangla Rai Committee formulated by the UT Government for framing a comprehensive Agriculture Policy for holistic development of Agriculture & allied Sectors in UT has outlined potential for formation of 300 FPOs across the UT. With the constantly increasing number of FPOs in the UT, the next important aspect of FPOs would be their governance. How to transform them into leaders and market makers through orientation, training and capacity building would be a challenge. Every successful FPO is led by an entrepreneur; a competent CEO, an enabling board, a charismatic president or an NGO promoter. Successful FPOs will be those who would understand market demand or consumer demand. They would need to mobilize considerable member equity which is a reflection of its leadership and member's perception of benefits of being in FPO. Hand-holding of FPOs and the FPO movement is crucial to upgrade farmers from producers to marketers. An enabling ecosystem with empathy to our farmers may aid in this transformation which may benefit the entire ecosystem of agricultural development in the UT.

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किसान उत्पादक संगठन–मौजूदा स्थिति, चुनौतियॉं व आगे की राह

श्रीमती मंजुला वाधवा,
उपमहाप्रबंधक, नाबार्ड, उत्तर प्रदेश

प्रस्तावना

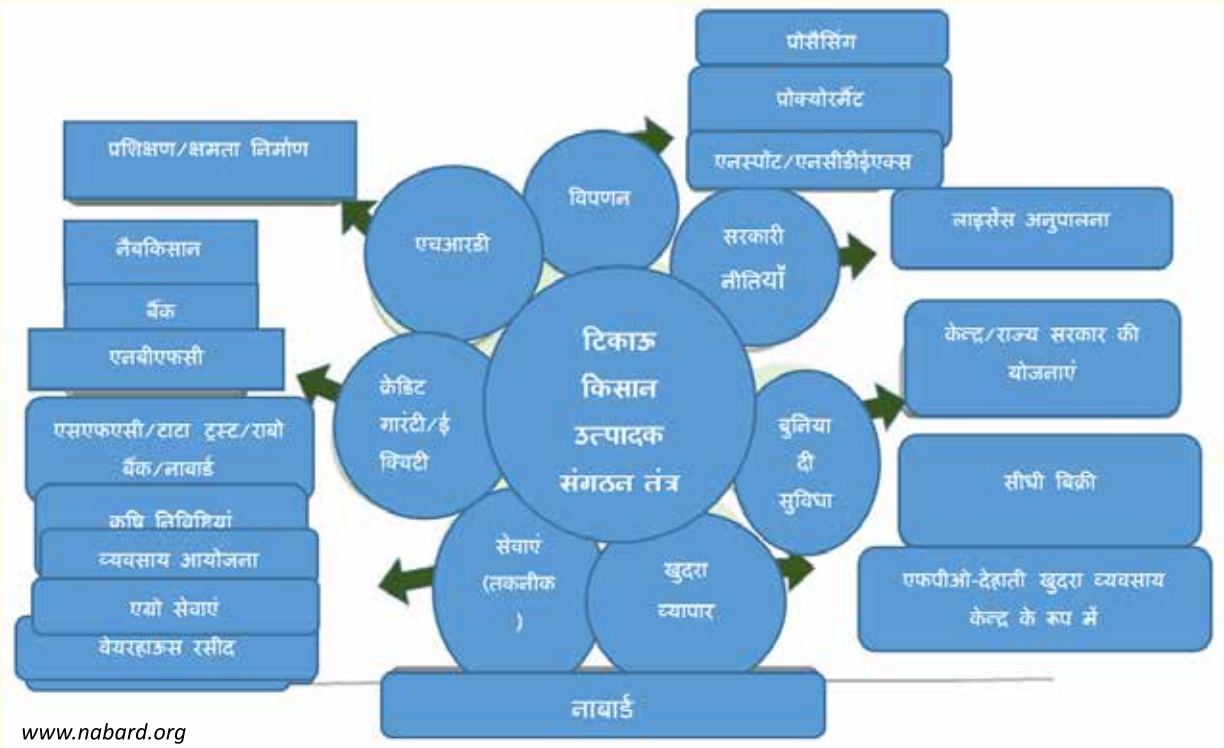
भारत जैसा देश जहॉं साढ़े छह लाख से भी अधिक गॉंव हैं और 65 प्रतिशत जनता गॉंवों में निवास करती है, में कृषि आम ग्रामीण भारतीय के लिए रोजी–रोटी का प्रमुख स्रोत है। कृषि में छोटे और सीमांत किसानों का वर्चस्व है, अंदाजन, लगभग 14.5 करोड़ किसान परिवारों में से 85 फीसदी से ज्यादा छोटे और सीमांत किसान हैं जिन्हें उत्पादन–पूर्व और उत्पादन–पश्चात के जरूरी संसाधन जैसे किफायती कीमतों पर कृषि निविष्टियॉं, उत्पादन टेक्नोलॉजी तक पँहुच, मशीनरी, प्रसंस्करण उपकरण, ऋण और पैदावार की बिक्री सुविधाओं तक पँहुच में जबरदस्त चुनौतियों का सामना करना पड़ रहा है। हमारे देश में आज, जब भूजोतों का औसत आकार केवल 1.08 हेक्टेयर रह गया है, किसान उत्पादक संगठनों के गठन के माध्यम से ऐसे उत्पादकों का समूहीकरण मौजूदा चुनौतियों का सामना करने और किसानों की आय बढ़ाने के लिए बहुत महत्वपूर्ण है। कृषि योग्य क्षेत्रफल का लगातार घटता आकार किसानों की आजीविका पर गंभीर सवाल खड़े करता है। खेतों से उपभोक्ताओं तक पँहुचने के मार्ग में कुल पैदावार का तकरीबन 15–20% हिस्सा अनेक कारणों से नष्ट हो जाता है। फसल उत्पादन पर बढ़ता जा रहा जलवायु परिवर्तनों का प्रतिकूल प्रभाव चिंताजनक विषय बन चुका है। देखिए, किसान के हालात की बानगी खुद उसकी जुबानीः–

चीर के जमीन को मैं उम्मीद बोता हूँ
मैं किसान हूँ, चौन से कहाँ सोता हूँ ...

ऐसे हालात में, सबसे पहले सीमांत, छोटे और मझौले किसानों की कृषि ऋण, इनपुट्स, प्रौद्योगिकी और विस्तार–सेवाओं तक पँहुच को समर्थ और सशक्त बनाने की ओर ध्यान दिए जाने की आवश्यकता है। साथ ही, उपज की बिक्री और लेनदेन लागतों में आने वाली अड़चनें दूर करने की भी जरूरत है। सारी समस्याओं का व्यावहारिक हल है–किसान उत्पादक संगठनों का गठन। छोटे और हाशिये के किसानों को संगठनों के माध्यम से **सामूहिक सौदेबाजी की ताकत, बड़े पैमाने की बचतें, नवोन्मेषी कृषि प्रथाएं, जोखिम प्रबंधन और बाजार का रूख पहचानते हुए खेती के तरीके बदलने की क्षमता मिलती है।** इतना ही नहीं, उत्पादक संगठन से जुड़ने पर किसी नए कृषि उत्पाद के लिए बाजार तैयार करने की ताकत भी उन्हें मिल जाती है. ये संगठन ऐसे एकत्रीकरण संस्थान हैं जिनका उद्देश्य छोटे और मझौले किसानों को इनपुट और आउटपुट दोनों बाजारों से जोड़ना है। ऐसे संगठन सरकार, सहकारी संस्थाओं, निजी क्षेत्र, नागरिक समाज, ट्रस्टों अथवा वैधानिक समाजों द्वारा आरंभ किए जाते हैं। सदस्यता और भौगोलिक फैलाव की दृष्टि से इनके विभिन्न रूप हैं जैसे कृषि सहकारी समितियां, निर्माता कंपनियां, स्वयं सहायता समूह, स्वयं–सहायता समूहों का संघ, साझा–हित समूह, किसान–हित समूह, कमोडिटी–हित समूह, संयुक्त–देयता समूह, किसान क्लब आदि। सामान्य हितों वाले किसान उत्पादक मिलजुल कर अपने संसाधनों के समूहीकरण के लिए आपस में सहमत होते हैं और ऋण, इनपुट स्रोत, कृषि प्रौद्योगिकी तथा फसलोपरांत प्रबंधन जैसे कृषि मुद्दों का संयुक्त रूप से प्रबंधन करते हैं। वे बाजार की जानकारी, अच्छी कृषि पद्धतियों, कमोडिटी विनिमय और निर्यात के प्रसार में भी सहभागिता करते हैं। इस प्रकार किसान सदस्य एग्री–इनपुट्स प्राप्त करने के लिए सामूहिक सौदेबाजी की ताकत का लाभ उठाकर लेनदेन की लागतें कम कर पाते हैं और समान शर्तों पर, अनेकों संस्थाओं के साथ व्यापार में भागीदारी के माध्यम से उच्च मूल्य वाले बाजारों तक अपनी पँहुंच बनाने में कामयाब हो पाते हैं।

किसान उत्पादक संगठन–मौजूदा स्थिति

प्रसिद्ध अर्थशास्त्री डॉ. वाई.के. अलग के नेतृत्व में गठित विशेषज्ञ समिति ने वर्ष 2002 में कंपनी अधिनियम, 1956 में भाग IXA को शामिल करके किसान उत्पादक कंपनियों की स्थापना की सिफारिश की। ऐसी निर्माता कंपनियों की मुख्य गतिविधियों में फसल उत्पादन, उसकी कटाई, प्रसंस्करण, खरीद, ग्रेडिंग, पूलिंग, हैंडलिंग, बिक्री, निर्यात या सभी शेयरहोल्डर सदस्यों के लाभ के लिए वस्तुओं और सेवाओं का आयात शामिल हैं। इसमें पारस्परिक सहायता, कल्याणकारी उपाय, वित्तीय सेवा, उत्पादकों या उनकी प्राथमिक उपज के बीमा को बढ़ावा देना भी शामिल हैं। सुखद यह कि एफपीसी में केवल प्राथमिक उत्पादक होते हैं जो कंपनी के शेयरधारक होते हैं और अन्य सदस्यों के साथ मिलकर लाभ साझा करते हैं तथा शेष लाभ व्यवसाय विस्तार के लिए संगठन के स्वामित्व में रखी निधि में जमा हो जाता है। वस्तुतः एफपीसी औपचारिक, स्वायत्ततापूर्ण, बहिर्मुखी संगठन हैं और उन्हें निजी कंपनियों एवं सहकारी समितियों के बीच संकर (हाईब्रिड)संस्था के रूप में माना जा सकता है. नीचे दिए गए चित्र में दीर्घकालिक आधार पर चलाए जा सकने योग्य किसान उत्पादक संगठन को दर्शाया गया है:–



वर्ष 2011–12 के दौरान एफपीओ/एफपीसी को बढ़ावा देने के लिए कृषि, सहकारिता एवं किसान कल्याण मंत्रालय, भारत सरकार द्वारा राज्य सरकारों के साथ साझेदारी में एक प्रायोगिक परियोजना आरंभ की गई जिसके अंतर्गत राष्ट्रीय कृषि विकास योजना (RKVY) की दो उप योजनाओ के तहत् किसानों को एफपीओ के रूप में जोड़ने का कार्य किया गया। इसके बाद, वर्ष 2013 में मंत्रालय ने एफपीओ और एफपीसी दोनों के विजन, मिशन, लक्ष्य और कवरेज का विस्तृत विवरण देते हुए नीति और प्रक्रिया संबंधी दिशानिर्देश जारी किए। खाद्य प्रसंस्करण उद्योग मंत्रालय (MOFPI) ने 'ऑपरेशन ग्रीन' और 'किसान संपदा योजना' जैसी योजनाएं लागू करके फूड प्रोसैसिंग इंडस्ट्री के लिए कृषि–लॉजिस्टिक्स सहित प्रभावी और निर्बाध उत्पादन–पूर्व और उत्पादन–पश्चात सुविधाएं प्रदान की। यह किसानों और उससे भी अधिक किसान उत्पादक कंपनियों को सहभागिता की सुविधा प्रदान करने के लिए है। इसी प्रकार, 'दीनदयाल अंत्योदय–राष्ट्रीय ग्रामीण आजीविका मिशन (NRLM) के अंतर्गत ग्रामीण विकास मंत्रालय ने भी किसान उत्पादक कंपनियों के माध्यम से छोटे और मझौले किसानों को बेहतर मूल्य प्राप्ति के लिए बाजारों तक उनकी पँहुंच बनाने में सक्षम बनाने के प्रयास किए हैं।

किसान उत्पादक संगठनो (FPOs) की अहमियत को समझते हुए, देश के शीर्ष कृषि और ग्रामीण विकास बैंक, नाबार्ड ने 2011 में 50 करोड़ रू की समूह राशि से उत्पादक संगठन विकास निधि (Producer Organization Development Fund(PODF)) की स्थापना करके उत्पादक संगठनों के किसान सदस्यों को ऋण, क्षमता–निर्माण के लिए प्रशिक्षण तथा बिक्री सुविधाएं मुहैया करवानी शुरू की। 2014–15 में भारत सरकार ने नाबार्ड में 200 करोड़ रूपये की समूह राशि से 2000 एफपीओज के गठन हेतु 'प्रोड्यूस फंड'(PRODUCE Fund) की स्थापना की। इस निधि का उद्देश्य गठन के बाद संगठनों की शुरूआती वित्तीय जरूरतें पूरी करके उन्हें दीर्घकालिक आधार पर आम किसानों का तारणहार बनाना था। उपर्युक्त दोनों पहलकदमियों के फलस्वरूप आज देश में 5000 से अधिक एफपीओ पंजीकृत हैं जिनके शेयरहोल्डर सदस्य 20 लाख से अधिक हैं। नाबार्ड के पोर्टल Nabfpo-in पर इन संगठनों और उनके सदस्यों का डिजिटल डाटा उपलब्ध है।

अब नाबार्ड द्वारा गठित एफपीओज की उपलब्धियों, परिणामों और प्रभावों पर विचार करना भी यहां जरूरी है:–

- ऋण के अनौपचारिक स्रोतों पर किसानों की निर्भरता कम हुई
- खेती करने की लागत कम हुई और उपज में वृद्धि हुई
- फसल कटाई के उपरांत प्रसंस्करण के माध्यम से मूल्यवर्धन हुआ
- उत्पादों का बेहतर मूल्य प्राप्त हुआ
- किसानों की शुद्ध आय में बढ़ोत्तरी हुई– इनपुट, परिवहन, कृषि सेवाओं और प्रत्यक्ष विपणन तक बेहतर पँहुच बनी.
- स्वास्थ्य, स्वच्छता, शिक्षा संबंधी मुद्दों के बारे में जागरूकता बढ़ी, किसानों के सामाजिक स्तर में भी सुधार हुआ
- अधिक समावेशन– 83% एफपीओ सदस्य छोटे और सीमांत किसान हैं और 46% महिलाएं हैं
- नैब पोर्टल पर अब तक 4196 एफपीओ ऑन–बोर्ड किए जा चुके हैं.
- 2887 एफपीओज को बाजार से जोड़ा जा चुका है और 1152 का क्रेडिट लिंकेज हो चुका है.
- देश के 22 राज्यों में नाबार्ड की सहायक संस्था 'नैबकिसान' के माध्यम से 1455 संगठनों के 73 लाख सदस्यों को लगभग 450 करोड़ रू की वित्तीय सहायता दी जा चुकी है.

कोरोना महामारी के समय जब पूरे देश की अर्थव्यवस्था अस्त–व्यस्त हो चुकी थी, किसान उत्पादक संगठनों के सहयोग से हजारों–लाखों किसानों ने फसलों के बेहतर दाम हासिल किए, वे आपदा के दौर में भी खेती–किसानी जारी रख पाए। केंद्र सरकार ने किसान उत्पादक संगठनों की ताकत को परखा और किसानों की आय बढ़ाने के लिए 6865 करोड़ रुपये के परिव्यय वाली 10,000 किसान उत्पादक संगठनों की स्थापना की योजना को हरी झंडी दिखाई। 2019–20 के केन्द्रीय बजट में एक लाख करोड़ रुपए के निवेश से अगले पांच वर्षों में (2023–24 तक) 10000 एफपीओ बनाकर 60,000 छोटे और सीमांत किसानों को खेती–किसानी में मदद करने के उद्देश्य से 'कृषि अवसंरचना निधि (Agriculture Infrastructure Fund) स्थापित की गई।

वर्तमान में इस निधि को वर्ष 2029–30 तक का विस्तार दिया गया। इस महत्वाकांक्षी योजना का उद्देश्य फसल कटाई के बाद के प्रबंधन और सामुदायिक खेती परिसंपत्तियों से संबंधित व्यवहार्य परियोजनाओं में प्रोत्साहन और वित्तीय सहायता दोनों के माध्यम से निवेश जुटाना है। इस निधि की दो नईं विशेषताएं हैं– पहली, गाँवों में गोदाम, आधुनिक पैकहाउस और कोल्ड चेन जैसी उपयुक्त तकनीकों का उपयोग करके फार्म–गेट अवसंरचना के निर्माण पर अपना ध्यान केंद्रित करना। इससे किसान सीधे थोक खरीदारों, प्रसंस्करण करने वालों और उपभोक्ताओ को अपनी उपज बेच सकेंगे। दूसरी, ब्याज छूट और ऋण गारंटी दोनों का प्रावधान किया गया है।

केंद्र सरकार के किसान उत्पादक संगठन योजना में एसएफएसी, नाबार्ड और एनसीडीसी तीनों को कार्यान्वयक एजेंसी बनाया गया है। एफपीओ गठन के लिए एक उपज क्लस्टर क्षेत्र आवष्यक है जिसमें जैविक और प्राकृतिक कृषि शामिल हैं। इससे कृषि उत्पाद विशेषज्ञता के विकास के लिए ***'एक जिला एक उत्पाद'*** की अवधारणा को साकार करना संभव होगा. दूसरा, यह विशेष उद्देश्य वाले क्लस्टर आधारित व्यापार संगठनों की स्थापना में सहायता करता है। इस तरह की इकाइयाँ प्रवेश बिंदु पर कृषि गतिविधियों, किसानों को संगठित करने, व्यवहार्यता आचरण, आधारभूत सर्वेक्षणों और सबसे महत्वपूर्ण मध्यम और दीर्घकालिक विकास के लिए मुख्य व्यापार योजनाओं की तैयारी में कार्यान्वयन एजेंसी की सहायता करेंगी। मूल्य श्रृंखला प्रसंस्करण और निर्यात संस्थाएं जो क्लस्टर अप्रोच के माध्यम से एफपीओज का सहयोग कर रही हैं, के लिए फंडिंग भी उपलब्ध होगी। एफपीओ को संस्थागत ऋण के त्वरित प्रवाह के लिए इक्विटी, अनुदान और ऋण गारंटी कवर उपलब्ध कराने की व्यवस्था है. सबसे अहम, इसके लिए एक एकीकृत अंतर–संचालित राष्ट्रीय पोर्टल बनाया गया है ताकि एफपीओ/एफपीसी पर डेटाबेस सर्वसम्बद्ध के लिए समान रूप से उपलब्ध हो। अब सरकार के इस अभिनव कदम के लाभों का जायजा ले लेते हैं:–

- इस योजना के अंतर्गत किसान उत्पादक संगठनों को इक्विटि सहायता दी जाती है, ताकि वे सामूहिक आधार पर सभी सदस्य शेयरहोल्डर किसानों के लिए कृषि मशीनरी, बीज, खाद और उर्वरक आदि की खरीद सुनिश्चित कर सकें। फसल बिक्री के दौरान उपज की पैकेजिंग और ट्रासंपोर्टेशन में भी किसानों की मदद की जाती हैं।
- नाबार्ड की सहायक संस्था 'नैबसंरक्षण' में 1000 करोड़ रू की समूह राषि से क्रेडिट गारंटी फंड भी बनाया गया है जिससे 2 करोड़ रूपये तक के बैंक ऋण की गारंटी दी जाती है।
- इस योजना के जरिये किसानों को बेहतर कमाई करने का मौका मिलता है।
- किसान अपनी फसलों का प्रसंस्करण करके आत्मनिर्भर बन सकते हैं।
- नये किसान उत्पादक संगठनों को सरकार 3 साल में 18 लाख रुपये तक देती है, जिससे उत्पादक संगठन आत्मनिर्भर बन सकें.
- इस योजना के तहत क्लस्टर–बेस्ड बिजनिस आर्गेनाइजेशन (CBBO) को महत्वपूर्ण भूमिका निभाने वाली पेशेवर एजेंसी के रूप में प्रबंधित किया गया है क्योंकि उन्हें किसानों को एकजुट करने, उनका आधारभूत सर्वेक्षण करने, उपज समूहों की पहचान, समूहों के गठन, पंजीकरण और क्षमता निर्माण से लेकर व्यापार योजना तैयार करने, एफपीओ को बाजार उपलब्ध कराने के आश्वासन के साथ उसके कार्यान्वयन तक मूल्य श्रृंखला के साथ खुद को जोड़े रखना है।
- पहाड़ी क्षेत्रों में 100 किसानों और समतल क्षेत्रों में 300 किसानों को जोड़कर किसान उत्पादक संगठन बनाया जा सकता हैं।
- खुद की जमीन पर खेती करने वाले किसान ही किसान उत्पादक संगठन से जुड़ सकते हैं. इससे कृषि बाजार में किसानों का रूतबा बढ़ता है और बिचौलियों द्वारा होने वाले शोषण पर भी रोक लगती है।
- वित्तीय लाभ और तकनीकी सहायता के लिए योजना के तहत पात्र होने हेतु एफपीओ को कंपनी कानून, 2013 या राज्य सहकारी समिति कानून के तहत पंजीकृत होना आवश्यक है।
- 'एक जनपद–एक उत्पाद क्लस्टर' से फसलों के उत्पादन में विशेषज्ञता और कृषि उत्पादों के बेहतर प्रसंस्करण, विपणन, ब्रांडिंग तथा निर्यात को बढ़ावा मिलता है।

राह की चुनौतियॉं और उन्हें दूर करने के उपाय

पाया गया है कि एफपीओज को अपर्याप्त तकनीकी कौशल, नाकाफी पेशेवर प्रबंधन, कमजोर वित्तीय व्यवस्था, ऋण तक अपर्याप्त पहुँच, जोखिम–शमन तंत्र की कमी और बाजार तथा बुनियादी ढाँचे का अभाव जैसी चुनौतियों का सामना करना पड़ता है। किसान उत्पादक संगठनों को अधिक प्रभावी बनाने के लिये इन्हें इनपुट कंपनियों, तकनीकी सेवा प्रदाताओं, विपणन/प्रसंस्करण कंपनियों, खुदरा विक्रेताओं, बाजारों–मंडियों आदि के साथ जोड़ने के साथ ही सूचना प्रौद्योगिकी में भी दक्षता प्रदान करने की आवश्यकता है।

व्यावसायिक प्रबंधन की कमी: समुचित पर्यवेक्षण और नियंत्रण के लिये एफपीओ के पास अनुभवी, प्रशिक्षित और पेशेवराना मुख्य कार्यकारी अधिकारी तथा अन्य कर्मियों की बेहद जरूरत होती है ताकि संगठन का प्रबंधन कुशलतापूर्वक किया जा सके। ग्रामीण क्षेत्रों में इस तरह की प्रशिक्षित जनशक्ति वर्तमान में कम उपलब्ध है।

कमजोर वित्तीय स्थिति: संगठनो का प्रतिनिधित्व अधिकतर छोटे और सीमांत किसानों द्वारा किया जाता है जिनके पास संसाधन बहुत कम होते है नतीजतन, शुरू में वे अपने सदस्यों को किफायती दरों पर प्रभावी ढंग से कृषि उत्पाद तथा सेवाएँ देने के लिये वित्त और कौषल की दृष्टि से सशक्त नहीं होते हैं।

ऋण तक अपर्याप्त पहुँच: संपार्षिवक प्रतिभूति न होने और ऋण लेने की के अनुभव में कमी के कारण किफायती ऋण तक पहुँच उत्पादक संगठनों के सामने आने वाली प्रमुख बाधाओं में से एक है।

जोखिम न्यूनीकरण तंत्र का अभाव: हालांकि किसानों के लिए उत्पादन से संबंधित जोखिम अंषतः मौजूदा फसल/पशुधन/अन्य बीमा योजनाओं के अंतर्गत कवर्ड हैं, तथापि, एफपीओज के व्यावसायिक जोखिमों के कवरेज का कोई प्रावधान नहीं था, इसीलिए कुछ समय पूर्व नाबार्ड की सहायक संस्था नैबसंरक्षण में 1000 करोड़ रूपये की समूह राशि से क्रेडिट गारंटी फंड बनाया गया है जिससे किसान उत्पादक संगठनों को फायदा मिलना शुरू हो गया है.

बुनियादी ढाँचे तक अपर्याप्त पहुँच: उत्पादक संगठनों के पास परिवहन सुविधाओं, भंडारण, मूल्यवर्धन और प्रसंस्करण, ब्रांड निर्माण एवं विपणन आदि के लिये आवश्यक बुनियादी ढाँचा अभी भी बहुत कम है।

उपाय क्या ?

एफपीओज की शानदार अवधारणा को अमल में लाने की राह में मौजूद चुनौतियों से निपटने के लिए नाबार्ड ने एकीकृत समाधान डिजाइन किए हैं। एफपीओ पोर्टल पर नाबार्ड ने एफपीओज की रेटिंग के लिए मानकीकृत मूल्यांकन मानदंड बनाए हुए हैं, 'ए' या 'बी' श्रेणी में आने वाले एफपीओज को ही ऋण व अन्य सुविधाएं देने पर विचार किया जाता है। उनकी पूरी क्षमता के दोहन के लिए सस्ते ऋण की उपलब्धता के साथ ही और बहुत कुछ किए जाने की आवश्यकता है। सदस्य केंद्रीयता, स्वामित्व, सुशासन और व्यवसाय योजना क्षमता विकसित करना भी उतना ही महत्वपर्ण है। टेक्नॉलॉजी का उपयोग, निर्यात पर ध्यान केन्द्रित करना, सुविकसित उत्पादन–पूर्व व उत्पादन–पश्चात की सुविधाओं का सृजन और व्यापार नीति में सुधार, अनुपालन की आवश्यकताओ में सुस्पष्टता और बाजार की प्राथमिकताओ को आत्मसात करना जैसे मुद्दों की ओर ध्यान देने की बेहद जरूरत हैं. लिहाजा, निम्नलिखित कार्यनीतियों की पहचान की गई है:

1. एफपीओ के लिए 'व्यवसाय करने में आसानी के मानदण्डों' में सुधार लाना जैसे नए कृषि–व्यवसायों को शुरू करने के लिए प्राथमिकता आधार पर अनुमोदन, सार्वजनिक खरीद में अधिकार आदि
2. सुनिश्चित करना कि बैंक एफपीओ को दिए गए अपने ऋण की रिपोर्टिंग नियमित रूप से करें
3. एफपीओ और उनके सदस्यों के लिए उनकी जरूरतों के हिसाब से उत्पाद डिज़ाइन करने के लिए बैंकों को प्रोत्साहित करना
4. कृषि को अधिक उत्पादक, लाभदायक और संधारणीय बनाने के लिए कृषि–स्टार्ट–अप्स द्वारा संचालित नवोन्मेश अपनाना

और एफपीओ के सदस्यों को कृषि के लिए मशीनरी, गुणवत्तापरक सामग्री, निविष्टियॉं, तकनीकी सलाह और विस्तार सेवाएँ प्रदान करके उन्हें हायरिंग–कम–एग्री बिजनेस केन्द्रों के रूप में पुनर्रचित करना।

5. छोटे व सीमांत किसानों को उनके उत्पादक संगठन द्वारा आपात कालीन ऋण, उपभोग ऋण, उत्पादन ऋण और खेती की लिए जरूरी सामग्री खुदरा आधार पर मुहैया करवाना अत्यंत आवश्यक है ताकि वे स्थानीय व्यापारी को अपनी उपज न बेचकर बिक्री के लिए उत्पादक संगठन में ही लाएं। इसके अलावा, खेती की नित्य नयी तकनीकों, विस्तार सेवाओं, प्रसंस्करण, विपणन आदि से भी उन्हें जोड़ा जाए।

6. ईक्विटी ग्रांट फंड तथा क्रेडिट गारंटी फंड की योजनाओं को और भी आसान और मजबूत बनाने की जरूरत है लिहाजा भारतीय रिजर्व बैंक के आंतरिक कार्यदल की निम्नलिखित संस्तुतियॉं अपनाई जाएं तो बेहतर होगाः–

क. नाबार्ड एफपीओज/एफपीसीज की वित्तीय जरूरतें पूरी करने के लिए ऐसा मॉडल तैयार करे जिसमें पूरी आपूर्ति तथा मूल्य चेन शामिल हो। सफल स्वयं सहायता समूह चुनकर महिला उन्मुख उत्पादक संगठन बनाने को बढ़ावा दिया जाए।

ख. 75 प्रतिषत छोटे व सीमांत किसानों वाले ऐसे उत्पादक संगठन जिनके उपज की बिक्री पूर्व निर्धारित मूल्यों पर करने की नीति उनके संगठन ने बनाई हुई है, को प्राथमिकता क्षेत्र उधार की श्रेणी में लाया जाए।

सर्वोत्तम होगा कि सभी हितधारक मिलकर नीचे दिए गए कदम ईमानदारी से उठाने पर विचार करें:–

एफपीओज के निदेशक मंडल के सदस्यों तथा अन्य पदाधिकारियों का नियमित क्षमता निर्माण :–

अक्सर एफपीओज के निदेषक मंडल में कृषि की पृष्ठभूमि वाले सदस्य होते हैं जैसे ग्राम पंचायत या अन्य समितियों के प्रधान। दूर दराज के ऐसे गॉंवों जहॉं सरपंच/पंच कमजोर हों, छोटे व सीमांत किसान बड़ी संख्या में हों, बिचौलियों का वर्चस्व हो, में उत्पादक संगठनों के बोर्ड में ऐसे लोग रखे जाएं जो स्थानीय राजनीति में लिप्त न हों। उनका प्रशिक्षण व क्षमता निर्माण विषेशज्ञ संस्थाओं के माध्यम से नियमित रूप से करवाया जाए ताकि वे पेशेवराना अंदाज में एफपीओ चलाने योग्य बन सकें।

उपज की बिक्री आसान बनानाः

- शेयरधारक सदस्यों के लाभ के लिये ऊबर/ओला मॉडल पर आधारित कस्टम हायरिंग केंद्रों की स्थापना के बारे में सोचा जा सकता है।
- भारत सरकार की खाद्यान्न खरीद नीति में उपयुक्त प्रावधान रखा जा सकता है जिसमें न्यूनतम समर्थन मूल्य योजना (MSP) के तहत एफपीओ के माध्यम से सीधे कृषि उत्पादों को खरीदने की व्यवस्था हो।

एफपीओ संबंधी शिक्षाः निजी संस्थान/कृषि विश्वविद्यालय एफपीओ प्रोत्साहन और कृषि व्यवसाय प्रबंधन पर विषेश पाठ्यक्रम शुरू कर सकते हैं ताकि एफपीओज की गतिविधियों के प्रबंधन हेतु गॉंवों में पेशेवरों का पूल तैयार हो सके।

निष्कर्ष

चूँकि एफपीओ किसानों की आय बढ़ाने और कृषि विकास को बढ़ावा देने के लिये भविष्य में बेहद कारगर माध्यम साबित हो सकते हैं, इनके संवर्धन हेतु हितधारकों द्वारा भविष्य की रणनीतियों के अंतर्गत जन जागरूकता सृजन, संस्थागत विकास, पारिस्थितिकी तंत्र के साथ जुड़ाव और डिजिटल निगरानी पर ध्यान दिया जाना आज समय की मांग है।

Building Blocks of FPO as Competitive Value Chain Actor

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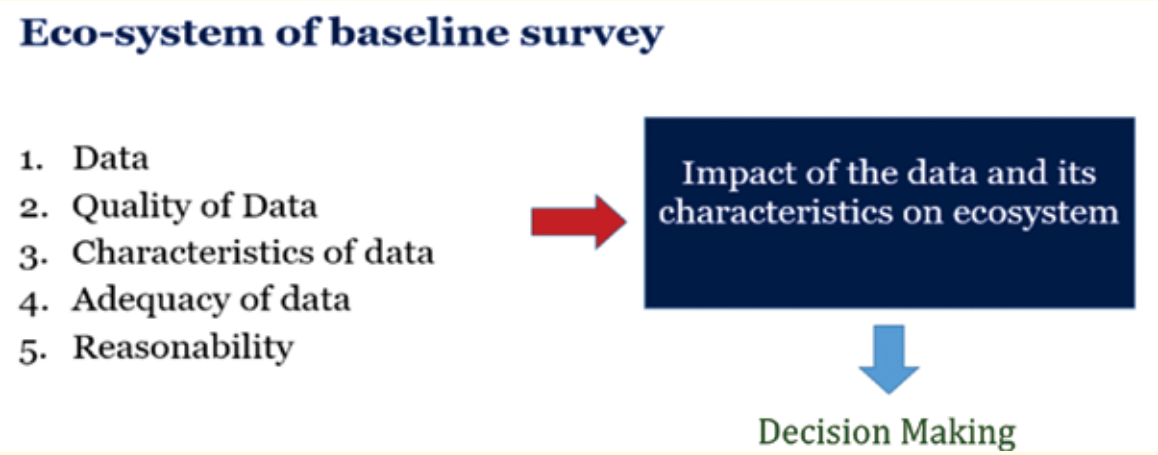
There are three major segments of FPO business. One is **INPUT BUSINESS**, the second is **OUTPUT BUSINESS** and the third is **TRADING BUSINESS** of inflow of agro commodities towards the cluster. We have to keep in mind which parameters will affect the entire business path line of the FPOs for different segments.

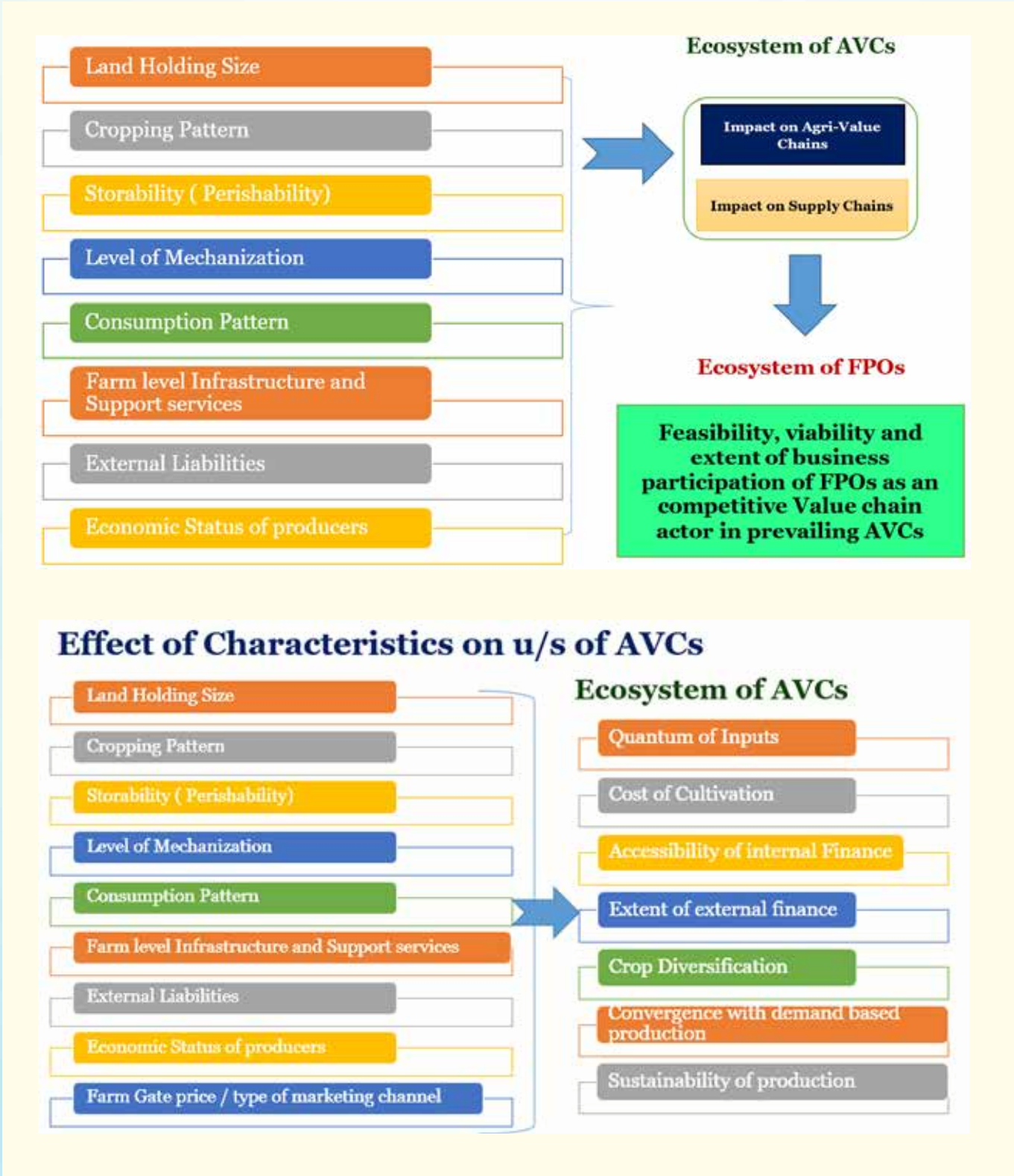
1. Identify the parameters affecting the aggregate-able input segment at FPO level.
2. Identify the parameters affecting the attracting power of producer as well as non – producer members for purchasing inputs.
3. Identify the parameters affecting the marketable surplus of different commodities.
4. Identify the parameters affecting the flow rate of marketable surplus of different commodities.
5. Distributions of the economic rents across prevailing chains.
6. Business economics of each main value chain actor.
7. Identify the factor responsible for making FPO as a competitive Value Chain actor .
8. Identify the parameters affecting the feasibility and requirements of the infrastructure support and services.

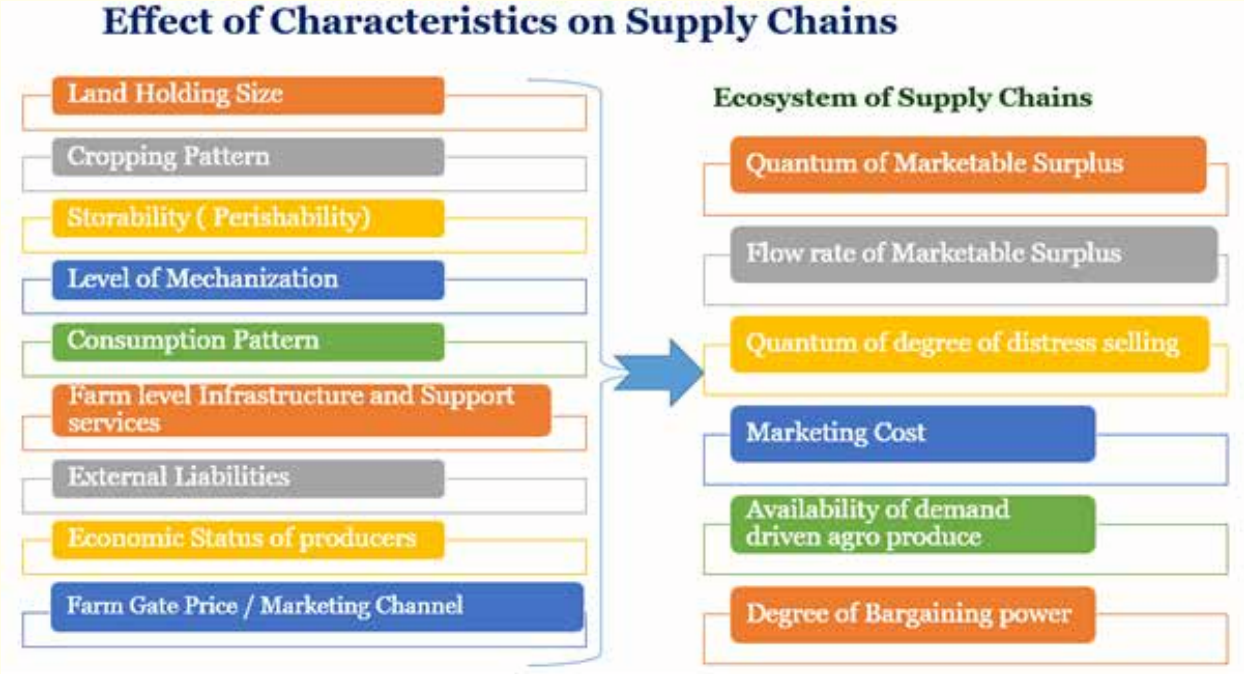
While mapping and analyzing the existing and potential value chain in the cluster area, the understanding of eco-system of baseline survey is equally important for prudent decision-making for the viability of the FPO as described below.



A few major identified factors which affect the entire ecosystem of agri and allied agri value chains, Supply Chains and the ecosystem of FPOs are illustrated in Fig 2.

Fig 2: Characteristics factors affecting Value Chain Mapping





Effect of Land Holding Size on Agri-Value Chains

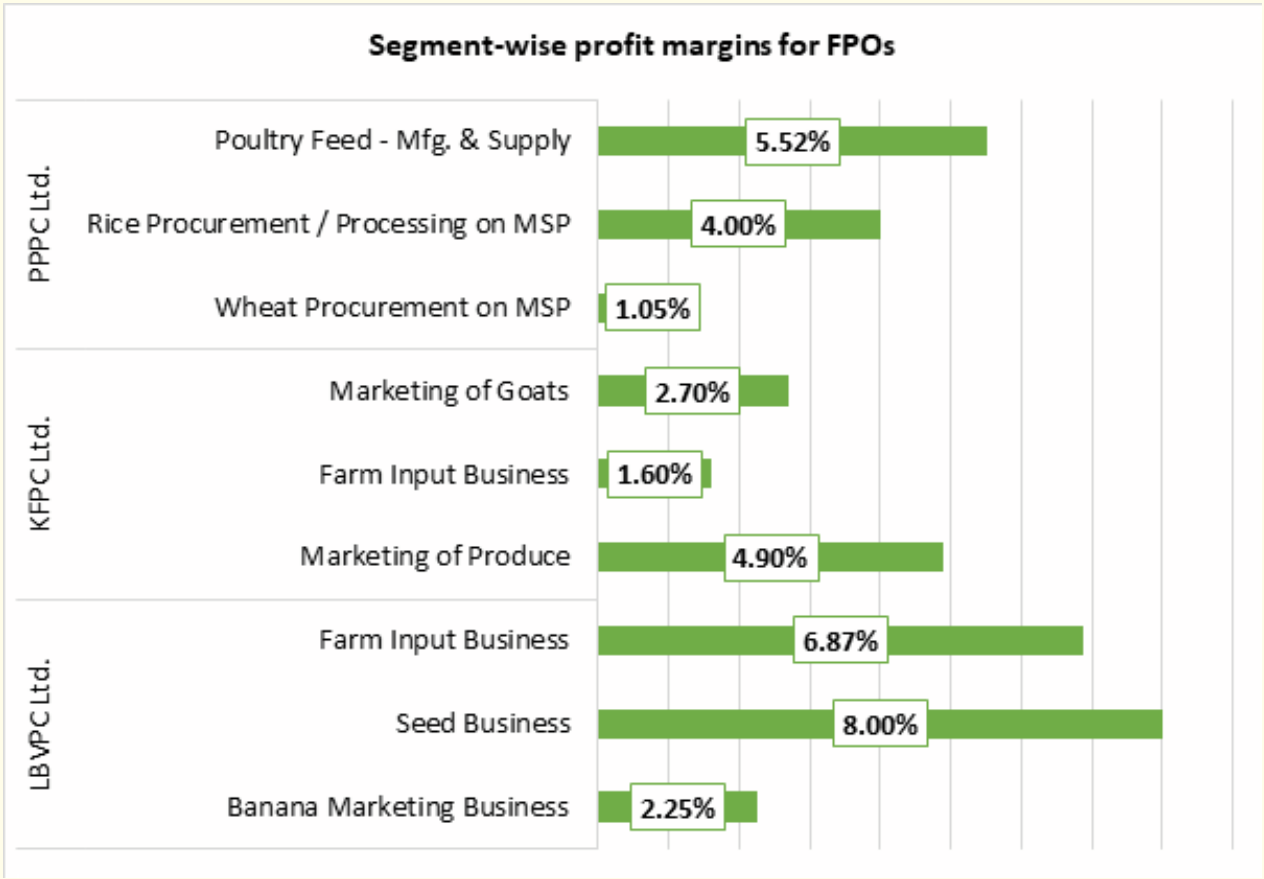
- Cost of cultivation will decrease when we move from marginal land holding size to larger holdings.
- Composition of the bigger number of smallholders in a particular cluster will give more opportunities for reduction in input cost through aggregations.
- The extent of ***reduction in input cost*** (gross margin in input business) will decide the economic viability of the input business portfolio of the FPOs.
- There would be ***gaps in the use of inputs*** with respect to SOP recommended by scientists in case of smallholders due to weak purchasing power, which ultimately will provide more opportunities for startup businesses to fulfill gaps in technology transfer.
- Increased ***marketable surplus*** would be available while moving from small land holdings to larger land holdings. Hence, composition of land holdings in particular cluster will decide the real quantum of the marketable surplus available for aggregation, processing and collective marketing.
- ***Degree of distress selling*** generally found more in smallholders; Similarly, ***trader default*** and ***under-weighing*** of the commodities during procurements operations by downstream value chain actors in category of smallholders would be more in comparison to the large land-holding farmers. Hence, these parameters will provide additional operational margins for the procurement business (trading business of FPOs) and enhancement of economic viability of FPOs.

Hence, we observe some parameters positively and some negatively affect the entire ecosystem of AVC, feasibility and viability of the FPOs.

Effect of cropping pattern on Agri-Value Chains

- Cropping pattern gives the segmentation of the business opportunities available in a particular cluster.
- Segmentation will determine the composition of the products available for business operation.

- For example, each segment of cluster of cereal crops, horticulture crop and allied agri sectors (dairy, poultry, sheep, goat, fishery, beekeeping etc.) have different ***degrees of distribution of economic rent*** across the prevailing value chain actors and such factors will decide the size and types of the business operation and economic viability of FPOs and its business path lines. This can be understood through the actual segment-wise profit margins available in different types of AAAVC (*Rajesh Yadav & Nikhil Kumar et. al 2021*).



- The composition of the cropping pattern affects the diversification of the business portfolio.
- Diversification also helps in making multi-product strategies for better marketing and reduction of risks.
- ***Minimum number of producers*** (as well as aggregate land holdings) required for starting of viable economic activities depend upon the compositions and types of cropping pattern of a cluster. To achieve the ***breakeven point (BEP)*** lesser, medium and large numbers of producer members are required for a cluster having cereals, horticulture and allied agriculture sectors, respectively because of variations in the degree of available operational margins.

Effect of Storability (perishability) on Agri-Value Chains

- Perishability directly affects the holding time as well as flow rate of marketable surplus with respect to time in downstream channel. For example, flow rate of marketable surplus in case of milk is more than flow rate of eggs due to biological characteristics of the products.
- Hence, strong infrastructure and better services are required for aggregation, preservation, processing and collective marketing of perishable products.

- In addition strong forward linkages and networks are required to prevent losses during the flow of commodities in agriculture value chains.
- Management of post-harvest losses for perishable products becomes a challenging task for FPOs. For example, 5-6 Kg of loss of weight per 100 Kg of paddy within six months of post-harvest would require s different strategy of procurement in comparison to the wheat crop.
- Synergy of the marketable surplus and consumer demands would become basis for FPOs to make strategic business planning.
- Ultimately, the flow of quantity and its flow rate towards the downstream channel would be more and faster, which requires much more capital investment and working funds in comparison to the cereal crops.

Effect of Level of Mechanization on Business Opportunities

- Level of mechanization is the ***total available farm energy*** from different sources of energy (animate energy, mechanical energy, electrical and renewal energy), its ***composition*** and ***degree of mechanization*** for different activities in production system.
- **Gaps** in quantum as well as degree of mechanization for different activities in production system will provide opportunities to FPOs for business operation on customs and hiring.
- **This is one of the major segments of the input business of the FPOs.**
- Decreasing land-holding size is not favourable for setting up individual mechanization units as well as for the credit support by financial institutions because of increasing fixed cost and lesser cash flow.
- In addition to that diversification of farm machinery for different economic activities is not found possible due to lesser investment capacity of the smallholders.
- Hence, the level of mechanization provides indication about the size, number and extent of diversification of implements/machines required for starting custom and hiring businesses by FPOs.
- Apart from above, it also affects the available operational margins for input business (custom hiring basis) which decides the feasibility and economic viability of CHC business operations.

Effect of consumption and retention pattern on AVC

- There are several types of the consumption and retention patterns found in different regions of the agro-climate zone. However, considering the following parameter one sees the effects of this characteristic on the marketable surplus for business operation of the FPOs.

  i. Consumption by the farm family,

  ii. Consumption by permanent labor engaged on the farm,

  iii. Consumption by the temporary labor occasionally employed on the farm,

  iv. Quantity retained for seed,

  v. Quantity retained as feed for farm animals,

  vi. Quantity retained for barter,

  vii. Payments in kind : a) To permanent labor, b) To temporary labor, c) For machinery and equipment, d) For customary payments, e) To land owners as rent, f) To land owners as a share of produce, g) for re-payment of loan, h) Land revenue, i) Irrigation charges and j) others.

  viii. Physical losses: a) In threshing and winnowing, b) In transport from threshing floor to storage, and c) In storage at producer's level.
- The Above factors will vary as per the composition of the land holding size as well as consumption patterns of

the producers. For, example, consumption of rice in States of North-Western India (Punjab, Haryana, Rajasthan, etc.) is lesser in comparison to middle Genetic and lower Gangetic regions (UP, Bihar, WB, Assam etc.) hence, a marketable surplus of paddy is more in North-Western India.

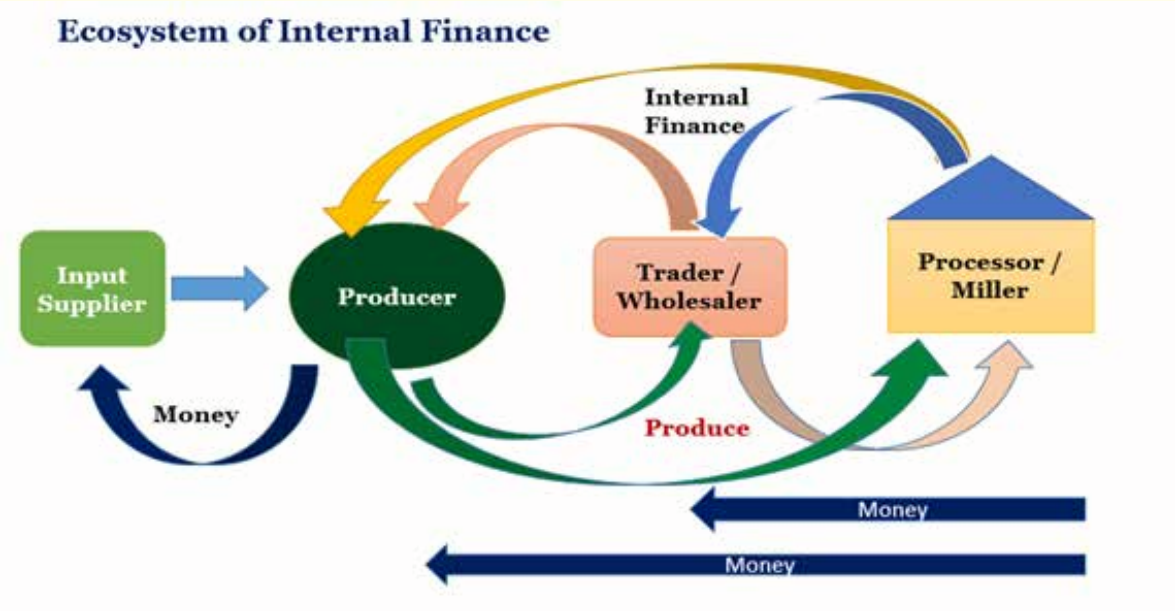
- Similarly, a cluster of smallholders yields less marketable surplus, which will, affects the quantum of potential business for trading, processing and collective marketing.
- Further, a cluster of lesser consumption of particular commodities gives indication about the distant end market for which extra effort would be required for FPOs in comparison to those FPOs having local niche markets.

Effect of Farm level infrastructure and support system on AVC

- Farm-level infrastructure is generally related to village connectivity, storage infrastructure, facility of irrigation, infrastructure required for post-harvest management (especially primary processing) and technology transfer-related services etc.
- These factors create an enabling environment for production as well as post-harvest operation.
- Better infrastructure will reduce cost of value addition (cost of production) as well as marketing costs between farm level and first value chain actors on downstream of the agri and allied agri value chains.
- Available storage infrastructure increases the holding capacity of the marketable surplus as well as weight loss.
- Better connectivity reduces the marketing cost of the surplus produce through the reduction of transport costs as well as the reduction of head load.
- It improves market linkages with downstream value chain actors.

Effect of external liabilities and economic status of producers on AVC

There are two types of external liabilities in AAAVC. One is formal credit extended by supporting value chain actors (generally FIs) and second is internal finance / advance credit given by upstream (input suppliers) and downstream value chain actors (commission agent / post-harvest contractors/ trader/wholesaler/processor/any lead firm).



- In this situation producer is bound to sell their marketable surplus to the creditors. This situation is very peculiar for the smallholders.
- Economic status of the producers related to cost of investment, holding of marketable surplus, food security and distress selling of produce.
- Economic status is positively related to adequacy of the inputs, holding time of marketable surplus, food security and negatively related to distress selling and degree of internal finance.
- Internal finance also negatively affects the degree of bargaining power, distressing selling, trader default and late payment of the produce sold.
- Enhancement of bargaining power, reduction of distress selling, reduction of trader default and liquidity management are the vital benefits (economic enhancers) for the business planning of FPOs.
- This will affect input and out business both for FPOs. FPOs need to consider this aspect while making business plans otherwise they will unable to make alternative AAAVC.

Effect of distribution of the economic rents among the prevailing value chain actors on business planning of FPOs

- Distribution of economic rent is the physical and quantitative characteristics of the flow of product/s and flow and retention of money elements across the prevailing AAAVCs.
- It indicates the distribution of consumer prices of products under the four components at different levels of the value chain actors involved across the prevailing AAAVCs.

  i. Average purchase price of the product,

  ii. Average cost of added value

  iii. Average selling price of the product, and

  iv. Retention of the margins
- It is possible that there are a number of supply channels working in a particular cluster. In that situation the distribution of economic rent would vary at each level of the value chain actors.
- It means the degree of breakeven point (BEP) and extent of viability of the particular value chain actor would be different in different supply chains.
- Since FPOs are also value chain actors in modified AAAVC hence, the economic viability of the FPOs would certainly depend on the BEP and economic viability of the existing players (Value Chain actors).
- In addition to that, the **sum of the average purchase price and cost of added value** will decide the **financial requirement of FPOs per unit quantum of the product** required for business operation.
- Another issue for FPOs as a new value chain actor is the penetration of the FPOs as a new business entity in prevailing agri-value chains. This would not be possible without the **provision of instant benefits. Three things would be required for FPOs to make instant benefits to their upstream and downstream value chain actors at least during the initial phase of FPOs**.

  i. First : Supply of cheaper inputs to the producers

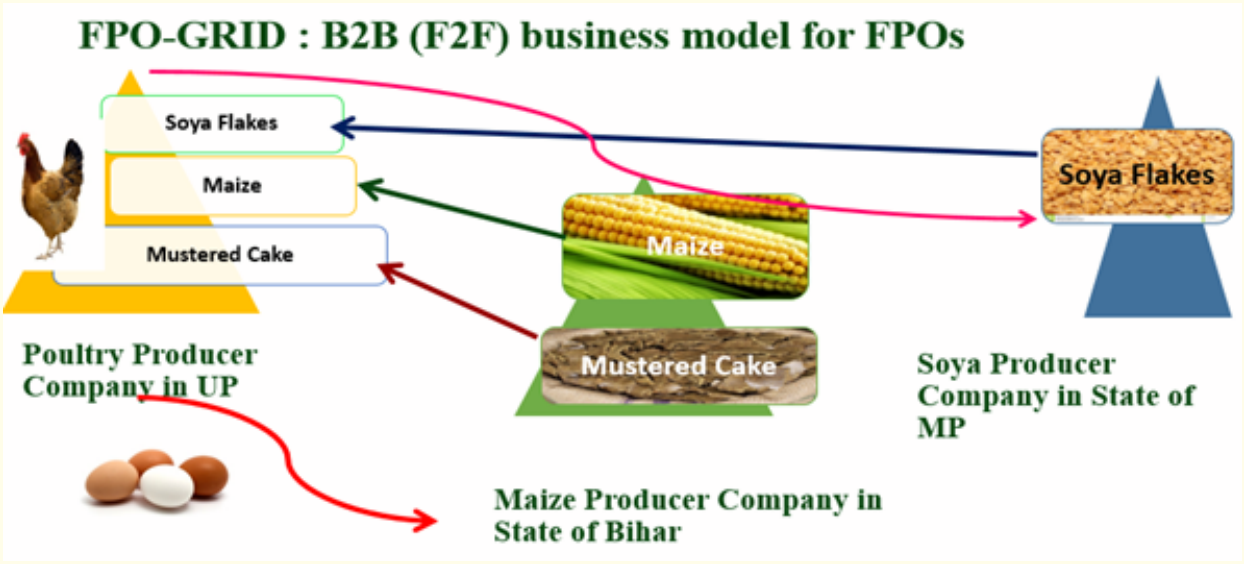
  ii. Second : Aggregation of marketable surplus at premium price

  iii. Third: Reduction of average selling price to first order, second order, third order and so on to downstream value chain actors.
- Nevertheless, this provision would have a thinning effect on the operation margins of FPOs obtained by replacement of only one value chain actor.

- To make FPO a competitive value chain actor, this would only be possible when FPO can replace **at least two value chain actors** to compensate for instant benefits, which can be possible by enhanced retention of additional margin through replacement of second value chain actor.
- For Example, if any FPO replaces the input supplier as well as commission agent or trader simultaneously then summation and multiplier effect (additional reduction of marketing cost due to common operating system) in margins would give sufficient competitive advantage to make provision for instant benefits.
- Another point is the nature of the prevailing chains. The degree of efficiency, effectiveness and inclusiveness of prevailing AAAVCs will decide the economic viability of FPOs as a competitive value chain actor. Therefore, chances of techno-economic feasibility of FPOs in efficient, effective and inclusive AAAVC would be minimal. For example if a dairy FPO is attempted in cluster where AMUL already exist then new FPO would find it tough to sustain on account of less chances of incremental margins.
- Other margins, which always need to be explored are, the **degree of distress selling** due to the lack of market information in financial terms, quantum of **under weighing** (using unscientific mechanism) and value of **trader default**. Many a time it can give additional margins to the FPOs for its economic viability. For example, banana producers are losing about 13.59% of the opportunity price on account of all above mentioned defects in prevailing agri-value chains of banana procurement in district Kushinagar,UP at the level of seasonal post-harvest contractor (Rajesh Yadav and Nikhil Kumar et. al. BIRD, Lucknow, 2021).
- Hence, realistic assessment of distribution of the economic rent across the AVC and business economics of each value chain actor is vital for the assessment of the techno-economic viability of FPOs before entering a prevailing value chain as a new value chain actor.

Effects of agro-products inflow in to the cluster from outside

- Sometimes producer members in a cluster are also purchasing agro-products for domestic use, which are produced in identified cluster. For example Bundelkhand regions of Uttar Pradesh is producing surplus pulses and oilseed but eastern region of Uttar Pradesh have deficit of production. In such a case there is a business opportunity for the FPOs identified in eastern UP for procurement and processing of pulses and oilseed for supplying to the producers members in a cluster. This will give additional operating margins to FPOs in eastern region.
- Producer members of grain and horticulture crops are also undertaking economic activities of agri-allied sector in same cluster like dairy, poultry, sheep, piggery, goatary, fishery, beekeeping etc. and they are purchasing Day Old Chicks (DOCs), fingerlings, feed, nutrients and medicines from the various value chain actors. This creates additional economic activities for the FPOs for procurement of inputs from outside of the cluster, processing and collective supply to their members at cheaper rates. This will enhance the economic rent of producers on account of a reduction in the purchase price and retentions of the operational margins at the FPO level.
- In addition to that, the output of one FPO may be input for the other FPOs. This will provide opportunities for two FPOs to undertake B2B (F2F) business. In this case, we can replace more additional value chain actors on upstream as well as downstream channels of agriculture value chains in two clusters.
- For example a FPO in Bihar doing economic activity of procurement, processing and collective marketing of maize, mustard and paddy commodities. Another FPO working in Uttar Pradesh and doing aggregation of inputs, processing and supply of poultry feed/animal feed in Uttar Pradesh. Since, maize, mustard cake, broken rice, and rice bran are the primary inputs (60-70%) for making poultry feed, they can directly purchase from FPO working in Bihar for the same commodities.
- This concept will pave way forward for establishment of FPO-GRID, which is illustrated in given below Fig.
- Despite the identified cluster of grain and or horticulture crops, mapping of related agri and agri value chains must be a part of our baseline survey to harness these types of secondary business opportunities.



Conclusion - One size does not fit for all

India has 15 agro-climate regions and within the regions the identified cluster might have a number of prevailing agri & allied agri value chains which have different characteristics. An analogy can be drawn with a watershed plan. Each watershed behaves differently for the same amount of rainfall, rainfall intensity, rainfall duration and spatial distribution because of a lot of variations in climatic, topographic, morphology and agronomical practice which results in different hydro-value chains. So is the case for a business plan of any FPO. However, the building blocks discussed in this article provides a framework for developing a robust and sustainable approach for FPOs to emerge as credible value chain actor.

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Farmer Producer Company (FPC): Marketing Opportunity through Commodity Derivatives

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1. Background

Agriculture is a mainstay of the Indian economy. It plays an important role in the growth and development of the economy along with providing livelihood to a large section of rural population. Over two-thirds of the Indian population, directly and indirectly, are dependent on agriculture and allied activities for their livelihoods. Declining land holdings size makes farmers vulnerable in terms of low accessibility of technology, information, credit or market. As per the latest Agriculture Census, the average size of operational holdings has decreased from 2.28 hectares in 1970-71 to 1.84 hectares in 1980-81, to 1.41 hectares in 1995-96 and to 1.08 hectares in 2015-16. It is further lower in case of small and marginal farmers who account for about 86 per cent of all farmers in the country. It is natural that average size of land holdings will reduce further with passage of time and share of small and marginal farmers will further increase. Resultantly, a very low marketable surplus leads to weakening or no bargaining power in fetching favourable prices for their produce as well as in purchase of inputs at a reasonable cost. Further, they are unable to hold their produce to take advantage of price movements due to lack of access to storage infrastructure. The constraints faced by small and marginal farmers may be summed up as under:

a. Declining land holding size, increasing per unit cost of cultivation and dwindling profit margins,

b. Accesses to critical inputs like credit, water, power as well as quality seeds, fertilizers, pesticides and appropriate and timely technical assistance remains a challenge for small and marginal farmers,

c. Fragmented value chain in agriculture marketing, monopoly and/or monopsony conditions- small and marginal farmers feel constrained in participation in the product supply & value chains, thus having a limited share in the consumer price and not many opportunities for value addition at the bottom of the chain,

d. No or weak bargaining with market agents - Farmers buy inputs in retail and sell their produce in wholesale losing at both ends and thereby low returns on the investment,

e. Risk mitigation arrangements, especially crop insurance instruments, have limited reach and do not adequately cover the risks faced by the SMF, leaving them vulnerable to the vagaries of weather.

In this scenario, the farm gate price received by farmers ranges between 30-40% of the price paid by the end consumers. Manipulated price, default payment, unscientific weighing technique by the organised/unorganised value chain actors further reduces the economic rent of the producers. The problem is further accentuated due to long value chain as also a large number of actors/intermediaries in the chain between the primary producer and the end consumer. Now, the challenge before policymakers, stakeholders or small holders is how to enhance economic rent through development of an institutional model that reduces marketing costs and enhances marketing margins across the agricultural value chains. Therefore need was felt to organize farmers into a collective institutional arrangement, viz., a Framer Producer Company (FPC) to facilitate aggregation of their produce for collective marketing. The preamble to the 2013 National Policy of Promotion of Framer Producer Company (FPC) says that ***"Collectivization of producers, especially small and marginal farmers, into producer organizations has emerged as one of the most effective pathways to address the many challenges of agriculture but most importantly, improved access to investments, technology and inputs and markets."***

Collectivisation helps farmers/producers increase their scale of operation through aggregation of their produce or input requirements leading to improved access to the market for better prices for their produce as well as bargaining for inputs. Increased bargaining power due to collectivisation/aggregation helps small farmers to negotiate better price for their inputs requirement which in turn reduces the cost of production / cultivation thereby improving their profit margin.

2. Benefits envisaged from FPCs

Some of the important benefits envisaged of collectivisation of farmers into an institutional platform of the FPCs are:

a. Economies of scale which help in reduction in unit cost of cultivation/ production,

b. Improved access to market through collectivisation/ aggregation of agricultural produce,

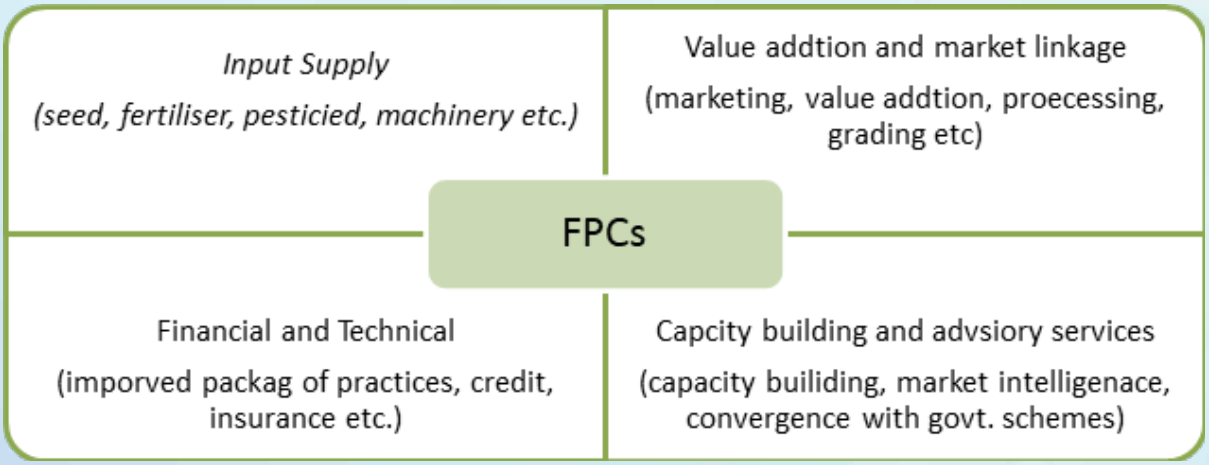
c. Better bargaining and negotiation power to realise better prices for the produce,

d. Adaptation of better agriculture package of practice,

e. Increased scale of operation by bringing together the business activities of small-scale producers/farmers;

f. Also, processing of produce enables the PO to access higher value markets and realise better prices at a later stage.

Above all, it is expected that the farmer producer companies (FPCs) would enable small producers to pool their resources and establish inclusive businesses benefiting small farmers in enhancing their incomes and reducing risks. As member-based institutions, they would be inherently embedded in local communities and have the potential to become strong local institutions of marginalized producers (Govil *et al,* 2020).



3. Benefits accrued to the farmers from FPCs and the role of derivative markets

A number of studies conducted by researchers in India, gave different estimates about the number of FPOs in India. FPOs are being promoted by different agencies in the country, so there is no single unified source of information about the existing number of FPOs /registered FPOs in the country. However, it has been estimated that at present more than 10,000 FPOs are working in India and more than 50% are promoted by NABARD.

The study conducted by the Bankers' Institute of Rural Development(BIRD), Lucknow (Pandey et al 2021) on FPOs in Uttar Pradesh and Bihar revealed that the extent of financial gains accrued to farmers/members because of FPC intermediations ranged from the modest 7.5 per cent to as high as 23.4 percent. FPC business interventions generated substantial net incremental financial benefits to their farmer-members due to savings in input cost, gains

in productivity due to better quality inputs and scientific production practices, minimizing losses due to transparent marketing practices with FPOs acting as market aggregators, processors of produce, and discoverers of better price in local markets for aggregated produce, etc. Several other studies revealed that producers are benefitting largely from input business of FPCs rather than better market price realisation through marketing intervention.

4. Commodity derivative markets - Marketing opportunities for FPCs

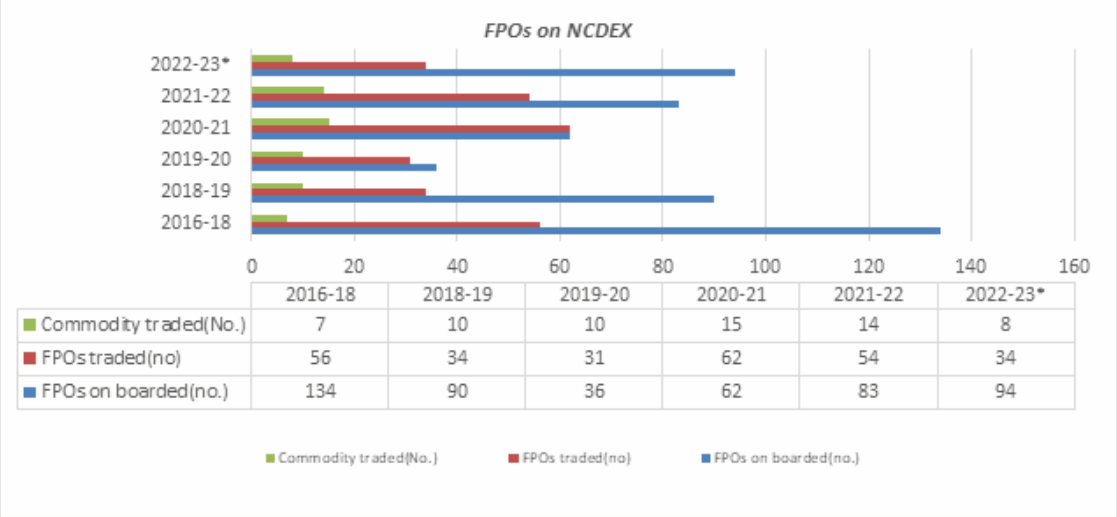
A large number of FPCs are providing benefits to their member/producers in real terms by enabling better market prices for commodities, inputs at reduced costs, reduced transaction costs, etc. Nevertheless, it is also true that largely benefits accruing to the farmers are from inputs at reduced costs rather than better market price realisation. A large number of FPCs are yet to establish market linkage for their produce and therefore are not able to support their members in marketing endeavors. Marketing of farm produce remains a challenge for farmers especially for small and marginal farmers. Generally, farmers do not directly trade in agriculture futures market in India. Little surplus, dependence on intermediaries and lack of understanding of commodity derivative markets nitty-gritty, are some of the main deterrents. Derivative markets are beneficial because they perform the economic function of price discovery. The role of FPC is important as they can procure commodities, aggregate them and ensure that size and quality standards required for agriculture futures trade are met. Linking FPC to Agriculture commodity derivative market may bring gains to FPCs.

As per SEBI, Derivatives are financial instruments whose value is based upon the value of an underlying asset like equities, currency or other financial assets or commodities. The most common types of derivative instruments are forwards, futures, options, and swaps. A commodity derivative contract, which has a commodity as its underlying, is known as a 'commodity derivatives' contract.

If any farmer wishes to sell his crop using a Futures contract, he/she can sell it without having the produce, which means that one can lock the price before the crop is harvested. Farmers can know the future price of the crop through future market platforms provided by exchange such as NCDEX, MCX, BSE etc. These exchanges provide various commodity future contract of various crops.

The first futures trade by an Indian FPO took place in 2014 when the Ram Rahim Pragati Producer Company, started by 3,000 women belonging to self-help groups in a tribal area of the district Dewas, Madhya Pradesh – hedged Soyabean price risk on the **National Commodity and Derivatives Exchange (NCDEX).**

Figure: 5.1



	2016-18	2018-19	2019-20	2020-21	2021-22	2022-23*
Commodity traded(No.)	7	10	10	15	14	8
FPOs traded(no)	56	34	31	62	54	34
FPOs on boarded(no.)	134	90	36	62	83	94

**(upto Feb 2023) Source : Various issues of "Connecting Farmers to Markets published" by NCDEX*

All stakeholders are taking various steps to deepen FPCs participation in markets by facilitating their onboarding on exchange platform and providing various financial support in the trade. Data published by NCDEX suggest that FPCs are showing interest in future trade as there is an increasing trend in FPC participation. As of February 2023, 499 FPCs were onboarded by NCDEX and 164 FPCs, covering 16 states of the country, have traded in 18 different commodities.

The farmer base has also been continuously increasing. 10,67,690 farmers have been linked through 499 onboarded FPCs till February 2023.(Table 5.1).

Table 5.1: Year-wise Farmers and FPCs onboarded on NCDEX

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
Farmers	1,22,085	2,09,283	2,56,952	5,26,451	8,84,546	10,09,472	10,67,690
FPO ->	**64**	**136**	**224**	**260**	**323**	**409**	**499**

*(upto Feb 2023) *Source : Various issues of Connecting Farmers to Markets published by NCDEX*

The ever-increasing number of FPCs and farmers resulted in an increased volume of commodities traded with every passing year registering remarkable annual growth. Data suggest that Soyabean, Maize, COCUD (cotton seed oil cake), Guar Seed, Chana and Jeera are preferred commodities for future trade. Farmers have been exploring the alternate channel for their produce and commodity trade is one such option for them. With increasing acceptability of commodities derivative trade and efforts taken by all stakeholders have strengthened the movement. Details of cumulative commodity traded on the NCDEX platform(Table 5.2) and year-wise commodity trade are given in Graph 5.2 and 5.3 respectively.

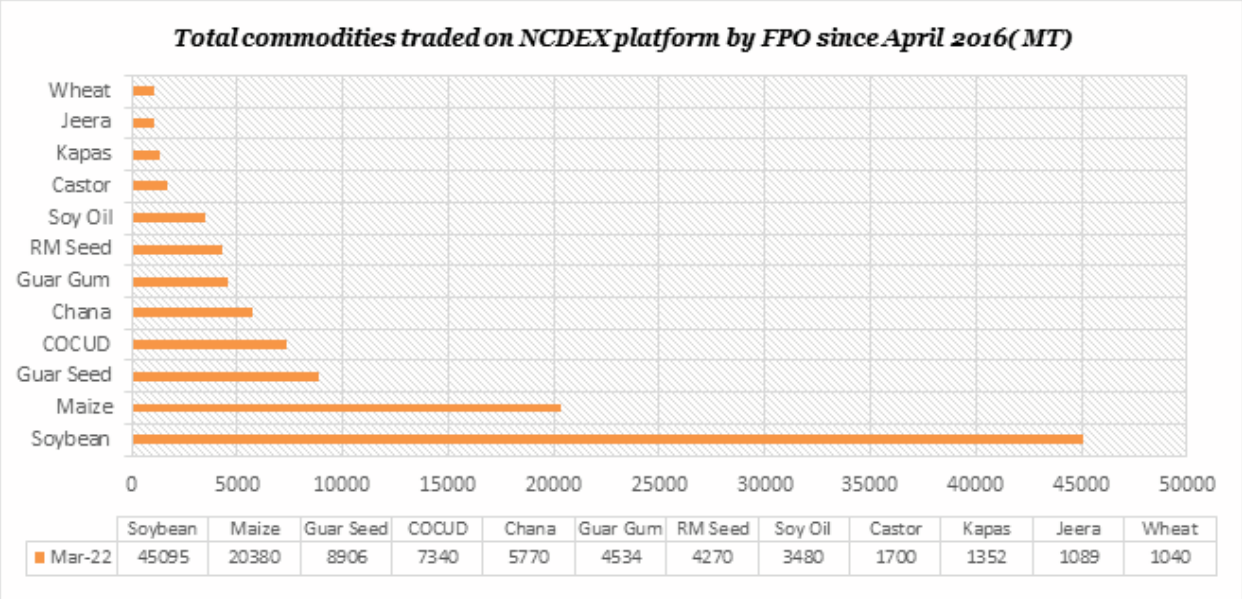
Table 5.2 : Commodities traded on the NCDEX platform

(MT)

Sr No	Commodities	Mar-18	Mar-19	Mar-20	Mar-21	Mar-22	Annual Growth(%)	Overall Growth (%) since 2018
1	Soybean	9040	11600	13275	22050	45095	104.51	398.84
2	Maize	13000	15050	16020	18790	20380	8.46	56.77
3	Guar Seed	60	80	80	230	8906	3772.17	14743.33
4	COCUD	870	2140	2280	3790	7340	93.67	743.68
5	Chana	110	210	420	3040	5770	89.80	5145.45
6	Guar Gum				200	4534	2167.00	2167.00
7	RM Seed	560	580	780	3050	4270	40.00	662.50
8	Soy Oil	80	80	80	1570	3480	121.66	4250.00
9	Castor	40	170	280	1170	1700	45.30	4150.00
10	Kapas	24	24	24	24	1352	5533.33	5533.33
11	Jeera	27	39	144	543	1089	100.55	3933.33
12	Wheat	200	280	420	480	1040	116.67	420.00

Source: Various issues of Connecting Farmers to Markets published by NCDEX

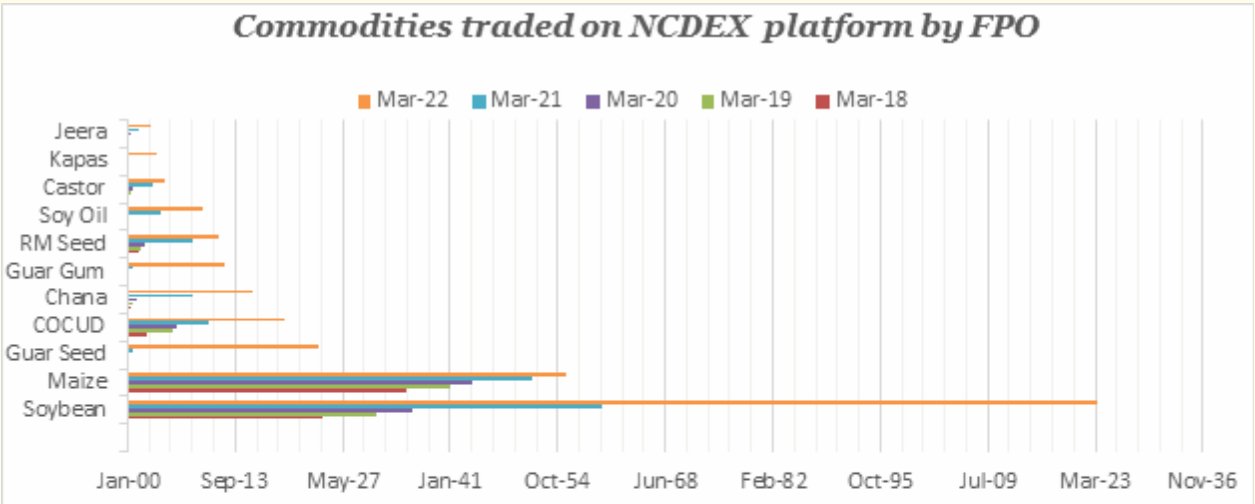
Graph 5.2



	Soybean	Maize	Guar Seed	COCUD	Chana	Guar Gum	RM Seed	Soy Oil	Castor	Kapas	Jeera	Wheat
Mar-22	45095	20380	8906	7340	5770	4534	4270	3480	1700	1352	1089	1040

Source : Various issues of Connecting Farmers to Markets published by NCDEX

Graph 5.3



		Soybean	Maize	Guar Seed	COCUD	Chana	Guar Gum	RM Seed	Soy Oil	Castor	Kapas	Jeera
Mar-22	Jan-00	45095	20380	8906	7340	5770	4534	4270	3480	1700	1352	1089
Mar-21	Jan-00	22050	18790	230	3790	3040	200	3050	1570	1170	24	543
Mar-20	Jan-00	13275	16020	80	2280	420		780	80	280	24	144
Mar-19	Jan-00	11600	15050	80	2140	210		580	80	170	24	39
Mar-18	Jan-00	9040	13000	60	870	110		560	80	40	24	27

Source : Various issues of Connecting Farmers to Markets published by NCDEX

Aranyak Jeevika FPC, a Farmer Producer Company promoted by JEEViKA, has been operating in Purnea and Katihar districts of Bihar since 2014. The region known for winter season maize in India, the company has been established with maize, especially winter maize, as the lead crop. The company started with hedging small lots on the Exchange platform. Almost 30% of the produce was hedged on NCDEX, with improved realizations of 15-20%. The FPC stored maize in the exchange-accredited warehouse and sold it either directly to institutional buyers or to traders through the futures platform, thereby helping farmers achieve nearly 20% higher returns for their produce. The company has been delivering constantly higher price realization for member farmers with every passing year. Members of other FPOs have also gained and received higher returns for their produce. ("Kheti Ke Sikandar"-FPOs success stories).

The commodity derivatives market provides various direct and indirect benefits to participants and FPOs are emerging as an important player in the commodity derivative market which will not only help in price discovery but also act as an important risk mitigation tool. Though only a few FPCs have taken initiative for derivative trade in comparison to total FPCs formed but increasing trend is a positive development suggesting growing business of FPCs. FPC as an institution has matured and they are looking for an alternate marketing channel other than established agriculture value chain. Successful trade in derivative markets has and will encourage farmers to adopt scientific modes of agriculture, increase modern warehouses and diversification in crop production.

Though a large section of farmers are not able to get benefits from MSP procurement, it helps in negotiation in the spot market for their produce which helps a large section of producers in price realisation. Similarly, quantity traded through commodity derivatives market are low compared to overall production but futures market acts as an indicator and empowers the FPCs and farmers to have better negotiating power in the spot market place.

5. Advantages and limitations of commodity derivatives markets

The purpose of commodity derivative contracts is to reduce risk arising out of future price uncertainty. Commodity futures are market instruments used for price discovery, price stabilisation and price risk management. The commodity derivatives market provides various direct and indirect benefits to participants. It is useful in price discovery, greater bargaining power, transparency in price and trades, risk mitigation through hedging, investment opportunity, diversification in agriculture, meeting export requirements of a commodity, and awareness in farmers regarding crop quality specifications, production and stock management of overall agriculture produce in the country.

Though, the commodity derivatives market has many advantages but there exists some risk. High volatility of derivatives may expose any participant to potential huge losses. Lack of awareness about the commodity derivatives, lack of skill in commodity derivatives trading, sophisticated design of the contracts etc. are some of the risks attached to derivative trades.

6. Conclusion and Suggestions

In conclusion, it can be said that many studies suggest that FPCs have emerged as an important institutional mechanism to organise small and marginal farmers and their aggregation has helped them to overcome the constraint of declining land holding size and low marketable surplus. However, marketing of produce, price discovery and risk mitigation remains a challenge for FPCs. Price fluctuations at the time of harvesting of a crop have always been a major source of concern for farmers. The commodity derivatives market helps farmers getting advance price signals of the commodity for making informed decisions on cropping and timing of sales. The advance price signals also encourage farmers to diversify in other crops which will fetch better returns. Small producers, in the absence of derivatives, lose opportunity to hedge their price risk. Farmers benefit from futures trading because it not only ensures price discovery but also acts as important risk mitigation tool. Transparent price discovery without any scope for manipulation saves

farmers from unscrupulous local traders. On the other hand, it helps in avoiding distress sales by farmers and as the trade becomes more organized with product grading, warehousing and market mechanisms enable farmers to access cheaper sources of finance. FPCs need to be more open about exploring future markets by acquiring the necessary skill set and taking advantage of the commodity derivative market for price discovery besides risk mitigation.

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Open Network for Digital Commerce (ONDC) - Opportunities for FPOs

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Introduction

The Farmer Producer Organizations (FPOs) are slowly emerging from their basic character of a farmer collective to a successful business entity. Open Network for Digital Commerce (ONDC) has been catalytic in providing the FPOs with market access and distribution. However, as the FPOs are in early stages of their business enterprise creation, they are facing challenges in terms of understanding and upscaling their operations. This journey though has been facilitated by ONDC, but it has thrown up new areas like marketing appreciation, understanding the ONDC platform etc. which needs to be addressed by the FPOs.

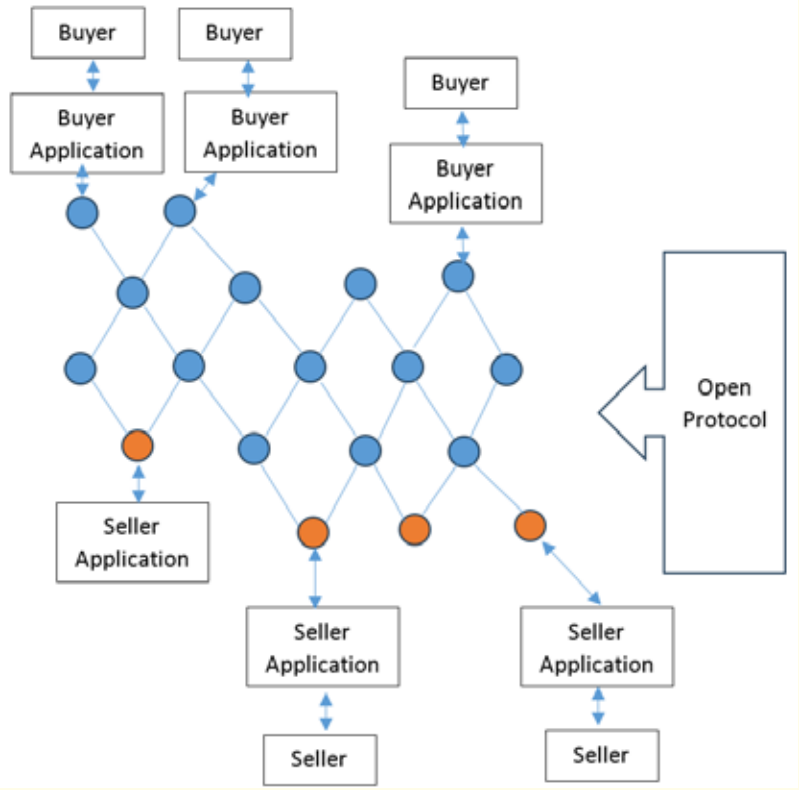
Issues with the current e-commerce ecosystem in India and introduction of ONDC

- In the current ecosystem multiple sellers e.g. MSMEs use an e-commerce platform like Amazon to market of their goods
- The platform charges fees for the use of their services by the seller. The seller has to agree to the T&C of the platform for its business
- The transaction in the current ecosystem of e-commerce requires buyer and seller to be on the same platform
- The seller builds its reputation through the quality of its product and the value chain services of the platform. The seller also creates a loyal customer base.
- The issue in the current model is that, the seller has to agree to the T&C of the platform for using its services. As time passes, the seller might build a good reputation, achieve higher sales but its margin can shrink due to heavy service charges by the platform and its stringent T&C.
- In case, the seller does not agree to the T&Cs of the platform and wishes to switch to a new platform (say Flipkart), it has to start from scratch which can lead to loss of businesses.
- In case a seller, simultaneously starts selling on different platforms, it has to maintain separate infrastructure for each platform which can be a costly affair. Also, the stringent T&C of the platform will continue to be a problem for the seller.
- Due to these limitations in the current ecosystem, majority of small businesses prefer operating in offline mode in which they are free to make their own business decisions. Also, at the consumer end, finding the right product at the right price from different sellers on different platforms is a time-consuming task.
- In a nutshell, autonomy of buyers and sellers is restricted in the current e-commerce ecosystem.

Current e-commerce Ecosystem in India

ONDC- Ultimate Solution to the Issues in the e-commerce Ecosystem

- Once the issues in the current e-commerce ecosystem are identified, the solution is required for the following attributes:
  - An open-ended inclusive solution to bring an enormous population of buyers and sellers into the ambit of e-commerce ecosystem
  - Bringing more autonomy to the buyers and sellers through decentralization
  - Requirement of minimum governance and continuous evolution
  - Cater to both B2B and B2C transactions
- ONDC (Open Network for Digital Commerce) was founded with attributes as identified above.
- ONDC is an open Network being run on open protocols and offers low-cost digital infrastructure to sellers/buyers for use in a democratic way.
- ONDC provides a set of APIs & Protocols using which multiple Buyer Apps and Seller Apps can connect with each other and enter into transactions.



ONDC- Key Components

1. Buyer

a. Buyer can be anyone who wishes to order online any product or service.

b. Buyers use the App / Portals of Buyer Network Participants to identify the product of their need.

2. Buyer Network Participants (NP)

a. These provide an interface to the buyers for online orders of goods or services.

b. Currently there are 12 Live Buyer NPs (and growing) viz., Airpay, Craftsvilla, IDFC (Firstforward), Magicpin, Mystore, Namma Yatri, Orderde by SignCatch, PayTM, Pincode, Rapidor, Spicemoney, Yatri.

3. Seller Network Participants (NP)

a. These provide an interface to sellers for listing of their products or services which can be made available to the buyers.

b. Currently there are 36 Live Seller NPs (and growing) viz., Alpino, Bech.app by SignCatch, Bitsila, Bizom, BoAt, Craftsvilla, Digiit, EkSecond Technologies, eSamudaay – Lucknow, eSamudaay – Udipi, Eunimart Omnichannel Private Limited, eVitalRx, Globallinker, GOFRUGAL Technologies, Growth Falcon, Ideamasters Services Pvt Ltd., ITC Store, Jajee, Loadshare, Magicpin, Marico, Mystore, Namma Yatri, Naturesnectar, NDHgo, Nlics, nstore, Primarc Pecan Retail Private Limited, Rapidor, Sellerapp, Sleepyowl, Uengage, Ushop, WoW, Yatri, Snapdeal.

4. Logistics Service Provider (NP)

a. Buyers can not only select from a multiple list of Seller NP but also their preferred delivery partner while placing an online order.

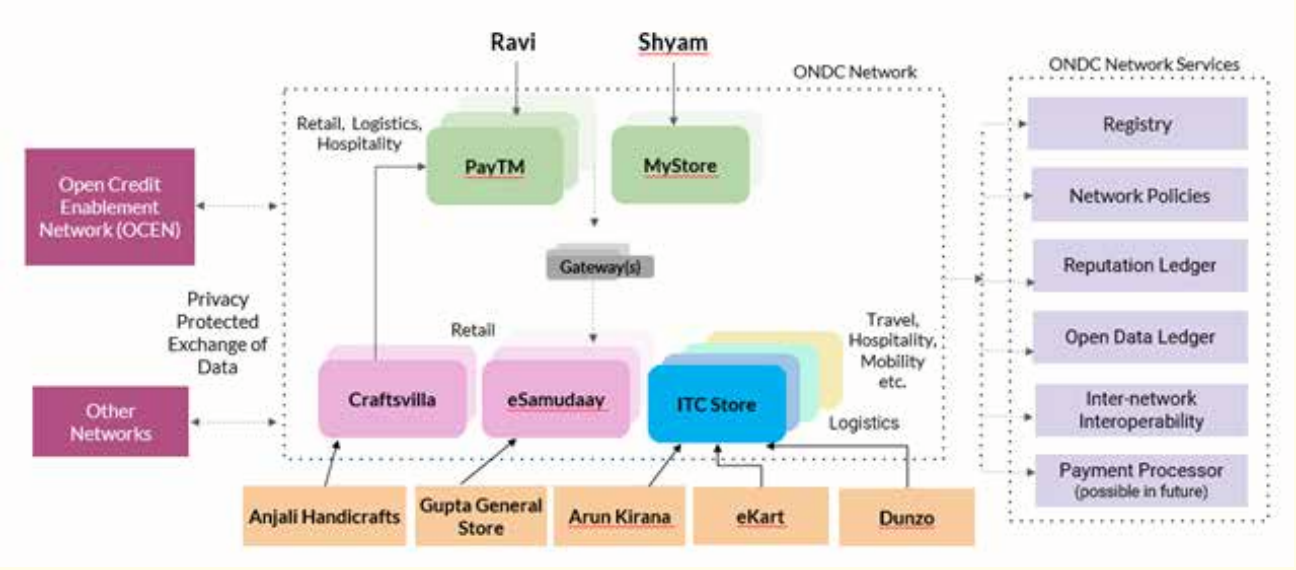
b. Currently there are 7 Logistics Service Providers viz., Delhivery, Dunzo, eKart, Grab, Loadshare, Shadowfax, Shiprocket

5. Seller

a. Seller can be anyone who offers any product or service for consumption by the buyer.

b. Seller uses Apps/Portals of Seller Network Participants for listing of their Products.

ONDC- Placing an Order



Assuming, Ravi is a buyer who wishes to purchase Sugar online. The process flow for this order through ONDC is as follows:

1. Ravi logs into a Buyer App e.g. PayTM and searches for options to buy Sugar
2. The gateways will check the multi-domain registry and broadcast search to retailer seller nodes
3. The following search results may be displayed to Ravi to choose from:
   i. eSamudaay (fulfilled by Gupta General Store): ₹ 150 (without delivery)
   ii. ITC Store (fulfilled by Arun Kirana): ₹ 250 (with delivery)
   iii. ITC Store (fulfilled by Arun Kirana): ₹130 (without delivery)
4. Ravi places an order for Sugar through ITC Store (without delivery)
5. Ravi searches for delivery services
6. The gateway will check the multi-domain registry and broadcast search to delivery seller nodes
7. Ravi is informed that Dunzo will deliver from the ITC Store at ₹50 and eKart at ₹70 at his pincode.
8. Ravi selects Dunzo for delivery.
9. PayTM app advised Ravi that he can make payment through either UPI or Cash on Delivery (CoD)
10. Ravi makes payment of ₹130 through UPI via PayTM for Sugar from ITC Store (without delivery) & ₹50 for delivery via Dunzo.
11. Ravi is able to purchase sugar at an effective price of ₹180.

Onboarding on ONDC: Steps adopted by an Off-farm producer organization (OFPO) for Onboarding to MyStore -

i. MyStore is registered with ONDC as both a Buyer App and a Seller App

ii. Creation of a seller account using the following URL: https://seller.mystore.in/en/seller/register

iii. Seller account can be created with Basic Information such as Phone Number, Email, Password, Business Name and GSTIN

iv. After the creation of Account, OFPO logs in using the following URL: https://www.mystore.in/admin/

v. The OFPO uploads products one by one in the portal

vi. For each product, the following information is required to be submitted- Name of Product, Product Description, Image of Product, Price, HSN/SAC for GST, Product Weight, Package Weight, Time to Deliver, Cancellable, Returnable, Brand, Category of Product, Brand Owner Name, Brand Owner Address, Expiry Date/Best Before/ Use By, Batch/Lot Number, Instructions for Use, Storage Conditions, Included Items, Options (Color, Size), SKU (Stock Keeping Unit), GTIN, Dimension, Location Availability Mode, UPC (Universal Product Code)

vii. After submission of the above information, the product is scrutinized by the Seller App and if found satisfactory the same is published on the portal.

viii. The product is now available for sale and can be found on any of the MyStore App (Buyer App version) using the following link https://www.mystore.in/en/product/ashoka-pillar-wooden-ashok-stambh-for-table-10-inch-

Experience of OFPO M/S Vishwakarma Wood Carving Producer Co. Ltd, Varanasi

- The process of creating of seller account on the MyStore App and listing products is convenient and user-friendly.
- OFPO provides product-wise inventory at the time of listing of the product and the same needs be updated from time to time by OFPO

- Seller App viz., MyStore is responsible for payment to OFPO for every item shipped to the buyer. In case of disputes related to payment to OFPO by Seller App, ONDC has a policy for grievance redressal.
- ONDC offers onboarding to multiple Seller Apps without any restriction e.g. OFPO can list its products on both MyStore and Craftsvilla. However, there is no added advantage of onboarding multiple Seller Apps, as the product, if listed on any Seller App will be visible across all Buyer Apps without any bias. Currently, the OFPO product listed through MyStore is not available on other Buyer Apps.
- In case of prepaid order, MyStore will pass on the payment to OFPO, once the return window for the product is closed.
- In case of any damage to product during transit, OFPO will raise the issue with MyStore which in turn will take up the issue with its logistics partner. Settlement will be done as per the Agreement between MyStore and Logistics partner and that between OFPO and MyStore.
- Packaging of the product is the responsibility of the OFPO. Best Practices for Packaging different types of goods are available in Seller Network Participant Handbook of ONDC
- The OFPO can vary the prices of the goods at any time on MyStore App as per their market intelligence.
- The catalogue of products shall be at the expense of OFPO and uploaded on MyStore. They can also contact MyStore to assist them in catalogue creation at competitive prices.
- Currently, there is no penalty from Buyer Apps in case of cancellation of order by OFPO through MyStore. However, the rating of the OFPO will be impacted in case of cancellation of order.
- The final price of the product is arrived at by the OFPO by adding commission of seller app to the price of the product. The OFPO can also add other charges such as convenience, delivery and packaging charges.
- A copy of invoice is enclosed by OFPO with each order and is also available on MyStore App.

Advantages of ONDC to Sellers and Buyers

- In case a seller is not satisfied with its Seller App, it can switch to another Seller App and also carry forward its rating from the previous Seller App
- There is equal opportunity to sell to end consumers.
- ONDC restricts Buyer Apps from being biased towards particular a Seller. Buyer can filter the search results as per requirement
- The seller has two options for delivery after receiving order through Seller App – i.
- Delivery by its own arrangement or ii.Delivery by using the services of Logistics Service Provider on ONDC
- Sellers can decide their own terms while choosing a Seller app and can also easily switch to a different Seller App.
- Seller will have access to its customer data even if it switches from one seller app to another
- Timeliness in product dispatch is directly linked to the rating of the seller on ONDC
- Sellers can create catalogues at their own expense or they can avail of the services of Seller Apps which can help the seller in the creation of catalogues at competitive prices.
- Sellers can make partial shipments of orders
- If an order is received for product which is out of stock, the Seller can fetch Buyer/Customer details from Seller App and connect with the buyer for resolution of the issue. In case the Buyer wishes to modify the order, the same will require Seller App to request Buyer App to modify the order.
- Seller can charge separately for packaging. However, it should be a separate item on the invoice.
- Sellers without GST registration are also allowed to sell their products through Seller Apps as long as their turnover is less than ₹40 lakhs.

- PAN of seller is mandatory for using services of Seller App and ONDC.
- Currently, ONDC does not charge any fee to the Network Participants, however, in future it may charge to sustain its operations.
- ONDC has no role in deciding the commission being charged by Buyer App or Seller App.

Current Challenges of ONDC

- NABARD is facilitating the FPOs, OFPOs and SHGs for onboarding the NP. However, for new sellers particularly hyperlocal in nature, handholding for onboarding ONDC through NPs shall be required.
- ONDC does not have a support line, all buyer issues are to be raised on Buyer App & seller issues on Seller APP. The capacity of Buyer Apps and Seller App to address the issues is limited.
- Sole proprietors cannot list their products on Seller Apps. The sellers need to be registered under the provision of the Company's Act for onboarding to Seller Apps. For sellers like SHGs, Weavers, Artisans and Farmers, this will be a barrier to their onboarding on Seller Apps.
- ONDC provides an easy approach for Small Businesses to enter the e-commerce ecosystem. However, it cannot ensure a level playing field for them. Products from Small Businesses will not be able to compete against products from prominent e-commerce players which offer attractive discounts. In the scenario of stiff competition from Larger Enterprises, Small Businesses face risk of incurring losses.
- Currently there are a limited number of Buyers and Sellers in the ONDC ecosystem. For a first-time buyer, the assessment of quality of products will be difficult as there might not be sufficient product ratings or seller ratings
- In order to achieve a large customer base, ONDC requires onboarding of large number of Sellers. ONDC attracts Sellers by addressing the limitation of platform-based e-commerce ecosystem, however, there is no incentive for the buyer to transact through ONDC backed NPs viz., currently there is no advantage to buyer in buying a product from ONDC backed NP against Amazon/Flipkart
- Building trust among consumers is a time-consuming process. Established e-commerce players have spent both time and money to build trust among the masses. ONDC only provides open protocol and has no involvement in the transaction between the buyer and seller. Building trust on ONDC is directly linked to the efforts of Buyer App and Seller App in gaining consumer confidence.

Expectations from FPOs and way forward

The FPOs need to appreciate the importance of making the presentation of their product attractive. This gets compounded when it comes to the online e-commerce platforms where the attractiveness of the product needs to be conveyed in the virtual mode in giving way to the "touch, smell and feel" way of goods selection which is essential in agri-products purchase. In this scenario packaging of the product plays a crucial role and also acts as a differentiator. FPOs in the present stage, lack such finesse and expertise to do customer targeted attractive packaging to enhance their acceptance by the consumers. Packaging is also important for the safe storage and transportation which is an essential component of an e-commerce system like ONDC.

As the FPOs are in the early stages of maturity, they still focus on marketing the primary product. Hence, they are lacking the processing capabilities and do very little value addition. The ONDC platform is currently a B2C platform where the customers are shopping for processed goods. Lack of processing makes the FPO products less market friendly and affects their margins and hence making the e-commerce platform less lucrative for FPOs.

The primary agriculture produce is being marketed on the ONDC platform. It is quite common that they are not able to honour the orders received as they do not maintain a proper inventory of the Products. This is an outcome of two issues. First, they are unable to assess the demand for the product and many times do not maintain adequate inventory.

Second, they do not have scientific way of maintaining their inventory records. They still adopt the manual or ad hoc system of inventory management which is not in alignment with the digital ecosystem of ONDC.

In order to move to ONDC platform and operate in the hyper-local markets, the FPOs need to think afresh and move beyond an aggregator to Agri-value chain player, to make the business remunerative and attractive for their farmer members. The ONDC platform like any other new channel needs a basic understanding and ways to operate in its broad contours for maximising the efficiency. Some of the nuances of ONDC platform which the FPOs need to recognise are:

- The ONDC platform requires that the seller has a logo for its identification. Most of the FPOs are not brand conscious and have not created any logo for themselves. This delays the onboarding process. Sometimes, at the time of onboarding the FPOs create a random logo which in the longer duration makes them difficult to establish their logo identity.
- It is mandatory for a seller on ONDC to have a GSTIN registration. Most FPOs have low volume transactions of less than Rs. 20 lakh. Further, the primary agriculture produce market is still a cash transaction dominated market. Hence they do not register under GSTIN.
- The payout in the ONDC platform is done once a week to the sellers. Some of the FPOs are operating on thin margins and find it operationally difficult to maintain adequate liquidity to meet such extended payment conditions.
- FPOs, as per the conventional offline market wisdom put nine to five as their ONDC online store timings. This makes them 'closed' for the customers during the evening and night hours when most of the customers do online shopping.
- The FPOs also need to understand various features of ONDC platform, like opting for the 'non-cancellable'/ 'non- returnable' option for their perishable items. This will reduce the need for grievance redress and also enhance the comfort of the FPOs.
- The logistics aspect of the ONDC is still emerging. They have tied up with India Post to act as their contact point. In order to liaise with India Post, it is observed that the FPOs have to engage one staff for this activity. Further the logistic operations especially in rural areas are yet to evolve and in many cases the delivery takes more than a week which proves detrimental for the perishable agricultural items. In many cases, a low quantity of items is ordered by the customer. This makes the logistics even more challenging both in terms of safe delivery and financial viability.

The Government of India with its Central Sector Scheme for Formation and Promotion of 10,000 FPOs is addressing these issues by way of promoting FPOs for the primary products which has scope for value addition. Organisations like NABARD and SFAC are working in coordination with ONDC to enable FPOs to adopt e-commerce through the democratic ONDC platform.

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Complimentary institutional framework for business participation of PACS & FPOs in Agriculture & Allied Agriculture Value Chains (AAAVCs) – A case of Bihar

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Introduction

Primary agricultural Credit Societies (PACS) and Farmers Producer Organizations (FPOs) are both legal entity, may be registered under different legal frame but their objective and functions are almost same. In fact, both can complement to each other.

After abolishing the APMC Act in 2006, the Bihar Government had put in place primary agricultural Credit Societies as an agency designated for the procurement of paddy through deregulation of agricultural sector and largely removed government oversight over food grain procurement. Previously a majority of food grain procurement happened through the Agricultural Produce Market Committee, a marketing board run by the state government that organised *mandis*—wholesale markets—where farmers could directly sell their produce to the Food Corporation of India or the State Farming Corporation at the established minimum support price. The MSP is a price guaranteed by the government to protect farmers from market fluctuations. In 2006, Bihar replaced this system with Primary Agriculture Credit Societies, panchayat level societies that would serve as a middleman in food grain procurement. PACS buy food grain from farmers and sell it to the FCI, SFCs or to private wholesalers. Bihar's experiment with PACS gave farmers economic freedom and increased their revenues.

However, 94% of the farmers sell their produce at farm harvest price (FHP) rates even today or resort to distress selling (*A N Sinha Institutes of Social Studies*). Further, PACs in Bihar were able to procure 142.56 lakh MT paddy in between FY20 to FY 23 on MSP directly from the producers but their business participation was limited to trading only resulting loss of processing margins.

There is a misconception that FPOs are becoming competitive value chain actor for PACs. This article is an attempt to explore the possibility of working PACS and FPO as complimentary entity in unison for the larger benefit of farmers and for both the institutions (FPOs and PACs) by citing an example of Bihar.

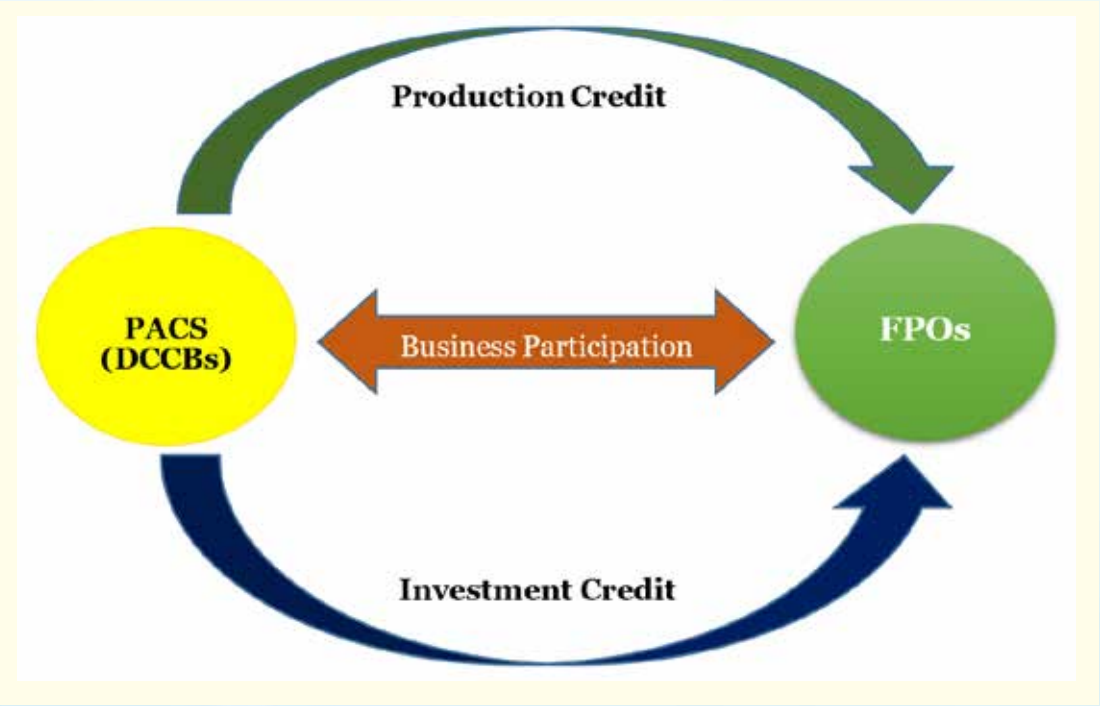
2. Requisite theory of change in institutional model

In the present scenario, we need to overcome diminishing profitability of the small farmer by collectivising input resource to gain economies of scale and aggregation of economic rent. This could be possible through modifications in inefficient prevailing agri-value chains through integration of economic activities, reducing value chain actors, infusion of innovative technology, outreaching agri-value chain financing, digitalization, input management, value additions and strengthening of forward market linkages with market demand.

Several models have been evolved in the past to overcome the disadvantages faced by the small farmers due to diseconomies of scale and lack of bargaining power in prevailing agri-and allied agri value chains. Such models were

based on participatory mode working through group dynamics, allows small holders to be more and more participation in up and down sides of prevailing agri and allied agri-value chains (AAAVCs) by organizing themselves into formal (PACS, Federations / FPOs) and informal groups (SHGs / JLGs) to achieve economies of scale as also synchronizing and harmonized some of the operations.

3. Proposed Complimentary institutional framework



- Profitable PACS are undertaking procurement business of grain under food security mission but they are not undertaking processing in the absence of infrastructure, lack of financial strength and operational management.
- Thereby, PACS are losing economic rent (Rs.150 to Rs.200 per quintal in case of paddy crop) due to lack of processing infrastructure. At present they are taking help of private rice millers for processing of paddy crop.
- FPOs are unable to participate in procurement of grain due to lack of working capital and investment credit. Otherwise some of FPOs are capable to undertake aggregation and processing of grain.
- Both of them can complement each other and may work in tandem through common business participation in prevailing agri-value chains, which will be the win-win situation for both.
- PACS by its credit operation may extend required credit to FPOs for creation of infrastructure and other support services for processing facilities. PACS may use these services provided by nearby FPO for processing of procured grains.
- This mechanism would strengthen credit business of the cooperatives (supporting value chain actor) and it would enable FPOs to work as processing value chain actor.

4. Procurement (Trading) business of PACS in State of Bihar

PACS are actively involved in paddy procurement in the Bihar and their participation had increased from 6221 to 7299 during the last four financial years. Quantum of paddy procurement has also increased from 20.02 lakh MT to 42.05 lakh MT during the same period with average procurement of 5197 quintal per PACS.

Table 1 : Value Chain Analysis of the Paddy Procurement in State of Bihar

Year	Total Selected Societies	No of Farmer	Paddy Purchased from Farmer by PACS (LMT)	Supply Paddy to Rice Mill before supply to SFC* (LMT)	Advance CMR (LMT)	To SFC CMR (LMT)	Average Procurement (Quintal per PACS)
2022-23	7299	577064	42.05	37.59	25.87	25.60	5761
2021-22	7436	642234	44.90	44.87	30.22	30.22	6038
2020-21	6474	497095	35.59	35.55	23.84	23.84	5497
2019-20	6221	279440	20.02	20.01	13.41	13.41	3218
			142.56	**138.02**	**93.34**	**93.07**	**5197**

*State Food Corporation

Out of total 7299 PACS engaged in procurement, 4751 PACS had procured more than 4000 quintal during the Kharif – 2022-23 marketing year.

Table 2 : A sample bill of paddy procurement through PACS for kharif marketing season 2022-23

Particular	Unit	Rate	Amount	Rs./q
Quantity of Paddy	Quintal	NA	428.55	
Quantity of CMR – Custom milled rice	Quintal	NA	287.13	
FRK – Fortified Rice Kernal	Quintal	NA	2.87	
Total	Quintal	NA	290	
MSP	Rs./quintal	2040	2040	
Value of CMR	Rs./quintal	3044.78	874246.53	**2040**
Labour			3411.1	7.96
Transport	Rs./quintal	51.73	14853.23	34.66
Labour (FRK)			17.05	0.04
Transport (FRK)			74.25	0.17
Dryness	%	1	7482.61	17.46
Commission			12055.15	28.13
Storage			1851.99	4.32
Interest	%	8.78	10046.68	23.44
Processing			3856.16	9
Total Incentives				**125.18**
Gross Payment			927894.75	**2165.2**
TDS on commission U/S 194H	%	5	602.74	1.41
IT Act 194Q	%	0.1	915.84	2.14
Gross Margin of PACS				24.58

Table 3 : Business economics of processing value chain actor

S. No.	Particulars	Unit	Quantity / Amount with 2 MT/Hr Capacity
A	**General Information**		
1	Purchase of Paddy from Producer	Y/N with (%)	**100**
2	Capacity of Plant Machinery	MT / Hour	2
3	Capacity of Plant Machinery	Quintal/Year	14400
4	Average operating Capacity of Machine	MT / Hour	2
5	Actual annual running hours	Hour	260
6	Annual processing of produce	Quintal	5197
B	**FIXED COST**		
1	Cost of Establishment	Rs. in Lakh	10
2	Cost of Storage Structure	Rs. in Lakh	5
3	Cost of Plant and Machineries for processing	Rs. in Lakh	23
	Total Capital Cost		**38**
4	Annual Insurance cost	Rs. in Lakh	0.15
5	Annual Miscellaneous admin cost	Rs. in Lakh	1
6	Annual Interest payment on Capital investment	Rs. in Lakh	2.5
7	Annual Fixed Operating Cost of PACS	Rs. in Lakh	5
	Total Fixed Cost		**46.65**
	Annualised Fixed Cost		**10.78**
C	**VARIABLE COST**		**Amt. (Rs./q)**
I	**Average Purchase Price**		
	Average Purchase price of Paddy	Rs./Q of Paddy	2040
II	**Cost of Value Addition**	Rs./Q of Paddy	**192.7**
IIA	**INCENTIVE by STATE GOVERNMENT**		
1	Labour	Rs./Q of Paddy	7.96
2	Transport	Rs./Q of Paddy	34.66
3	Labour (FRK)	Rs./Q of Paddy	0.04
4	Transport (FRK)	Rs./Q of Paddy	0.17
5	Dryness	Rs./Q of Paddy	17.46
6	Commission	Rs./Q of Paddy	28.13
7	Storage	Rs./Q of Paddy	4.32
8	Interest	Rs./Q of Paddy	23.44
9	Processing	Rs./Q of Paddy	9
10	Any Other	Rs./Q of Paddy	
	Total Incentive Given by the State Govt.	Rs./Q of Paddy	**125.18**
IIB	**Net Cost of Value Addition**	Rs./Q of Paddy	**67.52**

III	**Selling Value of finished products**		
	Rice (67%)	Rs.30.45/Kg of by product	2040
	Rice Bran (7.5%)	Rs.26 /Kg of by product	195
	Broken Rice (5.5%)	Rs. 15/Kg of by product	82.5
	Husk (20%) - weight loss taken in cost	Rs.3 /Kg of by product	60
	Total Value of By-products	Rs./Q of Paddy	**2377.5**
IV	**Gross Margin**	Rs./Q of Paddy	**269.98**
F	**Break Even Point**	**Quintal**	**3993**
	Say	**Quintal**	**4000**

Business economics of paddy processing analysed for rice miller with 2 MT/hour capacity given in Table 3. It is observed that after netting of purchase price of paddy @ Rs.2040/quintal, net cost of variable cost (cost of value addition) and value of finished product of Rs.2377.50 per quintal of paddy, there is gross margin of Rs. Rs.269.98 per quintal of paddy available to paddy processor. The Breakeven point (BEP) of processing unit is 3993 (say 4000 quintal) quintal only.

Business opportunities potential for the PACS as a processor value chain actors in State of Bihar have been assessed and presented in Table 4. Out of 7299 PACs involved in procurement operations during Kharif marketing year 2022-23, 4751 PACs have procured 3441 quintal of paddy over and above the BEP of 4000 quintal. This has potential to generate gross margins of Rs.432.15 crore i.e. Rs.9.09 lakh per PACS.

Table 4 : Business opportunities for PACS / DCCBs in Bihar

Particulars	Unit	Qty / Amount
Average Procurement over and Above 4000 quintal (2022-23)	Quintal per PACS	7414
Average No of PACS procuring over and above BEP	Number	4751
Av Processing quantity over and above BEP	Quintal	3414
Average Income per PACS as a Processing VCA	Rs.	909592
Total Income of 4751 PACS as a Processing VCAs	Rs. in Crore	432.15
Financial Opportunities for DCCBs for Investment Credit	Rs. in Crore	1805.38
Total Interest Income to DCCBs over the period of 10 Years	Rs. in Crore	1191.55

To tap this business opportunity, investment credit of **Rs.1805.38 crore** would be required from the DCCBs. The avalanche effect of this capital investment will generate interest income to the DCCBs of **Rs.1191.55 crore over the years**.

After repayment of principal and interest instalments, PACS would be able to retain Rs.132.45 crore surplus per year over the period of 10 years of economic life of processing units. Repayment schedule of the capital investment has been drawn considering interest rate of 12% per annum as detailed below :

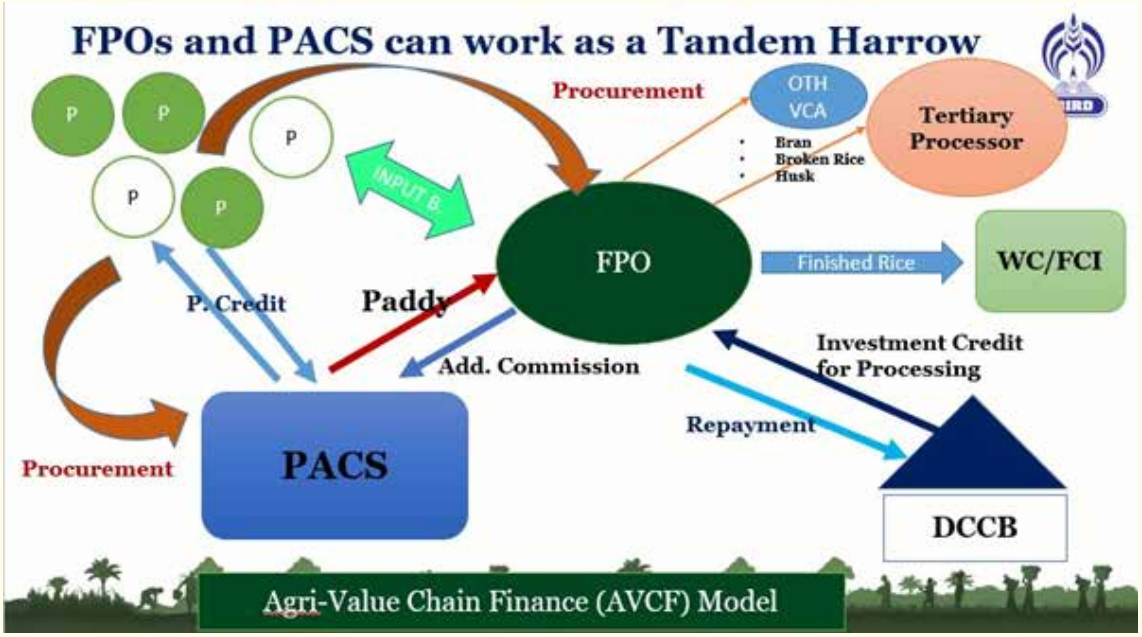
Table 5 : Repayment Schedule of the Investment Credit for establishment of rice mill in 4751 PACS in state of Bihar

YR	Outstanding	Intt @12%	Repayment (P+I)	Surplus (Income Repayment)
1	1805.38	216.65	299.7	132.45
2	1624.84	194.98	299.7	132.45
3	1444.3	173.32	299.7	132.45
4	1263.76	151.65	299.7	132.45
5	1083.22	129.99	299.7	132.45
6	902.68	108.32	299.7	132.45
7	722.14	86.66	299.7	132.45
8	541.6	64.99	299.7	132.45
9	361.06	43.33	299.7	132.45
10	180.52	21.66	299.7	132.45
	Total	**1191.55**	**2996.93**	**1324.5**

Institutional Framework of PACS and FPOs

Following models for the institutional arrangement of the proposed interventions may be considered.

1. **PACS work as a processor value chain actor** : PACS can be upgraded from trader to processor with investment credit of Rs.38 lakh only for setting up of processing plant with 2 Mt/Hr capacity. This will leads to earning of Rs.9.09 lakh per PACS per year.
2. **PACS as trader and FPOs as a processor value chain actor** : If PACs are unable/ not willing to work as a processor value chain actor, then they may supply procured produce to FPOs on commission basis and earn a commission up to Rs.50 per quintal. PACS will able to retained commission of Rs.3.71 lakh per year. In this case, DCCBs will also get opportunities for financing to FPOs.



Conclusion

This model would be ***complementary for PACS as well as for FPOs*** (win-win situation for both). Being a common institutional framework of PACS as a generic FPO and FPC are hybrid or new generation cooperatives having the same cluster and socio-economic culture can work in tandem. Organic links among the producers, PACS, FPOs and DCCBs using existing and reoriented credit lines will strengthen prevailing agri value chains by disrupting market barriers. This would open new window for enhancing GLC flow under cooperative sector through this agri-value chain financing (AVCF) model and ultimately enhance the economic rent of the producers. This framework will also facilitate for ***revival of cooperatives*** along with making agriculture value chain more tight, which is the prerequisite for harnessing ***agri-value chain financing (AVCF) in India***.

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Examining Effectiveness of Massive Open Online Course (MOOC) on Farmer Producer Organisations

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1. Introduction

1.1. Emergence of Massive Open Online Course

"MOOC is an acronym for Massive Open Online Course, represents open access, global, free, video-based instructional content released through an online platform for high-volume participants aiming to take a course or receive education" (Baturay, 2014, p.1). In higher education and lifelong learning processes, MOOCs have disrupted the educational system by providing learners with the opportunity to study independently as per their own schedule and pace (Khalid et al., 2021, Baturay, 2014).

The seed of MOOC was sown in the early 1960s when the idea of industrial-scale educational technology was proposed (Adamopoulos, 2013). In 2008, the first MOOC course was offered by George Siemens and Stephen Downes through the University of Manitoba, Canada (Green, Oswald, and Pomerantz, 2016). Currently, many international Universities and educational institutions offer MOOCs in a wide range of topics, including Humanities, Social Sciences, Engineering, Computer Science, and many more (Adamopoulos, 2013).

In India, the National Education Policy 2020 advocates for the development of alternative modes of technology-based quality education options in addition to traditional and in-person modes of education. This includes apps, online courses, and modules (NEP, GOI, 2020). During the COVID-19 pandemic, the Ministry of Human Resource Development (HRD) released various free digital online learning platforms for students, enabling them to continue their learning process even when schools were closed. These online learning platforms included, for example, the Diksha Portal (video lessons, worksheets, textbooks, and assessments), e-Pathshala (an online learning app by National Council of Educational Research and Training (NCERT)), The National Repository of Open Educational Resources (NROER) portal, Swayam Portal hosting 1900 complete courses, as well as Swayam Prabha, a group of direct-to-home channels dedicated to telecasting educational programme, (Jena, 2020). Several free online platforms such as Zoom, Google Meet, Skype, Facebook Live, Youtube Live, Teams, have emerged after the COVID-19 outbreak, providing a favourable technology environment for e-learning processes.

1.2. Need for Online Courses for Farmer Producer Organisations

Considering the capacity needs of Farmer Producer Organisations (FPOs), several national and state-level institutions provide training support to FPOs including the Bankers Institute of Rural Development (https://birdlucknow.nabard.org/fpo-resource-center/), MANAGE (https://www.manage.gov.in/fpoacademy/fpoAcademy.asp), and the Centre of Excellence of FPOs from Karnataka (). However, most of these training programmes, which are conducted in physical settings, have their own limitations. It is difficult to mobilise participants for residential trainings and many training centers have had to call off their trainings due to low registrations. FPO representative often face difficulties attending trainings that are far from their location. The high cost associated with training programmes poses a challenge when it comes to scaling them up to accommodate a large number of participants. Making suitable logistics arrangements for the trainees and securing high quality resource persons are additional challenges faced by the organisers. Online

platforms such as UDEMY, Coursera, and edX offer a wide range of courses, but there is a lack of online courses specifically designed to educate FPO stakeholders in the field of agriculture.

1.3. MOOC on FPO

MOOC on FPO is an e-learning tool designed to capacitate a large number of FPO stakeholders at a low cost. The course modules cover conceptual and practical aspects of FPOs. Developed through joint efforts of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, BIRD Lucknow, and the Institute of Livelihood Research and Training (ILRT), this self-learning training Program was part of the Indo-German Development Cooperation project "Capacity Enhancement for Sustainable Agriculture and Sustainable Aquaculture (C-SASA)". GIZ India implemented the C-SASA project on behalf of BMZ with support of NABARD.

The MOOC on FPO consists of the following six modules with 29 sessions:

- Module 1: Concept and Governance of FPOs
- Module 2: FPO Statutory Provisions and Forms of Legal Compliance
- Module 3: Market, Marketing and Market Linkages for FPOs
- Module 4: Resource Planning for Business Development of FPOs
- Module 5: Access to Finance
- Module 6: Business Development Planning for FPOs

The MOOC course uses a story format featuring two animated characters: Sarla, an NGO professional, and Vinod, CEO of an FPO. The course incorporates several practical examples, case studies, short videos, and animations to make it relevant and interesting for practitioners. After completing each module, participants have the option to take a module test comprising of eight to ten questions. Upon successfully completing the tests for all six modules, users can generate a MOOC participation certificate signed by the director of BIRD. The course was formally launched on the foundation day of the National Bank for Agriculture and Rural Development (NABARD) on 12 July 2022. With an approximate duration of five hours, the course is available in English and Hindi.

Table 1: Total number of registered users and numbers of users that completed the course

S.N	Month	Total Registered Users (cumulative)	Change in the number of users compared to the previous month	Number of Users (English + Hindi) completed the course and downloaded the certificates (cumulative)	Change in number of users who completed the course and their downloaded certificates
1	April, 2023	6,267	565	2,458	312
2	March, 2023	5,702	197	2,146	44
3	February, 2023	5,505	144	2,102	46
4	January, 2023	5,361	254	2,056	131
5	December,2022	5,107	231	1,925	100
6	November, 2022	4,876	212	1,825	86
7	October, 2022	4,664	259	1,739	261
8	September, 2022	4,405	440	1,478	19
9	August, 2022	3,965		1,459	
			Average- 287.75 Median- 242.5		Average- 124.87 Median- 93

Source: Server records of MOOC on FPO

Until April 2023, 6,267 people have registered on the portal. From August 2022 to April 2023, the average and median change in the number of users per month was 287.75 and 242.5, respectively. Approximately one-third of the total users (2,458) completed the course and downloaded their self-generated certificates. The average change in the number of users who completed and downloaded their certificates per month was 124.87, with a median of 93.

After the COVID-19 pandemic and with increasing digitalisation, several agencies are developing online courses, including self-paced MOOCs, on various themes. However, there is limited understanding of the kind of people who use the MOOCs on FPO course and how they perceive it. Against this backdrop, this research article examines the effectiveness of the MOOC on FPO by analysing the perception of its users.

2. Methodology

Many research scholars carried out research studies on MOOC courses. For example, Altalhi (2021) studied the acceptance and usage of MOOC technology among students. Khalid et al. (2021) examined the factors that affect behaviour intention to use MOOCs. Adamopoulos (2013) analysed real-world data through user-generated online reviews to assess the effect of various factors on student retention.

As there are multiple research studies available in the public domain, a literature review was conducted to identify questions for the assessment of the MOOC on FPO. The survey questionnaire consisted of two parts: the first section dealt with the general profile of respondents, and the second section aimed to understand the perception of users regarding the MOOC on FPO. For the perception-based questions, a Likert scale was used, where one (1) indicated 'strongly disagree' and five (5) indicated 'strongly agree'. The survey questionnaire was developed using Google Forms.

The survey questionnaire had both an English and Hindi version since the MOOC on FPO was available in both languages. The Google Form was initially sent to 20 users to assess whether respondents had any issues understanding the questions. Based on the feedback and inputs from the pilot run, the statements of two questions were modified and one question was dropped.

The online survey form was sent to 4,500 users in the first week of March 2023. A reminder was sent in the first week of April 2023. By the end of April 2023, the online survey was closed, and a total of 206 users submitted their responses. The response rate was 5%. Low response rates are not uncommon in online surveys where users are not known.

3. Results and findings

3.1 Profile of respondents

The profile of respondents is categorised according to age, gender, state, job, and course completion status.

3.1.1 Age profile

Out of the total 206 respondents, the maximum number of respondents fell within the age group of 18 and 38. Only 10% of the respondents were above 49 years old. This indicates that the majority of the MOOC on FPO users were from the younger generation. It is understandable that young people are more inclined towards information and technology. They are generally more proficient in using computers and internet. Therefore, young people are more interested in learning through online courses.

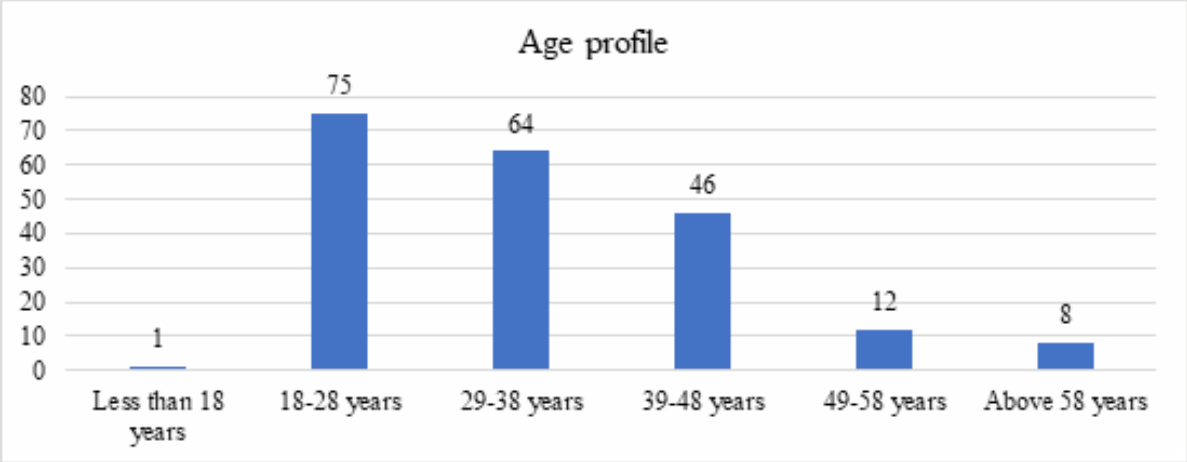
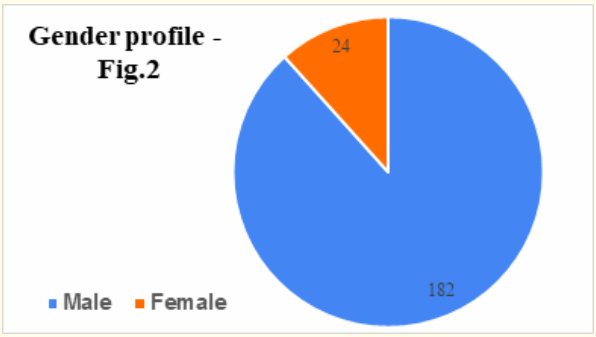


Figure 1: Age profile

3.1.2. Gender

Of the total, 88% of the respondents were male. The results are not surprising. According to Neti and Govil (2022, p.15), there are only 2.4% of women-owned producer companies in India. Women's membership in FPOs is also low. Furthermore, the majority of NGO staff and other stakeholders associated with FPOs are male. This could be the reason behind the low number of female users of MOOC on FPO.



3.1.3. State-wise distribution of respondents

The respondents of the study were spread across twenty-seven states of India, showcasing the wider outreach of the MOOC on FPO. Among the top three states with the highest number of respondents were Uttar Pradesh (24%), Andhra Pradesh (21%), and Gujarat (18%). According to the report authored by Neti and Govil (2022, p.27) of the total number of FPOs in India, the percentage of FPOs in Uttar Pradesh, Andhra Pradesh and Gujarat are 10%, 3%, and 2% respectively. On the other hand, fewer respondents (one each) were reported from northeastern states, namely Arunachal Pradesh, Meghalaya, Mizoram and Tripura. Additionally, there were also fewer respondents from Assam, Chhattisgarh, Himachal Pradesh, Jammu and Kashmir, Karnataka, Telangana, and Kerala.

Table 2: State-wise distribution of respondents

State	Number
Andaman Nicobar	1
Andhra Pradesh	21
Arunachal Pradesh	1
Assam	3
Bihar	11
Chhattisgarh	4
Delhi	8
Gujarat	18
Haryana	9
Himachal Pradesh	3
Jammu Kashmir	4
Jharkhand	15
Karnataka	5
Kerala	4

State	Number
Madhya Pradesh	7
Maharashtra	13
Meghalaya	1
Mizoram	1
Odisha	8
Punjab	8
Rajasthan	8
Tamil Nadu	8
Telangana	3
Tripura	1
Uttar Pradesh	24
Uttarakhand	8
West Bengal	9
Total	**206**

3.1.4. Job profile

As far as the job profile of the respondents is concerned, three major categories have emerged. They were NGO professionals (30%), CEOs of FPOs (24%) and others (17%). The respondents in the 'other' category included organisations such as corporates, banks, academia, consulting organisations, and trusts. This demonstrates a great interest in learning about FPOs through MOOC from a wide range of stakeholders. The fact that only 4% of the participation came from the Board of Directors of FPOs indicates that the content is aligned with CEOs and agribusiness professionals, which are the intended targets of the MOOC on FPO.

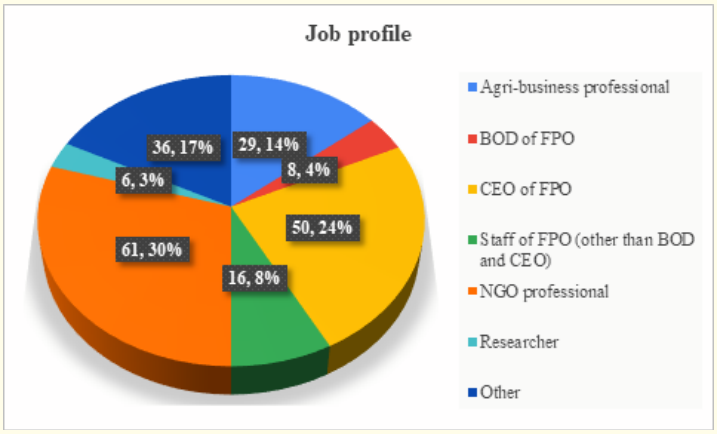


Figure 3: Job profile of respondents

3.1.5. Course completion

The number of respondents who completed the course was large (71%). Only 19% of the respondents completed less than 50% of the course. The candidates who have not yet completed a single module did not participate in the online survey. This suggests that the survey responses mainly represent individuals who have actively engaged with the course material and progressed to a significant extent. The exclusion of non-participants who have not started any modules helps ensure a more accurate reflection of the experiences and perceptions of those who have made progress in the course.

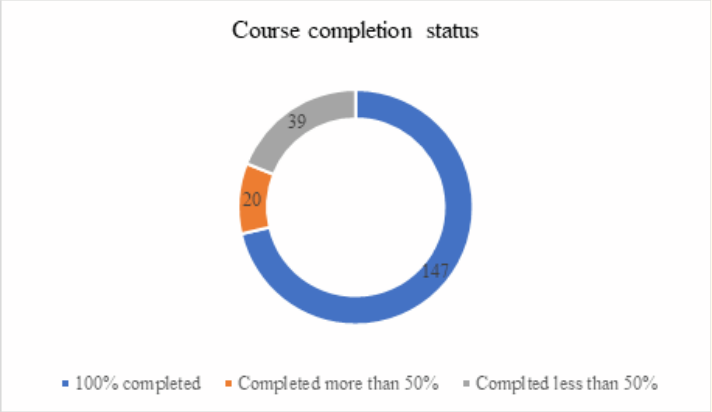


Figure 4: Course completion status

3.2. Users' perception about the course

User perception was collected for various statements using the Likert scale. A rating of one means 'strongly disagree', whereas five means 'strongly agree'. Sixty-four percent of the users strongly agreed that the MOOC on FPO was useful for their job. On the other hand, 9.2% of users gave a score of two or less. Overall, MOOC on FPO received a positive response from the users.

Table 3: I find MOOC useful for my job

Rating	Frequency	%
1.0	15	7.3
2.0	4	1.9
3.0	29	14.1
4.0	25	12.1
5.0	133	64.6
Total	206	100.0

When the users were asked whether using MOOC help them in accomplishing FPO-related tasks, 81.5% of them gave a score of 4 or 5, indicating a high level of perceived effectiveness. Conversely, only 4.9% of the users gave the lowest score (1), suggesting a small proportion of users who felt the MOOC had a limited impact on their FPO-related tasks.

Table 4:Using MOOCs help me accomplish FPO related tasks more quickly

Rating	Frequency	%
1.0	10	4.9
2.0	7	3.4
3.0	21	10.2
4.0	47	22.8
5.0	121	58.7
Total	206	100.0

More than 76% of the respondents gave a score of four or five when asked if the MOOC has improved their productivity. The stakeholders who engaged in various FPO-related tasks found this course useful in enhancing their productivity. The course effectively catered to the needs of the stakeholders involved in diverse FPO-related tasks, equipping them with valuable skills and knowledge to enhance their productivity.

Table 5: Using MOOC on FPO increases my productivity

Rating	Frequency	%
1.0	7	3.4
2.0	11	5.3
3.0	30	14.6
4.0	48	23.3
5.0	110	53.4
Total	206	100.0

More than 78% of the respondents found that learning the MOOC on FPO was easy for them. This indicates that the functionality of MOOC on FPO is user-friendly for a large group of users. The small portion of respondents (only 3%) who did not agree may indicate the need for further improvements in user experience or additional support for those individuals.

Table 6: Learning how to use MOOC on FPO is easy for me

Rating	Frequency	%
1.0	6	2.9
2.0	10	4.9
3.0	26	12.6
4.0	51	24.8
5.0	113	54.9
Total	206	100.0

The findings reveal that a majority of respondents (73%) possessed the required resources, such as a computer or smart phone along with the internet connectivity, enabling them to effectively utilize the MOOC on FPO. However, it is worth noting that a small percentage (approximately 4%) expressed a lack of agreement, suggesting potential barriers or limitations in accessing the necessary resources for participation.

Table 7: I have the resources necessary to use MOOC on FPO

Rating	Frequency	%
1.0	8	3.9
2.0	14	6.8
3.0	32	15.5
4.0	56	27.2
5.0	96	46.6
Total	206	100.0

When asked about their knowledge of the MOOC, 80% of the respondents gave a higher score (4 or 5). This indicates that the users have a basic understanding of how to use the MOOC on FPO, which helps them navigate the course. However, 3.4% of the respondents do not have the necessary knowledge to use MOOC on FPO. The lack of technical skills in using online courses could be a hindrance to effectively using and completing the course.

Table 8: I have the knowledge necessary to use MOOC on FPO

Rating	Frequency	%
1.0	7	3.4
2.0	9	4.4
3.0	25	12.1
4.0	56	27.2
5.0	109	52.9
Total	206	100.0

44.75% of the respondents completely agree with the statement 'I can get help from others when I have difficulty using MOOC on FPO'. On the other hand, 6.3% of the respondents do not agree with this statement. This variation in perception emphasises the importance of providing adequate support mechanisms to address the needs of users who may require additional guidance during their learning journey.

Table 9: I can get help from other when I have difficulties using MOOC on FPO

Rating	Frequency	%
1.0	13	6.3
2.0	10	4.9
3.0	31	15.0
4.0	60	29.1
5.0	92	44.7
Total	206	100.0

The high satisfaction of 83.5% among the respondents indicates that the learning content provided in the various thematic sessions, spanning across six modules, met their expectations and effectively catered to their learning needs. A small proportion of dissatisfied respondents (6.3%) suggests the importance of continually improving and refining the content to address the concerns and enhance the overall user experience.

Table 10: I am satisfied with learning content of MOOC on FPO

Rating	Frequency	%
1.0	13	6.3
2.0	4	1.9
3.0	17	8.3
4.0	54	26.2
5.0	118	57.3
Total	206	100.0

The MOOC on FPO utilised many multimedia formats including pictures, animations, and short videos. A significant number of respondents (80.1%) were satisfied with the multimedia instructions. Nevertheless, the feedback from a small percentage of respondents expressing dissatisfaction with the multimedia instructions highlights the importance of continuously refining and optimising the multimedia content.

Table 11: I am satisfied with multimedia instructions of MOOC on FPO

Rating	Frequency	%
1.0	8	3.9
2.0	9	4.4
3.0	24	11.7
4.0	60	29.1
5.0	105	51.0
Total	206	100.0

78.6% of the total respondents gave a higher score (4 or 5) when asked if they were satisfied with the interactive function of the MOOC on FPO. On the other hand, 9.2% of the respondents gave a lower score (1 or 2) for this question.

Table 12: I am satisfied with interactive MOOC on FPO functions

Rating	Frequency	%
1.0	12	5.8
2.0	7	3.4
3.0	25	12.1
4.0	67	32.5
5.0	95	46.1
Total	206	100.0

The aim of developing the MOOC on FPO was to enhance the capacities of the respondents. 80.5% of the total respondents feel that the MOOC on FPO has fulfilled their training requirement to a great extent. On the other hand, 3.4% respondents did not agree with this statement.

Table 13: MOOC on FPO has fulfilled my training requirements on FPOs

Rating	Frequency	%
1.0	7	3.4
2.0	11	5.3
3.0	22	10.7
4.0	66	32.0
5.0	100	48.5
Total	206	100.0

When the respondents were asked whether they would recommend the MOOC on FPO to others, 80.6% of the total respondents agreed with this proposal. Only 5.8% of the respondents highlighted that they would not like to recommend this course to other people. Overall, a large section of the users was convinced with the MOOC on FPO and expressed readiness to encourage other people to use this course for meeting their training needs.

Table 14: I will recommend other people to use MOOC on FPO

Rating	Frequency	%
1.0	12	5.8
2.0	8	3.9
3.0	20	9.7
4.0	54	26.2
5.0	112	54.4
Total	206	100.0

3.3 Testimonials

The testimonials shared by the respondents offer valuable insights into their positive experiences with the MOOC on FPO, showcasing its impact on their knowledge acquisition, skills development, and overall professional growth. These testimonials serve as compelling evidence of the course's effectiveness and its potential to empower individuals in the field of FPOs. Here are some examples:

- *"It should be mandatory for every CEO, BOD, and Members of FPO."*
- *"It is a very good platform to improve knowledge regarding business in FPO and make it profitable*."
- *"It's really useful for FPO personnel."*
- *"The course is comprehensive*."
- *"The MOOC offers very informative and knowledgeable sessions. I have learned a lot, and now I am using my skills for FPO Development."*
- *"This type of course is useful, and I look forward for more courses*."
- *"It is a highly informative online program, and the course content is easy to understand. Indeed, everybody who is working as a domain professional for the formation and promotion of FPOs under Central Sector Scheme, must complete this MOOC Course*."
- *"The MOOC FPO is a highly interactive quality-rich program."*
- *"More online course modules on FPO of this type need to be made open for all stakeholders."*
- *"I feel it is sufficient."*
- *"FPO–MOOC is a highly beneficial course. Thank you and congratulations to all the team members."*

3.4 Suggestions for improvement

The suggestions provided by the respondents in Table 16 offer valuable insights for enhancing the MOOC on FPO, allowing for further refinement and customisation to better cater to the needs and preferences of learners. These suggestions serve as valuable input for future iterations of the course, ensuring its continuous improvement and relevance in the field of FPOs.

Table 15: Suggestions for improvement of MOOC on FPO

Theme	Suggestions
New topics to be added	· More examples of business plans · State-specific issues. · More courses on maintaining books of accounts and marketing strategy for the FPO. · Marketing activity/games during training. · Updates on FPO rules and regulations · Sample of Memorandum of Association (MOA), Articles of Association (AOA), and Detailed Project Report (DPR). · Issues like lack of cooperation from BODs can be added. · More tests. · More knowledge on Goods and Services Tax (GST). returns, audits, Registrar of Companies (ROC) filings. · More practical examples of successful FPO. · More case studies. · Advanced modules. · Further discussion regarding marketing linkages, capacity building, and training of FPOs.

Theme	Suggestions
Regular updates	· Recommended.
Integration of live session	· Recommended.
Translation	· Translation of the MOOC content is required in regional languages.
Notification on mobile	· Send notifications in connection to progress, new content etc. on the mobile phones of FPO members.
Mobile app	· Make an Android app for the course.
Nominal charges for accessing the course	· Consider adding a nominal charge for accessing MOOC to develop a revenue stream that can be used for maintaining MOOC.
Study material in hard copy	· Providing study material in hard copies. · Important learning points may be listed and made available as PDF documents for future reference.
Helpline/contact number/online support	· Providing a contact number or helpline number for clarification.
MOOC to be developed for other stakeholders	· MOOC should be created for farmers as well.

4. Practical implications and policy recommendations

The implications of the study are not limited to FPOs; they are applicable to all online courses and MOOCs. Educators and trainers involved in designing and implementing online courses will benefit from these learnings. Additionally, policymakers and researchers can also draw insights from the study's findings.

4.1 Promotion of MOOC on FPO in States where Outreach is low

According to the study findings, ten states have a low outreach (less than five respondents) of the MOOC on FPO. It also corroborates the fact that the number of functional FPOs in many of these states are comparatively low. It is necessary to increase the outreach of FPOs in these states to strengthen FPO movement across the country. For the purpose, the MOOC on FPO can be useful in creating awareness about FPOs among various stakeholders within the FPO eco-system in these states.

4.2 Encourage Participation among Women

The number of women in FPOs is extremely low. Therefore, special attention should be given to encouraging women to take up the MOOC course. One step in this direction could be sending emails to FPOs and Cluster Based Business Organisations (CBBOs), requesting women members to register for the MOOC. Furthermore, the content of MOOC may also be developed, focusing on women stakeholders, to enhance gender diversity and inclusivity.

4.3 Blended learning for effectiveness

As indicated by the study findings, there is low participation among people that are older than 49 years. Lack of knowledge about technology and IT skills could be one of the factors contributing to the low participation among middle-aged and older individuals. Blended learnings, which includes interventions from resource persons to clear doubts, facilitate group discussions, conduct question, and answer sessions, would be useful. Thus, a facilitator led FPO course could enhance the effectiveness of the MOOC by increasing inclusiveness among participants from various age groups.

4.4 Regular update of the course

As evident from the suggestions given by respondents, regular updates, both in terms of content and technology, are needed to keep the MOOC relevant. New topics should be added from time to time, while removing the content that

becomes redundant with fast-paced business, trade, and policy conditions. Based on the suggestions provided by the respondents, content related to business planning, legal compliance, marketing, state, and commodity-specific may be added to enrich the MOOC on FPO. The addition of new material will provide an opportunity for existing users to benefit from the fresh content uploaded periodically.

In addition to the content updates, technology also needs to be upgraded. The LMS/MOODLE should be upgraded to the latest version, which will provide a technological advantage and reduce the risk of malware and virus attacks on the MOOC.

4.5 Enhancing user engagement

To enhance user engagement, it is necessary to integrate games, short quizzes, interactive digital content, and immediate feedback in the MOOC is necessary. These features will help maintain user interest and reduce dropout rates. Furthermore, incorporating discussion forums and peer interaction within the MOOC platform can foster collaboration and knowledge sharing among participants, creating a sense of community, and enhancing the learning experience.

4.6 Translation for wider outreach

There are twenty-eight states and eight union territories in India, and it is important to recognise that not all individuals are proficient in English or Hindi. The respondents of the study have highlighted the need for translating the MOOC into regional languages. Therefore, it is recommended to translate the MOOC on FPO into various regional languages to enhance acceptability and reach a wider audience. State-level agencies involved in the promotion and building of the capacity of FPOs can play a leading role in facilitating these translations.

5. Limitations and future research

- Being cross-sectional in nature, the study captured the perception of people at one point in time. However, to understand the impact of time on people's satisfaction level, it is important to gather their perceptions at various time intervals through a longitudinal survey.
- In this study, we utilised data from the users who submitted their responses, rather than including all the registered users for the course. Another limitation of this study is that the data is based on self-reported perceptions of the users and not directly obtained from the backend of the software application. In the future, researchers can analyse the backend data, including the number of hits on each module or session, the number of attempts, time spent on each module, and other relevant factors.
- According to the study, 15-20 users expressed low satisfaction with the course, giving a rating of one or two for the satisfaction-related questions. However, the reasons for their dissatisfaction are not clear. Possible explanations could include the user not perceiving any value added by the course, lack of access to a good internet connection or computer, dissatisfaction with the content or user interface or unresolved technical issues. It is necessary to understand the actual reason behind the low satisfaction of these users. Researchers should analyse the factors contributing to low satisfaction by conducting interviews and asking open-ended questions using qualitative research methods.
- Similarly, the reasons for the lower completion rate need to be analysed. There could be several factors contributing to this. Some users may be interested in specific modules, such as business planning or marketing, where they require skills. Others might have limited time available to complete the entire course. Additionally, some users may lose interest after completing one or two modules. The actual reason for the lower completion rate could vary and they can be explored through qualitative research.

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Notes

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