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The Entrepreneurial Farmer

A Manual for Empowering Farmer Producer Organisations

Neelkamal Darbari | V Padmanand | Kunal Sood | Rakesh Arrawatia

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Abbreviations

Abbreviation	Full form
ABPF	Agri Business Promotion Facility
ACABC	Agri Clinic and Agri Business Centre
ACS	Additional Chief Secretary
ADB	Asian Development Bank
AFC	Association of Farmer Company
AGM	Annual General Meeting
AGMARK	Agricultural Marketing
AGMARKNET	Agriculture Marketing Information System Network
Agri & Co-op	Agriculture & Co-operative
AIF	Agriculture Infrastructure Fund
AMC	Annual Maintenance Contracts
AoA	Articles of Association
AP	Andhra Pradesh
APART	Assam Project for Agriculture and Rural Transformation
APEDA	Agricultural and Processed Food Products Export Development Authority
APLM	Agriculture Produce and Livestock Marketing
APMC	Agriculture Produce Market Committee
ATMA	Agriculture Technology Management Agency
B2B	Business to Business
B2C	Business to Consumers
BDS	Business Development Service
BEP	Break-Even Point
BHP	Brake Horsepower
BoD	Board of Directors
CA	Chartered Accountant
CA	Controlled Atmosphere
CC	Cash Credit
CCs	Co-operative Companies
CEO	Chief Executive Officer
CFC	Common Facility Centre
CGF	Credit Guarantee Fund
CGS	Credit Guarantee Fund Scheme

Abbreviation	Full form
CGTMSE	Credit Guarantee Trust for Micro and Small Enterprises
CHC	Custom Hiring Centre
CIF	Cost, insurance and freight price
CIG	Common Interest Group
CP Seeds	Charoen Pokphand Seeds (India) Pvt. Ltd.
CPIS	Coconut Palm Insurance Scheme
CS	Company Secretary
CS	Cold Storage
DAP	Di-ammonium Phosphate
DIC	District Industries Centre
DIN	Director Identification Number
DML	Direct Marketing Licence
DoH	Department of Horticulture
DSC	Digital Signature Certificates
DSC	Development Support Centre
DSCR	Debt Service Coverage Ratio
EAT	Earnings After Taxes
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Depreciation, Taxes and Amortisation
EBT	Earnings Before Taxes
EGCGF	Equity Grant and Credit Guarantee Fund
EGCGS	Equity Grant and Credit Guarantee Scheme
e-NAM	e–National Agriculture Market
EOGM	Extra Ordinary General Meeting
EU	European Union
F&V	Fruits and Vegetables
FAO	Food and Agriculture Organisation
FAW	Fall Armyworm
FBG	Farmer Business Groups
FCSC	Farmer Common Service Centre
FGD	Focus Group Discussion
FI	Financial Institutions
FIG	Farmer Interest Group
FPC	Farmer Producer Company
FPO	Farmer Producer Organisation

Abbreviation	Full form
FSSAI	Food Safety and Standard Authority of India
FTA	Free Trade Agreements
FWWB	Friends of Women's World Banking
GAP	Good Agriculture Practices
GDP	Gross Domestic Product
GI	Geographical Indication
GMP	Good Manufacturing Practice
GoAP	Government of Andhra Pradesh
GoI	Government of India
GoM	Government of Maharashtra
Govt.	Government
GP	Gram Panchayat
GPS	Global Positioning System
GRAM	Global Rajasthan Agritech Meet
GrAM	Gramin Agriculture Markets
GST	Goods and Service Tax
GSTR	Goods and Service Tax Return
GT	Grant Thornton Bharat
GVA	Gross Value Added
ha	hectare
HACCP	Hazard Analysis and Critical Control Point
HO	Horticulture Office
HP	Horsepower
HQ	Head Quarter
HYV	High Yielding Variety
IA	Implementing Agency
IAs	Implementing Agencies
IAS	Indian Administrative Services
IASF	Intelligent Advisory System for Farmers
ICAR	Indian Council for Agriculture Research
IDI	In-depth Interview
IFFCO	Indian Farmers Fertiliser Co-operative Limited
INC	Incorporated
INM	Integrated Nutrients Management
INR	Indian Rupee

Abbreviation	Full form
IPM	Integrated Pest Management
IQF	Individual Quick Freezing
IRR	Internal Rate of Return
ISO	International Organization for Standardization
IT	Income Tax
ITC	ITC Limited
ITDP	Integrated Tribal Development Programme
ITR	Income Tax Return
IVC	Integrated Value Chain
IWMP	Integrated Watershed Management Programme
KCC	Kisan Credit Card
KVIC	Khadi and Village Industries Commission
KVK	Krishi Vigyan Kendra
KYC	Know Your Customer
LPG	Liquefied Petroleum Gas
MACP	Maharashtra Agricultural Competitiveness Project
MAFW	Ministry of Agriculture and Farmers' Welfare
MARKNET	Agriculture Market Intelligence Network
MD	Managing Director
MFI	Micro Financial Institution
MIDH	Mission for Integrated Development of Horticulture
MIS	Market Intervention Scheme
MMT	Million Metric Tonne
MNAIS	Modified National Agriculture Insurance Scheme
MNC	Multi National Companies
MoA	Memorandum of Association
MoFPI	Ministry of Food Processing Industries
MoMSME	Ministry of Micro, Small and Medium Enterprises
MoSPI	Ministry of Statistics and Programme Implementation
MoU	Memorandum of Understanding
MSAMB	Maharashtra State Agriculture Marketing Board
MSE	Micro and Small Enterprises
MSE-CDP	Micro and Small Enterprise– Cluster Development Programme
MSME	Micro, Small & Medium Enterprises
MSME-DI	Micro Small Medium Enterprise Development Institute

Abbreviation	Full form
MSP	Minimum Support Prices
MT	Metric Tonnes
MUDRA	Micro Units Development and Refinance Agency Bank
NABARD	National Bank for Agriculture & Rural Development
N-Ach	Need for Achievement
NAFED	National Agricultural Co-operative Marketing Federation of India Ltd
NAIP	National Agriculture Imagery Programme
NAIS	National Agriculture Insurance Scheme
NAM	National Agriculture Market
NBFC	Non-Banking Financial Company
NCDC	National Co-operative Development Corporation
NCDEX	National Commodity and Derivatives Exchange
NDMA	National Disaster Management Authority
NE	North East
NER	North-East Region
NFL	Nabkisan Finance Limited
NGO	Non-Government Organisation
NHB	National Horticulture Board
NHM	National Horticulture Mission
NITI	National Institution for Transforming India
NMAET	National Mission on Agricultural Extension and Technology
NOC	No Objection Certificate
NPK	Nitrogen Phosphorus and Potash
NPMCR	National Policy for Management of Crop Residue
NPV	Net Present Value
NRAA	National Rain-fed Area Authority
NRCs	National Research Centres
NSDP	Net State Domestic Product
NSSO	National Sample Survey Office
NTB	Non-Tariff Barriers
OBC	Other Backward Castes
OTP	One-time Password
PAN	Permanent Account Number
PBT	Profit Before Tax
PC	Producer Company

Abbreviation	Full form
PD	Project Director
PERT	Program Evaluation Review Technique
PFDC	Precision Farming Development Centres
PG	Producer Group
PHM	Post-Harvest Management
PKVY	Paramparagat Krishi Vikas Yojana
PLC	Programme Logic Controller
PM-AASHA	Pradhan Mantri Annadata Aay SanraksHan Abhiyan
PMAs	Project Management Agencies
PMEGP	Prime Minister's Employment Generation Programme
PMFBY	Pradhan Mantri Fasal Bima Yojana
PM-KISAN	Pradhan Mantri Kisan Samman Nidhi
PM-KMY	Pradhan Mantri Kisan Maandhan Yojana
PMMY	Pradhan Mantri MUDRA Yojana
PMRY	Prime Minister's Rojgar Yojana
PMKSY	Prime Minister Krishi Sinchayee Yojana
PMU	Project Management Unit
PPP	Public-Private Partnership
PPPIAD	Public-Private Partnership for Integrated Agricultural Development
PSU	Public Sector Undertakings
QR	Quick Response
Qtl	Quintal
R & D	Research and Development
RACP	Rajasthan Agricultural Competitiveness Project
REGP	Rural Employment Generation Programme
RGB	Representative General Body
RKVY	Rastriya Krishi Vikas Yojana
RMB	Raw Material Bank
RoC	Registrar of Companies
ROCE	Return on Capital Employed
ROE	Return on Equity
ROI	Return on Investment
RRB	Regional Rural Bank
SAUs	State Agriculture Universities
SC	Schedule Caste

Abbreviation	Full form
SCP	Schedule Caste Plan
SEBI	Stock Exchange Board of India
SFAC	Small Farmers Agribusiness Consortium
SFURTI	Scheme for Regeneration of Traditional Industries
SHC	Soil Health Card
SHGs	Self Help Group
SHM	Soil Health Management
SI	Sum Insured
SM	Social Mobiliser
SMEs	Small and Medium Enterprises
SMS	Short Message Service
SPS	Sanitary and Phytosanitary Measures
SPV	Special Purpose Vehicle
Sq. mt	Square Meter
SSPCL	Swaroop Shetkari Producer Company Limited
ST	Schedule Tribes
SWOT Analysis	Strengths, Weaknesses, Opportunities and Threats Analysis
T	Tonnes
TBT	Technical Barriers to Trade
TFO	Total Fund Outlay
TNIAMP	Tamil Nadu Irrigated Agriculture and Modernisation Project
TPD	Tonnes per Day
TPH	Tonnes Per Hour
UA	Udyog Aadhaar
UNESCO	United Nation Educational Scientific and Cultural Organization
USA	United States of America
USD	US Dollar
USD	United State Dollar
USP	Unit Selling Price
UT	Union Territory
VSAPCL	Valanadu Sustainable Agriculture Producer Company Limited
VUPCL	Veerachozan Uzhavan Producer Company Limited
WBCIS	Weather Based Crop Insurance Scheme
WC	Working Capital
WC	Warehousing Corporation

Foreword

India's agriculture sector is dominated by small and marginal holdings that suffer from several constraints related to scale, input, technology and marketing of output. About half of the area under cultivation is rainfed without any access to irrigation, and thus depends heavily on the vagaries of the monsoon. Most of the farmers use traditional methods of farming and technology. They also have limited access to institutional credit. It is also found that the usage of inputs like fertiliser, in most cases, is either inadequate or imbalanced. The net result of all these factors is that the productivity of agriculture remains low in India as compared to other major agricultural countries. Agricultural markets for farm produce suffer from several malpractices and small farmers in particular are at the receiving end, without any bargaining power in the market. Agri-markets are dominated by small traders and a large number of intermediaries. The government has initiated several interventions to address the situation and to improve the production and marketing environment for farmers from time to time. These include: soil health card, insurance for crops and livestock, rationalisation of land leasing laws, improvement in irrigation and the promotion of a national e-market.

The Ministry of Agriculture and Farmers' Welfare has been making several interventions to relieve and support farmers, as well as strengthen Agri-value chains. These measures are related to addressing price volatility and ensuring a competitive market for agricultural commodities. Farmers are protected against high price volatility in agricultural commodities through direct price intervention and procurement at Minimum Support Prices (MSP), and also through the Market Intervention Scheme (MIS). The Ministry also came up with the model APLM, Agriculture Produce and Livestock Marketing (Promotion and Facilities) Act 2017 and Model Contract Farming Act (2018), based on the opinions and suggestions of agricultural experts and economists. The Model Acts aim to increase competition in the market, provide alternate options to farmers to sell their produce and remove unnecessary restrictions in the marketing of produce. The Model Contract Farming Act aims at price risk sharing between producers and prospective buyers before the sowing of crops and the promotion of a direct interface between farmers and processors, exporters, buyers, and agri-business firms. The Model Acts were expected to attract much-needed investments in warehouses, silos, cold storages, cold chains, processing and logistics to modernise the marketing and supply chain, which in turn is considered beneficial for the economy, producers and consumers.

Post-harvest infrastructure is particularly crucial for value addition, efficiency, export promotion and market integration. India has seen a big response to the policy initiatives related to the liberalisation of agriculture trade. While promoting trade, domestic producers and consumers are protected from excessive and violent fluctuations in international processes through finely calibrated changes in trade policy. There is a system in place to keep a close watch on international and domestic prices and availability, which uses instruments like change in tariff, minimum export price, export quota etc. to maintain a relatively stable price environment for producers and consumers. Non-government players like the private sector, FPOs and other farmer organisations can play an important role in all these areas. In fact, GOI is encouraging higher participation by non-government players in agricultural marketing, infrastructure, logistics, processing, and value chains. Initiatives like AIF and the support to set up FPOs and PLI for food processing are important recent steps in this direction. India has rich experience with cooperatives, in mopping up milk from millions of small producers and economically empowering them. Milk cooperatives have also played a significant role in the economic empowerment of rural women in the country. FPOs and Cooperatives are expected to play a similar role in other areas and activities of farming.

Farmer Producer Companies offer farmers the advantages that come from higher scales of operation at various stages of the agricultural value chain. It would help if every farmer were encouraged to become a member of an FPC and integrate efficiently with a value chain platform. Literature is full of success stories of FPO/FPCs across states. Still, their effective coverage remains low. It is very clear that FPOs are the most effective vehicles for raising the income of small holders. Thus, all round efforts are needed to spread FPOs throughout the country and ensure their success.

This operation manual for the Board of Directors (BoDs) of FPCs, as well as other stakeholders including Cluster-Based Business Organisations, Resource Institutions and line Departments is full of illustrations from a number of states in India and provides a good perspective on the methods for formation and promotion. The Manual is a relevant read for students of economics and management, as well as management professionals who seek to learn from the successful illustrations and best practices relating to FPOs. I congratulate and admire Ms. Neelkamal Darbari, V. Padmanand (Partner, Grant Thornton Bharat), Kunal Sood (Partner, Grant Thornton Bharat) and Rakesh Arrawatia (Professor, IRMA) for compiling valuable material to fill the knowledge gaps in a manner worthy of appreciation. The manuscript is good reading for policy makers dealing with development institutions, field-level implementors and Cluster-Based Business Organisations (CBBOs), as well as organisations concerned with farmers' income.

Prof. Ramesh Chand

Member

NITI Aayog

Preface

The country's agriculture and agribusiness value chains are plagued with various constraints. At the top end of the value chains, stakeholders have limited global market connect, and at the bottom rung of the value chains, farmers suffer from a scenario of relatively stagnant real incomes. Fragmented holdings, limited market access due to competitiveness and conformance issues, and tariff and non-tariff barriers (NTBs) are core problem areas. The critical causes are not very difficult to isolate. Small and marginal operational holdings of less than 0.8 hectares imply inadequate resources to invest in the farms in terms of quality inputs and mechanisation. This, in turn, affects productivity. Extension services are limited, and interventions to promote farmer collectives and FPCs are at a relatively nascent stage. Further, limited access to quality-certified seeds and planting material, and limitations in critical post-harvest and processing infrastructure are important constraints.

In addition, the marketing and surplus managing ecosystem is underdeveloped, leading to periodic market gluts and crashes. In fact, there is a virtual absence of a market intelligence system. In a related context, market-yard and committee-related regulatory reforms are yet to be implemented. The logistics infrastructure and quality and conformance-related ecosystem are also yet to be developed. The government of India has been making laudable interventions at the policy and field levels in this regard.

India is a world leader in the production of agriculture and horticulture produce, and also in much of the related livestock. Nevertheless, despite this, farm incomes have stagnated. Since 2016, the government of India has been striving to realise its target of doubling farmers' incomes. At the time, a farming household realised an average net income of INR 8,059 per month, or about INR 97,000 per annum. However, agriculture incomes have grown by only 30% between 2015-16 and 2021-22. Data from the Ministry of Statistics and Programme Implementation reveals that some states like Karnataka, Andhra Pradesh, Odisha, Madhya Pradesh, Tamil Nadu, and Haryana have witnessed higher income growth of 42%-50%. It is also interesting to observe that these states had also been aggressively promoting farmer networks earlier and have continued to do so in the recent past. These estimates are based on using the methodology of the 'Committee for Doubling of Farmer's Income' to establish the National Sample Survey Office (NSSO) 2012-13 on agricultural households and project it to 2015-16 and considering a state's growth in Net State Domestic Product (NSDP). The same methodology reflects an average growth of only 30% by 2021-22. Considering growth in the agriculture sector in NSDP too, the average growth is about the same. Interventions are required on a war footing to accelerate growth in farm incomes, and farmer-producer organisations, including companies, are a means to realise this target.

In this setting, many institutions such as the World Bank, foundations and state governments have been aggressively steering FPO (particularly FPC) formation and promotion initiatives over the last 5-6 years. Institutions such as the Asian Development Bank have also been contributing significantly. Institutions like the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED), Small Farmers Agribusiness Consortium (SFAC), as well as the National Bank for Agriculture and Rural Development (NABARD), have also made pioneering initiatives. Today, the government of India is also aggressively engaged in the initiative through a dedicated programme and scheme for the formation and promotion of 10,000 FPOs.

In this context, this publication is expected to serve as a capacity-building and facilitator manual for stakeholders particularly involved in developing Farmer Producer Companies (FPCs). The stakeholders include the Board of Directors of FPCs, Chief Executive Officers (CEOs), implementing agencies under the government and cluster-based business organisations, related resource institutions and global development partners, as well as foundations and corporate social responsibility (CSR) initiatives.

The first chapter presents the circumstance of the Indian agriculture and agribusiness sector. The sector contributes to the livelihood of about 58% of India's population. The country is a world leader in several agricultural and horticultural crops. It also enjoys leadership in production in several animal husbandry and fishery segments. Nevertheless, it suffers from limited global market access for much of its produce. Alongside, farm incomes have been stagnating. Some of the critical constraints include small and uneconomic-sized holdings, irrigation constraints, disease risks, poor soil health, the threat of invasive species, limited farm mechanisation, limited access to credit and insurance, low yield, and a range of post-harvest constraints. The government has initiated a range of interventions in this context.

The second chapter provides an introduction to FPOs and FPCs. FPOs enable producers to progress into a gamut of value-adding activities. In this context, FPCs reduce many of the concerns vis-à-vis co-operatives. FPCs may offer various services to farmer members, including GAP and crop advisory, input-shop services, custom hiring services, credit connect, direct market connect, common facilities for storage and processing, transport and seed production. A cluster diagnostic study complements FPC formation. For cluster identification, one or more blocks in a district may be considered as a cluster. A cluster may have 3-4,000 farmers and involve 10 to 15 villages. A field study may involve consultation with 50-odd farmers per cluster. Subsequently, the process of farmer mobilisation and group or network or FPC formation involves identifying clusters, conducting a baseline survey, conducting farmer-level meetings, and forming producer groups or farmer interest groups (FIGs). These may be federated to evolve an FPC comprising 300-500 farmers.

Chapter 3 highlights the soft skills required to manage an FPC effectively. These may be viewed in terms of skills related to communication, negotiation, networking, leadership, and planning, among others.

Chapter 4 presents the typical initiatives undertaken by a proactive FPC. Business plans related to custom hiring are also detailed out.

Chapter 5 introduces the structure and methodology of scrutinising a business opportunity, and thereafter, drafting a business plan. The instruments of some supporting FIs, NBFCs and development finance institutions are also presented. The chapter also elaborates on a business plan for a common facility centre for storage, primary or secondary processing.

Chapter 6 considers the scope and need for agri-input facilitation services by an FPC. Quality agri-inputs complemented by crop advisory services may lead to over 40% increase in income per acre for a typical marginal or small farmer member of an FPC. Hence, in this manual, added focus has been accorded towards optimal input procurement options. Also, it is a low-hanging fruit in terms of interventions that typical young FPCs may conveniently initiate. High input cost, spurious inputs, and a virtual storage of inputs like urea and DAP in some periods are all important areas of concern. In this context, an FPC needs to undertake an input requirement analysis among members, identify an appropriate location and manpower, secure necessary input licenses and launch the facility with a credit-connect where necessary. This chapter also presents an illustrative business plan for such a facility.

Chapter 7 presents case illustrations on successful young FPCs from across the country. These include those from Andhra Pradesh, Maharashtra, Karnataka, and West Bengal. The illustration serves to highlight the growth potential of young FPCs in a period of 3-4 years since incorporation. It also summarises the learnings with regard to FPC formation and mobilisation, management, compliances, activities and growth, credit and financial support, and financial performance. Many FPOs realise turnovers of INR 3-4 crore from two major activities-input business and output business. This chapter also considers individual farmer-upgrading initiatives in Rajasthan and Jharkhand.

In light of the incidence of minimum alternate tax and the focus on passing on the benefits to members directly, profit and reserves in an FPC's account are usually marginal. An FPC-rating tool is also presented. The same may be used to assess the performance as well as the inclusiveness and sustainability of an FPC. This chapter also presents some case illustrations on upgrading initiatives by individual farmers as well as the outcomes at an FPC-member level.

Chapter 8 presents the necessary statutory and legal compliances for an FPC. Compliances are essentially with respect to both company law and taxation laws. The chapter considers checklists for the incorporation of an FPC, post-registration activities such as the conduct of board meetings, the annual general meeting, as well as the appointment of a CEO, maintenance of records and books, etc. It also presents a summary RoC compliance calendar.

Chapter 9 presents the important schemes that FPCs may leverage. These include schemes such as the credit guarantee scheme and the equity grant scheme for FPOs under the aegis of the Ministry of Food Processing Industries, schemes of the Ministry of MSME, and a range of other schemes related to the Ministry of Agriculture and Farmers' Welfare and related departments.

The authors believe that this manual will contribute significantly towards upscaling and sustainably deepening interventions in the context of forming and promoting FPOs in the subcontinent.

Neelkamal Darbari | V. Padmanand (Partner, Grant Thornton Bharat)
Kunal Sood (Partner, Grant Thornton Bharat) | Rakesh Arrawatia

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Neelkamal Darbari | V. Padmanand (Partner, Grant Thornton Bharat)
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Message

The Indian economy is to be the third largest economy in the globe in a few years' time. We will realise this enviable position in the midst of a paradoxical situation, with much of the world's poor also residing in the country. The poor are particularly concentrated in rural areas and are marginal and small farmers confronting an environment of stagnant farm incomes. The government of India's objective of sustainably doubling farmers' income may be realised only through joint action and networks of farmers underpinning other noteworthy initiatives of the government. The firm is today the largest player and contributor in the ecosystem of farming and promoting farmer collectives, having intervened with over 1,000 such networks. Market leadership in the space has been realised through partnerships and collaborations twinned with expertise. The book documents the firm's interventions and learnings from India. The volume is replete with case illustrations from Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra, Jharkhand, Assam, and West Bengal. Team GT has helped evolve several tools and partnerships for effective implementation of FPC formation and promotion in the field, and hence, evolve a professional and outcome-based approach to interventions. Some of the institutions involved in this space and with whom we have effectively partnered for implementation include the World Bank, the Asian Development Bank, departments of several state governments and large developmental foundations.

My compliments to the authors for penning this pioneering volume highlighting the range of business plans and management tools to build vibrant and sustainable farmer collectives in the country, complementing our vision to develop a vibrant Bharat.

Vishesh Chandiok

Chief Executive Officer

Grant Thornton Bharat

Message

I would like to extend my heartfelt compliments to the authors of this book, which I believe addresses a critical need of our time. The importance of building the capacity of stakeholders in the Farmer Producer Organisation (FPO) ecosystem cannot be overstated, and this book serves as a valuable resource for training, handholding, and capacity building of FPOs. The agricultural sector plays a pivotal role in our society, and FPOs have emerged as a key mechanism to empower farmers and enhance their collective strength. However, for FPOs to thrive and succeed, it is essential that all stakeholders involved have access to the necessary knowledge and skills. This book fills that crucial gap by providing comprehensive insights and guidance for FPO development. By serving as a building block for training, the book equips individuals and organisations with the tools they need to support and strengthen FPOs effectively. The practical strategies, best practices, and case studies shared within its pages will undoubtedly contribute to the growth and success of FPOs across the board. I genuinely appreciate the effort and expertise invested by the authors in compiling this invaluable resource. Their dedication and commitment to fostering the development of FPOs are commendable. I have no doubt that this book will serve as a cornerstone for anyone involved in FPO initiatives, including policymakers, practitioners, trainers, and FPO members themselves.

Once again, my heartfelt congratulations to the authors for their outstanding contributions. This book will undoubtedly make a significant impact on the sustainable growth of FPOs, thereby positively influencing the lives of countless farmers and rural communities.

Thank you for your commitment to promoting the welfare of farmers and the advancement of the agricultural sector through this exceptional publication.

Dr. Umakant Dash

Director

Institute of Rural Management Anand

About the Authors

Neelkamal Darbari

Neelkamal Darbari, a Secretary to Government of India-level officer of the Indian Administrative Services, also served as Managing Director, Small Farmers' Agribusiness Consortium (SFAC), in New Delhi. She has led the efforts towards the formation and promotion of FPOs under the new initiative of the government of India, for the promotion of 10,000 FPOs. Earlier, as Additional Chief Secretary (ACS), Agriculture and Horticulture, Rajasthan, she had been responsible for formulating outcome-based policy frameworks and promoting sustainable agricultural practices. She has led the Global Rajasthan Agritech Meet (GRAM) by conceptualising and driving the campaign to provide the right investment thrust in agribusiness for augmenting farmers' incomes. As Joint Secretary and Advisor, National Disaster Management Authority (NDMA), she was in charge of the first-ever Direct Benefit Transfer initiative under the Prime Minister's Relief Fund during the Jammu & Kashmir floods of 2014. She also steered the relief and rehabilitation initiatives of the government of India after the 2015 Nepal earthquake. The author has also worked in key economic ministries as Joint Secretary, Chemical & Petrochemicals, and Director Steel, overseeing mega-projects for infrastructure development and leading the implementation of policy through cluster development programmes for plastics, polymers, and recycling industry. She is a gold medallist in English, has an MBA from the University of Southern Cross, Australia, and an MPhil in Public Policy. The author has recently retired from Secretary rank, Cabinet Secretariat as Chairperson, National Authority Chemical Weapons Convention.

V. Padmanand

Partner, Grant Thornton Bharat

Prof. V. Padmanand is a reputed international expert on agribusiness, small and medium enterprise clusters, entrepreneurship, and livelihood development. He has expertise in cluster and value-chain diagnostics and intervention, and in the implementation of action plans, including public-private partnership-based projects across most sectors. He has served as an international expert and team leader for: Governments, United Nations (UN), and other organisations such as the UNIDO (Vienna), the UNDP, International Fund for Agricultural Development (Rome), the International Labour organisation (Geneva), World Bank, German Technical Co-operation, Commonwealth Secretariat (UK) and Department for International Development (UK). He has also served as economist in several initiatives of the Asian Development Bank (Manila) and the African Development Bank (AfDB). He has served as a member of the Planning Commission, government of India (in several working groups), and has also served on the advisory board and committees of entrepreneurship development institutions. Prof. Padmanand has authored over 10 books, many of which have been published by the government of India. He has intervened in over 15 countries. The author has been awarded an M.Phil in Economics by the University of Cambridge (UK), and also by the University of Madras. He possesses post-graduate qualifications in management and has also been trained at the IIM-A. He has secured several national and international awards for academic merit and for outstanding academic contribution for teaching in business schools. The author is serving as Partner in Grant Thornton Bharat. The author has been working directly and indirectly with over 1,000 FPOs across the country and has brought out several related publications.

Kunal Sood

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Kunal Sood has over 20 years of experience in the field of development advisory with a focus on economic development. He has worked with governments, multilateral organisations, industry bodies, and the private sector in devising and implementing programmes for the promotion of industrial infrastructure, SME clusters, skills, livelihoods, and investments. He is presently leading perhaps the largest team in the country in the field of agribusiness and MSME development, and serves as the National Sector Leader for the practice. The nature of engagements led by him includes project management, capacity-building, monitoring and evaluation, policy, and strategy formulation. His sector experience spans across food processing, leather, textiles, plastics, engineering, the unorganised sector, etc. He has facilitated the investment of over USD 1 billion in industrial infrastructure on PPP mode. Currently, he is leading engagements with the Ministry of Food Processing Industries, Department of Industrial Planning and Promotion, Ministry of Chemicals and Petrochemicals, Ministry of Textiles, and various state governments. A unique feature of these engagements is the end-to-end project management services covering project conceptualisation, due diligence, implementation support, financial closure and monitoring till project commissioning. The author has several books and publications to his credit. The author has also been working with thousands of FPOs across the nation and has several related publications to his credit.

Rakesh Arrawatia

Dr. Rakesh Arrawatia is a distinguished professional holding several prestigious roles in the field of finance and social entrepreneurship. He currently serves as a Professor in the finance area at the IRMA (Institute of Rural Management Anand), and holds the position of Adjunct Professor at the Centre for Cooperatives and Livelihoods, LBSNAA (Lal Bahadur Shastri National Academy of Administration). In addition, he is the Managing Director of IRMA ISEED Foundation, the esteemed social enterprise incubator affiliated with the IRMA. Having graduated from IIT Kharagpur, Dr. Arrawatia brings a wealth of knowledge and expertise to his work. His expertise is highly regarded, and he serves on the Risk Management Committee of NCCL, a subsidiary of NCDEX (National Commodity and Derivatives Exchange). He is also the Chairman of the Market Oversight Committee, NCDFI (National Cooperative Dairy Federation of India). His contributions extend beyond academia, as he actively participates in the subcommittee of the Prime Minister's MSP (Minimum Support Price) Committee, demonstrating his commitment to policy development and rural welfare. With a degree in engineering from NIT Surat and an MBA, Dr. Arrawatia has been involved in numerous consulting and research projects funded by prestigious organisations such as NDDB (National Dairy Development Board), NABARD (National Bank for Agriculture and Rural Development), the government of India, and JP Morgan. His research interests encompass crucial areas, including banking competition, social enterprises, and firm performance. Through scholarly endeavours, he strives to unravel insights that drive progress and advancements in these fields. His extensive experience, academic achievements, and deep engagement with various organisations underline his unwavering dedication to creating a significant impact in finance, social entrepreneurship, and rural development.

Chapter 1 - Indian agriculture and agribusiness sector: Circumstance

Highlights

The agriculture sector contributes to the livelihood of about 58% of India's population. The Gross Value Added (GVA) by agriculture, forestry and fishing was estimated at INR 19.48 lakh crore.

The country is a world leader in the production of several agriculture, horticulture, livestock and fishery produce. However, it suffers from limited global market connect and from relatively stagnant incomes of farmers.

Some of the important constraints include: small and uneconomic-sized holdings, irrigation constraints, disease risk, poor soil health, threat of invasive pests, limited farm mechanisation, limited access to credit, etc. There are also a range of post-harvest constraints.

In this context, there are several opportunities, and the government has proactively launched a gamut of initiatives.

1.1 Introduction

Agriculture is the primary source of livelihood for about 58% of India's population. Gross Value Added (GVA) by agriculture, forestry, and fishing was estimated at INR 19.48 lakh crore (USD 276.37 billion) in FY20 (PE). Also, notably, the growth in GVA in agriculture and allied sectors stood at an impressive 4%[1]. During 2019-20, the production of food grains stood at about 291.95 million tonnes, and the production of horticulture crops in India was estimated at a record 320.48 million tonnes. Further, India has the largest livestock population of around 535.78 million, which amounts to about 31% of the world's livestock population. The country is a global leader in producing several agricultural and subsector horticultural crops and has among the world's largest bovine, ovine, and fishery stocks. Agricultural exports from India peaked at USD 38.54 billion in FY19 and USD 28.93 billion in FY20 (till January 2020). India is a leading producer of several food crops, including paddy and wheat. The Indian horticulture subsector is, in fact, of growing significance and contributes to about 33% of the agriculture Gross Value Added (GVA). India is presently producing about 320.48 million tonnes of horticulture produce, which has surpassed food grain production. The productivity of horticulture crops is much higher than that of food grains (12.49 tonnes/ha against 2.23 tonnes/ha). There has been a noticeable shift in the area from food grains towards more value-yielding horticulture crops. In fact, India has emerged as a world leader in the production of a variety of fruits such as mango, banana, guava, papaya, sapota, pomegranate, lime and amla, and is the second largest producer of fruits and vegetables. Besides, India has maintained its leadership position in the production of spices, coconut, and cashew nuts. Globally, India ranks second in terms of total horticulture production, contributing to 11.20% share of the world production, following China. Notably, the value of output from the livestock subsector is 25.7% of the total output from the agriculture and allied sector. Importantly, India continues to be the world's largest producer of milk and the third-largest dairy producer. Furthermore, in

1 Indian Brand Equity Foundation,2020

fisheries, India is the second largest producer. These estimates underline and exemplify the production base in the country.

Scope to enhance contribution to National Value Added; sustainably enhance farm incomes

Employment in agriculture in India accounts for 44% of overall employment. However, it contributes to only 16% of Gross Value Added (GVA). The services sector accounts for 30% of total employment in this setting, yet it provides over 54% of the GVA. The Industry share in employment stands at 26%, and its contribution to GVA is about 30%. There is apparently great scope to enhance the agriculture sector's contribution to the national GVA. This will also help redress the circumstance of relatively stagnant farmer incomes.

Sub-sector value chain and production in India (FY 2020-21)

Sub-sector/value chain	Production in India	Percentage of world production
Agriculture (Includes paddy, wheat, cereals, pulses, oilseed crops, sugarcane, seed cotton, jute, etc.)	1,099.95 MMT	India = 15.17% of the world's production (World production: 7,248.61 MMT)
Horticulture (Includes fruits, vegetables, spices, condiments, plantation, flowers, and medicinal crops)	338.39 MMT	India's production is 14.68% of the world's horticulture production. (World production: 2,316.41 MMT)
Livestock (Cattle)	302.34 million	17.73% (World population = 1,705 million)
Livestock (Goat)	148.88 million	14.80% (World population = 1,000 million)
Livestock (Sheep)	74.26 million	6.18% (World population = 1,200 million)
Livestock (Poultry)	851.81 million	2.57% (World population = 33,097 million)
Fishery	14.16 MMT	15.68% (World production: 90.3 MMT)

Data source:

Agriculture-FAOSTAT 2020

Horticulture-2nd advance estimate 2021-22, Ministry of Agriculture, GoI

Livestock-Key statistics on 20th Livestock census 2019

Fishery-Economic survey 2020-21

Production quantity of agricultural crops in India and the world (FY 2020-21)

Crop	India's production (MMT)	World production (MMT)
Rice	178.3	756.74
Wheat	107.59	760.925
Coarse cereals	335.03	2,996.14
Pulses	23.36	89.82
Food grains (1-4)	644.28	4,603.625
Oil seeds	65.64	689.5
Sugarcane	370.5	1,869.7
Seed cotton	17.73	83.11
Jute	1.8	2.68
Total agriculture	1,099.95	7,248.615

Data source: FAOSTAT 2020

Production quantity of horticulture crops in India and the world (FY 2020-21)

Horticulture crop	India’s production (MMT)	World production (MMT)
Citrus fruits	14.85	158.49
Total fruits	107.102	887.02
Vegetables	204.613	1,148.44
Spices and condiments	7.695	47.47
Aromatics and medicinal plants	0.56	-
Honey	0.13	1.77
Plantation crops	15.37	73.22
Cut flowers	0.63	-
Loose flowers	2.29	-
Flowers	2.92	-
Total horticulture	338.39	2,316.41

Data source: 2nd advance estimate 2021-22, Ministry of Agriculture, GoI

Global demand untapped due to low-yield import barriers

India is the world's leading producer of several agriculture, horticulture, and animal husbandry commodities and related products. Nevertheless, typically, it has a low share of less than 2.3% in world trade. The United States has been the largest market for India's agricultural exports in recent years. However, 79% of India's agriculture exports went to developing country markets and least-developed countries. One of the primary reasons for India's poor export share in major import markets is the very high final landed CIF price of Indian commodities in these markets compared to competing countries. Poor productivity is also one reason for the high landing price in foreign markets. As a matter of fact, India's rice yields are one-third of China's and about half of those in Vietnam and Indonesia. High tariffs and import duties are also levied in the importing developed country markets. In fact, Indian dairy products attract high import duties of 511% in the EU and 93% in the US. India's farm exports also face non-tariff barriers (NTBs) in top importing markets; for example, the EU banned the import of mangoes (albeit lifted in 2015). Moreover, India's Free Trade Agreements (FTAs) are yet to be adequately negotiated in favour of the farm sector.

1.2 Constraints

There are a host of constraints confronting the sector.

Small size of operational land holdings; land use pattern

The small and marginal holdings in the country, taken together (0-2 ha), constituted 86.08% of the total holdings. They numbered about 146.45 million in 2015-16. Notably, the process of fragmentation is increasing. Such small holdings make it uneconomic and not feasible to invest in the necessary quality or conformance inputs and mechanisation at the farm level, affecting productivity and the scope to tap global demand with agricultural surpluses. The collectivisation of farmers and their holdings through farmer producer organisations (FPOs) has yet to take off to the desired extent.

High agricultural subsidies and excessive use of inputs

The volume of subsidies in Indian agriculture is large, with fertiliser subsidies at INR 80,000 crore per annum, power subsidies by the state governments at over INR 65,000 crore, subsidies on canal water at another INR 25,000 crore, and additionally, insurance premiums and interest subsidies on credit. As a result, today, urea prices at almost USD 80 per MT are perhaps the lowest in the world and have led to increased soil acidity, as soils are deficient in nutrients like zinc.

Irrigation constraints and limited diversification to less water-intensive crops

The development of irrigation, dams, and canal networks has not been adequate and has suffered from resource constraints despite sincere efforts by the government to mitigate these options of building village-level storage facilities and investments in micro-irrigation, which could give faster results, is yet to be exploited adequately. Also, the scope for diversification to less water-intensive crops such as maize, oilseeds, and pulses from crops like paddy is yet to be exploited to a potential scale.

Disease risks and limited crop rotation

Productivity has also been relatively poor due to the high incidence of disease risk. The scope to reduce this is through crop diversification and crop rotation and avoiding mono-cropping where feasible.

Poor soil health; need for Integrated Nutrients Management (INM)

There is a dire need to restore soil vitality. Due to the inappropriate usage of fertilisers, there is deteriorating soil health. In this regard, the government launched the National Soil Health Programme in 2015. The optimal use of nutrients is essential for enhancing soil productivity. The outreach of government farm extension services is limited, and there is a need to twin the service of private input suppliers and service providers into farm extension services.

Plant health management and invasive and exotic pests

The persistent problems associated with serious insect pests, diseases, and weeds remain a real challenge in realising potential productivity. Indiscriminate and injudicious use of plant protection chemicals also develop resistance in pests and pathogens. Effective quarantine measures, as well as policy, are the need of the hour.

Invasive pests: Avoiding the potential “CORONA” in the farm sector

Invasive and migratory pests result in massive damage to biodiversity around the globe by displacing native species and changing ecosystems. Globally, up to 30% of agricultural produce is affected by pests and diseases, despite the use of chemical pesticides. Without natural enemies or control in the new areas, they take over the ecosystem and compete with native species. Proper pest management techniques are required to mitigate such risks of pests. Some of the methods in use are chemical pesticides, biological control, and sterile insects. Moreover, it is also necessary to evolve a defensive umbrella in terms of surveillance, global intelligence, and quarantine facilities.

Invasive pest species have invaded and affected virtually every ecosystem of the Earth. There are some related inspection and quarantine initiatives at the entry points into the country. However, it is relatively lax. The Destructive Insects and Pests Act, 1914, governs the import of agricultural products. MAFW has also prepared the lists of plants whose import is allowed, restricted, or banned. There is also a list of weeds that should not enter the country with any import. However, apparently, these regulations are not stringently enforced. India has faced at least 10 major invasive pest and weed attacks in the past 15 years, the most recent being the Fall Armyworm (FAW) invasion that destroyed almost the entire maize crop in 2018. When pests, weeds, viruses, and bacteria invade, they can wipe out food crops, alter the ecology, deplete water levels, and cause diseases. In a related and laudable move, the government of India is considering the ban of 27 highly toxic pesticides, already banned in one or more countries abroad. Nevertheless, some such pesticides may also have to be used in the case of emergency situations of invasion by migrating pests. In order to fight and effectively manage invasive and migratory pests, a variety of recommendations have been prescribed by industry and institutional stakeholders in the recent past.

Notably, a Stewardship Council may be constituted to engage with all the value chain stakeholders to develop a long-term and sustainable plan for preparing for such attacks. The government of India needs to also play an anchor role in this regard to ensure that every stakeholder is compelled to act responsibly. Such a Stewardship Council needs to include a range of institutions, including the Directorate of Plant Protection and Quarantine Storage (DPPQS), the Department of Commerce, lead pesticide manufacturing and crop advisory firms, FPO and farmer representatives, state government institutions, and MAFW. Furthermore, quarantine and import restrictions need to be strictly enforced.

It is also necessary to regulate alien species’ movement across both ecological and national or political boundaries. Presently, there is no institutional mechanism to probe these invasions. Further, biopesticides should be considered a means of dealing with invasive pests. There should be a regulation that enables biologicals to be introduced in India. Increasing the ease of introducing these species would help the agriculture community survive events of invasive pests. There should be scope for policy-level intervention, which enables international cooperation for the surveillance of migratory pests. Currently, India does not have a pest risk analysis system. The number of stations for surveillance must be increased. There is a need to evolve a progressive response system in the country. For this, India may need to import technology and institutionalise the response by the government to such pest invasions. There is scope to derive learnings from Project SAFFAL, which is one initiative to tackle the specific pest, Fall Armyworm (FAW). The project calls upon stakeholders, including farmers, the scientific community, SAUs and the government at the centre and states, to work together to tackle the highly destructive pest.

There is also a need to draft a national policy for effectively managing migratory and invasive pests.

Limited farm mechanisation

The relentless development efforts on farm management by extension services have increased the use of machines in agricultural operations. Currently, only the tractor segment has access to long-term institutional credit; it has to be gradually extended to other categories of farm machinery.

Agricultural credit and farm insurance

The availability and accessibility to adequate low-cost credit is crucial for profitable farming. As per the 'Situation Assessment Survey of Agricultural Households 2013', institutional loans are skewed against farmers with small land holdings who were estimated to enjoy only 15% of outstanding loans from institutional sources. The concerns about the limited coverage under the existing insurance schemes led the government to restructure the agricultural insurance schemes. However, off-take is yet to be extensive.

Agriculture markets yet to evolve

The regulatory reform and initiative to open the APMC mandi systems to competition from alternate channels and exchange platforms has been rather slow. For example, the e-NAM option still suffers from quality assaying challenges and transport logistics-related constraints.

Post-harvest infrastructure gaps

At present, there is a mismatch between the production capacity of agricultural and horticultural crops in the country with respect to the available infrastructure for its post-production distribution, storage, and value addition. An enabling policy environment for private sector investment in such value chain activity is required. Arguably, in the recent past, the Government has launched a series of investment and interest subvention schemes, and progress is seen in redressing the anomaly.

Low agricultural productivity complemented with limited extension services

India's rice yields are barely one-third of China's and about half of those in Vietnam and Indonesia, and the same holds true for most of the other food crops. So also, with respect to horticulture, productivity is barely half of that among world leaders. Extension services by the government machinery, as well as on PPP mode, is still limited. Resource outlays under related schemes will also facilitate extension services, such as through the Public-Private Partnership for Integrated Agriculture Development (PPPIAD), are marginal.

Weak farmer producer organisations

Farmer producer organisations (FPOs) have yet to be adequately promoted and strengthened in India. While perhaps over 10,000 FPOs are formed in the country, the activity levels of these are relatively low, and a small proportion has evolved to be sustainable and viable business entities. As a matter of fact, FPOs could help serve as platforms to redress many of the constraints delineated above.

1.3 Opportunities

In light of the range and magnitude of constraints, there are various opportunities for related stakeholders and the government. The government of India has also, in fact, been undertaking several laudable initiatives in this context.

State level reforms

NITI Aayog had launched an 'Agricultural Marketing and Farmer Friendly Reforms Index' to encourage and rank states and UTs based on the implementation of provisions proposed under the model APMC Act, joining the e-NAM initiative, for special treatment to fruits and vegetables' marketing and level of taxes in mandis. These indicators reveal the ease of doing agribusiness. The second area of reforms included in the index is the relaxation in the restrictions related to the lease of agricultural land and a change in the law to recognise tenants and safeguard landowners. The state of Maharashtra achieved the first rank in the implementation of various reforms. Gujarat ranks second, closely followed by Rajasthan and Madhya Pradesh. Other state governments need to adopt the related best practices.

Soil health and fertility

The government has launched an ambitious Soil Health Card (SHC) scheme. The SHC provides information on the nutrient status of their soil, along with recommendations on the appropriate dosage of nutrients to be applied for improving soil health and its fertility through soil testing labs. It involves using digital technology to help farmers track their soil samples and testing results. This requires further development.

Mechanisation at the farm level

The government had started the sub-mission on agricultural mechanisation in 2014-15. This includes the traditional component of training, testing, demonstration of agricultural machinery, and farm machinery banks for custom hiring. An option is to establish agri-CHC centres on a larger scale through public and/or private sector intervention providing crop advisory services and farm mechanisation services. Many input players, such as Bayer and UPL, are establishing such centres for farmers. Notably, FPOs may also establish such centres.

Land, watershed, and irrigation development

The 'National Policy for Management of Crop Residue, 2014 (NPMCR-2014)' was formulated by the Ministry of Agriculture & Farmer's Welfare and circulated to all states for implementation to ensure the prevention of crop residue burning by incentivising the purchase of modern machinery to minimise crop residue left over in the field. Also, the Department of Land Resources, Ministry of Rural Development, has been implementing an area development programme, i.e., the Integrated Watershed Management Programme (IWMP), for the development of rain-fed/degraded areas. The IWMP was merged with the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) as PMKSY-Watershed in 2015-16. To provide a major impetus to precision irrigation in the country, the government has initiated the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), targeting micro-irrigation and precision agriculture.

Farm insurance

The ambitious Pradhan Mantri Fasal Bima Yojana (PMFBY) was launched in 2016 to provide comprehensive crop insurance coverage from pre-sowing to post-harvest losses against non-preventable natural risks. The rate of premium for farmers under the PMFBY has been reduced for all food and oilseed crops and kept at a maximum of 1.5% for Rabi, 2% for Kharif, and 5% for annual horticultural and commercial crops. The central and state governments share the balance of actuarial premiums on a 50:50 basis. In this regard, the challenge is also to develop a web-based spatial decision support system, which takes data from high-resolution satellite-based agro-meteorological parameters, to develop estimates of yield at the farm level.

Market intelligence

With respect to market intelligence, there is a need to move from getting price information (which is often ex-post information) to intelligence (forecasted supply and demand, and prices).

Assaying of produce to facilitate e-marketing and a national single market

Mandis and markets may handle huge volumes of arrivals and smaller lots. Therefore, providing a quick assaying solution to promote online trading is necessary. The opportunity is to develop an acceptable grading and assaying solution for all such markets which can be connected to the Internet.

Promotion of FPOs

In order to increase the bargaining power of farmers and also promote the aggregated provision of a range of input, market, technology, credit, and other services, FPOs need to be evolved more aggressively and with apt capacity-building. Even with the new scheme for the formation and promotion of 10,000 FPOs, less than 10% of the 14 crore farmer community may be benefitted. Outlays on this front need to be enhanced. Also, there is a need for study and capacity-building on global best practices concerning policy and interventions.

1.4 Government's initiatives

In addition to a network of extension service-providing institutions and programmes offering a range of public services (infrastructure, research, and development, etc.) to farmers and value chain operations, large subsidies are provided for farm inputs, such as fertilisers, electricity, and irrigation by the government. The Minimum Support Price (MSP) offered by the government continues to support several commodities.

Recent government interventions to benefit farmers are many: The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) provides a payment of INR 6,000 per year in three 4-monthly instalments of INR 2,000 to farmers' families, subject to some exclusions regarding higher income groups. Further, to provide a social security net for small and marginal farmers, as they have minimal or no savings to provide for old age, and to support them in the event of the consequent loss of livelihood, the government has decided to implement another new central sector scheme, i.e., the Pradhan Mantri Kisan Maandhan Yojana (PM-KMY), for providing old age pensions to these farmers. Under this scheme, a minimum fixed pension of INR 3,000 will be provided to the eligible small and marginal farmers, subject to certain exclusion clauses, upon attaining the age of 60 years. To provide better crop coverage for risk mitigation, a crop insurance scheme, namely the Pradhan Mantri Fasal Bima Yojana (PMFBY), was launched. This scheme provides insurance cover for all stages of the crop cycle, including post-harvest risks in specified instances, with low premium contributions by farmers. Further, a flagship distribution scheme of soil health cards to farmers has been initiated. A 'Per drop more crop' initiative has also been intended under which drip/sprinkler irrigation is encouraged for optimal water utilisation, reducing the cost of inputs, and increasing productivity. A 'Paramparagat Krishi Vikas Yojana (PKVY)' has been introduced to promote organic farming.

Giving a major boost to the pro-farmer initiatives, the government has initiated an umbrella scheme-Pradhan Mantri Annadata Aay SanraksHan Abhiyan (PM-AASHA). The scheme is aimed at ensuring remunerative prices to farmers for their produce. In addition, to ensure adequate credit flow, the government sets annual targets for the flow of credit to the agriculture sector. The agriculture credit flow target was set at INR 15 lakh crore for FY 2020-21. Notably, the government provides interest subvention of 2% on short-term crop loans up to INR 3 lakh.

Further, under the Interest Subvention Scheme 2018-19, to provide relief to the farmers on the occurrence of natural calamities, the interest subvention of 2% continues to be available to banks for the first year on the restructured amount. In order to discourage distress sales by farmers and to encourage them to store their produce in warehouses against negotiable receipts, the benefit of interest subvention is available to small and marginal farmers having a Kisan Credit Card for a further period of up to six months post-harvest on the same rate as available for the crop loan. The collateral-free loan limit for short-term agri-credit has been raised from INR 1 lakh to INR 1.6 lakh. KCC is to be issued within 14 days from the receipt of the completed application.

Some notable initiatives of the central government and emerging trends

The Ministry of Agriculture and Farmer's Welfare has been making several interventions to strengthen the agri-marketing ecosystem. Notably, it introduced a model Agriculture Produce and Livestock Marketing (APLM) Act in 2017 with the documentation and recommendation of various novel initiatives to states. Some other initiatives include:

- Single national agriculture market: e-NAM, market yards to create a unified market
- Commodity futures markets to buttress the price risk for farmers
- Targeting post-harvest losses through several schemes to help establish post-harvest infrastructure
- Land Lease Act to help legalise leasing and help tenants access insurance and credit against the pledging of expected yield
- Institutions and initiatives to develop improved and hybrid seeds
- Fertiliser subsidy at about INR 80,000 crore, and PPP schemes facilitate subsidy on other inputs
- Soil health cards
- Information dissemination on weather and input application provided through several apps
- Animal husbandry promotional schemes

In this context, the Ministry of Agriculture and Farmers' Welfare and the Ministry of Food Processing Industries (MoFPI) have supported the agriculture and agribusiness sector through various policy instruments and schemes.

- MoFPI: The cold chain, backward and forward linkage, creation/expansion of food processing/preservation capacities schemes have been flagship schemes of the MoFPI, related to FPOs too. The National Horticulture Board (NHB) also offers several schemes related to open field and protected cultivation, cold stores, and pack houses, which FPOs may also leverage

- MAFW: In the agriculture context, specifically, many schemes have been launched:

a) The Pradhan Mantri Fasal Bima Yojana (PMFBY) scheme provides crop insurance

b) Under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) allocation, investment in irrigation and precision irrigation has been made

c) Under the Paramparagat Krishi Vikas Yojana (PKVY), the promotion of organic farming is encouraged

d) In 2021, the government of India initiated an FPO formation and promotion scheme for 10,000 more FPOs over the next decade at a budgetary outlay of over INR 6,300 crore

Some specific new reforms were intended to further the interests of the typical small and marginal farmers by ensuring that a larger chunk of consumer price goes to the producers directly. Notably, several specific market reforms had been recently rolled out. These include:

e) Model APLMC (Promotion & Facilitation) Act, 2017

f) Establishment of 22,000 Gramin Agriculture Markets (GrAMs) as aggregation platforms

g) The Agri-Export Policy, which targets to double agri-exports by 2022

h) The Farmers Produce Trade and Commerce (Promotion & Facilitation) Ordinance, 2020

i) The Farmers (Empowerment & Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020

j) Amendments to the Essential Commodities Act, 1955, which deregulates various agri-commodities

k) Promotion of 10,000 FPOs by 2024

However, the ordinances related to a, d, e, and f above have been withdrawn by the government. Notably, the reforms are supported by several specific funds and schemes to complement the policies. They include:

- Micro-irrigation fund – INR 5,000 crore
- Agri-marketing fund to strengthen e-NAM and GrAMs – INR 2,000 crore
- Agricultural Infrastructure Fund (AIF) to build agri-logistics (backward & forward linkages) – INR 1 lakh crore

Chapter 2 - Introduction to FPOs and FPCs

Highlights

There is a need to aggregate the produce and producers in order to benefit from economies of scale as well as for the sharing of services. FPOs also enable producers to progress into value adding and operation-optimising activities, such as input supply, credit, custom hiring, seed production, primary and secondary processing, and marketing. Access to credit, post-harvest and processing schemes of the government of India are also facilitated.

In this context, FPCs redress many of the concerns vis-à-vis FPOs evolved as cooperatives. A cluster diagnostic study complements FPC formation. It basically maps the existing agriculture and agribusiness scenario of the cluster to assess the underlying SWOT of major related crops and the intervention strategy.

A cluster diagnostic study and baseline survey comprises a pre-field study, field study and post-field study. The pre-field study will involve secondary data collection and research.

Typically, for cluster identification, one or more clusters (blocks) in a district may be identified on the basis of major commodities from the area.

Also, one block may be considered as one cluster, or typically, a cluster may have about 3,000-4,000 cultivators and involve between 10–15 villages within a block.

The field study may involve consultation with about 50 farmers per cluster. About 4 or 5 FGDs may be conducted in each cluster.

Basically, a baseline survey may also be conducted alongside the diagnostic study. The field study will involve the pilot testing of data collection tools, training of enumerators, followed by data collection.

The post-field study will involve data entry, analysis, diagnostic report and baseline study report compilation. A diagnostic study report typically comprises the following chapters: Introduction to the project, agriculture scenario, profile of producers, production management, post-harvest management and action plan.

Basically, the process of farmer mobilisation and farmer group formation involves: identification of clusters, conducting baseline survey, conducting farmer level meetings and FGDs about formation of farmer groups with the president and secretary. About 20 FIGs, each involving about 20 farmers, may select the 5-15 directors for the FPC through their president and secretary. The FIGs may be federated to evolve the FPC.

2.1 A farmer producer organisation Introduced

A farmer producer organisation (FPO) is an association, a society, a cooperative, a federation, or a company established to promote farmers' interests. The main goal of an FPO is to provide services that support producers or farmers in their production and post-harvest activities. In this perspective, there is a dire need for the aggregation of produce and producers in order to benefit from economies of scale in production, for the adoption of Good Agriculture Practices (GAPs), and optimising quality and cost in the procurement of farm inputs. Aggregation is

also required for viably sharing services and facilities, such as farm machinery, input shops, post-harvest storage, primary and secondary processing, transportation, and directly offering produce to the market in the required quality and volumes. Implicit joint liability and higher volumes of debt requirement also facilitate access to credit.

FPOs enable producers to progress into such value-adding and optimising activities. In addition, they lower transaction costs for upstream retailing and processing stakeholders. Farmer producer organisations or collectives are the vehicle and platform to enable small and marginal farmers to participate successfully in regional, national, and global value chains. Producers' organisations also help evolve social capital and a decentralised governance framework among the rural populace. They are in sync with the government of India's priority to double the real incomes of farmers.

Reputed producer organisations

Many producer organisations (POs) have gained recognition at the national level. For instance, Mahagrapes, a union of 16 Grape Growers' Co-operative Societies in Maharashtra, played a significant role in establishing market connections worldwide. Sahyadri Farms in Nashik has emerged as a farmer producer company that is a leading exporter of grapes, even while dealing in a basket of other commodities. Such POs have drawn from the successful milk cooperative model of the Gujarat Cooperative Milk Marketing Federation Limited (GCMMF) or Amul. Cooperatives like Amul were structured on the basis of democratic principles, and farmers received a fair share in the value created by safe pasteurised milk. Milk farmers were directly linked to the market and received up to 80% of the product value. Unfortunately, in many other states, designing similar farmer-owned institutions with committed and sustained support over a network's incubation phase was missing.

Many state governments in India have been aggressively promoting FPOs.

Select exclusive state government initiatives to promote FPOs

State (Funding of the initiative)	Scale of interventions (Timelines)
Assam (Assam Agribusiness and Rural Transformation Project (APART) supported by the World Bank)	About 100 FPOs formed and promoted with a total outlay of INR 18 lakh/FPO offered to RIs and INR 77 lakh/FPO offered as supporting assistance towards the establishment of common processing facilities and custom hiring facilities etc. (2021-24)
Maharashtra (Maharashtra Agricultural Competitiveness Project (MACP) supported by the World Bank)	About 400 FPOs formed and promoted with a total outlay of INR 20 lakh/FPO offered to RIs and INR 20 lakh/FPO offered as supporting assistance towards the establishment of common facilities, custom hiring facilities, etc. (2012-15)
Maharashtra (State of Maharashtra's Agribusiness and Rural Transformation (SMART) Project supported by the World Bank)	Under this scheme, existing FPCs with a viable business plan are also supported with a subsidy of up to 60% of the project cost. (2020-27)
Maharashtra (Maharashtra Agribusiness Network Project (MAGNET) supported by the ADB)	The scheme focuses on strengthening the horticulture value chains. Under this scheme, existing FPCs with a viable business plan are also supported with a subsidy of up to 60% of the project cost. (2020-25)

Himachal Pradesh (Himachal Pradesh Horticulture Development Project supported by the World Bank)	Around 30 FPOs with budgetary support of about INR 30 lakh/ common service centre under each FPC and support for other common facilities have been offered. (2016-2023)
Himachal Pradesh (Himachal Pradesh Subtropical-Horticultural Irrigation and Value Addition (HP SHIVA) supported by the ADB)	Around 75 societies were promoted under this project. Also, one Apex Marketing Association Community Horticulture Production and Marketing Association (CHPMA) will be formed on an outlay of INR 3 crore. (2022-28)
Tamil Nadu (Tamil Nadu Irrigated Agriculture Modernisation Project (TNIAMP) supported by the World Bank)	New FPC: About 79 new FPOs formed and promoted with a total outlay of INR 13.8 lakh/FPO offered to RIs/CBBOs, and INR 20 lakh/FPO offered as supporting assistance towards the establishment of common facilities, custom hiring facilities, etc. Existing FPC: About 28 existing FPOs supported in a total outlay of INR 12 lakh/FPO offered to RIs/CBBOs, and INR 30 lakh/FPO offered as supporting assistance towards the business expansion of FPCs (2017-23).
Rajasthan (Rajasthan Agricultural Competitiveness Project (RACP) supported by the World Bank)	About 30 FPOs formed and promoted with a total outlay of INR 8.19 crore lakh in total, offered to RIs and INR 22.5 lakh/FPO offered as supporting assistance towards the establishment of common processing facilities, custom hiring facilities, etc. (2012-20)
Andhra Pradesh (Rashtriya Krishi Vikas Yojana (RKVY) funded in a ratio of 60:40 by the Central Government and the Andhra Pradesh Government, respectively)	About 100 FPOs formed and promoted with a total outlay of INR 35 lakh offered to RIs/CBBOs and FPOs as their management cost for two years from incorporation and INR 80 lakh/FPO offered as supporting assistance towards the establishment of common facilities, custom hiring facilities, etc. (2018-21)
Kerala (Kerala SFAC)	About 50 FPOs formed and promoted with a total outlay of INR 18.4 lakh/FPO offered to RI/CBBOs and INR 60 lakh/FPO offered as supporting assistance towards equity support, CEO salary, rent, electricity communication charges, infrastructure for office, the establishment of collection centres, packhouse for packing, sorting, grading, cold storage, processing-related machinery, etc., the establishment of common facilities, custom hiring facilities, etc. (2021-24)

2.2 Producer companies: A favoured option today

At the beginning of this century, the government of India had appointed a high-powered committee headed by the noted economist Dr. Y. K. Alagh to evolve a legislation that enabled the incorporation of co-operatives as companies and conversion of existing co-operatives into companies, and at the same time ensure that the proposed legislation accommodates the unique elements of cooperative businesses within a regulatory framework similar to that of a private limited company. The new act came into force in 2013 and is referred to as the Producer Companies Act. In line with the government's thinking, FPCs have been more recently accorded the benefit of exemption from income tax payment for five years from incorporation.

The Producer Companies legislation enables the registration and operation of producer companies, wholly owned and self-regulated by members, managed by professionals in the members' interest, with democratic member control and member economic participation.

2.3 A comparative note on producer companies, co-operatives, and private companies

There are arguments in literature in favour of producer companies over co-operatives, in general, as the latter have suffered from various constraints worldwide and resulted in failure, albeit with many exceptions. In this scenario, producer companies came into existence for more commercially sustainable operations of FPOs with the amendment of Section 581 of the Companies Act, 1956, in 2003. A producer company operates under the regulatory framework that applies to companies and can be registered under the provisions of Part IX-A, Chapter One of the Companies Act, 1956. Its membership can be of 10 or more individual producers, two or more producer institutions, or a combination of both. It retains the one member-one vote principle irrespective of shares or patronage, except during the first year when it can be based on shares. An FPC model usually focuses on self-help groups, farmer interest groups (FIGs), or producer groups (PGs) as the basic unit for aggregation with no limit on the membership size and geographic area of operation.

The co-operative form of organisation has been viewed as a means of achieving a reduction in poverty in the light of structural constraints like small holdings. Today, however, co-operatives across the developing world have been more of a failure that had limited success and are alleged to have led to the exclusion of the really poor and the capture of such bodies by the elite. In India, the exceptions to the failure have been sugar and milk co-operatives in some states, especially in Maharashtra and Gujarat. As a matter of fact, in India, initiatives towards joint farming have been enthusiastically pursued since the 1950s. These initiatives include co-operatives and groups in states like Gujarat and Andhra Pradesh, where farming co-operatives have facilitated high-cost ground water-based tube well irrigation. The following tabulation presents a comparative perspective on the legal constitution of an FPO.

Table 1: Co-operative vis-à-vis an FPC

Feature	Co-operative	FPC
Registration	Co-op societies Act	Companies Act
Membership	Open to any individual or co-operative	Only to producer members, non-registered groups like PGs and FIGs and SHGs, etc.
Shares	Not tradable	Tradable within members only
Relation with other entities	Transactions alone	Can form joint ventures and alliances, can form subsidiaries
Professionals in BoDs	Two technical directors may be on the board	Can be co-opted
Member stakes	No linkage with the number of shares held	Articles of association can provide for linking shares and delivery rights
Voting rights	One person-one vote, but the Registrar of Companies (RoC) and the government have veto power.	Only one member-one vote, and non-producers cannot vote.
Profit sharing	Limited dividend on the capital	Based on patronage, and no limits on dividend
Role of government	Extensive	Minimal
Borrowing power	Restricted	Many options
Dispute settlement	Through co-op system	Through arbitration

Similarly, some notable distinctions exist between a private limited company and an FPC.

Table 2: Private Limited Company vis-à-vis a Farmer Producer Company

Company	Private limited company	FPC
Minimum no. of directors required	2	5
Membership eligibility	Anyone	Only primary producer, or producer institutions
Number of members	Minimum 2, maximum 50	Minimum 10 primary producer members or two producer institutional members
Voting rights	Based on the number of equity shares held	Only one vote, irrespective of the number of shares held
Share transferability	Can be transferred to any other person	Can be transferred only to a primary producer on price consideration
Share allocation	Open to investors and FIs	Not open to outsiders
Conversion clause	Conversion of private limited to public limited is possible, but conversion to an FPC is not possible.	No conversion is possible, but registered multi-state co-operatives/co-operatives can be converted to FPCs and vice versa.
Internal audit	Conditional subject to financial Limit	Compulsory

Only specific categories of individuals may participate in the ownership of FPCs. That is, the members necessarily have to be 'primary producers.'

Organisations and agencies such as NGOs, foundations, and resource institutions, and cluster-based business organisations (CBBOs) of the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED), Small Farmer's Agribusiness Consortium (SFAC), Department of Agriculture and agri-marketing boards of state governments and the National Bank for Agriculture and Rural Development (NABARD) are promoting farmer producer organisations (FPOs) in rural areas in the form of producer companies with the financial support of the government of India. The District Rural Development Office, Krishi Vigyan Kendras (KVKs), are also important service providers, as also are the departments of horticulture and the departments of animal husbandry and fisheries. The National Mission on Agricultural Extension and Technology (NMAET) has also been supporting FPOs by encouraging farmers' aggregation into interest groups to form FPOs, providing requisite support to FPOs.

2.4 Principles of an FPC

FPCs are essentially based on the values of self-help, democracy, equality, equity, and solidarity. The basic principles underpinning FPCs may be viewed as:

Table 3: Basic principles of an FPC

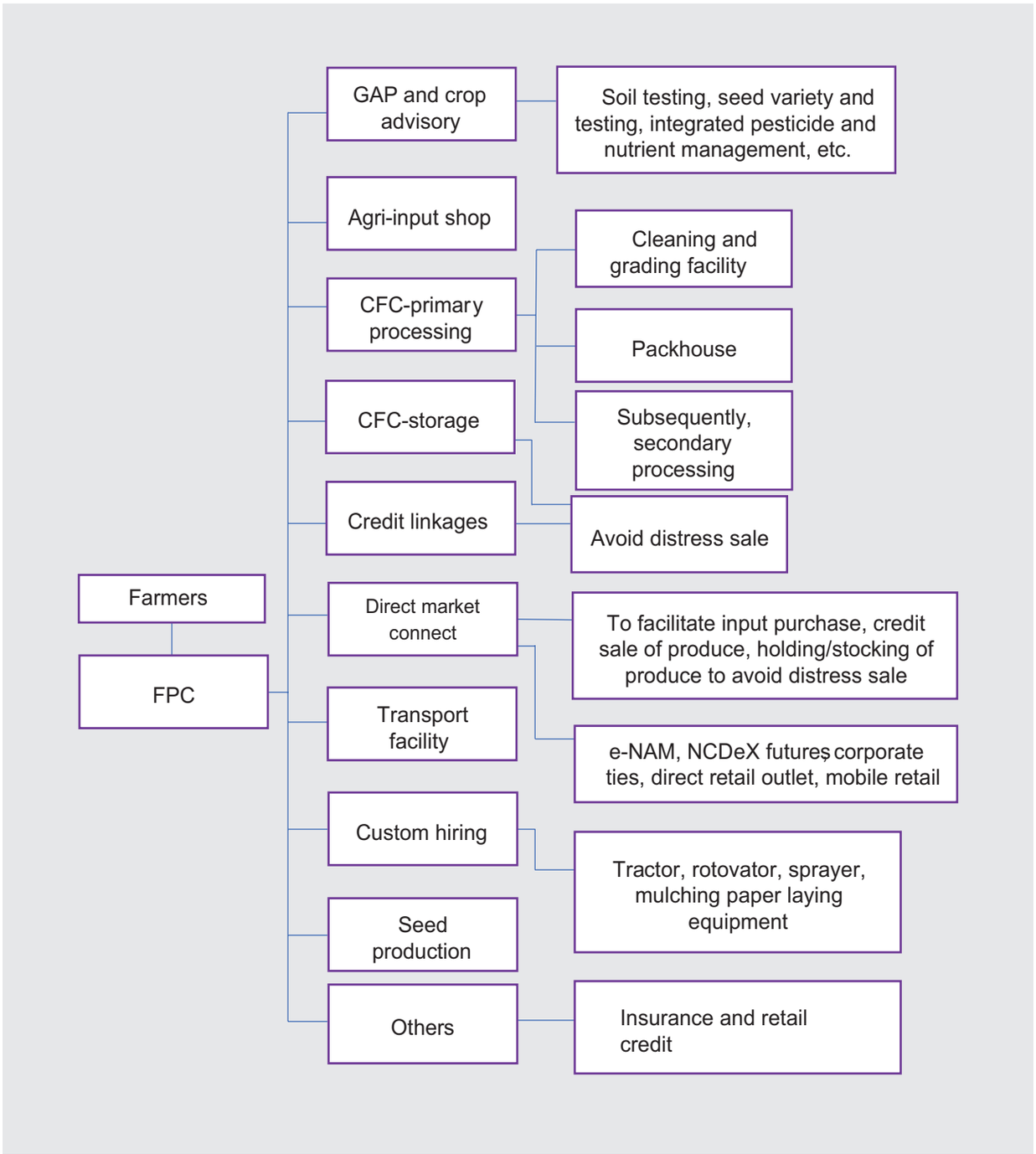
No.	Principles of FPC	Description
1	Voluntary and open membership	FPCs are voluntary organisations, open to all persons willing to accept the responsibilities of membership without any discrimination.
2	Democratic management by farmer members	FPCs are democratic organisations controlled by their farmer-members who actively participate in setting their plans and managing, with equal voting rights. Farmer members may contribute equally or otherwise.

2.5 Range of services

Farmer producer companies may offer a range of services to member farmers. These may range from input, credit, storage, and processing to marketing-related services. For example, common facility centres (CFCs) for processing have been conceived as small or micro-scale commercially viable entities owned and managed by the farmer producer

companies. Farmer CFCs usually act as a pivotal centre for storing, aggregating, and processing raw agri-produce while providing village-level primary processing infrastructure for post-harvest handling like cleaning and grading food grains and washing, sorting, and packing fruits and vegetables in more hygienic conditions. Common facility centres have been extensively established under many projects like the Maharashtra Agricultural Competitiveness Project (MACP), the Tamil Nadu Irrigated Agriculture and Modernisation Project (TNIAMP), the Rajasthan Agricultural Competitiveness Project (RACP), and the Assam Project for Agriculture and Rural Transformation (APART), supported by the World Bank. They are also supported in several state governments with support under the RKVY. The establishment of such CFCs is very important in many cases. Some of the services offered by a typical well-performing FPC may be viewed as follows:

Basket of initiatives of performing FPCs



The above activities may be briefly elaborated as under:

- Input shop services: FPCs may channel seed, fertilisers, and pesticide inputs to member farmers
- Crop advisory services: Networks may also twin roles of GAP-related service providers with members
- Credit services: FPCs may also access credit from NBFCs and financial institutions (FIs) to facilitate the plans of the network
- Custom hiring services: The FPCs may channel low-cost and quality inputs, including custom hiring equipment, to member farmers. It may supply tractors, harvesters, sprayers, pump set accessories, and pipelines, wherever feasible
- Aggregation and storage services: The FPCs may procure agricultural produce from its member farmers, undertake storage, and help avoid distress sales
- Marketing services: The FPCs may undertake storage and direct marketing (retailing, supply to processors or retailers) after procurement of agricultural produce from members. This will enable members to save on middleman costs, weighment losses, transportation costs, etc.
- Insurance services: The FPCs may channel various insurance like crop insurance, electric motor insurance, etc.
- Processing services: The FPCs may facilitate job work or trading model-based cleaning and grading of raw agricultural produce brought in by farmers. The company could levy comparatively lower service charges to members as compared to non-members. The job-work-based primary processing charges for cereals, fruits, and vegetables may typically vary from INR 80 to 110 per quintal based on the type of produce
- Networking services: Making various business development services (e.g., related to input sourcing, custom hiring of equipment and product specifications, GAP) accessible to producers, facilitating linkages with financial institutions, facilitating linkages with various government schemes and programmes
- Transport facilitation: Transport vehicle services are also provided, particularly in horticulture-focused FPCs. Many FPCs own and operate related vehicles

The following illustration reflects the fact that even an infant FPC may start undertaking various such initiatives.

Evolution of the Aatmanirbhar Katkamdag FPC, Hazaribagh: A case Illustration

Background and profile: Aatmanirbhar Katkamdag Farmers Services Producer Company (AKFSPCL) was incorporated under the Aatmanirbhar Hazaribagh programme on 24-03-2021. The FPC is operational in 19 villages of Katkamdag block with 445 members.

Input shop operations, twinned with credit: Subsequently, the FPC operationalised its input shop after securing input licenses through the District Agriculture Office within one month of incorporation. The FPC had subsequently secured distributorship from the leading international agrochemical manufacturer-Bayer Crop Science Ltd. Simultaneously, the FPC is also receiving other inputs through DeHaat, to facilitate the supply of the range of quality agri-inputs for member farmers. These partnerships with Bayer and DeHaat enable input supply to the FPC at discounted prices in the range of 10 to 20% compared to typical retail prices in the market. At the beginning of the Kharif season in 2022, the aggregated value of member contribution as equity was INR 6.74 lakh. As per the input demand requirements of the FPC, it was apparent that the institution had insufficient working capital to procure inputs and meet the demand of member farmers. As a technical agency, Grant Thornton Bharat brought NBFCs into the ecosystem to serve the credit needs of the newly incorporated FPC. In this regard, Samunnati Finance was introduced. Samunnati Finance evaluated the business plan and credit worthiness of the directors of the FPC and sanctioned a loan of INR 5 lakh to the FPC as short-term working capital. The FPC utilised the amount for procurement of inputs of INR 13 lakh. Thus far, this FPC has undertaken a cumulative input business of INR 21 lakh.

Market operations: The FPC is also registered on the e-Nam platform. To date, the FPC has traded commodities worth INR 7 lakh through the e-Nam platform. Paddy is the major agricultural commodity in Katkamdag Block. The FPC secured a minimum support price (MSP) procurement license from the government of Jharkhand for paddy procurement and undertook sourcing and marketing business to INR 40 lakh through paddy trade, and 58 member farmers were impacted through this intervention.

Crop advisory in higher income yielding horticulture: Tomato is a popular horticulture crop in the cluster, and farmers grow it on a large scale. The BDS partners identified a few gaps concerning the package of practices, resulting in inferior quality of produce and lower productivity. To overcome the problem and expose the farmers to good agriculture practices, four demonstration plots were established for the tomato crop with progressive member farmers. Farmers were linked with the agronomists of Bayer Crop Science Ltd, and regular advisory was offered through periodic field visits and digital channels for offering quick advisory to the farmers.

These advisories included:

1. More scientific stacking methodology
2. Appropriate plant spacing
3. Cropping intensity was reduced
4. Identification of disease at early stages and treatment with suitable agrochemicals

These interventions resulted in a lower mortality rate of plants and better quality of the tomato fruit in terms of size and maturity.

As a result, farmers also saved INR 1,100 per acre on seed and INR 5,000 per acre in terms of labour costs. Farmers witnessed a 12% yield enhancement (from 120 Q to 134 Q) in demo plots and a 31% (from INR 41,660 to INR 60,693) increase in net profit per acre.

Future initiatives: The FPC is today planning to establish a pack house by leveraging the agriculture infrastructure development fund of the government of India for aggregation, primary processing, packaging, and supply of vegetables to distant mandis such as Kolkata, Varanasi, and Patna, where it is expected to realise higher prices compared to local mandis in Hazaribagh. Directors have targeted to onboard 700 members by the end of the Kharif season in 2022. The FPC has received its audited statements for the first financial year of operation and will apply for the matching equity grant this quarter. This assistance by way of a grant will support the establishment of necessary infrastructure.

2.6 Diagnostic study to complement FPC formation

There is a need to conduct a diagnostic study to complement the formation of an FPC.

2.6.1 Diagnostic study: Objective and scope

The major objective of a diagnostic study is to assess the circumstance of the farmers and the status of agriculture in an area. The study is also to help in identifying the potential interventions required.

The scope of a diagnostic study is to map the existing agriculture and agribusiness circumstances and ecosystem of a cluster to assess the underlying strength, weaknesses, and opportunities of major crops and to suggest the way forward for enhancing the competitiveness of the concerned farmers to ensure their sustained growth in terms of crop productivity, reduced cost of production, farm mechanisation, technological upgradation, post-harvest quality upgradation, processing efficiency, increasing market connectivity, etc.

The study may target at least 5 major selected villages in a cluster of 10-15 or more villages spread across a block within a district of any state. The purpose is to understand the crop production profile, ecosystem stakeholders, regional value chain activities, and various production-distribution channels of the commodities produced. Basically, an FPC involves farmers from these clusters of villages.

2.6.2 Diagnostic study: Methodology

The cluster diagnostic study is usually conducted in three phases, that is, pre-field study, field study, and post-field study.

Pre-field study

- Preliminary consultation with the officials of line departments

Preliminary consultation may be undertaken with officials of line departments, both at the headquarter as well as at the district and block levels, in order to understand the existing circumstance of farmers and crop production patterns, as well as the role of public and private business development service (BDS) providers in the region. The clusters in a district, and specific villages in a cluster, may be shortlisted after brainstorming with the respective officials and extensive field visits.

- Secondary data analysis

Secondary data regarding a three-year district-wise crop production of a state may be collected from the concerned department. Similarly, data with respect to the blocks of respective districts may be collected from the offices of the concerned line departments. Village-wise crop production data of the concerned blocks may also be retrieved. The websites of a state government, MoA, NHB, etc., will be helpful in retrieving statistical data concerning the country's agriculture scenario and the specific state.

Secondary research will be helpful in gleaning insights into the ongoing interventions, stakeholders, and service providers in the region and further aid in mapping the regional ecosystem.

- Identification of a cluster

About 10-15 adjoining villages, or more, within a block in a district, may be identified as a cluster, considering certain parameters:

  - Major commodities from the area catering to both seasons may be captured in the cluster.
  - A cluster may encompass a diameter of 10-15 km in terms of geographical area.
  - A cluster may comprise about 3,000 to 4,000 cultivators.

- Tools for data collection

Tools for data collection comprise in-depth interview questionnaire schedules and a checklist for focused group discussions. The schedule may be developed to collect data from the individual farmers (as per the required sample size) through one-to-one in-depth interviews, especially for quantitative analysis, whereas the FGD checklist may be designed for extensive discussion with groups of farmers to collate qualitative information. (Also see annexures 1, 3, and 4 for sample schedules and formats.)

To optimise time in data entry and facilitate the daily monitoring of data collection at the field level, the in-depth interview questionnaire schedule may be designed in a Google form, which can be easily accessible from smartphones.

- Size of the sample

To conduct a diagnostic study of a cluster, the sample size for in-depth interviews may be taken as at least 30 farmers in a cluster, with the distribution of the number of respondents per village being based on the farmers' population in a village. Nevertheless, a minimum of 2-3 farmers from all the target villages may be interviewed, irrespective of their demographic concentration.

At least five FGDs must be conducted in a cluster, one in each of the five villages. The minimum number of farmers required for conducting an FGD maybe 10 – 15 in number.

Thus, in every cluster, perhaps at least 105 farmers need to be consulted to gather both qualitative and quantitative data.

- Sampling methodology

Clustered random sampling methodology may be followed to initially finalise the villages for the diagnostic study in a cluster. The villages may be selected based on the population size of the farmers.

In the selected villages, a simple random sampling may be followed for in-depth interviews, wherein every farmer in the village being studied may have an equal chance of being selected.

Further, the snowball sampling technique may be deployed to conduct FGDs, wherein participants meeting the study requirements recommend others with similar characteristics; for example, farmers growing similar crops.

- Planning field study

The field plans mainly focus on allocating several in-depth interviews and FGDs to be carried out by the members of the team per day to complete data collection within the stipulated time.

2.6.2.1 Field study

- Pilot testing of the data collection tools

A pilot FGD may be conducted in the villages of the block located in a district. Based on the feedback, the FGD checklist may be modified and finalised.

Similarly, the field staff may conduct a baseline survey of 3-5 farmers (perhaps through Google Forms) to access their technique and comfort level in handling online data entry on smartphones.

- Training of enumerators

Before initiating the data collection, the enumerators may be provided with training concerning the design and structure of the questionnaire and checklist. The field enumerators may also be briefed about the cluster diagnostic study's purpose, objective, and scope.

The enumerators may conduct demo-FGDs and online surveys under the supervision of the senior team members so that the farmers get hands-on experience in using the same and minimise the common errors in conducting such surveys and FGDs.

- Data collection

Data collection may be undertaken from farmers by different methods:

- Interview of individual farmers
- Focused group discussions (FGDs) with farmers

In order to understand the cluster and its pre-harvest and post-harvest agriculture scenario and constraints, in-depth interviews and meetings may be conducted with farmers from the region. Information may be collected regarding the socio-economic profile of farmers, crop production system, major crops, and their pre-harvest practices, post-harvest practices, support received from various BDS, current processing status, agri-based markets and warehouses/cold storages and supporting physical, technical, and logistic infrastructure.

2.6.2.2 Post-field study

- Data entry

Data collection through Google Form-based surveys proves to be time-effective, as it directly stores the feedback received in a spreadsheet format and can be directly analysed in detail. Yet, offline surveys may be conducted in some villages with poor internet connectivity, which may be later updated online.

The qualitative data collected through FGDs may be incorporated into the report directly.

- Data analysis

Data analysis consists of inspecting, cleansing, and modelling data to secure useful information and support decision-making. Data initially obtained may be processed or organised for analysis. For instance, it may involve placing data into rows and columns in a tabular format (i.e., structured data) for further analysis within a spreadsheet. Data cleaning may be done to remove incomplete, duplicate, and other errors. Descriptive statistics, such as the average or median, or mode, may be generated to help understand the data. Further, data visualisation may also be used to examine the data in graphical format.

- Diagnostic report

A cluster diagnostic report typically contains the chapters:

  - Introduction to the project or intervention
  - Agriculture scenario
  - Profile of producers
  - Production management
  - Post-harvest management
  - Action plan

The key findings of the diagnostic report need to be validated before all the related stakeholders. (Also see Annexures 2 and 5 for sample baseline and value chain reports.)

2.7 Formation of FPCs

The formation of an FPC commences with the mobilisation of farmers, followed by the registration of farmer interest groups. This is the typical bottom-up approach.

2.7.1 Process of farmer mobilisation and group formation

The farmers may be grouped into a common interest group/farmer interest group/producer group based on their interests and choices. The benefits of a farmers' group working around a commodity value chain are apparent. This is important for realising agglomeration economies. A farmer interest group (FIG) is a self-managed, independent group of farmers with shared interests. The process of farmer mobilisation and group formation may be as follows:

- Identification of clusters and conduct of a rapid baseline survey, if required
- Conducting a diagnostic study
- Identification of the leaders in each village
- Formation of these farmer groups
- Identification of a board of directors and promoters
- Collecting documents such as Land Patta, Pan Card, Aadhaar Card, Ration Card, etc.

2.7.2 Process of Identification of BoDs

The selection of a minimum of 10 Board of Directors (BoDs) and promoters, including at least one woman, may be initiated by conducting representative general body (RGB) meetings. In the RGB meeting, the president and vice president of every FIG/PG participate and select their directors so that most villages are represented. The main objective of this training is to orient the farmers to choose their BoDs wisely. Every producer company should have a board of directors numbering at least 5 and not more than 15.

2.7.3 Roles and responsibilities of BoDs

In general, the board has authority and is responsible for formulating, supervising, and monitoring the performance of the producer company in matters like the determination of dividends payable, admission of new members, appointment of the CEO and other officers, investment of the funds of the company in the ordinary course of its business, etc.

The director of an FPC can be removed from office before the term's expiry by either the company's shareholders or by the state/central government or the Tribunal. A director can also resign from office in the manner provided by articles (if provided) or by giving reasonable notice to the company.

2.7.4 Registration of FPCs

The following steps are required to be taken by the BoDs to register their respective companies as FPCs:

- Appointment of a chartered accountant (CA)/company secretary (CS)
- Application for the allotment of PAN (Permanent Account Number) Card
- Application for the Director Identification Number (DIN)
- Application for the Digital Signature Certificate (DSC)
- Application for the company's name
- Drafting of bye-laws (Memorandum of Association & Articles of Association)
- Declaration from promoters, affidavit, and consent letter
- Securing a certificate of incorporation from the Registrar of Companies
- Conduct the first board Meeting within 30 days of registration
- Open a bank account in the name of PC
- Evolve a business plan for the company
- Conduct the first general meeting within 90 days of incorporation

2.7.5 Formation of a new farmer producer company

A farmer producer organisation may be formed with the equity contribution by its members under special provisions of the Companies Act 1956. A minimum of 15 farmer interest groups (FIGs)/commodity interest groups (CIGs) need to be organised, and by federating such groups, an FPC will be formed. FPCs will therefore have at least 300 members. There is no upper limit to the number of farmers that can be enrolled in an FPC. However, a maximum of 1,000 farmer enrolments is advisable over a couple of years. The FPCs may have a share capital, which the member farmers usually contribute at the rate of INR 1,000 per member.

Bottom-up Vs top-down approach

The approach delineated above is a typical bottom-up approach toward forming an FPC. An alternative is a top-down approach where a few leaders may lead the mobilisation efforts across many villages. Typically, though not necessarily, the bottom-up approach is viewed as one that will lead to a more inclusive and democratically formed and managed network or FPC.

Chapter 3 - Soft skills to manage an FPC

Highlights

Soft skills deal with the personality and internal behavioural traits and characteristics of an intrapreneurial manager or director of an FPC.

The soft skill attributes include concern for work quality, commitment to work contract, efficiency orientation, systematic planning, problem-solving skills, self confidence, persistence, initiative to explore opportunities, information seeking, persuasion and the deployment of influence strategies.

The Need for Achievement (N-Ach) and preference to work independently are strong characteristic features of intrapreneurial managers.

3.1 Soft skills for enterprise management

A competent director of an FPC typically needs to possess or develop several intrapreneurial skills that could help him/her establish and operate a network successfully. Such entrepreneurial and management skills may be called hard management skills and soft (entrepreneurial or intrapreneurial) skills. A director must act as an 'intrapreneur' or an 'entrepreneurial-manager' within an FPC.

Hard skills have reference to techno-managerial skills. Soft skills have more to do with an intrapreneurial manager or director's personality and internal behavioural traits and characteristics. An 'intrapreneur', much like an entrepreneur, is an entrepreneurial manager. Such an intrapreneur is a planned risk-taker who effectively organises different factors of production. Such individuals are driven by tasks, challenges and opportunities, and possess a high level of achievement orientation.[2]

3.1.1 An inventory of soft skills

The following is a list of some key soft skill attributes and competencies that may be attributed to successful directors (or CEOs of FPCs). Other hopefuls need to imbibe them:

- Concern for work quality: Displays great concern for quality in every activity/task. Continuously benchmarks own initiatives/output with competitors
- Commitment to work contract: They continuously strive to satisfy customers and partners and focus on delivery
- Efficiency orientation: Strives to accomplish tasks more efficiently – optimises resources in terms of time and money, etc.
- Systematic planning: Strives to plan efficiently – breaks up larger tasks into small tasks and pursues appropriate steps to complete them; plans for possible unfavourable exigencies
- Problem solving: Explores innovative solutions to problems, and keeps alternative strategies in hand
- Self-confidence: Displays a high degree of self-confidence in abilities and in accomplishing a task
- Persistence: Steadfastly pursues targets

2 Padmanand et al, 2018

- Initiative: Does not wait to be asked or guided to pursue every activity for completing a task
- Seeing and acting on opportunities: Exploits emerging opportunities optimally
- Information seeking: Exploits personal/professional networks, consults support institutions and other sources to secure information
- Assertiveness: Attempts to assume leadership when working in a group
- Persuasion: Competent at motivating and convincing others of their own point of view (or to buy a service/ product!)
- Deployment of influence strategies: Deploys a mix of strategies to influence others-networking, employing/ influencing appropriate/influential persons to realise one's targets, etc.

3.1.2 Some of the more critical traits

In the context of these competencies, some of the more critical soft skill traits are:

- A Need for Achievement (N-Ach):

Successful intrapreneurs strongly desire to reach new heights and goals continuously and will not rest until they are realised.

- They prefer working independently:

Such intrapreneurs prefer to work on their own and 'be their own boss'.

- They can undergo intense stress in pursuit of their goals

Such 'intrapreneurial' directors and members of an FPC can work untiringly and with passion for long hours, continuously tackling many problems.

The importance and relevance of these competencies to establish and manage FPCs are evident.

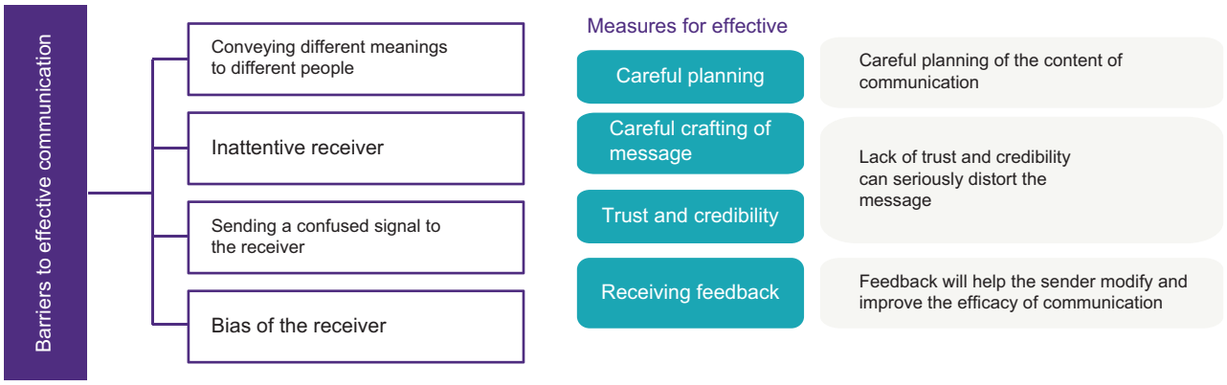
Consider the start-up or expansion of an FPC: Even after identifying a promising opportunity, one needs to gather information to evaluate the opportunity. Not only does one need to seek information efficiently, but one's communication and networking skills are also critical. An intrapreneur must display strong negotiating skills to secure appropriate finances from different sources or develop direct market linkages.

An array of soft skills is required to manage an FPC successfully. Planning and leadership skills are critical, as are problem-solving skills, etc. Many of these soft skills may be cultivated by practice. The following sub-sections consider these soft skill competencies more elaborately.

3.2 The gamut of skills

The gamut of skills may be elaborated as under:

3.2.1 Interpersonal communication



Some important aspects include communication, persuasion, and the use of influence strategies:

- Communication: This chapter seeks to provide an understanding of the nature, types, and importance of interpersonal communication. Barriers to communication and steps for effective communication are elaborated upon. For instance, messages may be distorted because there is a lack of clarity, and the contents are inappropriate for the target audience (perhaps clients of an enterprise). Hence, communication needs to be effective and appropriate

The success of a business will depend on intrapreneur initiatives within and outside the business premises. One can influence activities within a business, but not easily with outsiders like bankers, term-lending institutions, and suppliers.

Communication involves the transmission or exchange of information between at least two persons. Communication involves:

- A sender, viz., a person who packages and sends his message in words/symbols, etc.
- A message, viz., the information content
- Transmission, viz., sending the message to the intended recipient
- A channel or medium of transmission
- A receiver, viz., a person who will receive and interpret a message

Business communication is planned and has a definite purpose, such as providing information. Communication may be:

- Verbal communication: Via words/language
- Non-verbal communication is done through facial expressions, gestures, body language, etc.
- Multilateral communication is between more than two persons
- Horizontal communication is between persons at the same level in an organisation
- Vertical communication is between persons at different levels in the organisation, like superiors and subordinates
- Formal communication is official
- Informal communication is personal

Some major barriers to effective communication are:

- One could convey different meanings to different people
- Another problem arises when the receiver has a bias against the sender or the message's contents, and therefore, the receiver looks at the message differently
- The receiver may be inattentive or uninterested and, therefore, does not get the intended meaning

A director must be aware of these barriers or obstructions and steer clear of them. This will save a lot of hard feelings and wasted efforts. The guidelines for effective communication have been derived from empirical experience. The practice of the following rules may be helpful:

- Careful planning of the contents will make the message effective
- A carefully crafted message will be more effective if proper techniques are used. Varying the tone of the speech, changing the pitch, use of pauses, and supportive nonverbal gestures may enhance the effectiveness of communication
- A lack of trust or credibility can seriously distort the message. Therefore, the sender has to address this problem
- Feedback will help the sender to alter and modify the content or style to improve the efficacy of communication

3.2.2 Persuasion and use of influence strategy

There are many influencing strategies available to an intrapreneur to persuade people to act in a required manner.

- Business potential
- Knowledge

- Relationship-building
- Facilitating involvement
- Effective negotiation

Existing FPCs may use the lever of giving or withdrawing business to influence the behaviour. A potential director in an FPC needs to convince others of the business's potential. This requires three things: hard evidence of the potential, a credible action plan, and evidence for the competence of the BoDs. A well-drawn business plan may serve as an influence mechanism.

Knowledge/information of one's business and expertise in some aspects of the business serve as an effective influencing strategy. Associating with experts (perhaps from support institutions etc.) can also help. Building relationships through networking is another tool of influencing. A known person is more likely to evoke a more favourable response.

In negotiation, the methodology involves identifying the basis of mutual benefit and then appealing to it.

All these strategies use communication. Therefore, while using the entire gamut of skills, properly planned communication can be a powerful influencing tool.

3.2.3 Creativity and problem-solving

A critical competency of a director is creativity and problem-solving attitude and skills.

Many barriers develop due to certain preconceived ideas that impede the growth of creative thinking. The barriers are:

- A closed frame of mind (to innovative ideas, etc.)
- Avoiding challenges

An open mind and effort help to remove barriers hindering creativity within a person. The following steps are suggested for developing a problem-solving attitude and problem-solving mechanism:

- Recognise the problem and its seriousness, specify the problem
- Formulate possible causes
- Test and develop alternative solutions with relevant cost benefits
- Internalise the process so that similar problems will be easily resolved

3.2.4 Negotiation

Negotiation is a key activity in business. One negotiates within an enterprise with employees, and outside with suppliers, customers, support institutions, and financiers.

A successful director is a successful negotiator. It is, therefore, imperative for an aspiring intrapreneur to develop negotiating skills.

Negotiation is a process of arriving at a mutually satisfying agreement/understanding/position by different actors/parties having differing viewpoints initially; upon effective negotiation, they reach an agreed position that satisfies all. Negotiation has several features:

- It involves reconciling conflicting/differing expectations
- It involves effective communication

Successful negotiation results in a win-win situation for all parties. The main concerns of both parties are addressed. Also, efficient negotiation fosters a long-term relationship between parties.

The negotiation process involves:

- Preparation and presentation
- Bargaining
- Agreement and closure

Preparation entails deciding what one requires and what one is willing to offer. It will also include some assessment of the opposite party's needs, strengths, and weaknesses.

The other party's response should be studied while negotiating, and accordingly, appropriate modifications should be made in the presentation.

The bargaining process will help parties arrive at a mutually acceptable position. This can be concluded in a manner that will foster a long-term relationship.

The following modes may improve negotiation skills:

- Cultivate empathy
- Build trust
- Cultivate the orientation that negotiation is a win-win situation
- Deploy all tools for effective communication

3.2.5 Networking

Networking aims at building mutually beneficial relationships. These relationships can be constructed proactively, or they may be just cumulative. Successful people have an extensive network built up assiduously. Networking helps in terms of information and opportunities. An extensive network is built up consciously.

3.2.6 Delegation of authority

The effectiveness of an entrepreneur will depend upon the level of performance of his employees or others.

Delegation involves entrusting one's tasks to one's subordinates. Delegation is not the assigning of tasks. It is entrusting the task that is allotted to oneself.

The delegation consists only of entrusting the task of execution. The responsibility for the performance of the task remains with the person who has delegated it. Delegation contributes to improved performance in several ways:

- Delegation, when successful, liberates the directors from some tasks. This gives time to devote to more essential tasks

Effective delegation requires clarity. One should be quite clear about what is delegated and what is not delegated. In addition, the delegation must also be accompanied by a clarification of performance parameters and the expected performance levels. Furthermore, the delegation will not be successful if the subordinate is left to fend for himself. He should be assured of and provided support in case of difficulty. This support may include guidance, advice, help, and emotional needs.

Effective delegation in FPCs

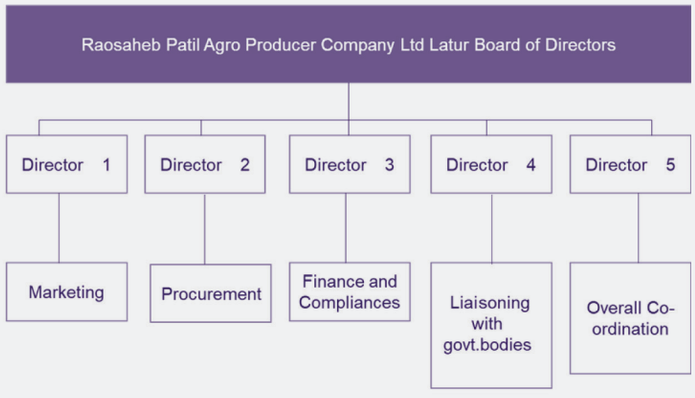
An FPC's lead director or chairman may carefully and appropriately delegate activities to other directors. For instance, the chairman of an FPC has delegated responsibilities among directors based on mutual consultation.

Delegation consists only of entrusting the task of execution. The responsibility for the performance remains with the delegator.

Effective delegation requires clarity.

Delegation must also be accompanied by a clarification of performance parameters and expected levels of performance.

- Delegation will not be successful if the subordinate is left independent.
- Initially the performance may be closely monitored.



3.2.7 Leadership

Effective leadership may help change the ordinary into an extraordinary performance. Leadership can be defined as the process of influencing and supporting others to work enthusiastically toward achieving targets.

- Successful entrepreneurs have been competent leaders to motivate and guide others to follow their dream/vision and/or an evolved common vision.
- Instruments that can enhance leadership skills include imitating role models, analysing experiences of self and learning from those situations to modify behaviour and enhance effectiveness.

Skills and roles that leaders display can be developed-communication, goal-setting, etc. Several leadership styles have been identified.

These broadly are:

- Autocratic style
- Consultative style
- Participative style

Autocratic styles consist of ordering/instructing. The consultative style entails asking for input from the followers, but the final decision rests with the leader. The participative style involves the followers in the decision-making process and, thus, empowers them too.

Leadership styles may also be people-centred or task-centred. People-centred leaders are oriented toward people and display care and concern for people. Task-centred leaders are oriented toward the performance and the target.

It needs to be emphasised that a leader will have a mix of all different styles, but one will be dominant.

The following will help in improving the effectiveness of leadership:

- Develop skills in communication and negotiation, and build the trust of members
- A single leadership style will not work in all situations. One's style may have to vary
- Goal-setting and goal-selling to followers have been found very useful

Negotiating, communicating, planning, goal-setting, and leadership are all related. A leader has to communicate effectively, negotiate with stakeholders, and formulate/implement a business-related plan.

3.2.8 Efficiency orientation

Efficiency orientation may be in terms of managing the various elements in an FPC enterprise's production cost efficiently. For example, one has to strive for continual productivity, which results from increased efficiency.

Efficiency orientation is a function of several factors:

- All round inculcation and conviction
- Top management practices
- Establishment of standards

Efficiency orientation has to be inculcated at all levels – managerial, supervisory, and worker. This awareness can be built up through training and communication. It is, therefore, necessary that quantitative, measurable standards be established for essential inputs/activities. A planning system incorporating the existing or improved standards, a monitoring system that will periodically measure performance with standards, and a compensation system that will reward the performers are means to enhance efficiency orientation.

3.2.9 Systematic planning

Systematic planning is critical in the context of efficiency orientation. The planning process covers a range of activities, deciding in advance what will be done and by whom, when, and at what cost. The planning process consists of:

- Fixing targets such as increasing sales/profits
- Fixing premises/assumptions regarding matters such as input prices

- Deciding quantitative targets of objectives
- Determining the resources required, such as men, materials, and finances
- Scheduling of activities

A planning system is incomplete until a reporting and monitoring system is in place.

Such soft skills may be critical to address several internal factors that affect the performance of FPOs. Nevertheless, it is important to note that external factors also often contribute to the poor formation and failure of some FPOs.

Failure in FPC promotion-dispute, delayed support

Many factors may affect the performance of FPOs. These may include external factors as well as internal factors.

BoD conflict (FPC in Salem, Tamil Nadu): In Tamil Nadu, an FPC was evolved in the Salem district with the support of the state government with 1,000 farmers across 10 villages and even mobilised capital of INR 10 lakh. Subsequent to availing a startup grant from the state government, conflict arose among the BoDs, who were unwilling to work together. The FPC turned inactive. Efforts to resolve the issue are in progress.

Lags in receiving assistance (FPC in Kodumuru, Andhra Pradesh): An FPC was formed in Kodumuru Mandal, in the Kurnool district of Andhra Pradesh. This FPC evolved a shareholder base of more than 300. Major commodities grown in Mandal are onions, beans, chilies, and bhindi. The FPC was established under the assistance of the RKVY scheme with the support of the Department of Horticulture, the government of Andhra Pradesh, and promoted by Grant Thornton. The FPC mobilised more than INR 3,00,000 as share capital, secured input licenses, commenced input business like supplying fertilisers to farmers, and realised a turnover of around INR 10 lakh in the first year. Delays in realising FPC management cost-related support from the state government lead to a drain of share capital towards the CEO's salary, FPC office rent, purchase of office infrastructure, etc. The FPC became dormant and is awaiting support to revive activities.

Limited capacities of some resource Institutions and service providers to effectively guide FPOs is seen to be another cause for underperformance and failure of some FPOs.

Chapter 4 - Typical initiatives by a proactive FPC

Highlights

This chapter considers the typical initiatives by a proactive and performing FPC. These include the dissemination of GAP, operation of an input facilitation service facility, a custom hiring facility, processing facility, credit linkages, seed production, undertaking seed production activity, and also facilitating capacity-building of BoDs and advocating for an apt FPO policy.

Good agriculture practices may be viewed in terms of soil testing, seed treatment, weather station services, remote sensing, INM and IPM practices, spraying, micro-irrigation, precision farming and farm mechanisation.

Input facilitation services vis-à-vis seeds, pesticides and fertilisers target a critical concern of poor quality and specious inputs. Custom hiring services reduce the critical gaps with regard to access to farm mechanisation inputs.

Connect to alternate markets directly, i.e., through e-NAM, NCDEX, corporates and processor/ retailer linkages is critical.

There is also a critical policy-advocacy role that a performing and vibrant FPC may assume.

4.1 Dissemination of Good Agricultural Practices (GAP)

Implementing Good Agricultural Practices (GAP) during on-farm production, as well as during the post-harvest activity, is of vital importance. GAP, as defined by the Food and Agriculture Organisation (FAO), are a "collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, even while taking into account economic, social and environmental sustainability."[3] The 'pillars' of GAP include economic viability, environmental sustainability, and food safety and quality.[4]

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030[5]. SDG 2.4 states that, "By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality". In this context, GAP would be different for different agro-climatic zones in the country. Typically, GAP may be viewed in terms of:

3 FAO, 2016

4 TNAU Agritech Portal

5 UNDP

01 Soil testing services	02 Seed variety selection and treatment	03 Weather station services
04 Application of integrated technology; real-time farm advisory; precision farming	05 Integrated Pest Management (IPM)	06 Spraying and fumigation services
07 Integrated Nutrient Management (INM)	08 Optimising water use, rainwater harvesting, farm ponds, micro-irrigation	09 Intercropping and crop diversification

4.1.1 Soil testing, seed treatment, seed variety selection

Soil testing is required for nutrient level information and to guide fertiliser application. Soil classification is based on ICAR (Indian Council for Agriculture Research) or the USDA (United States Department of Agriculture) soil taxonomy, based on colour, composition, and location (alluvial, black soil, etc.). A soil test report is necessary to improve nutritional balance and optimise the use of fertilisers (study of PH, soluble salts, and nutrient levels). Based on the crop, there is a recommended fertiliser programme (specific fertilisers, rate, and frequency of application). Deficiency may be in terms of zinc, iron, boron, gypsum, nitrogen, phosphorus, and potassium (NPK), and fertilisers are applied based on a soil test report. Notably, seed treatment is required before sowing to avoid the incidence of diseases.

Soil Health Card

Soil consists of primary nutrients, namely, nitrogen, phosphorus and potassium (NPK), and secondary nutrients, such as sulphur, calcium, and magnesium, as well as micro-nutrients like zinc, iron, and manganese. In this context, an imbalance in the application of fertilisers may affect soil fertility. The Soil Health Card Scheme has been helping farmers since 2015, and is issued once every three years. The cards contain information, such as nutrient status of the soil and recommended dose of nutrients to be provided to the soil to improve fertility.[6]

In India, the varieties of seeds primarily used include: farm-bred seed, commercially produced breeder, foundation and certified seeds, genetically modified and hybrid seeds. Access to quality seeds has been a concern for farmers, as well as inadequate research support for the ecosystem. While agricultural seeds are produced by the Indian Council of Agricultural Research (ICAR) and related research institutions, the private sector has been contributing extensively to maize, sunflower, and horticulture areas. Farmers largely use farm-bred seeds, and private and public enterprises produce barely 1/3rd of the seeds required. The High Yielding Varieties (HYVs) are expensive to be conveniently processed by small farmers.[7]

4.1.2 Weather station services; other instruments

A weather station measures meteorological phenomena using sensors. It measures atmosphere conditions. Light, temperature, relative humidity, rain, and wind are the commonly measured environmental variables. This helps

6 Also see, Department of Agriculture, Co-operation and Farmers Welfare, Soil Health Card Scheme website, 2017

7 Tanvi Deshpande, 2017

to guide the timing and dosage of the application of seed and crop protection inputs. Typical Instruments may be viewed in terms of:

01	02	03	04
Leaf wetness sensors: Measures leaf surface moisture to predict plant disease	Anemometer: Wind wane instrument indicates the direction of wind for application of spray	Rain gauge: Measures the amount of rainfall and required irrigation	Humidity sensor: Determines the moisture content in grain to monitor crops and drying applications

4.1.3 IPM practices

The range of pests affecting a farm include aphids, leaf miner, and pod borer (specific to crops), general feeders (that attack a range of crops), such as tobacco caterpillar (armyworm), and soil inhibiting species such as white grubs and termites, and field and storage pests. In this context, IPM may involve:

Growing sunflowers on field borders or as an intercrop	Transition from synthetic pesticides to biopesticides	Weed control	Avoiding migration of larvae (short trenches around infected fields)
Not storing produce with high moisture in the storage structure	Crop rotation	Optimal usage of pesticides and avoiding spurious pesticides	Seed treatment

4.1.4 Spraying and fumigation

Sprays control insects, fungi, and bacterial diseases of plants, insects, such as lice and flies, animals, and weeds by using chemical weed killers or herbicides. Sprays adhere to and spread over treated surfaces.

Type	Process
• Spraying-standard method of applying pest control chemicals and other compounds. The chemicals to be applied are dissolved or suspended in water or oil-based containers. • Fumigation-gases or vapours of volatile compounds are held in contact with the material to be treated.	• Technology ‘Cold’: Spraying insecticides, pesticides, fungicides, etc., onto crops using handheld portable units (backpacks with spray guns), to trailed sprayers connected to tractors, self-propelled sprayers, quad bikes, boom sprayers, and even drones. • Higher technologies enable uniform output, more precision, enhance potency and reduce costs.

4.1.5 INM practices

The INM helps conserve and restore soil nutrients and increase soil productivity. Fertiliser use efficiency is ensured, and nitrogen and other plant nutrients are released at the pace a crop requires. The INM checks deficiencies in nutrients other than NPK. This tabulation summarises:

Table 4: INM Practices

Elements required by plants for growth (17)	Important nutrients	Objectives of INM
• Carbon (C) • Hydrogen (H) • Oxygen (O) • Nitrogen (N) • Phosphorus (P) • Potassium (K) • Sulphur (S) • Calcium (Ca) • Magnesium (Mg) • Boron (B) • Zinc (Zn), etc.	• Nitrogen (N) • Phosphorus (P) • Potassium (K) • Calcium (Ca) • Manganese (Mn) • Sulphur (S)	Optimise soil condition w.r.t physical, chemical, biological, and hydrological properties for enhancing productivity and optimising costs; optimising uptake of nutrients.

Other INM-related components and the approach towards fertiliser use efficiency may be summarily considered as:

Other components	Manure of gobar, oil cake, fish manure, coir pith, wood ash, etc. (organic); biofertilisers – containing living cell organisms capable of fixing atmospheric nitrogen
Approaches to increase fertiliser use efficiency	• Method and time of application, dosage • Matching nutrient with crop requirement • Supply fertiliser to plant rather than soil

4.1.6 Optimising water use: Rainwater harvesting-Case Illustration of farm ponds

The lack of adequate water during the dry season is a critical problem in rainfall-led farming areas in the country. This problem can be minimised by rainwater harvesting and its judicious use. Direct rainfall collection through ponds/pits is an option for crop irrigation. Such ponds/pits will also help prevent soil erosion and nutrient loss through runoff. Harvested water can be used for cultivating high-value vegetable crops such as brinjal, chilli, tomato, coriander, cowpea, etc. In fact, about 1/3rd of India's geographical area is drought-prone and dependent upon the monsoons/rains, which can be erratic, and a convenient way of water management is through farm ponds/diggis and canal lining.

A small farmer with about 2-hectare or about 5-acre land can build a farm pond as per the following specification. Such a pond could support the farmer to store about 10 lakh litres of water to irrigate his crops.

Table 5: Indicative Investment outlay – Farm Pond

1	Bottom area	20 m x 20 m
2	Top area	35 m X 35 m
3	Depth	2.2 m
4	Cost of lining material (INR)	85,000
5	Excavation (INR)	20,000
6	Coir dust & spreading (INR)	3,000
7	Spreading plastic lining and sheet welding (INR) and with earth cover	27,000
8	Levelling and outlet point designing/fitting (INR)	30,000
9	Total cost (INR)	1,65,000

Under state government-supported schemes for the development of the farm ponds, the government of Tamil Nadu offers 100% of the related cost as a subsidy, and in states like Rajasthan, up to INR 90,000 is presently and typically offered as a subsidy for the development of farm ponds.

Farm pond: Case illustration

Consider the case of a farmer from the village Mokhampura in the Jaipur district of Rajasthan. The farmer used to earn a meagre income of INR 1,08,500 annually, including both incomes from the Rabi and Kharif seasons. The reason for such poor earnings was mainly the unavailability of water for irrigation. Therefore, the farmer, with the assistance of the Agriculture Department of the government of Rajasthan, built a farm pond at their farm with a capacity of 9.3 lakh litres, costing around INR 1.5 lakh (the farmer secured about 75%-INR 1,12,500 as assistance by way of a grant under a special scheme of the state government under the aegis of the World Bank-supported Rajasthan Agriculture Competitiveness Project). After establishing the facility at the farm, the farmer benefitted from an increase in the yield of the chana crop from 21 quintals to 28 quintals, i.e., an almost 33% increase in yield. While comparing the net profit earned during FY 2018-19 and 2017-18, and also deducting their total share of investment of INR 35,216, they were able to earn a net income of INR 1,83,984 (2,19,200-35,216 = 1,83,984) in 2018-19 as compared to INR 1,08,500 in 2017-18. Basically, they enjoyed a substantial increase in net incomes to the tune of 70% every year.

4.1.7 Optimising water use-Micro-irrigation as part of GAP

The agriculture sector is the largest consumer of water in India. Today, rampant and indiscriminate use of water through traditional practices has led to the depletion of water tables and water-logging, resulting in the salinisation of soil, thereby rendering fertile land arid. In this context, micro-irrigation helps reduce water consumption, but also reduces the growth of unwanted plants (weeds), soil erosion, and the cost of cultivation. Micro-irrigation systems contain networks of piping systems through which pressurised water is distributed through pumps. Micro-irrigation includes drip irrigation and sprinkler irrigation.

- Drip Vs sprinkler irrigation:

  The drip irrigation system[8] is a method of applying the required amount of water directly to the root zones of plants through drippers or emitters at frequent intervals. Sprinkler irrigation is a method of applying water in a manner similar to rain. It is suited for most row, field, and tree crops. As compared to drip, sprinkler irrigation is less precise and uses more water.

Need for transitioning from flood irrigation to micro-irrigation systems

The Indian farmer uses 2 to 3 times more water to produce a tonne of grain vis-à-vis economies like the USA, China, and Brazil. Efficiency in water use could also enable enhancing the scale of irrigation. Drip or sprinkler irrigation systems, i.e., micro-irrigation systems, could help conserve water and reduce the cost of irrigation.[9, 10]

In order to encourage private investment in micro-irrigation systems, the Union Government has launched a scheme referred to as the Pradhan Mantri Krishi Sinchayee Yojana.

4.1.8 Application of digital technology

The application of digital technology is vital. As a matter of fact, simple systems like centralised quick response (QR) codes can help prevent spurious inputs (pesticides and chemicals) and facilitate a tracking and tracing system. In this regard, strengthening the capacity of farmers regarding input use and quality standards (package and expiry dates, per cent germination and other quality parameters), is also critical.[11]

8 indd, 2019

9 Economic Survey 2015-16

10 Ministry of Agriculture, Co-operation, and Farmers Welfare

11 Dr Ravi Nandi, Dr S Nedumaran

4.1.9 Crop diversification backed by conformance

Today, there is a need to improve the diversity of Indian diets as reliance on cereals may lead to micro-nutrient deficiencies arising from the lack of diversity in the diet, which is reflected in the rising levels of obesity.[12] Unfortunately, today, unsustainable MSP-based procurement distorts cropping patterns towards lesser value-adding crops.[13] In a report published by the Ministry of Statistics and Programme Implementation (MoSPI) and the World Food Programme (WFP) titled Food and Nutrition Security Analysis, India, 2019, it is apparent that over the last two decades, total grain production in India has increased considerably. However, the rate of malnutrition in India has remained relatively high. In this context, there are multiple forms of malnutrition, including stunting, underweight, and overweight (obesity). The options through which nutritional security can be achieved, in accordance with the one postulated by the Food and Nutrition Security Analysis, India, 2019 report, are:

Agricultural diversification and support: Through policy and field-level action, such as extension services and crop insurance, farmers can be encouraged and incentivised to increase the production of micronutrient-rich crops, such as millets, horticulture crops, and soybean.

Upscaling safety net programmes: It is vital to increase resource allocation in the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) to enhance the livelihood incomes of farmers and farm workers.

Enhanced use of technology: Using technology in terms of satellite imaging, weather forecasting technology, soil health, and other vital information accessible to farmers in their local language helps in better crop management. The development of mobile apps providing such information also improves the synergies between Kisan call centres and the mKisan portal.

The need for digitisation in Indian agriculture is apparent. Technological interventions based on remote sensing, soil sensors, and unmanned aerial surveying have provided several data points, which, combined with robust artificial intelligence/machine learning algorithms, can generate actionable insights. However, the uptake of digital solutions remains poor, and the aggregation of marginal and small farmers into FPOs could facilitate greater absorption capabilities.

Food safety and conformance is based on two concepts: HACCP and GMP[14]

- HACCP – Hazard Analysis and Critical Control Point is a systemic, risk-based approach to preventing the biological, chemical, and physical contamination of food in production, packaging, and distribution. The HACCP concept has been evolved to counter health hazards by identifying potential food safety problems and contaminants rather than inspecting food post-facto
- GMP – Good Manufacturing Practices are quality assurance guidelines for food production. These guidelines outline the protocols that manufacturers must implement to ensure the products are consistently high-quality from batch to batch and safe for human use, also through inspection at critical control points

4.1.10 Biofertilisers and biopesticides for sustainable agriculture

Essentially, biofertilisers add nutrients to the soil through the natural processes of fixing atmospheric nitrogen, solubilising phosphorus, and stimulating plant growth.[15]

12 Devesh Roy, 2019

13 Sher Singh Sangwan, 2019

14 Sesotec, 2020

15 Afshaan Naaz Khaleed Shaikh

Today, vermicompost is also promoted extensively by many states.

Vermicompost manure by self-help groups in Chhattisgarh

The Godhan Nyay Yojana introduced in Chhattisgarh is a one-of-its-kind scheme in the entire country. The scheme has turned cow dung into a commodity, which is being sold and bought in the state. The Chhattisgarh government procures cow dung and provides vermicompost. From cow dung, self-help groups make vermicompost manure. In 2020, the Chhattisgarh government launched the 'Godhan Nyay Yojana' to procure cow dung at INR 2 per kg. Godhan Nyay Yojana is the state's flagship scheme to "facilitate the rapid strengthening of the rural economy" by giving a boost to the dairy business and organic farming. The Chhattisgarh government operates 7,889 cow shelters that buy cow dung and use it to manufacture vermicompost. In rural areas, the programme is run by a 13-member committee whose office bearers are appointed on the recommendation of the Gram Sabha. Of the 6.39 million tonnes of dung procured in the state till February 2022, some 3.37 million tonnes (52.7%) had been procured in just seven districts. Almost all of it had been used to make 1.6 million tonnes of compost.

Step 1

- SHG group collects cow dung from communities and INR 2 per kg is paid to beneficiaries by the government
- Cow dung delivered by the government to the godhan

Step 2

- To prepare compost, SHG groups use a concrete tank established by the government
- The process takes 80 to 90 days to complete
- Women SHGs receive INR 3 to 3.5 per kg for making vermicompost

Step 3

- Prepared vermicompost is procured by the government department, which sells it to farmers and others for INR 10 per kg. The farmer has to purchase two packets of vermicompost (30 kg per packet) against one acre if they are purchasing urea and DAP from their co-operative societies

Biomass for energy

Biomass is renewable, sustainable, and widely available in rural India. Biomass caters to the energy needs of around 70% of the country's population and contributes to 32% of the total primary energy in the country. The agricultural waste will be a potential feedstock for biorefineries. Biomass materials, such as bagasse, rice husk, straw, cotton stalk, coconut shells, soya husk, coffee waste, jute waste, groundnut shells and sawdust, etc., are used for power generation. India's availability of biomass is around 750 million metric tonnes per year. Of this, India has a surplus of 230 million metric tons (30%) of biomass, equivalent to 28 GW of power. Apart from this, 14 GW of additional power can be generated if the 550 sugar mills in the country adopt technical and economical methods of co-generating biomass from bagasse. The leading states in India for biomass power projects are Chhattisgarh, Madhya Pradesh, Gujarat, Rajasthan, and Tamil Nadu. Similarly, the leading states in biomass co-generation projects are Maharashtra, Karnataka, Uttar Pradesh, Tamil Nadu, and Andhra Pradesh. Currently, India has around 80 biomass power, and bagasse and non-bagasse co-generation projects in operation, producing energy of 1017 MW capacity.

4.1.11 Ensuring quality and efficacy of inputs

Productivity hinges on the application of quality inputs. Unfortunately, farmers often procure on credit. Typically, those retailers who provide (at times poor quality) inputs on credit to farmers subsequently charge even up to 2-3% interest rate per month till harvest. In some cases, farmers procure unbilled inputs of even vague brands at lower prices and based on credit. As most small and marginal farmers buy inputs on a credit basis, more often than not, they end up buying substandard or even adulterated products at a cheaper rate and convenient credit terms from local authorised or unauthorised input shops.[16]

There are several options for improving the overall quality of inputs and efficient usage:[17] For remunerative and sustainable agriculture, optimisation of input quality, costs and the right dosage is crucial. The emerging trend of provision of crop advisory and agri-extension services by the private sector input manufacturers and suppliers on the one side and developing FPOs as platforms to receive and channel them optimally is the need of the hour.

Real-time farm advisory

For example, Intelligent Advisory System for Farmers (IASF) is an advisory system for answering queries related to farming activities in the Northeastern states of India. The system can be extended by including other crops from any state of India. The project covers five major farming activities-insect management, disease management, weed management, rice variety selection and fertiliser management-requiring expert advice on diagnostic and remedial measures. The IASF aims to improve and strengthen agriculture extension services by integrating information technology with mobile services. The system is especially useful in states and rural areas where the ratio of extension workers to farmers is extensive.[18]

4.1.12 Intercropping

Intercropping of compatible plants encourages biodiversity by providing a habitat for a variety of insects and soil organisms that will not be present in a single-crop environment. This biodiversity can, in turn, help to limit outbreaks of crop pests by increasing the diversity or abundance of natural enemies.[19]

4.1.13 Precision farming

A precision agriculture or farming strategy identifies site-specific variances in the fields and consequently coordinates operations through input timing and dosage. The technology is disseminated in a regionally differentiated manner through 17 Precision Farming Development Centres (PFDCs) located in different parts of India.[20] Precision farming involves applying agricultural inputs based on soil, weather, and crop requirement to maximise sustainable productivity and quality.[21]

Precision farming includes:[22]

- Global Positioning System (GPS): It is a set of satellites in the Earth's orbit. It sends out radio signals that a ground receiver can process to determine the geographic position on Earth. GPS allows precise mapping of farms and informs the farmer about the status of his crop and which part of the farm requires which input, such as water, fertilisers, and pesticides

16 Dr Ravi Nandi, Dr S Nedumaran

17 Dr Ravi Nandi, Dr S Nedumaran

18 Intelligent Advisory System for Farmers (IASF)

19 Anup Das et al, 2019

20 Rajeswari Das, Shyamala Subrana, 2020

21 Rahul Tripathi et al, 2012

22 V. M. Abdul Hakkim et al,

- Proximate sensors: These sensors can be used to measure soil parameters such as N status, soil pH, and crop properties as the sensor-attached tractor passes over the field
- Precision irrigation systems: Recent developments in sprinkler irrigation include controlling the irrigation machine's motion with GPS-based controllers to achieve higher water use efficiency

Success stories on precision farming: Illustration

The demonstration of precision farming techniques on paddy crops on an area of 100 acres of the field of various farmers in a village in Raichur, Karnataka, had indicated the benefits of using fertilisers based on soil testing. They have been cultivating paddy using high amounts of fertilisers based on their own experience. However, when the demonstration was initiated, soil testing showed that the soils have high phosphorous and potassium content. Therefore, the demonstration plots required a much lesser quantity of P and K fertilisers than what was used earlier. Many have reduced the quantity of fertilisers applied by 25% to 50%.[23]

For small farms, precision agriculture may include sub-surface drip irrigation and timely fertiliser application to the crops, and mechanisation for weed removal, harvesting, and other farming operations.[24]

4.1.14 Farm mechanisation

Farm mechanisation in India stands at about 40-45%. This is limited when compared to countries such as the US (95%), and Brazil (75%).[25] Effective use of agriculture machinery helps reduce production costs, increase productivity, and undertake timely farm operations. The average farm size in India is less than 2 acres, far lower than regions like the European Union (14 hectares) and the US (170 hectares). Current mechanisation has therefore been largely limited to the sale of tractors.

Degree of farm mechanisation

The overall level of farm mechanisation in different activities is barely 45%, as compared to 90% in developed economies. Harvesting and threshing activity, as well as irrigation, enjoy a degree of mechanisation. However, seeding and planting activity suffers from a lower degree of mechanisation.

The government is helping to enhance farm mechanisation levels by providing subsidies to procure machinery to improve farm input and farm power availability. The government has also launched a mission (Sub-mission on Agricultural Mechanisation). The objectives of the mission include:

- Promoting 'Custom Hiring Centres', creating awareness through demonstration
- A multi-language mobile app platform 'FARMS- Farm Machinery Solutions' facilitates local farmers across the country with the custom hiring services (CHS) of farm machinery banks and custom hiring centres. This app aims to help individual farmers who are willing to provide their agricultural machinery and equipment on a rental basis to complement government initiatives

Many large private input and farm machinery suppliers provide related services. Mahindra 'Trringo' is an illustration. The UPL also supplies sprayers through its centres. Public-private partnership schemes of the government may also be leveraged in this context.

23 Also see, Dr. Veeresh. H, 2017

24 Monika et al, 2014

25 Rahul Kapur et al

Public-private partnership for crop advisory and extension services: Illustration

Groundnut has applications as food, fodder, feed, and biofertiliser. The multiple outputs and potential revenue streams from groundnut cultivation make it a most viable crop for small and marginal farmers. Importantly, Indian groundnut production during the Kharif season accounts for much of the total production, and it is typically grown under rainfall conditions. Under irrigated conditions and in many locations, it is cultivated in both the Kharif and Rabi seasons. Concerns vis-à-vis pest attacks, adverse weather conditions and non-access to necessary GAP-related services in many locations stymie benefits from the crop. As a matter of fact, farmers consider groundnut as a high-input, high-risk crop because of the large and quality seed variety requirement, scarcity of good quality inputs and access to like necessary GAP.

A leading crop protection firm successfully piloted the groundnut crop intervention in the Amreli district of Gujarat. The intervention focused on the crop advisory on integrated pest management, along with proper training, technology interventions and farm mechanisation. The intervention not only reported an improved pod and fodder yield by about two times, but also depicted considerable improvement in other parameters such as enhanced germination, and an increase in oil content.

Therefore, an integrated model under the umbrella of advisory and technology services to impact groundnut farmers on a larger scale was undertaken in 2021 under the Public-Private Partnership for Integrated Agriculture Development (PPPIAD) scheme with the support of the government of Gujarat. The range of services offered may be viewed in terms of soil testing, seed treatment, weather station services, rain gauge services, remote sensing, IPM services, and farm mechanisation, including efficient spraying services. The project aimed at increasing the productivity and quality of groundnut by applying Good Agricultural Practices, extension services and training, technological interventions and farm mechanisation in Rajkot, Jamnagar, and other districts of the Saurashtra region. Tech-enabled services offered included soil testing, weather forecasting and mechanical spraying services for better efficacy, traceability, productivity, etc. These services, with the right practices through farm visits and advisory messages on the mobile apps, were aimed at enhancing farm incomes. As an outcome of the intervention, the net income of farmers increased by over 48% per acre. The cost of cultivation decreased by 26% as a result of interventions. Furthermore, there has been a reduction in the incidence and damage by pests by over 85% with respect to all common pests. The interventions prove the effectiveness of IPM inputs, timely advisory services, and the right and timely application method and dosage of fertilisers and pesticides.[26]

The intervention not only addressed certain issues but also tried to instill GAP and show how farm visits and unique participatory approaches can bring about the intended behavioural change among the farmers. Apparently, the private sector needs to be effectively and directly twinned with farm sector upgrading initiatives. Considering the government's capacity and resource constraints, there is a pressing need to enhance the scale and scope of schemes such as the PPPIAD.

26 UPL

Long-term agreements and contracts with farmers will also justify the higher investments made by companies in technology and farms, particularly on GAP. FPOs could also serve as a platform for disseminating GAP and facilitating farm mechanisation and input procurement services.

As an illustration, the following packages of practices by a leading multinational crop protection firm[27] facilitated through demo plots for horticulture including Tomato in Hazaribagh, Jharkhand, yielded great outcomes.

Table 6: Package of Practice

Package of practice			
Timeline	Other products	Yara Products (Fertiliser)	Bayer Products (Pesticide)
0 Days	DAP 100 kg	Complex 25 kg	
0-12 Days		Nitrabor 25 kg	Antracol-660 g, Solomon-300 ml
12-25 Days	NPK 100 kg	Yara urea 100 kg	Melody-600 g, Luna-150 ml
25-35 Days	-		Nativo 100 g, fame 50 ml
35-45 Days	-	Zintric 600 ml	Infento-600 ml, Fenous Quick-225 ml
45-60 Days	19:19:19 Spray		Sencor-300 g, Antracal-660 ml, Bunos-325 ml
60-85 Days		Stopit 600 ml	Nativo-100 g
85-100 Days		Zintric 600 ml	Fenousquick-225 ml, Antracal-600 g, Infento-600 ml

The following tabulation compares the pre-intervention cost of production vis-à-vis post-intervention indicative outcomes.

Table 7: Comparison of pre-intervention and post-intervention cost of production and yield

Crops	Seeds (per acre)	Fertiliser (per acre)	Pesticide (per acre)	Labour	Production
Pre -intervention	Seed Rate – 50 g, 10 g Packet -@1,100 50g = @5,500	DAP 5 bag – 250 kg @ INR 6,500 Potash 50 kg @ INR 900 Urea 45 kg @ INR 300 FYM @ INR 5,000	Ampligo – 80 ml @ INR 700 Coragen – 40 ml @ 640 Nativo – 200 ml @ 1800 Amister – 250 ml @ 1500 Saaf – 1 kg @ 500	Seedling preparation, Sowing and Harvesting 250 Labour @ per day INR 200 @ 50,000 Land Preparation @ INR 5,000	120 Qtl * INR 1,000 = 1,20,000
Total	5,500	12,700	5,140	55,000	Total Production- 120,000 Total cost of cultivation – 78,340 Total Profit = 41,660

27 Bayer CropScience

Crops	Seeds (per acre)	Fertiliser (per acre)	Pesticide (per acre)	Labour	Production
Post -intervention	Seed Rate – 40 g, 10 g Packet -@1,100 40g = @4,400	DAP – 150 kg @ 3,900 Potash – 25kg @ 450 Urea – 45 kg @ 300 YARA Milla complex 25 kg – 2,000 YARA Mlla Nitrabore 25 kg-1300 YARA Mlla Liva 25 kg – 1000 FYM @ 5,000	Antracol – 1 kg @ 832 Solomon – 250 ml @ 825 Nativo – 200 ml @ 1800 Amister – 250 ml @ 1500	Seedling preparation, Sowing and Harvesting 225 Labour @ per day INR 200 @ 45,000 Land Preparation @ INR 5,000	140 Qtl * INR 1,000 = 1,40,000
Total	4,400	13,950	4,957	50,000	Total Production-140,000 Total cost of cultivation – 73,307 Total Profit = INR 66,693

As per the above table, it is evident that there is about 37.5 % growth in the net income after crop advisory. In other words, there is a profit of INR 41,660 before intervention and INR 66,693 after crop advisory intervention, which clearly shows nearly INR 25,033 more value accruals than before.

4.2 Input facilitation service

Input facilitation services offered by an FPC address the critical constraints of high middlemen costs, rising farm inputs prices, and their untimely delivery and questionable quality. The related intervention includes the FPC serving as a dealer or distributor of seeds, pesticides, and fertiliser manufacturers, and supplying such inputs to member firms. The provision of such services involves estimating aggregated requirements of inputs, securing necessary licenses, identifying related manufacturers, and input suppliers to twin with. Additionally, there may be a need to twin with credit suppliers and secure a loan to undertake this procurement activity effectively.

The outcome of this intervention may be viewed in terms of dealer discounts or margins of a simple average of even up to 20% of inputs sold. As a matter of fact, an FPC with a 'catchment area' in terms of member holdings of about 1,000 acres could easily have a turnover from this activity of between INR 100 lakh – 200 lakh depending on the commodity cropped. For example, the dosage requirement of pesticides and fertilisers may be far higher in the case of horticulture production than in the cultivation of food crops like paddy.

Input linkages for FPCs: Highlights

Constraints

- High price of inputs
- Spurious inputs or inputs of limited quality

Intervention methodology

- Business plan, including demand assessment, with respect to member farmers
- Appointment of B.Sc. Agriculture graduate and finalisation of the shop

- Applying for and securing licenses
- Finalising sources of procurement/input manufacturers
- Business plan with credit suppliers if required
- There is also scope to leverage on GAP inputs from input suppliers

Outcomes

- 10-25% reduction in the input-related cost of production/cultivation
- Increased yield of 10-20% by going in for more reliable brands

Typically, the retailer discounts or margins offered by large brands are even 5-8% for fertilisers and 20-25% for pesticides.

4.3 Custom hiring service

With regard to custom hiring services that an FPC may offer, the critical constraint addressed is decreasing labour availability, the high cost of farm mechanisation from the point of view of typically small and marginal farmers, and the unavailability of equipment when required during the peak times of sowing or harvesting. The related intervention includes providing custom hiring services like tractors and/or attached and related farm equipment like harvesters, rotovators, and sprayers. Today, drones are witnessing a wide range of applications in agriculture, namely: a) Monitoring plant health, b) Monitor field conditions and helping with precise application of fertilizers, c) Planting and seeding, especially in remote areas, d) For spraying pesticides in a targeted manner, e) Security drones for protecting valuable crops, f) Even in crop pollination to a certain extent. Drones can also be considered as part of custom hiring facilities. Providing such services by an FPC involves identifying manufacturers and distributors based on crop varieties. The outcome of the intervention may be visualised in terms of availing such equipment even at price and cost discounts of over 30% to 50%, and also cost reduction in cultivation by virtue of farm labour cost savings. Through custom hiring intervention, there is also timely sowing, weeding, application of inputs and harvesting of crops, ensuring that farmers earn reasonable prices. In many states, governments have supported establishing Custom Hiring Centres (CHCs) by FPCs through assistance through subsidy or grant-in-aid. World Bank-supported programmes in Maharashtra, Rajasthan, Assam, and Tamil Nadu have been supporting such initiatives. So also, as indicated, state governments, including Andhra Pradesh and West Bengal, have been leveraging assistance under the RKVY scheme to foster CHCs by FPCs. Private service providers also provide technology apps such as the Mahindra ‘Trringo’ option to help avail of such services in an ‘Uber cab’ model.

Custom Hiring Centres (CHCs) for FPCs: Highlights

Constraints

- Limited labour availability and high cost of farm mechanisation
- Unavailability of equipment when required

Intervention methodology

- Assessment of requirement by member farmers
- Twinning with manufacturers and procurement/facilitation of services
- Preparation of a business plan and twinning with government schemes of assistance

Outcomes

- Up to 50% reduction in custom hiring costs and timely availability of services

4.3.1 Business plan for a CHC: Paddy-focused FPC

Introduction

The Golaghat district in Assam occupies an area of 3502 km². Winter paddy is the major crop. During the Rabi season, pea, mustard, and vegetables are cropped on a commercial scale. A producer company was registered in Golaghat in 2017. The FPC grew to over 800 shareholders by 2021. The FPC has secured assistance through grant-in-aid from the state government of Assam.[28] The company has one of its envisaged revenues generating business activities from a Custom Hiring Centre (CHC). The related business plan includes equipment such as a paddy transporter, drum seeder, harvester combine, and thresher.

Project rationale and components

Some of the major activities for paddy cultivation, such as sowing the seeds, transplanting them in the fields, harvesting, and threshing, have been typically undertaken with a portable rice mill and thresher by means of hiring them from service providers in the region at high hiring charges. Moreover, the availability of related equipment when required was of concern. Therefore, to access modern farm machinery, the FPC evolved a business plan. The related equipment include:

Paddy transplanter (Walk behind)

The benefits of mechanical transplanting are enjoyed by deploying a paddy transplanter. It facilitates better transplanting, which ensures uniform maturity and a healthy crop. It also helps to maintain uniform spacing between the plants, so that there is smooth wind flow, provides equal sunlight for each plant, and ensures less chance for incidence of disease.

The farmers of the region have been traditionally practicing the process of paddy transplanting manually, which is highly labour-intensive and time-consuming, besides adding to the cost of production. A walk-behind rice transplanter reduces drudgery, time, and cost of rice transplanting and ensures uniform planting of paddy saplings. Notably, it can be used for sowing seeds like groundnut, maize, and pulses. It is not limited by the size of the field, and is fast and efficient (1–2 ha/day).

Mini combine harvester (Paddy)

A mini combine harvester is a flexible machine suitable for effectively harvesting crops in the field. A harvesting machine undertakes the combination of reaping, winnowing, and threshing.

Axial flow thresher

Typically, after paddy harvesting, farmers kept paddy for sun drying for two weeks or more, causing losses and quality deterioration of grains. However, with the axial-flow thresher, farmers can thresh paddy immediately after cutting, thus avoiding losses, saving residual soil moisture, and creating an opportunity for early sowing of Rabi crops by 8-10 days. The Thresher not only gives farmers higher yield and better-quality paddy, it also reduces the drudgery of manual threshing. This freshly threshed paddy is directly bagged for immediate sale, drying, and subsequent sale.

Drum seeder

The drum seeding technique involves direct seeding of pre-germinated paddy in drums made up of fibre material to dispense seeds evenly in lines spaced 20 cm apart in puddled and levelled fields. Farmers cultivating transplanted rice in irrigated rain-fed areas face water shortages due to deficit rainfall. Land preparation for the nursery and the main field require ample water and involve labour for the nursery raising of seedlings and subsequent transplanting. Water shortages at transplanting time lead to delay and use of over-aged seedlings with limited tilling capacity. Water and labour-saving through drum seeding of rice is an option for farmers.

28 Under the World Bank assisted Assam Project for Agriculture and Rural Transformation (APART). Team GT has been providing Technical support to FPCs under this initiative.

Pulveriser

A pulveriser or grinder is a mechanical device for grinding many different types of material, including maize kernels and spices. It can be used for the processing of maize powder and rice powder, and other spices. This will help farmers add value to their produce and fetch higher returns. The maize powder can be used as a primary produce for animal feed processing units in the region and also help the processing units to add value to traditional food items, which have better market acceptability and demand.

Seed drill

A seed drill is a device used in agriculture that sows seeds for crops by positioning them in the soil and burying them to a specific depth. This ensures that seeds will be distributed evenly. The seed drill sows the seeds at the proper seeding rate and depth, ensuring that the seeds are covered by soil. The advantages of a seed drill may be viewed in terms of the seeds being equally distributed, fewer seeds wasted, less time required compared to the manual option, and equal distance and proper depth ensured.

Reapers

Reaper-binder is a harvesting machine that reaps the crop and binds it simultaneously with a twine. This machine may be used for wheat, paddy, barley, and other grain crops. Reapers simply cut the crop and dropped it unbound, but modern machines include harvesters, combines, and binders, which also perform other harvesting operations.

Portable rice mill

In addition to custom hiring equipment, processing equipment is also envisaged. A rice mill is a food processing facility where paddy is processed into rice to be sold in the market. The entire product is procured from paddy fields, milled, and processed hygienically in modern machinery, in a dust-free environment, and cleaned through sorting machines. Pounding the paddy induces upward and downward forces on grain against the grain, removing the husk and some bran layers. The pounding also results in a high percentage of broken kernels. This steel friction type mill uses very high pressure to remove the hull and polish the grain.

Machinery and equipment

The required machinery and equipment may be viewed as follows:

Table 8: Machinery & Equipment for a CHC-Paddy

No.	CHC equipment to be procured by the FPO	No. of units	Unit Price (INR lakh)
1	Paddy transplanter	1	3.00
2	Reaper	1	2.00
3	Axial flow thresher	1	2.00
4	Portable rice mill	1	3.50
5	Drum seeder	1	0.06
6	Mini combine harvester	1	15.00
7	Pulveriser	1	1.00
8	Seed drill	1	0.50
	Total		27.06

Project economics: Total project cost and means of finance

The project cost and means of finance in this business plan may be viewed as follows:

Table 9: Project Cost and Means of Finance-Paddy CHC

No.	Particulars	No. required	Rate	Amount (INR lakh)	Farmer beneficiary share in per cent	Estimated beneficiary share (INR lakh)	Grant-in-aid from the state govt. @80% (INR lakh)
1	Paddy transplanter	1	3.00	3.00	20%	0.60	2.40
2	Reaper	1	2.00	2.00	20%	0.40	1.60
3	Axial flow thresher	1	2.00	2.00	20%	0.40	1.60
4	Portable rice mill	1	3.50	3.50	20%	0.70	2.80
5	Drum seeder	1	0.06	0.06	20%	0.01	0.05
6	Mini combine harvester (Paddy)	1	15.00	15.00	-	-	15.00
7	Pulveriser	1	1.00	1.00	20%	0.20	0.80
8	Seed drill	1	0.50	0.50	20%	0.10	0.40
9	Working capital margin		0.35	0.35	100%	0.35	0.00
Total				27.41		2.76	24.65

Grant-in-aid from the state government @80% and beneficiary share @20% are considered the means of finance. There is a provision for working capital margin, which is to be contributed by the FPC @100%.

Financial projections

The financial projections may be considered through income estimates, expenditure estimates, cash flows, profit and losses or the income expenditure statement, balance sheets, and viability indicators.

- Income estimates

The income estimates for the CHC may be viewed in terms of user charges levied on the use of various equipment on an hourly basis.

Table 10: Income Estimates-Paddy CHC

Revenue (INR lakh)	Rate/8 hour	Y1	Y2	Y3	Y4	Y5
Mini combine harvester	8,000.00	9.60	10.08	10.58	11.11	11.67
Paddy transplanter	3,200.00	7.68	8.06	8.47	8.89	9.34
Reapers	2,000.00	4.80	5.04	5.29	5.56	5.83
Axial flow threshers	16,000.00	14.40	15.12	15.88	16.67	17.50
Portable rice mill	5,000.00	15.00	15.75	16.54	17.36	18.23
Drum seeder	13,500.00	12.15	12.76	13.40	14.07	14.77
Pulveriser	4,800.00	14.40	15.12	15.88	16.67	17.50
Seed drill	5,120.00	4.61	4.84	5.08	5.33	5.60
Total		82.64	86.77	91.11	95.66	100.45
Capacity utilisation		60%	65%	70%	75%	80%
Total revenue		49.58	56.40	63.78	71.75	80.36

Basically, with a project cost of INR 27.41 lakh, the CHC could earn a gross annual income of even up to INR 80.36 lakh. The following table presents the basis of user charges and critical operating expenditure in terms of fuel expenditure.

Table 11: User Charges for Machinery-Paddy CHC

User charges for machinery	Rent charges per Bigha (INR)	Area covered/ day (Bigha)	Charge per day (8 hrs) (INR)	Per year (INR lakh)	Qty of diesel Lt (per day)	Diesel consumed/ hour (Lt)
Mini combine harvester (Paddy)/ Bigha	400.00	20	8,000.00	9.60	20	2.50
Paddy transplanter (Walk behind)/Bigha	400.00	8	3,200.00	7.68	20	2.50
Reapers/Bigha	500.00	4	2,000.00	4.80	12	1.50
Axial flow threshers/ hour	500.00	32	16,000.00	14.40	24	3.00
Portable rice mill/kg rice milling	2.00	2500	5,000.00	15.00	40	5.00
Drum seeder/Bigha	2,700.00	5	13,500.00	12.15	10	1.25
Pulveriser/kg	12.00	400	4,800.00	14.40	16	2.00
Seed drill/Bigha	320.00	16	5,120.00	4.61	18	2.25
Total				82.64		

In the above income-expenditure estimates, hiring or user charges are retained low so that shareholders can hire the machines and equipment at a nominal rate. The typical number of days of operation per year of each machine is as follows:

Table 12: Days of operation for machines-Paddy CHC

Machines	No. of operational days
Mini combine harvester (Paddy)	120
Paddy transplanter (Walk behind)	240
Reapers	240
Axial flow threshers	90
Portable rice mill	300
Drum seeder	90
Pulveriser	300
Seed drill	90

Expenditure estimates

The expenditure estimates per annum presented below consider critical fixed as well as variable operating expenses per annum for the CHC facility:

Table 13: Expenditure Estimate-Paddy CHC

Description	Number of unit/s	Unit cost	Annual cost	Y1 (INR lakh)	Y2 (INR lakh)	Y3 (INR lakh)	Y4 (INR lakh)	Y5 (INR lakh)
Fixed cost								
Mini combine harvester (Paddy) – R & M	1		0.25	0.25	0.26	0.28	0.29	0.30
Paddy transplanter (Walk behind) – R & M	1		0.25	0.25	0.26	0.28	0.29	0.30
Reapers – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Axial flow threshers – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Portable rice mill – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Drum seeder – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Pulveriser – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Seed drill – R & M	1		0.10	0.10	0.11	0.11	0.12	0.12
Manpower expenditure								
Machine operator	8	0.10	9.60	9.60	10.08	10.58	11.11	11.67
Unskilled labour	3	0.04	1.44	1.44	1.51	1.59	1.67	1.75
Insurance				0.12	0.12	0.12	0.12	0.12
Sub-total				12.26	12.87	13.51	14.18	14.88
Variable cost								
Diesel consumption (Lts/8 hour in Bigha)								
Mini combine harvester	20	90.00	0.02	2.16	2.27	2.38	2.50	2.63
Paddy transplanter	20	90.00	0.02	4.32	4.54	4.76	5.00	5.25
Reapers	12	90.00	0.01	2.59	2.72	2.86	3.00	3.15
Axial flow threshers	24	90.00	0.02	1.94	2.04	2.14	2.25	2.36
Portable rice mill	40	90.00	0.04	10.80	11.34	11.91	12.50	13.13
Drum seeder	10	90.00	0.01	0.81	0.85	0.89	0.94	0.98
Pulveriser	16	90.00	0.01	4.32	4.54	4.76	5.00	5.25
Seed drill	12	90.00	0.01	2.59	2.72	2.86	3.00	3.15
Lubricant cost	154	27.00	0.04	0.04	0.04	0.05	0.05	0.05
Sub-total				29.58	31.06	32.61	34.24	35.95
Total				41.84	43.93	46.12	48.42	50.83

*Note: R & M – Repairs and Maintenance Cost

In the table above, there is a provision for an annual increment of 5% in the salary of manpower. Lubricant cost is estimated at the rate of 30% of fuel expense w.r.t diesel.

Cash flows

The cash flow projections may be viewed as follows:

Table 14: Cash Flow-Paddy CHC

No.	Particulars (Amount in INR lakh)	Y1	Y2	Y3	Y4	Y5
1	Revenue					
	Total revenue	49.58	56.40	63.78	71.75	80.36
2	Equity/share capital	2.76				
3	Grant	24.65				
4	Term loan	-				
	Sub total (A)	76.99	56.40	63.78	71.75	80.36
Cash outflow (INR)						
1	Capital expenditure					
a	Furniture and fixtures	-				
b	Land and building	-				
c	Plant and machinery	27.06				
2	Operational expenditure					
a	Fixed cost	12.26	12.87	13.51	14.18	14.88
b	Variable cost	29.58	31.06	32.61	34.24	35.95
3	Loan					
	TL – Principal	-	-	-	-	-
	TL – Interest	-	-	-	-	-
4	Dividend					
5	Tax	0.92	2.26	3.68	5.21	6.85
	Sub total (B)	69.82	46.19	49.80	53.63	57.69
	Net cash flow (A-B)	7.17	10.22	13.97	18.12	22.67
	Opening cash and bank		7.17	17.38	31.36	49.48
	Cumulative cash balance	7.17	17.38	31.36	49.48	72.15

Profit and loss statement

The profit and loss or income and expenditure statement is presented below:

Table 15: Profit and Loss Statement-Paddy CHC

Particulars (Amount in INR lakh)	Y1	Y2	Y3	Y4	Y5
Total revenue	49.58	56.40	63.78	71.75	80.36
Total revenue	49.58	56.40	63.78	71.75	80.36
Fixed cost	12.26	12.87	13.51	14.18	14.88
Variable cost	29.58	31.06	32.61	34.24	35.95
Total operational expenses	41.84	43.93	46.12	48.42	50.83
Earnings Before Interest, Depreciation, Taxes and Amortisation (EBITDA)	7.74	12.47	17.66	23.33	29.52
Depreciation	2.71	2.71	2.71	2.71	2.71
Earnings Before Interest and Taxes (EBIT)	5.03	9.76	14.95	20.62	26.82
Interest expense	-	-	-	-	-
Earnings Before Taxes (EBT)	5.03	9.76	14.95	20.62	26.82
Tax	0.92	2.26	3.68	5.21	6.85
Earnings After Taxes (EAT)	4.11	7.51	11.27	15.41	19.97

Balance sheet

In the following statement of the balance sheet, the net worth of the FPC is also reflected. The net worth of an entity is one crucial parameter based on which credit may be leveraged and is defined as equity + reserves.

Table 16: Balance Sheet-Paddy CHC

Particulars (Amount in INR lakh)	Y1	Y2	Y3	Y4	Y5
Assets					
Current assets					
Cash and bank balance	7.17	17.38	31.36	49.48	72.15
Total current assets	7.17	17.38	31.36	49.48	72.15
Gross fixed assets	27.06	24.35	21.65	18.94	16.24
Less: depreciation	2.71	2.71	2.71	2.71	2.71
Net fixed assets	24.35	21.65	18.94	16.24	13.53
Total assets	31.52	39.03	50.30	65.71	85.68
Liabilities and shareholders' equity					
Current liabilities					
Short-term debt (working capital loan)					
Total current liabilities	0.00	0.00	0.00	0.00	0.00
Long-term debt	0.00	0.00	0.00	0.00	0.00
Total liabilities	0.00	0.00	0.00	0.00	0.00
Share capital	2.76	2.76	2.76	2.76	2.76

Particulars (Amount in INR lakh)	Y1	Y2	Y3	Y4	Y5
Grant-in-aid	24.65	24.65	24.65	24.65	24.65
Reserves and surplus					
Add: opening balance (p/l account)	0.00	4.11	11.62	22.89	38.30
Profit (loss) during the year	4.11	7.51	11.27	15.41	19.97
Total reserves	4.11	11.62	22.89	38.30	58.27
Total equity	31.52	39.03	50.30	65.71	85.68

Viability indicators

The project viability indicators are tabulated below and reflect a high and favourable Return on Capital Employed (ROCE) and internal rate of return.

Table 17: Project Viability Indicators-Paddy CHC

No.	Indicators	Average
1	IRR	34.07%
2	Payback period (in years)-Project	3.02
3	RoCE	42.52%
4	NPV at a discount rate of 10%	Positive
5	Break-even point	23.09%

As a matter of fact, capacity utilisation has been assumed conservatively in the earlier years. Hence, effectively, project viability is likely to be higher than indicated.

4.3.2 Business plan for a CHC: Maize-focused FPC

Introduction

The Aurangabad district in Maharashtra is an important maize producer. Here, a producer company was registered in 2019, and by 2021, the network had 630 shareholders. A business plan for a CHC was conceived and sanctioned assistance by the state government to cater to the needs of 650 FPC members and 1,200 other non-member farmers in the region. The major commodity under the preview of the FPC is maize, with an average production of 13 quintals per Bigha. Other crops harvested by the farmers of the FPC are paddy, jute, oilseeds, and vegetables.

Project rationale and components

Some of the major activities in maize cultivation, such as the sowing of seeds, separating the corn seed from corn cob, and cutting the mature panicles and straw above the ground, had been undertaken with tractor rotavators, hydraulic trailers, and threshers by hiring them from local service providers. The hiring charges were often high, and equipment was not available conveniently when required. In this context, a CHC was envisaged.

Rotavator

A rotavator is a tractor-drawn implement, mainly used for seedbed preparation within one or two passes, and is suitable for removing and mixing the residual of maize, wheat, and sugarcane. It thereby helps improve soil health and save fuel, cost, time, and energy. Rotovators are available in three categories: light, standard, and heavy-duty, depending upon soil conditions.

Tractor

The term ‘tractor’ is most commonly used for vehicles used on farms. The farm tractor is used for pulling or pushing agricultural machinery or trailers for plowing, tilling, harrowing, planting, and other tasks. Most modern tractors are powered by internal combustion engines running on gasoline, kerosene (paraffin), LPG (liquefied petroleum gas), or

diesel fuel. Tractors have traditionally been used on farms to mechanise several agricultural tasks. Modern tractors are used for ploughing, tilling, and planting fields. Tractors are available in various options to suit specific tasks and requirements.

Hydraulic trailer

The hydraulic trailer provides a low centre of gravity for safe towing. The labour maintenance cost of the hydraulic trailer is zero. It is used for livestock or heavy machinery transportation. A hydraulic trailer is an additional support for vehicles carrying or transporting heavy loads.

Maize thresher with elevator

A maize thresher machine is used to separate grain from cobs. Before shelling, the foliage is removed manually. Maize threshers are either manually-operated or power-operated. Threshing involves handpicking pebbles, broken grains, and insects from rice, wheat, and pulses and the separation of seeds from the harvested stalks.

Mini combine harvester (Paddy)

A mini combine harvester is a flexible machine suitable for effectively harvesting crops in the fields. The combination of reaping, winnowing, and threshing is called a harvesting machine. The mini combine harvester has all the quality and features of implements. The small paddy combine harvester is mainly used for harvesting paddy grain.

Machinery and equipment

Table 18: Machinery and Equipment-Maize CHC

No.	CHC equipment	Qty	Estimated unit price (INR lakh)
1	Tractor	1	7
2	Hydraulic trailer	1	1
3	Maize thresher with elevator	1	2
4	Rotavator	1	2
5	Mini combine harvester (Paddy)	1	15
	Total cost		27

Total project cost and means of finance (INR lakh)

The project cost and means of finance, in this case, are tabulated below:

Table 19: Project cost and means of finance-Maize CHC

No.	Particulars	No.	Rate	Amount (INR)	Beneficiary share in per cent	Estimated beneficiary share (INR lakh)	Grant-in-aid from state govt. @80%
1	Tractor	1	7.00	7.00	20%	1.40	5.60
2	Hydraulic trailor	1	1.00	1.00	20%	0.20	0.80
3	Maize thresher with elevator	1	2.00	2.00	20%	0.40	1.60
4	Rotavator	1	2.00	2.00	20%	0.40	1.60
5	Mini combine harvester	1	15.00	15.00	-	-	15.00
6	Working capital margin		0.23	0.23	100%	0.23	0.00
Total				27.23		2.63	24.60

Grant-in-aid from the state government @80% and beneficiary share @20% are assumed as the basis for means of finance. There is a provision for a working capital margin, which is contributed by the beneficiary FPC @100%.

Financial projections

The financial projections may be considered in terms of income estimates, expenditure estimates, income and expenditure statements, and viability estimates.

Income estimates

The income estimates for the CHC may be viewed as under:

Table Income Estimates (INR lakh)

Table 20: Income Estimate-Maize CHC

Revenue	Rate/8 hour	Y1	Y2	Y3	Y4	Y5
Mini combine harvester	12,000.00	12.00	12.60	13.23	13.89	14.59
Tractor	15,000.00	30.00	31.50	33.08	34.73	36.47
Rotavator	7,500.00	7.50	7.88	8.27	8.68	9.12
Hydraulic trailor	2,400.00	3.00	3.15	3.31	3.47	3.65
Maize thresher with elevator	7,500.00	7.50	7.88	8.27	8.68	9.12
Total		60.00	63.00	66.15	69.46	72.93
Capacity utilisation		60%	65%	70%	75%	80%
Total revenue		36.00	40.95	46.31	52.09	58.34

Basically, annual operating incomes rise to the tune of INR 58.34 lakh by Year 5, indicating a sound revenue model for an FPC.

Table 21: User charges and Fuel expenditure-Maize CHC

User charges for machinery	Rent charges (per Bigha)	Area covered/ day (Bigha)	Charge per day per Bigha	Per year (INR lakh)	Time taken to cover the area in Bigha (hrs)	Qty of diesel/ day	Diesel consumed/ hour
Mini combine harvester/Bigha	600.00	20	12,000.00	12.00	8	55.56	6.94
Tractor/Bigha	500.00	30	15,000.00	30.00	8	66.67	8.33
Rotavator/Bigha	300.00	25	7,500.00	7.50	8	0.00	0.00
Hydraulic trailor/Bigha	300.00	8	2,400.00	3.00	8	0.00	0.00
Maize thresher with elevator/Bigha	500.00	15	7,500.00	7.50	8	41.67	5.21
Total				60.00			

In the income estimates above, the user charges are pegged conservatively. The estimated number of days of operation per year of each machine is assumed as follows:

Table 22: Days of Operation of Machinery-Maize CHC

Machines	No. of operational days per annum
Mini combine harvester	100
Tractor	200
Rotavator	100
Hydraulic trailor	125
Maize thresher with elevator	100

Expenditure estimates

Table 23: Expenditure Estimate-Maize CHC

Description	Number of units	Unit cost	Annual cost	Y1	Y2	Y3	Y4	Y5
Fixed								
Mini combine harvester	1		0.10	0.10	0.11	0.11	0.12	0.12
Tractor	1		0.25	0.25	0.26	0.28	0.29	0.30
Rotavator	1		0.10	0.10	0.11	0.11	0.12	0.12
Hydraulic trailor	1		0.10	0.10	0.11	0.11	0.12	0.12
Maize thresher with elevator	1		0.10	0.10	0.11	0.11	0.12	0.12
Manpower expenditure								
Machine operator	3	0.10	3.60	3.60	3.78	3.97	4.17	4.38
Unskilled labour	5	0.04	2.40	2.40	2.52	2.65	2.78	2.92
Insurance				0.12	0.12	0.12	0.12	0.12
Repair & maintenance								
Sub-total				6.77	7.11	7.46	7.82	8.21
Variable cost								
Diesel consumption (Lts/8 hour in Bigha)								
Mini combine harvester	56	90.00	0.05	5.00	5.25	5.51	5.79	6.08
Tractor	67	90.00	0.06	12.00	12.60	13.23	13.89	14.59
Rotavator	-		-	-	-	-	-	-
Hydraulic trailor	-		-	-	-	-	-	-
Maize thresher with elevator	42	90.00	0.04	3.75	3.94	4.13	4.34	4.56
Lubricant cost	164	36.00	0.06	0.06	0.06	0.07	0.07	0.07
Sub-total				20.81	21.85	22.94	24.09	25.29
Total				27.58	28.96	30.40	31.91	33.50

In the above table presenting operational expenditure, there is a provision for an annual increment of 5% in the salary of manpower. Lubricant cost is estimated at the rate of 40% of the consumption of diesel fuel.

Profit and loss (income and expenditure) statement

Table 24: Profit and Loss Statement-Maize CHC

Particulars	Y1	Y2	Y3	Y4	Y5
Total revenue	36.00	40.95	46.31	52.09	58.34
Fixed cost	6.77	7.11	7.46	7.82	8.21
Variable cost	20.81	21.85	22.94	24.09	25.29
Total operational expenses	27.58	28.96	30.40	31.91	33.50

Earnings Before Interest, Depreciation, Taxes and Amortisation (EBITDA)	8.42	11.99	15.91	20.18	24.84
Depreciation	2.70	2.70	2.70	2.70	2.70
Amortisation					
Earnings Before Interest and Taxes (EBIT)	5.72	9.29	13.21	17.48	22.14
Interest expense	-	-	-	-	-
Earnings Before Taxes (EBT)	5.72	9.29	13.21	17.48	22.14
Tax	1.09	2.14	3.25	4.42	5.68
Earnings After Taxes (EAT)	4.63	7.16	9.96	13.06	16.46
Profit (loss) carried to balance sheet	4.63	7.16	9.96	13.06	16.46

Viability indicators

The project viability indicators are tabulated below:

Table 25: Project Viability Indicators-Maize CHC

No.	Indicators	Average
1	IRR	31.09%
2	Payback period (in years)- Project	3.2
3	RoCE	37.65%
4	NPV at a discount rate of 10%	Positive
5	Break-even point	17.25%

The indicators reflect the soundness of the project in turns of high profitability and low risk.

4.4 Processing (Primary/secondary)

Regarding primary or secondary services offered by an FPC, the critical constraint addressed is inadequate primary processing and packaging required for direct marketing, as well as secondary processing facilities such as Common Facility Centres (CFCs). The related intervention comprises deploying cleaning, grading, and packaging machines for food grains and horticulture processing. Such services include identifying appropriate cleaning and grading machines, gravity separators, and bag sealing equipment for cereals and pulse products, as against grading tables, plastic crates, and small cooling chambers for horticulture-based FPCs.

The likely outcome of the intervention is a minimum 10% increase in the value of a commodity (of between INR 150-200 per quintal in the case of typical food crops).

Common facilities for FPCs: Highlights

Constraints

- Low price for non-graded commodities
- Lack of primary processing facilities for direct marketing (and) storage
- Limited secondary processing facilities

Intervention methodology

- Identification of requirement by way of value addition/common facility
- Twinning with schemes and related technology service providers
- Business plan preparation and facility grant-in-aid/subsidy or debt financing
- Project implementation

Outcomes

- At least 10% value increase for directly marketed primary processed, graded, and sorted commodities

Several schemes of the government facilitate the establishment of common facilities. Some of them may be viewed as follows:

Options to facilitate the establishment of Common Facility Centres

Scheme (Eligible projects)	Extent of assistance
Integrated cold chain development scheme of MoFPI (Integrated cold chain facilities for perishables, including processing facilities)	Financial assistance (grant-in-aid) of 35% of the total cost of plant and machinery and technical civil works in general areas, and 50% for NE region and difficult areas (for storage); financial assistance (grant-in-aid) of 50% of the total cost of plant and machinery and technical civil works in general areas, and 75% for the NE region and difficult areas (for processing), subject to maximum assistance of INR 10 crore.
Integrated post-harvest management-related scheme by NHB (Pack house, ripening chamber, reefer van, retail outlets, pre-cooling units, primary processing facilities, etc.)	Credit-linked back-ended subsidy @35% of cost limited to INR 50.75 lakh per project in general areas and @50% of the project cost limited to INR 72.5 lakh per project in the NE region, hilly states, and scheduled areas, ensuring backward and forward linkages.
Cold store scheme by NHB (NHB supports projects with capacity above 5,000 MT up to 10,000 MT)	Under the scheme, credit-linked back-ended subsidy at the rate of 35% of the capital cost of the project in general areas and 50% in case of the Northeast, hilly states, and scheduled areas for construction/expansion/modernisation of cold storage and CA storage of capacity above 5,000 MT and up to 10,000 MT is available. In the case of the Northeast region, units with a capacity above 1,000 MT are also eligible for assistance.
SFURTI by MoMSME (Soft Interventions, including skill training, capacity-building, and design development. Hard interventions, including CFCs, RMBs, training centres, etc.)	Subject to a maximum of 33% of the total cost of cluster intervention (both hard and soft interventions) or INR 25 lakh, whichever is less.

4.5 Credit linkages

With regard to working capital, the critical limitations addressed are that there is reservation on the part of typical bankers to finance farmer groups for working capital, unavailability of urban collateral, limitations in documentation and credit rating regarding financial performance, and usually inadequate credit history of FPCs. The related interventions include credit linkages of the FPCs for working capital. The intervention will also include liaising with

financial institutions (FIs) and/or NBFCs, guiding the FPCs on loan documentation, preparation of a business plan, and post-sanction guidance. The outcome of the intervention is that the selling of produce could be at the right time and place (avoiding distress sale). There is often a minimum of 5-10% better price realisation (or about INR 200 per quintal), and capacity utilisation of a common facility centre from storage or warehousing. For example, many FPCs procure onions during harvest, store them for three months, and sell them with over 20-30% mark-up during off-season periods. This is one reason why credit by way of working capital is required. Other reasons include offering credit to large buyers and corporates and paying in cash for inputs. Further, term loans are required to finance equipment and common facilities.

Credit linkages for FPCs: Highlights

Constraints

- Limited access to finance
- Inability to offer necessary collateral, poor credit history
- The reluctance of nationalised banks to finance infant FPCs

Intervention methodology

- Capacity building of BoDs + CEO, networking with FIs and NBFCs
- Business plan: Letter of comfort to the concerned bank

Outcomes

- Complementary to input and output activity, better income realisation through avoidance of distress sale

Typically, nationalised banks would like to finance FPCs with a credit history and an audit balance sheet upon completing one year's operation. In this context, NBFCs may be roped in to finance infant FPCs with good business plans but not with much of a credit history.

4.6 Seed production

With regard to seed production, the critical constraints voiced are that farmers often suffer from access to low-quality seeds, high prices of seeds, and the lack of timely availability of quality seeds. The related interventions include facilitating seed production, seed processing, and supply. It also includes identification of agriculture universities or firms, facilitation in sourcing of breeder and foundation seeds, preparation of business plans, and facilitation through credit linkages. The outcome of the intervention may be visualised in terms of ensuring good quality seeds available to farmers at reasonable prices and that there is uniform seed production by the FPC, which leads to successful market linkages.

Seed production by FPCs: Highlights

Constraints

- Poor quality seeds, damage in transit
- Poor yield

Intervention methodology

- Tie-up with state seed corporation, agriculture universities, and private producers, specifically for horticulture
- Initiate seed production-activity

Outcomes

- Good quality seeds available to farmers at a reasonable price
- Uniform quality seed production facilities, aggregation of produce, and direct market connect
- Higher yield

4.7 Capacity-building of BoDs

With regard to capacity-building, the critical constraints addressed are that there are limited intrapreneurial and managerial skills among BoDs, and a lack of basic bookkeeping skills. The related interventions include training BoDs with practical management inputs and business planning for growth. It also includes training of BoDs on business planning and management, accounts, and bookkeeping. The outcome of the intervention may be viewed in terms of ensuring that FPCs are strengthened through efficient BoDs in terms of intrapreneurial, managerial, and bookkeeping skills. There is also a need for awareness of quality and compliance (for example, traceability) standards, efficient management of FPC, and good governance structures.[29]

Capacity-building and training: Highlights

Constraints

- Limited entrepreneurship and management skills of the management team (BoDs & CEO)
- Issues of statutory and legal compliance with respect to company law and taxation

Intervention methodology

- Training needs assessment
- Development/finalisation of training modules (with a few region/crop specific illustrations)
- Delivery of 1-5 days training programmes

Outcomes

- Capacity-building of BoDs/CEO/managers of FPCs to effectively twin with input suppliers, buyers, FIs, etc.
- Statutorily and legally complaint FPCs

4.8 Statutory compliances

With regard to statutory compliance, the critical constraint addressed by an FPC is that there is a lack of awareness among BoDs on statutory compliances and on mandatory licensing requirements of farmer producer companies. The related interventions include classroom and on-the-job training of BoDs on statutory compliance requirements like Udyog Aadhaar, and non-Udhyam Registration, DML, and FSSAI. It also consists of understanding license application processes and prescribed quality standards. Training on compliance as per company law and taxation are also most critical. The initiative's outcome includes the compliant and professional operation and management of an FPC.

Statutory and legal compliances: Highlights

Constraints

- Lack of awareness among BoDs on statutory and legal compliances, related penalties
- Limited awareness of various licensing requirements

Intervention methodology

- Training programmes, as well as on-the-job training for BoDs of an FPC, CEO, and related staff

Outcomes

- Efficient and compliant management

29 In this context, it is pertinent to mention that GT Bharat has facilitated publication of several related manuals and tool-kits, which may also be used as reference material. This publication is also expected to complement capacity building initiatives of BoDs.

4.9 Market connectivity

With regard to market linkages, the critical constraints addressed by an FPC are that farmers have limited direct access to markets, malpractices in some mandis, and lower price realisation by farmers when depending on middlemen traders. The related interventions are tie-ups with large and small food processing firms or retailers for primary produce, contract farming and/or MoU-based direct marketing. The scope of intervention includes identifying processors or buyers, vendor registration, facilitation of MoUs with processors and buyers, and facilitation of trade. Notably, marketing may also involve direct marketing through own retail outlets or mobile vending carts, e-marketing, etc. The typical outcome of the intervention includes the transfer of better seed varieties and Good Agricultural Practices by value chain leaders, in addition to more remunerative prices earned by farmers by effectively avoiding middlemen costs. By way of illustration, through related initiatives, a shift from water-intensive crops like wheat (& barley) and pulses has been witnessed in the states of Rajasthan and Maharashtra, respectively. Farmers have benefitted from two harvests compared to alternate pulses cropping (in the case of maize) in Maharashtra through related interventions and higher yields and market price realisation. Annexure 6 presents an indicative listing of large corporates operating in the ecosystem.

Market linkages for FPCs: Highlights

Constraints

- Inadequate direct market connects, exploitative middlemen
- Poor price realisation by farmers

Intervention methodology

- Assessment of surplus of commodities with member farmers
- Identification of specific buyers and organising buyer-seller meets
- Facilitating vendor registration and signing off MoUs
- Enabling credit linkages for trading/credit sale

Outcomes

- 5-10% better prices than typical market rates offered by middlemen traders

In Maharashtra, market linkages have been established by several FPCs, including the Sai Pravara FPC in Aurangabad District, with large processors such as CP seeds. This enabled an increase in the production of maize from about 20 Qtl to 35 Qtl per acre with a premium of INR 50 per quintal from CP seeds. Also, an increase in output from 16 Qtl to 25 Qtl per acre in barley has been realised through the seeds supplied by Soufflet to 10,000 farmers in Rajasthan. Furthermore, marketing through e-NAM and commodity trading as a risk-hedging option through the NCDEX futures platform is now available to FPCs and aggressively promoted by the government.

Futures market and online trading (e-NAM)

Constraints

- Low prices for commodities in some periods/seasons
- Inadequate price discovery mechanisms

Intervention methodology

- Orientation and training of BoDs and CEO
- Registration of the FPC on the NCDEX and e-NAM platform

- Storage in an accredited warehouse
- Warehouse receipt financing

Outcomes

- Price discovery/risk-hedging before harvest
- Access to storage at a 50% discount rate in some states

e-NAM

e-NAM is an online trading platform for the sale of agricultural commodities by integrating farmers, traders, and buyers at a common platform. It seeks to leverage the physical infrastructure of identified mandis through an online trading portal, enabling buyers situated even outside a mandi/state to participate in trading at the local level. A special software developed for e-NAM is available to each mandi that joins the national network with necessary conformance in each Mandi Act. States interested in integrating their mandis with e-NAM are required to carry out the following three reforms in their APMC Act.

- Single trading license (Unified) to be valid across the state
- Single point levy of market fee across the state
- Provision for e-auction/e-trading as a mode of price discovery

The e-NAM facility basically increases the farmer's choice when he brings his produce to the mandi for sale. Local traders can bid for the produce and on the electronic platform operating from another state/mandi. The farmer may choose to accept either the local or online offers. In either case, the transaction will be on the books of the local mandi, and they will continue to earn the market fee. The Ministry of Agriculture & Farmers' Welfare, Government of India, has appointed the Small Farmers' Agribusiness Consortium (SFAC) as the lead implementing agency of e-NAM. FPOs/FPCs can register on the e-NAM portal via a website (www.enam.gov.in) or mobile app. Payment is made directly to the FPO/FPC's bank account. In turn, the FPO/FPCs can distribute it among members. Presently, more than 2,000 FPOs have been onboarded on the e-NAM platform.

NCDEX-futures trade

The National Commodity and Derivatives Exchange Limited (NCDEX) is a professionally managed online multi-commodity exchange platform regulated by SEBI. Here, the commodities are traded either in the spot market or the futures market. In the spot market, the trade is made either in cash or in exchange for other commodities. In the futures markets, buyers and sellers trade is based on a standardised contract. If the investor expects the price of a commodity to rise, he takes a long position. If he expects the price to fall, he opts for a short position. The futures trade is organised, eliminates counter-party risk, facilitates margin trading, and facilitates physical delivery by giving prior information.

The following illustration helps understand the futures trade cycle better with regard to an FPC: Consider the spot price of maize as INR 1,200/quintal, and INR 1,415 is the future price after three months. The margin money required to initiate the trade is INR 150, around 11% of the trade value. The FPC would require the working capital for two purposes: a) To purchase the commodity from farmers, b) Margin money to initiate future trade. For this, the FPC can be connected with an NBFC or FI, which can provide a working capital loan. Initially, the first tranche of loans for INR 150 per quintal is released for the margin money to initiate trade. Once the trade is initiated, the contract note must be submitted to the financial institution, which releases the remaining loan amount of INR 1,250 to purchase commodities from farmers at a premium of INR 50. Next, the commodities are stored in the government or NCDEX warehouses for three months. The estimated storage cost, labour charges, and loan interest during this period is around INR 18, INR 40, and INR 42, respectively. After three months, when delivery is made, the FPC is paid INR 1,565 (INR 1,415 future price and INR 150 as margin). After that, the loan's principal and other charges may be deducted from the amount paid.

Total trade cost = INR 1,500

Trade receipt = INR 1,565

Benefit to farmer = INR 50 (Premium paid = 50)

Benefit to FPC = INR 65 (Extra 65 on trade receipt after deducting all charges). This accrual may be deployed for furthering the activities of the FPCs or declared as dividend.

The benefits of NCDEX futures trade to farmers and FPCs may be as follows: Empower farmers to make better buying and selling decisions, reduce information asymmetry, and manage price risk.

The benefits to buyers include the absence of middlemen, assured quality, and volumes supply.

Farmer members of FPCs may also undertake trading independently.

Soybean farmer, Latur district, Maharashtra

A soybean farmer in Latur district took his crop to the local mandi. He was well aware that it was not the right time to sell his produce. The farmer understood that he could get a much higher price for his produce, but he did not have the holding capacity. Fortunately, however, banks in the Latur district had roped in the agri-commodity exchange NCDEX spot, which acts as a facilitator, bringing the farmer, warehouse, and bank under one roof. A producer registers with the exchange, deposits the commodity at the warehouse, and secures a loan from the bank. The bank is assured of the pledged lot's sale and liquidation using an exchange platform. The banks, therefore, extend the benefit to the farmers by providing loans at competitive interest rates. He stocked 30 quintals of soybean with the MSWC (Maharashtra State Warehousing Corporation), and 6 months later, taking price cues from the futures contracts traded on the NCDEX, he sold his produce at INR 4,730 (and realized an additional INR 1,530 per quintal on his produce). Many FPOs have evolved trade in maize, soybean, turmeric, etc.

4.10 Evolving an apt agri-marketing and FPO policy

Evolving an apt agri-marketing and FPO policy addresses constraints like limited contract farming initiatives, limited development of alternate markets, limited FPC development initiatives, and in some cases, skewed support towards co-operatives as against FPCs. The related interventions include organising policy workshops and meets. The provision of such services may consist of evolving apt agri-marketing and FPO policy: this may also be in terms of market fee, private yards, and contract farming rules, and securing direct purchase or direct marketing license.

A typical policy advocacy initiative at the state level has been offering benefits given to co-operatives, for example, in terms of subsidised supply of inputs to FPCs. Furthermore, several state governments have made FPCs eligible to work on the aggregation of produce under the MSP regime for specific commodities.

4.10.1 Scope for advocacy with the centre

- Permanent exemption from the levy of income tax in profits accrued to FPOs and used for FPO expansion/ development purposes but not declared as dividend

  Rationale: Experiences from countries worldwide, ranging from Denmark and New Zealand to Australia, indicate at least reserves accumulated for further development of FPCs are not subject to tax. Dividends alone, if distributed, are taxed in some countries

- GST exemption on input and output for FPOs/PCs (for a period of 5 years from the date of implementation of policy/date of registration of the PO). FPOs/PCs dealing in input facilitation may be exempted from GST

  Rationale: FPOs/PCs are an aggregation of farmers, and hence, same relaxations need to apply

4.10.2 Typical advocacy with state governments

- FPCs should enjoy the same benefits offered to co-operative societies as per the state's policy and schemes

  Rationale: FPCs are basically a development over the co-operative systems framework, and a concept introduced by the GoI to redress limitations in the co-operative framework in terms of non-democratic management, interference from the government, limited adoption of professional management practices, etc. The constituents are the same producers, and the change is only in terms of legal constitution for greater efficiency, sustainability, and empowerment

- FPCs need to be given the same treatment as 'farmers' to encourage linkages between processors and farmers, enabling processors to take advantage of market fee exemptions (and also exemption from GST and IT)

  Rationale: FPOs/PCs are an aggregation or collectives of farmers and must be treated as such

- Storage subsidy-Access to storage infrastructure, such as accredited warehouses, and storage to FPOs and FPCs at concessional rates, similar to what is made available to farmers in many states, should be the norm

  Rationale: FPCs undertake an extension of farmers' activity, that is, often into primary processing activity, and hence, may be offered the same support offered to individual farmers

- The state government should encourage the formation of joint-stock company FPCs/PCs and upstream processors/retailers/fair trade organisation, etc.

  Rationale: Experiences from countries across the world, ranging from those in Europe to Africa, indicate that many global retailers prefer this route. This is because it reduces their risk in investing in upgrading the FPC/PC activity and strengthening infrastructure through investment in more efficient backward integration

- Ideally, contract farming (Registering and redressal) authority should not be the district-level market committee. There is a need for a distinct committee dispute redressal tribunal to consider possible cases

  Rationale: The market committee, which coordinates the functioning of the APMCs, may have an obvious 'conflict of interest.' A distinct state-wide dispute redressal tribunal/committee will encourage contract farming practices

- Market fee and direct procurement from farmers/FPOs: There is scope to reduce or eliminate market fees

  Rationale: When APMCs are not involved in a transaction, why is there a need to pay high fees of even up to INR 1.6 per INR 100 transacted?

- Corporate farming: Evolve a land lease policy whereby large corporates can independently undertake production on land from farmers for a period of up to 15 years

  Rationale: The present land lease policy, which in itself exists in very few states, allows for a land lease of only up to 5 years, as in Rajasthan. This may not encourage investment in necessary farm infrastructure by corporates until a reasonable gestation time is given for returns

- Contract farming: Agreement may be written on stamp paper of INR 100, and any number of individual farmers may sign on one agreement

  Rationale: The option of entering into agreements with farmers individually, as is the requirement in some states, is time-consuming and costly. It is also impractical, as many farmers do not plan sowing in advance. Also, when they do plan, seed sale is in a very short period of 15 to 30 days. One can imagine the logistics and cost implication of covering 20,000-25,000 farmers or more every season

- The contracted price shall be at least equal to the minimum support or the model price for the contracted agricultural produce during the present harvest season

  Rationale: It should not be the 'previous harvest season' as in some states, in the market committees concerned.

- Contract farming: No security deposit will be required from processors/retailers

  Rationale: A contract farming agreement is one between two parties. One of them alone cannot be charged a deposit of even 20% or more as in some states, as a significant part of their business finance and working capital may be blocked – discouraging contract farming practices in the state

In addition to the above initiatives, vibrant FPCs may also catalyse other services for off-farm animal husbandry-related initiatives of FPCs.

Chapter 5 - Introduction to a business plan

Highlights

Preparing a business plan, particularly with regard to primary processing or value adding infrastructure facilities, will involve area assessment comprising consultation with a range of stakeholders.

The latter includes existing facilities and enterprises in the region, forward and backward-linkaged stakeholders, and private and public service providers.

The final selection of an activity may be on the basis of technology, market, investment and other such parameters.

Some of the lead service providers and stakeholders in this context include the District Industries Centre (DIC), successful entrepreneurs and local industry associations in the context of primary or secondary processing common facilities.

The content structure of a business plan may include: business overview, FPC profile, organisational structure and background, technical plan, plant layout, product mix, raw material aspects, market analysis, quality control and manpower plan.

Basically, project cost and means of finance and operating expenditures and incomes need to be studied and presented. Projects and business plans are appraised on the basis of specific management ratios.

A gamut of credit facilities and instruments are available to FPCs from banking and non-banking institutions. Many banks may leverage cover by way of a credit guarantee that is offered through implementing agencies.

5.1 Introduction

A range of business plans is required to be prepared by an FPC. This may typically be for input operations, storage options, custom hiring options, direct marketing options, and for operating primary or secondary processing common facilities. This chapter elaborates on the methodology of conducting an assessment survey of potential business ideas, particularly for value-adding projects in any specific location. This may also support planning the expansion of an FPC's activities into primary or secondary processing. The related desk research and field survey methods may involve interactions with various actors/sources. For this purpose, contact points need to be established with:[30]

- Existing agribusiness entrepreneurs
- Market-related actor-traders, wholesalers, retailers, mandi operators
- Input suppliers
- Industry associations and chambers involving processors
- Technology sources (R&D institutions)
- Equipment suppliers

30 Also see Padmanand and Kurian, 2009 and Padmanand et al, 2018

- Other private and public business development service providers (agriculture universities, Krishi Vigyan Kendras, etc.)
- NGOs
- Financial institutions (FIs)
- District Industries Centre (DIC)
- Related departments (Department of agriculture, agriculture marketing, horticulture, animal husbandry, etc.)

5.2 Product/service: Questions for final selection of the business idea

- What is the project cost and investment requirement, including working capital?
- What is the application of the produce or value-added product?
- Who are the customers and consumers?
- What is the market profile in terms of size, segment, and features?
- Is the demand around the year or seasonal?
- Who are the competitors?
- What is the basis of competition? (e.g., price, quality)
- What is the possible extent of competitive advantage/disadvantage of a new enterprise in relation to existing facilities or enterprises?
- Where should the project/facility be located?
- How is the location in terms of industrial infrastructure and utilities (water, power, effluent disposal facility), commercial amenities (e.g., bank, transport), and social facilities (e.g., housing, health, education)?
- What is the profile and skill level of manpower requirement? Are they available in the region?
- Is the project critically dependent on some infrastructure (e.g., cold store or controlled atmosphere store)? If so, what is the access to such infrastructure?
- Will the FIs support the project?
- Are there cartels among existing competitors, customers, raw material suppliers, or know-how suppliers?
- How long will it take to implement the project?
- What is the government policy in terms of: Technical standards and management (e.g., FSSAI), control over price and distribution of raw materials, GST, etc.?
- Subsidies and financial incentives (e.g., interest and/or investment subsidies, refund of state GST, etc.)
- What is the potential return on investment (RoI)?

5.3 What is a business plan?

Normally, a business plan is made up of the following sections:

- Promoters profile
- Legal constitution and management plan
- Sector/sub-sector overview
- Technical plan
- Market plan
- Manpower plan
- Financial plan
- Implementation plan

5.4 Why do we need a business plan?

A business plan is required for several purposes:

- To earmark resources and assess viability
- To convince all BoDs and FPC members on the rationale, and, where required, financial institutions and government schemes that the promoter/s has/have adequate knowledge of the chosen area of business
- The tenets of good business proposals are realistic projections, honest evaluations, and thorough research

5.5 Structure of a business plan – Agribusiness activities of FPCs

5.5.1 Business overview[31]

- Agriculture and agribusiness profile of the region

5.5.2 Organisational structure and background

Brief background of network/producer organisation covering the following information:

- Describe the formation of the network, its progress to date, and a brief description of the purpose of formation
- Details about registration of network/firm under relevant acts, such as Producer Company Trust Act, co-operative or partnership with reasons for formation
- The roles played by key individuals, BoDs, and their experience
- Discuss the organisational form of the business-contribution to equity and profit sharing
- In case the PO operates as a producer company, details about the company's capitalisation, number of shares outstanding, and other relevant data
- Description of the activities of the FPC

5.5.3 Technical plan

This section focuses on the site (particularly, in the case of common facilities value-addition):

- Site description and choice
- Location details of the project
- Layout of the land
- Meteorological data
- Connectivity through road, train, air, etc.; utility connectivity (water, electricity)
- Proximity to production area
- Reason to choose the site

Plant Layout

This section covers the layout and implementation of civil structures:

- Complete layout, structure, and various facilities
- Month-wise target of construction, installation of machinery

31 Also see Padmanand and Kurian, 2009 and Padmanand et al, 2018

Technological considerations

This section is to serve as:

- Technology proposed to be used in the project with reasons
- Details of the complete process cycle with process chart

Product mix

In the case of a horticulture FPC, the product mix may include some or all of a range of fruits and vegetables. Accordingly, a range of primary and secondary processing options may be available.

Table 26: Product Mix-Horticulture FPC

Commodities	Primary processing	Secondary/Tertiary processing
Pomegranate	Waxing, grading, and packaging	Juice, Seed oil, peel, powder
Banana	Ripening, grading, and packaging	Chips, pulp
Cashew	Grading	Cashew nuts
Orange	Waxing, grading, and packaging	Juice, pulp, syrup
Lemon-sweet lime	Waxing, grading, and packaging	Juice, pulp, syrup
Strawberry	Grading and packaging	Jam, jelly, juice, pulp, syrup
Mango	Ripening, grading, and packaging	Jam, jelly, juice, pulp, syrup
Onion, Onion seeds	Grading and packaging	Dehydrated, powder, spices
Tomato	Grading and packaging	Puree, ketchup, pulp
Cabbage, okra, chilli, brinjal	Grading and packaging	Blast Freeze, vacuum frying, chilli powder and chutney
Sweet corn	Grading, shredding, and packaging	Canning
Potato	Cleaning, grading, and packaging	Potato chips, Papad
Turmeric	Turmeric powder	Turmeric- Essential oils

5.5.4 Commodity/crop (raw material)

Details in this context include:

- Core commodity requirements
- Consumable requirements
- Procurement/sourcing options

5.5.5 Storage and handling of raw material/Finished product

- Storage arrangements (capacity)
- Transportation arrangements

5.5.6 Market and market mix

A market plan of an FPC, particularly for secondary or tertiary processing, has to decide on aspects such as product positioning, packaging, and the real differentiation that products of an enterprise offer vis-à-vis the products of competitors. The larger players operating in a segment may spend on advertisements to sell the product concept and establish a brand image. Marketing emphasises encouraging consumer ‘pull’ or demand for products. This is mainly in the case of secondary or tertiary processed products marketed to consumers.

The smaller FPC players may use the retailer-focused strategy or direct marketing for consumers. They may focus on a customer (retailer) push strategy by giving them higher margins or by setting up 'point-of- sale' displays at retail outlets. 'Sufal Bangla' retail outlets operated by FPOs in West Bengal illustrate this perspective.

Market analysis

Complete market analysis includes study and analysis of price trends, consumer preferences, demographic trends, economic cycles, demand and supply curves, market structure, and market share for the present and future. It also covers the marketing strategy the organisation will adopt to sell its products, market-mix, product-mix, pricing policy, and competition, and promotional strategy, including selling incentives (wholesaler/retailer margins or discounts). It is necessary to define the distribution system and alternate market channels (e-marketing, e-trading, trading through commodity exchanges, mandis, corporate processors/retailers, SME processors, traders, own retail outlets, mobile retailing, etc.)

5.5.7 Quality control

Quality control aspects need also be considered:

- Sampling and testing
- Certification
- Laboratory setup, including R&D, if required

5.5.8 Manpower planning

A category-wise break up needs to be given, along with the responsibilities of each category of manpower to be deployed:

- Senior management
- Technical and processing-related staff
- Marketing staff
- Administrative staff
- Quality control staff
- Others

5.5.9 Project cost and operating expenditure

Project cost

- Land details, including cost of land (if the land is procured or tied up based on a lump-sum lease payment)
- Cost of site development
- Building construction and civil works cost
- Plant and machinery
- Erection and commissioning charges
- Furniture and fixtures
- Office equipment
- Vehicles and mobile equipment
- Preliminary and preoperative expenditure (including interest during construction or implementation period, etc.)
- Margin for contingencies, etc.
- Working capital margin

Operating expenditure

Water, power, manpower cost, raw material and consumables, logistics, repairs and maintenance, insurance, non-cash (depreciation).

5.5.10 Means of finance

- Equity contribution by the FPC
- Borrowed funds
- Grant and subsidies contribution

5.5.11 Financial statements

- Need to provide financial projections for 5-10 years
- Audited or provisional balance sheets with auditor's notes
- Cash flow statement
- Profit and loss statement
- Projected balance sheet, profit & loss, fund/cash flow statements
- Return on investment
- Break-even point
- Internal Rate of Return (IRR) on the basis of projected profitability
- Calculation of Debt Service Coverage Ratio (DSCR)-Where there is a term loan requirement
- Details of assumptions made to prepare projected financials
- Sensitivity analysis – To check on profitability if any projected targets are not achieved

5.5.12 Project cost-Illustration

In the computation of the project cost, the working capital brought in as equity is part of the project cost. The relevant margin is computed as project cost if a working capital loan is availed of.

Table 27: Business Plan Model-Grains and Pulses Cleaning and Grading unit (2 TPH) for FPCs

No.	Particulars	Total value (INR)
1	Building (Built up area of 1,500 Sq. ft.)	7,00,000
2	Machinery and equipment (Seed grader, gravity separator, de-stoner, elevators, blowers, controls, weighing and stitching machine, and other accessories)-2 TPH capacity plant	11,00,000
3	Other fixed assets (Furniture, electricals, computer, printer, etc.)	1,00,000
4	Lease registration expenses	20,000
Total capital investment		19,20,000
Working capital requirement (high in the case of a trading model and low in the case of a job-work model)		25,00,000

Table 28: Business Plan Model-(1.5-2 TPD) Fruits and Vegetables (F&V) Grading and Packaging unit for FPCs

No.	Particulars	Total value (INR)
1	Building (Built up area of 1,500 Sq. ft.)	7,00,000
2	Machinery and equipment (Sorting/grading tables for manual grading, plastic crates, weighing scale, pouch sealer, vehicle/pick-up for material transportation)	10,00,000

No.	Particulars	Total value (INR)
3	Other fixed assets (Furniture, electricals, computer, printer, etc.)	1,00,000
4	Lease registration expenses	20,000
Total capital investment		18,20,000
Working capital requirement (high in the case of a trading model and low in the case of a job-work model)		10,00,000

5.5.13 Business management tools – Illustration

Costing and pricing: Marginal cost-based pricing

As an illustration on selected costing and pricing tools, consider the case of a small enterprise. The estimates in the table given below are the annual cost of production estimates of an FPC that could manufacture 20,000 bottles of tomato sauce (1 kg bottle) per annum.

Table 29: Break-even level of operation of enterprise

Elements of cost	Variable cost (INR)	Fixed cost (INR)
Inputs and consumables	11,00,000	-
Electricity	70,000	5,000
Labour	6,00,000	-
Interest	-	1,80,000
Other expenses	5,000	5,000
Depreciation	-	10,000
Total	15,75,000	2,00,000

The selling price (SP) of the product per bottle is about INR 140. The enterprise could, therefore, earn a total sales revenue of about INR 28 lakh per annum.

$$\text{Break-even point (BEP)} = \frac{\text{Total fixed cost}}{\text{Total sales revenue - Total variable cost}} \times 100 = 16.32\% \text{ capacity}$$

Beyond the break-even point, i.e., production in excess of about 3264 bottles, it is on the basis of marginal costs (per unit) that pricing may be made, as all fixed costs are covered at the break-even level. Hence, till the BEP level of activity, the costs work out to INR 88.75 per bottle. Beyond BEP, the cost that needs to be considered is about INR 78.75 per bottle.

For instance, the selling price may be assumed at cost per piece plus 20% profit margin. In more price-competitive markets or for volume customers, costing may be based on marginal costs and, for others, based on the total cost per bottle or unit of output.

5.5.14 Checklist of supporting documents

Check list of documents:

- Detailed business plan, along with the application for loan/grant required in duplicate
- List of total movable and immovable assets of the organisation/promoters/implementing agency
- List of tangible unencumbered security offered as collateral. In the case of landed property, a copy of the sale deed and the extract of the latest land records.

- Income tax and wealth tax details for the last three years, with copies of assessment/return if applicable
- Certificate of reliefs given under statute (IT, GST, etc.)
- Copies of sanction letters from other institutions, government agencies, grants, or other support relating to the activity
- Provisional Registration Certificate from the concerned authority viz. the Registrar of Companies, District Industries Centre, etc.
- Memorandum and articles of association/bye-laws of FPC
- Permission/license from a competent authority (in case of food and drugs, etc.)
- Certified copy of sale deed, along with the extract of the latest land record in respect of land. (The land should be in the name of FPC).

Or

Rent agreement in case of rented premises for minimum of 15 years (for related grants) or covering loan period

- Three quotations in respect of each item of plant and machinery and raw material proposed to be purchased
- Details of power requirement and tie-up with the State Electricity Board
- Permission from the Water and Pollution Control Board
- Approved building plan from a competent authority with cost estimates from the architect

5.6 Financing a business plan-Credit instruments and institutions

Norms

FPCs seek working capital to enhance their performance. This is other than the term loans for longer gestation. In this regard, financial institutions typically undertake financial ratio analysis before sanctioning assistance. The critical management ratios from the appraisal perspective of a typical financial institution may be considered as follows:

- Current ratio: (Current asset upon current liabilities): The current ratio measures the ability of an FPC to pay or rather cover its short-term liabilities with its current assets
- Quick ratio: The quick ratio, also known as the acid-test ratio, is a liquidity ratio that further refines the current ratio by measuring the level of the most liquid current assets available to cover current liabilities. The quick ratio is more conservative than the present ratio because it excludes inventories and other current assets, which generally are more difficult to turn into cash. A higher quick ratio means a more liquid current position
- Debt-equity ratio: The debt-equity ratio is another leverage ratio that compares a company's total debt to its total shareholders' equity. A lower percentage means that a company is using less leverage and has a stronger equity position
- Return on equity: It is expressed as a percentage that refers to the return generated compared to the equity contribution
- Return on capital employed: The return on capital employed ratio, expressed as a percentage, complements the return on equity ratio by adding a company's debt liabilities or funded debt, to equity, to reflect a company's total 'capital employed'. It is a measure of a company's profitability
- Stock turnover ratio: Stock turnover is a ratio showing how many times a company's inventory is sold and replaced over a period
- Debtor turnover ratio: The debtor turnover ratio is an activity ratio measuring how efficiently a firm uses its assets. Debtors' turnover ratio can be calculated by dividing the net value of credit sales during a given period by the average accounts receivable during the same period
- Net worth: Net worth is the amount by which assets exceed liabilities

Table 30: Formulae and standards vis-à-vis management ratio

Particulars	Ratio	Standard ratio
Current ratio	Current asset/ Current liability	2: 1 or higher
Quick ratio	Quick assets/ Current liability	1:1 or higher
Debt-equity ratio	Total debt/ Shareholder's equity	2: 1 or less
Return on equity	PAT/ Shareholders' equity	>=25%
Return on capital employed	PAT/ Capital employed	>=25%
Stock turnover ratio	Sales/ average stock	Typically, 5 times
Debtor turnover ratio	Net credit sales/ Avg. debtors	Typically, 5 times
Net worth	Total assets-Total liabilities (or equity + reserves)	Should be positive

* Considering total sales as credit sales

5.7 Financial institutions for financing FPCs

Some of the institutions presently financing FPCs aggressively in the country are described below:

NABKISAN Finance Ltd.

The NABKISAN Finance Ltd., a subsidiary of NABARD, is an NBFC for funding FPOs for their working capital and term loan needs. NABKISAN finances only those FPOs, which are at least one-year-old. It normally provides working capital loans at the rate of 11-11.5%. It also finances FPOs into trading or manufacturing pulses, cereals, fruits, vegetables, cash crops, etc. It usually provides loans for less than one year. The entire loan must be repaid at the end of the loan term. It requires security in the form of machinery and building acquired by the FPC in the case of term loans.

Bank of Baroda

An FPO needs to be at least six months old to secure finance from the Bank of Baroda. It provides FPOs with collateral-free loans based on credit guarantee under Equity Grant and Credit Guarantee Fund, but for that, the FPC needs to fulfil all the eligibility criteria as specified in the EGCGF scheme document. The bank typically provides working capital loans with an RoI at the rate of 9.5% or above, depending on the creditability of the concerned FPO. It provides term loans, cash credit, warehouse receipt finance, etc. The period of the loan depends on the product that the FPC requires. E.g., the term loan is sanctioned from one year up to seven years, and CC is provided for as long as the FPC requires, with a yearly renewal. The bank also usually requires a comfort letter from supporting organisations.

Ananya Finance for Inclusive Growth Pvt Ltd.

The Ananya Finance for Inclusive Growth Pvt Ltd is an NBFC funding the FPCs for their working capital and term loan needs. It usually provides loans with an RoI at the rate of 14% or above. It usually provides loans for less than one year. The entire loan must be repaid at the end of the loan term. It also requires a comfort letter from supporting organisations.

Samunnati Financial Intermediation and Services Pvt Ltd.

Samunnati Financial Intermediation and Services Pvt Ltd., commonly known as Samunnati Finance, is an NBFC funding the FPCs for their working capital and term loan needs. It normally provides loans at the rate of 15% or above. It usually provides loans for a period of less than one year. The entire loan must be repaid at the end of the loan term. It also usually requires a comfort letter from supporting organisations.

Other leading financial institutions

Following is the list of some prominent banks with whom an MoU has been signed for the Credit Guarantee Scheme:

Table 31: Indicative list of banks associated with Credit Guarantee Scheme

No.	Bank	No.	Bank
1	Canara Bank	9	Assam Gramin Vikas Bank
2	State Bank of India	10	Axis Bank Limited
3	IDBI Bank Ltd.	11	Pallavan Grameen Bank
4	Indian Bank	12	Bank of Baroda
5	Bank of India	13	Pragathi Krishna Gramin Bank
6	RBL Bank	14	Bank of Maharashtra
7	Federal Bank	15	Syndicate Bank
8	Yes Bank	16	Sarva Haryana Gramin Bank

These institutions may lend at rates between 9% – 12% rate of interest.

5.8 Some financial products for FPCs

This subsection details the financial instruments and products offered by different institutions.

5.8.1 Instant pre-approved loan: NBFCs

- Purpose of credit/loan facility
  - For working capital requirements of the FPC for conducting any trade/activity
  - For procurement of products for trading
  - For providing agricultural inputs to their farmer members by bulk purchase from companies/wholesale dealers
- Eligible projects
  - Those requiring WC for marketing/trade of produce
  - For agricultural inputs purchase
- Interest rate and repayment
  - Rate of interest 14%, reducing balance
  - Other cost, including 1% Loan Processing Fees (LPF) +GST of 18% on LPF
  - Interest – monthly, Principal – end of tenor
- Typical amount of credit
  - Up to INR 5 lakh
- Duration/tenure of the Loan
  - Up to 4 months

- Payment of loan
  - Directly to the FPC's bank account
- Eligibility
  - Any FPC with basic KYC documents
- Evaluation and recommendation process
  - Review of documents submitted by the FPC (CIN, PAN, MoA, AoA, TAN, bank account details, etc.) and board members
  - Loan sanction agreement executed by NBFC and FPC
  - Loan request from FPC
  - Loan disbursement
- Security/collateral
  - Personal guarantee of board members (5), along with 2 UDCs from each of them
  - Security guarantee of 4 cheques from the FPC for the overall limit

5.8.2 Value chain financing: NBFCs

- Purpose of credit/Loan facility
  - Short-term loan
  - Input loan – WC for purchase of agri-inputs and sale to farmer members
  - Output loan – WC for procurement of crops from members/farmers and sale to buyers
  - Medium-term loan
  - WC for agriculture and allied activities, including the purchase of agri-equipment, infrastructure, livestock, among others.
- Eligible projects
  - Those requiring WC to conduct marketing/trade of produce
  - For agricultural inputs purchase
- Interest rate and repayment
  - Rate of Interest 14-18%, reducing balance
  - Other cost, including 1% Loan Processing Fees (LPF) +GST of 18% on LPF
  - Documentation and client visit charges – INR 6,500+applicable taxes
  - Interest– monthly, principal–end of tenor
- Typical amount of credit
  - INR 3 to 500 lakh
- Duration/tenure of the loan
  - 6–36 months
- Payment of loan
  - Input loan-directly to the input supplier
  - Output loan – directly to the farmers
- Eligibility
  - Any FPC (6 months –1 year) and/or their farmer members
- Evaluation and recommendation process
  - Completion of the application form

- For larger amounts, DPR is required
- CIBIL check of the FPC and individual board members
- FPC must have the required licenses and approvals
- Review of documents submitted by the FPC (CIN, PAN, MoA, AoA, TAN, bank account details, among others) and board members
- Loan sanction agreement executed by NBFC and FPC
- Loan request from FPC
- Loan disbursement

- Security/Collateral
  - Hypothecation of stocks and book debts financed by Samunnati
  - Personal guarantee of CEO/President and board members (2), along with 2 UDCs from each of them
  - Security guarantee of three cheques from the FPC for the overall limit

5.8.3 Farmers loan: NBFCs

- Purpose of credit/Loan facility
  - Cost of cultivation
  - Purchase of agri-inputs
  - Diversifying the crop cultivation
  - Setting up of agricultural infrastructure
  - Asset creation
- Eligible projects
  - Credit/loans for cultivation, purchase of agricultural inputs and infrastructure, asset creation, among others
- Interest rate and repayment:
  - Rate of interest is 17%, reducing balance
  - Other cost, including 1% Loan Processing Fees (LPF) + GST of 18% on LPF
  - EMI (Interest + principal)
- Typical amount of credit
  - INR 25 lakh per FPC (maximum)
  - INR 50,000 per farmer member (maximum)
- Duration/tenure of the loan
  - 12 to 18 months, in consultation with the farmer member
- Payment of loan
  - Input loan – directly to the input supplier
  - Output loan – directly to the farmers
- Eligibility
  - Directly to the farmer member's bank account
- Evaluation and recommendation process
  - Not more than 60 years of age
  - Family/household indebtedness (not more than 3 loans)
  - Land held/leased (minimum of 1.5 acres)

- Crops/commodities cultivated
- Individual CIBIL score of more than 600
- Minimum 6 months membership with the FPC

- Security/collateral
  - Cross guarantee by asset of 5 or more borrowers
  - Personal guarantee of board members (5) for all borrower farmer members
  - Guarantee of the FPO (2UDCs)
- Special feature:
  - FPC can on-lend to farmer members at higher interest rate, thereby earning an income
  - The FPC needs to include the clause of borrowing, lending, and mortgaging in their MoA and AoA

5.8.4 Working capital loan: NABARD

- Purpose of credit/Loan facility
  - For working capital requirements of the FPC for conducting any trade
  - For procurement of products for trading
  - For providing agricultural inputs to their farmer members by bulk purchase from companies/wholesale dealers
- Eligible projects
  - Those requiring WC to conduct marketing/trade of produce
  - For agricultural inputs purchase
- Interest rate and repayment:
  - Rate of interest at 8-9%, reducing balance
  - Other costs, including 1% (reduces to 0.5% to 0.25% in subsequent loans) Loan Processing Fees (LPF) + GST of 18% on LPF
  - EMI (Interest + principal)
- Typical amount of credit
  - 5 times their net worth
- Duration/Tenure of the loan
  - 12 to 18 months
- Payment of loan
  - Directly to the FPOs bank account
- Eligibility
  - FPC with the required documents
  - At least one audited statement of accounts
  - Minimum share capital of INR 2 lakh
- Evaluation and recommendation process
  - Completion of the application form
  - Review of documents submitted by the FPC (CIN, PAN, MoA, AoA, TAN, bank account details, among others) and board members
  - Field visit and reference from DDM
  - Loan approval and sanction
  - Loan disbursement request from FPC
  - Loan disbursed

- Security/collateral
  - Cross hypothecation of assets created out of loan
  - Coverage under Credit Guarantee Scheme
  - Margin money of 15% of the project costs

5.8.5 Term loan: NABARD

- Purpose of credit/Loan facility
  - WC for agriculture and allied activities, including the purchase of agri-equipment, infrastructure, livestock, among others
- Eligible projects
  - Those requiring WC for agriculture and allied activities of the FPC and their farmer members
- Interest rate and repayment:
  - Rate of interest at 8-9%, reducing
  - other cost, including 1% (reduces to 0.5% to 0.25 % in subsequent loans) Loan Processing Fees (LPF) +GST of 18% on LPF
  - EMI (Interest + principal)
- Typical amount of credit
  - Five times of their net worth
- Duration/Tenure of the loan
  - 36 to 84 months
- Payment of loan
  - Directly to the FPOs bank account
- Eligibility
  - FPC with the required documents
  - At least one audited statement of accounts
  - Minimum share capital of INR 2 lakh
- Evaluation and recommendation process
  - Completion of the application form
  - Review of documents submitted by the FPC (CIN, PAN, MoA, AoA, TAN, bank account details, among others) and board members
  - Field visit and reference from DDM
  - Loan approval and sanction
  - Loan disbursement request from FPC
  - Loan disbursed
- Security/Collateral
  - Cross hypothecation of assets created out of loan
  - Coverage under the Credit Guarantee Scheme
  - Margin money of 15% of the project costs

5.9 Business plan for a common facility centre: Illustration

Introduction

An FPC located in Tamil Nadu, in the district of Tiruchirappalli, evolved a business plan for the establishment of a CFC. The plan comprises a profile of the PC, crop/commodity portfolio, marketing strategy, operational plan, and financial plan, including the income expenditure statement, cash flows and PERT charts, reflecting operations for a period of 5 years.

The business plan covers the following sections:

- A general profile of the producer company (PC), which highlights the location of the organisation, its geographical coverage, total households (HHs), total cultivable land, producer groups (PGs) mobilised, total membership, savings, etc.
- Personal information about the key leaders of the FPC who are the drivers of the initiative
- Business activity in terms of operating a primary processing facility
- Assumptions of membership growth of the FPC over a period of 5 years and % land allocated for major crops
- Process for aggregating marketing surplus
- Marketing strategy for collective sale of surplus produce
- Detailed financial plan

About the producer company

The FPC was registered in 2021. The company has mobilised INR 1,00,000 as of March 2021. The company is supported by the Department of Agri Marketing and Agri Business, the government of Tamilnadu.[32]

This business plan has been prepared, considering the existing membership of 500 farmer producers from 10 gram panchayats and 10 villages, with members enjoying an average land holding of 0.35 ha.

Profile of the producer company

There are 500 farmers associated with this company. The major crop identified in this cluster is red gram.

Table 32: General Profile of the FPC

Particulars	Details
Name of the FPC	XXX FPC
Cluster	XXX Village
District	Tiruchirappalli
No. of villages in the cluster	10
Share collection as on 31/01/2022	INR 5,50,000
Paid up capital at the time of registration	INR 10,000
Authorised capital	INR 10,00,000

32 Under the Tamil Nadu Irrigated Agriculture Modernisation Project (TNIAMP) supported by The World Bank.

Table 33: FPC village-wise details

No.	Name of the Villages	No. of households	Land under agricultural crops (Ha)			
			Gingelly	Red gram	Paddy	Total
1	Village A	1093	10.00	12.00		22.00
2	Village B	1303	8.00	15.75		23.75
3	Village C	1233	10.00	15.00		25.00
4	Village D	700	6.00	8.00		14.00
5	Village E	100	5.00			5.00
6	Village F	1304			20.00	20
7	Village G	400		15.00		15.00
8	Village H	500	3	10.00		13.00
9	Village I	500		-	15.00	15
	Grand Total	7133	42.00	75.75	35.00	152.75

Out of the total crops, red gram and gingelly crop play a vital role, accounting for much of produce, followed by paddy.

Table 34a: Crop-wise productivity in the region

Major crops	Productivity MT/Ha
Paddy	3.454
Cholam	0.842
Cumbu	3.300
Maize	5.700
Redgram	0.520
Blackgram	0.862

Table 34b: Crop-wise area, production, and productivity of shareholders

No.	Crop	Area (Ha)	Production (MT)	Productivity (MT/Ha)
1	Red gram	450	360	8

Table 35: Roles and Responsibilities of Board of Directors

Name	Role and responsibilities
A	Overall responsibility for the management of PC: Act as the legal representative of PC on all statutory platforms and matters
B	Act as the legal representative of PC on all statutory platforms and issues: Manage day-to-day operations of the common facility
C	Manage financial aspects: Handle cash and bank accounts
D	Manpower management: Community mobiliser
E	Transportation management: Machinery management
F	Marketing management

Objectives of the producer company

The objective of the producer company is to develop producers who come together for primary processing and aggregated sale of the produce also. The objectives in the context of this plan are: To assist farmers realise higher price for their produce through aggregation, primary processing, and sale.

Basically, the critical gap identified, and related intervention include:

Table 36: Critical gap identified, and interventions proposed

No.	Facility required	Issues	Proposed business idea
1	Common facility	Unfair price paid for their crops due to sale of ungraded produce.	Grading of agricultural produce at the farm level to help producers realise remunerative prices for their produce.

Need for the primary processing facility

Typically, farmers are unable to secure higher prices for their produce as non-graded and non-sorted produce is offered. For direct marketing purposes, buyers require cleaned and graded produce of desired quality. The CFC may be viewed in this context. Direct marketing is expected to facilitate earning of higher prices for the produce.

Operational plan

Plant capacity and product priority

The equipment to be deployed includes a de-stoner cum grader and dal splitter with a capacity to process 5 quintals of produce per hour.

Table 37: Plant capacity & products

Particulars	Year	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Quantity (in MT) of Red Gram	Yr 1	-	-	-	-	123	123	82	82	-	-	-	-
	Yr 2	-	-	-	-	135	135	90	90	-	-	-	-
	Yr 3	-	-	-	-	148	148	98	98	-	-	-	-
	Yr 4	-	-	-	-	160	160	107	107	-	-	-	-
	Yr 5	-	-	-	-	172	172	115	115	-	-	-	-
Average Quantity Daily (in MT)	Yr 1	-	-	-	-	4	4	3	3	-	-	-	-
	Yr 2	-	-	-	-	5	5	3	3	-	-	-	-
	Yr 3	-	-	-	-	5	5	3	3	-	-	-	-
	Yr 4	-	-	-	-	5	5	4	4	-	-	-	-
	Yr 5	-	-	-	-	6	6	4	4	-	-	-	-
No. of working hours (0.5 TPH)	Yr 1	-	-	-	-	8	8	5	5	-	-	-	-
	Yr 2	-	-	-	-	9	9	6	6	-	-	-	-
	Yr 3	-	-	-	-	10	10	7	7	-	-	-	-
	Yr 4	-	-	-	-	11	11	7	7	-	-	-	-
	Yr 5	-	-	-	-	11	11	8	8	-	-	-	-

Business summary – Primary processing

The primary processing facility will have the capacity to process 5 quintals of produce per hour. The facility is expected to operate on a single-shift basis for 8 hours per day.

Table 38: Techno-economic assumptions

Techno-economic assumptions	Y-1	Y-2	Y-3	Y-4	Y-5
Capacity of cleaning and grading machine (quintal/hour)	5	5	5	5	5
Total cost of machinery, including installation (INR)	2,73,413	0	0	0	0
Operating hours per day	8	8	8	8	8
Cleaning and grading of commodity in quintals @8 hrs working per day	40	40	40	40	40
Actual running of the machine in the Kharif season (in days)	102.6	112.9	123.1	133.4	143.6
Actual running of the machine in the Rabi season (in days)	0.0	0.0	0.0	0.0	0.0
Power consumption per day in kilowatt	40	40	40	40	40
Power rate per kilowatt (INR)	8.00	8.00	8.00	8.00	8.00
No. of labourers/day	2	2	2	2	2
Wages of labour/day (INR)	400	420	441	463	486
Processing charge of cleaning, grading machine (INR/ quintal)-(members)	90	95	99	104	109
Processing charge of cleaning, grading machine (INR/ quintal)-(non-members)	100	105	110	116	122
Maintenance cost as percentage of capital expenditure	0.5%	0.50%	0.50%	0.50%	0.50%

Following is the business summary of the primary processing services offered by the FPC.

Table 39: Business summary

	Units	Rate	Annual	Y1	Y2	Y3	Y4	Y5
Available quantity of Red Gram (Qtl)				4,104	4,514	4,925	5,335	5,746
Quantity to be processed (100% of total)				4,104	4,514	4,925	5,335	5,746
Conversion ratio				95%	95%	95%	95%	95%
Output quantity (Qtl)				3,899	4,289	4,679	5,068	5,458
Hours of machine running (5 Qtl Per hour)				821	903	985	1,067	1,149
No. of days of machine running				103	113	123	133	144
Electricity cost (INR)	2	8		11,756	12,932	14,108	15,283	16,459
Maintenance cost (INR)	1	0.5%	1,367	1,367	1,367	1,367	1,367	1,367
Manpower: (INR)								
Operators (skilled labour)	1		600	61,560	67,716	73,872	80,028	86,184
Unskilled labour	1		300	30,780	33,858	36,936	40,014	43,092
Total cost (INR)				1,05,464	1,15,873	1,26,283	1,36,692	1,47,102
Total revenue from the sale of processed Red Gram (INR)				3,76,200	4,34,511	4,97,713	5,66,148	6,40,183
Total gross revenue (INR)				3,76,200	4,34,511	4,97,713	5,66,148	6,40,183

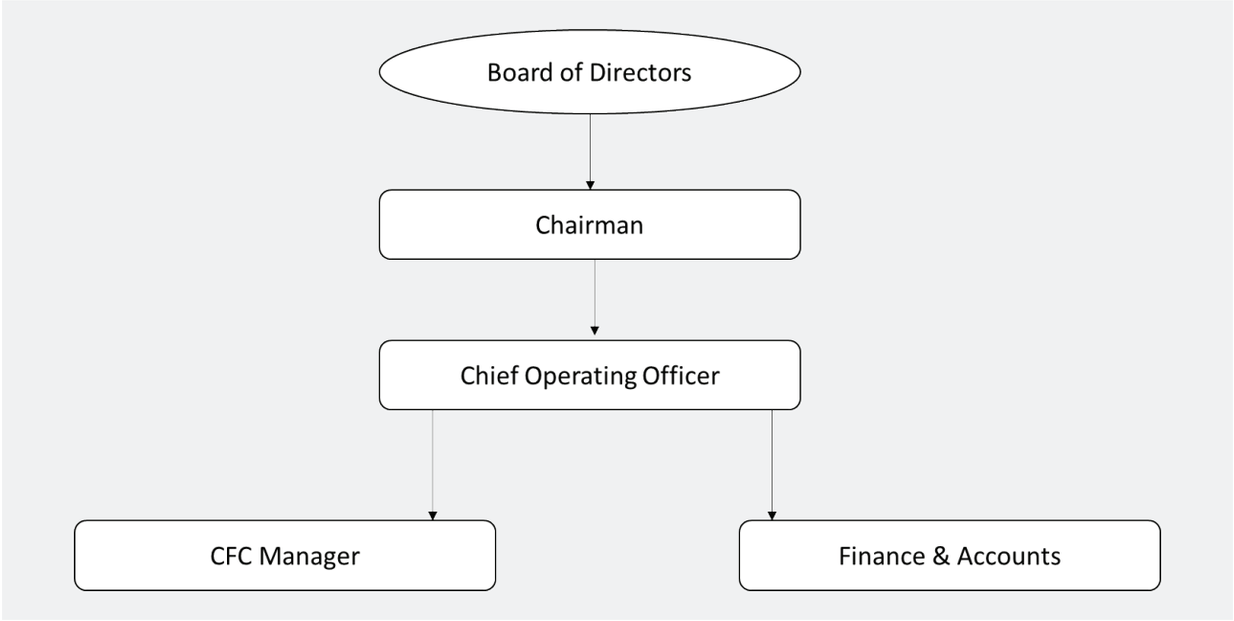
Critical assumptions

- 100% of the commodities produced in the Kharif season will be primarily processed
- Processing charge for members is INR 90/Qtl and non-members is INR 100/Qtl. Every year 100% of members and 20% of non-members will use the facility
- Average working of the plant is considered at 8 hours per day, also accounting for power cuts

Organisational and management plan

Organogram

The producer company will deploy temporary/permanent staff as well as employ manpower on a seasonal basis. The company will meet these operating expenditures from operating income through user-charge levied.



Financial plan/Project economics

- Capital investment

The infrastructure and machinery for the CFC maybe viewed as:

- Work shed: This structure requires an area of about 700 sq. ft., which will be constructed on land secured on a long-term lease basis. The lease for the land is to be paid on the basis of monthly rentals
- Cleaning and grading machine: An electric motor-driven machine with sieves will segregate dirt and refuse matter from the grains and grade it into two or three categories as per operations. The machine is to have a processing capacity of 0.5 MT per hour @ 99% efficiency. Taking into consideration external factors like electricity outage, it will require one person to feed and operate the machine. The output will be collected in sacks
- Weighing machine: A platform-type digital weighing scale with 100-150 kg capacity and sensitivity of 10 g is to be purchased through shopping. The machine will be electric-powered with a provision for operation through batteries
- Moisture meter: A multigrain moisture meter fit for simple use will be procured through shopping. It may be battery-operated with changeable power cells
- Stitching machine: Electric/battery-operated handheld stitching machine with a double run stitch facility is envisaged. It will be used to seal the sacks after weighing

Following is the capital investment and project cost of the envisaged CFC:

Table 40: Project cost detailed

No.	Particulars	Unit	No. of unit	Per unit cost (INR)	Total cost (INR)	Total cost (INR)
A.	Building and interiors					
	Workshed construction	Sq. ft.		700		-
	Sub-total					-
B.	Plant and machinery					
	De-stoner cum grader		1	2,33,413	2,33,413	2,33,413
	Weighing scale		1	8,572	8,572	8,572
	Stitching machine		4	7,857	31,428	31,428
	Sub-total					2,73,413
E.	Working capital (Equity)					27,550
	Sub-total					27,550
	Grand total					3,00,963

Table 41: Project cost summary

No.	Particulars	Amount (INR)	PC contribution (INR)	Grant by the GOTN (INR)
A	Plant and machinery	2,73,413	-	2,73,413
B	Working capital	27,550	-	27,550
	Total	3,00,963	-	3,00,963

Expenditure estimates

This section considers the annual cost of production and expenditure estimates. The critical components related to expenditure comprise manpower, electricity, and also expenditure by way of repairs and maintenance, insurance, and administrative overheads. Other elements include expenditure by way of servicing loans and non-cash depreciation expenditure.

Administration expenses

Administration expenses have been pegged at INR 90,000 per annum. The administration expenses include office rent, land lease charges, telephone expenses, internet expenses, office maintenance, meeting charges, printing expenses, stationery expenses, etc. These are based on judgement and expert estimates.

Table 42: Administration expenses

No.	Description	Y1	Y2	Y3	Y4	Y5
1	Administration expenses	90,000	90,000	90,000	90,000	90,000

Institutional expenses

The institutional expenses have been pegged at INR 10,000 per annum. The institutional expenses include AGM-related expenses and audit expenses. These are based on judgement and expert estimates.

Table 43: Institutional expenses

No.	Description	Y1	Y2	Y3	Y4	Y5
1	Institutional expenses	10,000	10,000	10,000	10,000	10,000

Electricity expenses

The total installed load of the facility is estimated at about 8 KVA. The power tariff has been assumed at a conservative tariff of INR 300 per KVA per month; therefore, it is 8 KVA x INR 300 = INR 2,400 per month.

Table 44: Fixed electricity expenses

No.	Description	Y1	Y2	Y3	Y4	Y5
1	Fixed monthly charge (minimum connected load)	2,400	2,400	2,400	2,400	2,400

Operational expenditure

Table 45: Operational expenditure

No.	Particulars	Number of units	Unit cost (INR)	Annual cost (INR)	Y1 (INR)	Y2 (INR)	Y3 (INR)	Y4 (INR)	Y5 (INR)
A.	Fixed								
a)	Administrative expenses								
	Processing unit rent	12	4000	48,000	48,000	48,000	48,000	48,000	48,000
	Office rent	12	1,000	12,000	12,000	12,000	12,000	12,000	12,000
	Telephone	12	500	6,000	6,000	6,000	6,000	6,000	6,000
	Internet	12	500	6,000	6,000	6,000	6,000	6,000	6,000
	Office maintenance	12	500	6,000	6,000	6,000	6,000	6,000	6,000
	Electricity charges*	12	200	2,400	2,400	2,400	2,400	2,400	2,400
	Meeting charges	12	250	3,000	3,000	3,000	3,000	3,000	3,000
	Printing and stationery	12	400	4,800	4,800	4,800	4,800	4,800	4,800
	Courier, postage, etc.	12	100	1,200	1,200	1,200	1,200	1,200	1,200
	Misc. expenses	12	250	3,000	3,000	3,000	3,000	3,000	3,000
	Sub-total				92,400	92,400	92,400	92,400	92,400
b)	Institutional expense								
	AGM expenses	1		-	-	-	-	-	-
	Audit expense	1	10,000	10,000	10,000	10,000	10,000	10,000	10,000
	Sub-total				10,000	10,000	10,000	10,000	10,000
c)	Manpower expenses								
	CEO		10,000	1,20,000	1,20,000	1,20,000	1,20,000	1,20,000	1,20,000
	Sub-total				1,20,000	1,20,000	1,20,000	1,20,000	1,20,000
d)	Repair and maintenance expenses	1%			2,734	2,734	2,734	2,734	2,734
	Sub-total				2,734	2,734	2,734	2,734	2,734
	Total				2,25,134	2,25,134	2,25,134	2,25,134	2,25,134
B.	Processing (Business line 1)								
	Raw material purchase				-	-	-	-	-
	Electricity cost				11,756	12,932	14,108	15,283	16,459
	Human resource								

No.	Particulars	Number of units	Unit cost (INR)	Annual cost (INR)	Y1 (INR)	Y2 (INR)	Y3 (INR)	Y4 (INR)	Y5 (INR)
	Operators (skilled labour)				61,560	67,716	73,872	80,028	86,184
	Unskilled labour				30,780	33,858	36,936	40,014	43,092
	Maintenance cost				1,367	1,367	1,367	1,367	1,367
	Sub-total				1,05,464	1,15,873	1,26,283	1,36,692	1,47,102
	Total				1,05,464	1,15,873	1,26,283	1,36,692	1,47,102

Profit and loss statement

The projected statement of income and expenditure has been prepared on the basis of the estimates above. Projections have been made for a period of 5 years.

Table 46: Projected profit and loss statement

Particulars (Amount in INR)	Y1	Y2	Y3	Y4	Y5
Income from processing	3,76,200	4,34,511	4,97,713	5,66,148	6,40,183
Total revenue	3,76,200	4,34,511	4,97,713	5,66,148	6,40,183
Opening stock of closing goods		-	-	-	-
Direct cost					
Manpower-Direct (Processing)	92,340	1,01,574	1,10,808	1,20,042	1,29,276
Variable electricity cost (Processing)	11,756	12,932	14,108	15,283	16,459
Packaging cost (Processing)	1,367	1,367	1,367	1,367	1,367
Indirect cost					
Administrative expenses	90,000	90,000	90,000	90,000	90,000
Institutional expense	10,000	10,000	10,000	10,000	10,000
Manpower – Indirect	1,20,000	1,20,000	1,20,000	1,20,000	1,20,000
Repair and maintenance cost	2,734	2,734	2,734	2,734	2,734
Electricity cost	2,400	2,400	2,400	2,400	2,400
Total operational expenses	3,30,598	3,41,007	3,51,417	3,61,827	3,72,236
Earnings Before Interest, Depreciation, Taxes and Amortisation (EBITDA)	45,602	93,504	1,46,296	2,04,321	2,67,947
Depreciation	41,012	34,860	29,631	25,186	21,408
Earnings Before Interest and Taxes (EBIT)	4,590	58,644	1,16,664	1,79,135	2,46,538
Interest expense	-	-	-	-	-
Earnings Before Taxes (EBT)	4,590	58,644	1,16,664	1,79,135	2,46,538
Earnings After Taxes (EAT)	4,590	58,644	1,16,664	1,79,135	2,46,538
Profit (loss) carried to balance sheet	4,590	58,644	1,16,664	1,79,135	2,46,538

Evidently, project economics are sound, as a good cumulative surplus at the end of five years is earned by project stakeholders even after accounting for taxation and depreciation. This surplus generated could also be used for further developmental activity of the FPC. It could also be deployed for expansion and subsequent upgrading activities.

Cash flow statement

The table below presents the project's sources and disposal/uses of funds statement. Such a funds or cash flow statement is also indicative of the cash balance and, to that extent, the liquidity position of the project over the years. As indicated by the estimates, the position with respect to cash balance is strong, with the ability to withstand possible adversities.

Table 47: Projected cash flow statement

No.	Particulars (Amount in INR)	Y1	Y2	Y3	Y4	Y5
1	Profit After Tax (PAT)	4,590	58,644	1,16,664	1,79,135	2,46,538
2	Equity/Share capital	10,00,000	1,00,000	1,25,000	1,40,000	1,50,000
3	TNIAMP Grant	3,00,963				
5	Depreciation	41,012	34,860	29,631	25,186	21,408
	Sub-total (A)	13,46,565	1,93,504	2,71,296	3,44,321	4,17,947
Cash outflow (INR)						
1	Capital expenditure					
a	Building and interiors	-				
b	Furniture and electrification	-				
c	Plant and machinery	2,73,413				
d	IT and infrastructure	-				
e	Working capital					
2	Increase of current asset	27,550	867	867	867	867
	Sub-total (B)	3,00,963	867	867	867	867
	Net cash flow (A-B)	10,45,602	1,92,636	2,70,428	3,43,454	4,17,079
	Opening cash and bank		10,45,602	12,38,239	15,08,667	18,52,121
	Cumulative cash balance	10,45,602	12,38,239	15,08,667	18,52,121	22,69,200

The following subsections present basic analysis in this context as sensitivity analysis.

Balance sheet

The annual balance sheets for the project may be projected in light of the estimates in the earlier subsections. As evident from the projections, the reserves and surplus accumulated are considerable. These may also be utilised for future expansion and upgrading plans. Decisions on the deployment of reserves and surplus accumulated will be based on the performance of the project and requirements of shareholders. The projected balance sheet is as under:

Table 48: Projected balance sheet

Particulars (Amount in INR)	Y1	Y2	Y3	Y4	Y5
Assets					
Current assets					
Cash and bank balance	10,45,602	12,38,239	15,08,667	18,52,121	22,69,200
Accounts receivables	0	0	0	0	0
Other current assets	27,550	28,417	29,285	30,152	31,020
Total current assets	10,73,152	12,66,656	15,37,951	18,82,273	23,00,219

Particulars (Amount in INR)	Y1	Y2	Y3	Y4	Y5
Gross fixed assets	2,73,413	2,32,401	1,97,541	1,67,910	1,42,723
Less: depreciation	41,012	34,860	29,631	25,186	21,408
	2,32,401	1,97,541	1,67,910	1,42,723	1,21,315
Total assets	13,05,553	14,64,197	17,05,861	20,24,996	24,21,534
Liabilities & shareholders' equity					
Current liabilities					
Short-term debt					
Accounts payable & accrued expenses	0	0	0	0	0
Other current liabilities	0	0	0	0	0
Total current liabilities	0	0	0	0	0
Total liabilities	0	0	0	0	0
Share capital	10,00,000	11,00,000	12,25,000	13,65,000	15,15,000
TNIAMP grant	3,00,963	3,00,963	3,00,963	3,00,963	3,00,963
Reserves and surplus					
Add: opening balance (p/l account)	0	4,590	63,234	1,79,898	3,59,033
Profit (or loss) during the year	4,590	58,644	1,16,664	1,79,135	2,46,538
Total reserves	4,590	63,234	1,79,898	3,59,033	6,05,571
Total equity	13,05,553	14,64,197	17,05,861	20,24,996	24,21,534

Key financial indicators

Table 49: Financial indicators

No.	Indicator	Typical viability norms	As per analysis	Remarks
1	Internal rate of return	> 10%	31.14%	Viable
2	Break-even point	< 60%	8.08%	Viable
3	Payback period (project)	<5 years	3 years 1 months	Viable
4	Net present value	Positive	INR 2,42,400	Viable
5	Return on capital employed	>20%	41.5%	Viable

All the key financial indicators reflect that the business plan is economically viable and operationally implementable.

Project impact

The members of the FPC are envisaged to gain from the activities of the CFC. Such benefits can be categorised into direct and indirect benefits. Under direct benefit, the FPC is set to benefit from their share in the profit due to ownership of shares in the FPC. However, the indirect benefits far outweigh the direct ones. Such benefits are noted hereunder.

- Processing of produce

Availability of the facility for value addition where there was none. By virtue of this, the CFC farmers can earn at the rate of INR 6,500/Qtl compared to the price realisation for non-primary processed red gram, which was barely INR 6,000/Qtl.

Chapter 6 - Agri-input facilitation services by an FPC

Highlights

This chapter describes the agri-input facilitation service, one of the critical initiatives by an FPC for its members.

Procurement of agri-inputs remains a critical pain point for farmers in terms of the various challenges they have to face, such as availability, high cost, and spurious nature of inputs, etc.

Agri-inputs business that include seed, fertiliser and pesticide-related initiatives is a relatively less risky activity.

The intervention will involve: input requirement analysis, allocation of responsibilities to BoDs, identification of and negotiation with input providers, construction or leasing of a facility, deployment of manpower, acquiring licenses, twinning with input providers and initiating the activity.

The outcome of the initiative may be viewed in terms of reduced procurement and production cost, as well as higher crop yield by virtue of use of quality inputs.

6.1 Scope and need for an agri-input service facility

An important business activity of an FPC is to provide services to members in channeling agri-inputs including seeds, crop protection and nutrition inputs, and animal feed. In this section, the focus is on the operation of a related facility/outlet/shop. Typically, farmers procure such inputs from the nearest (or convenient) retail outlet and by virtue of this practice, confront many issues. These encompass:

- High cost of inputs, dependence on poor/spurious inputs
- Non-availability of specific inputs in time. For example, DAP and urea not being available during peak season
- Recommendation of high dosages of pesticides, insecticides, and herbicides by some unscrupulous input retailers, as these typically offer higher retailer margins
- Promotion of limited quality/non-branded products by input retailers to earn typically higher retailer margins

The highlighted issues directly or indirectly lead to: Higher costs of production, soil and plant health deterioration, poor yield, and produce with high pesticide residue, also seriously impeding export possibilities. FPCs, through opening an input retailing facility and jointly providing their input requirements, can realise price discounts in the range of 5-25%, depending on the input and whether they work as dealers, subdealers, franchisees, etc. Also, they could start introducing more branded and reliable inputs of good quality. Notably, as an added embedded service, many large national and global input brands offer complementary crop advisory services to FPCs as a value-added service. Basically, FPCs may establish an agri-input facility to provide the following inputs to farmers:

- Seeds
- Fertilisers
  - Chemical fertilisers
  - Biofertilisers
- Micro-nutrients
- Pesticides (including insecticides, herbicides, fungicides, bio-pesticides)

Many FPCs in India also use the facility as a platform to provide soil testing and crop advisory services.

6.2 Action toward establishment of an agri-input service facility

In the case of an agri-input facility, FPCs may follow the prescribed sequence of activity:

- Study of input requirement of members
- Finalise the location of the agri-input facility
- Construction of the facility in owned land, or ideally, enter into an agreement for space taken on lease or rent
- Recruitment of staff
- Application for and acquiring input licenses for seeds, fertilisers, and pesticides
- Tie-up with input players for supply of inputs
- Tie-up with credit suppliers (NBFCs or FIs), if necessary
- Launching of agri-input facility

Activity 1: Input requirement analysis

The initial activity for initiating an agri-input facility involves understanding the requirement of farmers in terms of seeds, fertilisers, pesticides, etc. In order to gauge and analyse the input requirement of an FPC, it may administer and collate an input requirement template (Annexure 1).

Once the data analysis is undertaken, the FPC should be able to answer the following:

- How many inputs are required under different typologies like seeds, fertilisers, pesticides, etc.?
- Which are the firms and/or brands from whom inputs are presently procured? What are the preferred firms, suppliers, or brands?
- What is the total requirement input-wise, category-wise, and brand-wise?
- What is the retail price for each input typically paid by farmer members? What other services are offered by existing suppliers/retailers, like credit, etc.?
- What is the season-wise and month-wise requirement of inputs in terms of volume?

Based on the above, input players may be approached for detailed negotiation. These players may include Yara, Deepak fertilisers and IFFCO for fertilisers, UPL, Syngenta, Bayer, FMC for pesticides, and Rasi for seeds.

Activity 2: Allocation of responsibility to BoDs

It is important to finalise the roles and responsibilities of the BoDs in the context of input activity. The following can be the broader roles and responsibilities of BoDs:

- Leading the input requirement study
- Identifying the right location for the facility
- Execution of agreement for the place
- Mobilising documents for input facility licenses
- Negotiating with input players for credit, discount, deposit amounts, etc.
- Analysing the credit and working capital requirement for procurement of inputs (season-wise and annually) and other operating expenditures of the input facility (manpower, electricity, stationery, etc.), negotiating with potential financiers
- Deciding on the discounted rate with respect to market prices at which inputs could be sold to members, as well as non-members

Typically, inputs are offered to provide maximum benefit through price reduction directly to members with the necessary margins retained by the FPC to meet operating expenses.

Activity 3: Identification of agri-input service facility

The location of the facility may be finalised based on the following features:

- Location should be convenient for most of the member farmers
- The lease amount or rent should be reasonable and fair space should be adequate
- The location should have the necessary electricity and water utility connectivity

Activity 4: Construction of a new facility at own place or enter into rental/lease agreement for existing premises

An FPC can purchase land for an input facility. However, ideally, an existing outlet could be taken on a lease or rental basis, considering that the cost of land and the construction of facilities will block equity and investible resources of the network. In fact, the equity of an FPC raised over the first few months after incorporation could be sufficient to initiate procurement activity. Even with an equity contribution of INR 3-5 lakh (with or without leveraging a matching equity contribution from the government) will be adequate to launch operations of an input facility. In fact, many FPCs rotate a mere INR 5 lakh every few days and successfully undertake transactions to the tune of INR 60 lakh every Kharif or Rabi season. The agreement for the leased or rented premises may be a registered agreement for a period of at least ten years, depending on the terms and conditions for license. Rental rates may typically vary from INR 3,000 to INR 7,000 per month for premises measuring 400 sq. ft.

Activity 5: Hiring manpower for the facility

Presently, many FPC promotion programmes, including the GoI scheme for the formation and promotion of 10,000 FPOs, have the provision for recruiting a CEO or manager whose salary is subsidised or paid for by the promoting agency or the government for a couple of years. Hence, to simultaneously fulfil the requirement while applying for a license, a CEO or manager who is a qualified B.Sc. Agriculture or Chemistry graduate, as prescribed, may be selected if feasible. The latter option is ideal in the context of a typical infant FPC yet to develop a viable revenue model for itself.

In terms of an agri-input facility, specifically, a CEO or manager may be additionally engaged in the daily input business activity (at least initially), as this may often turn out to be a largely seasonal activity. They may perform the following related activities:

- Prepare the purchase order for input purchase and may proceed as per instructions of BoDs
- Undertake season-wise planning for input purchase. This will be a seasonal, annual, and monthly forecast
- Monitor transactions and periodically update BoDs
- They may initiate tie-ups with more input players and negotiate for credit and greater discounts

Apart from a CEO, an FPC can deploy additional staff for an agri-input facility based on the scale of operation, always motivated by the need to keep overhead expenses within prudent limits.

Activity 6: Application for and acquiring licenses

An FPC needs to apply for seeds, fertilisers, and pesticide licenses as per the guidelines of the agriculture department or approving authorities. The FPC should take care of meeting all the necessary compliances. Once an FPC acquires the required licenses, it may initiate the negotiation process with input manufacturers.

Activity 7: Twin with input players for supply of products

Based on the input requirement analysis and discussion amongst BoDs and members, if necessary, the related input players may be contacted, and twinning facilitated. The following may be negotiated and finalised:

- Minimum and optimal order quantity, if varying, with respect to the discount offered by the input supplier
- Payment terms and conditions
  - Advance payment/cash payment
  - Credit provision
  - Security deposit is marginal at INR 50,000 by some firms and even waived off by some suppliers/manufacturers for FPCs. This is particularly so if the payment is on a cash and carry basis

- Logistics related parameters
  - Transportation cost
  - Product handling and related labour cost
  - Time lag between the placement of order and delivery of the input

Activity 8: Launching the facility

Based on the parameters specified in the subsection above, an FPC may offer purchase orders to input players for initiating the activity.

6.3 Operational aspects

FPCs may visualise the initiative as one to optimise costs in the procurement function and reduce the cost of production, as well as to enjoy the increase in yield by the use of certified and quality inputs. Moreover, there is also scope to leverage value-added crop advisory services from some input suppliers as an embedded service sans additional cost. Bayer, for instance, has its Better Life Farming Initiative providing crop advisories.

All farmers face challenges in procuring good quality (certified) inputs due to inefficiencies in the ecosystem, information gaps, as well as collusion among rent-seekers and dealers/retailers in the local markets. Inputs are sometimes unavailable on time, and farmers often pay above the MRP for substandard or spurious products. Often, adulteration is also ascribed to poor quality and unbranded pesticide inputs. Further, dealers/retailers enjoy very high margins, increasing the cost of production/cultivation for farmers. All these issues call for the collective and direct purchase of inputs, and an FPC could be the facilitator entity. Typically, the economics is also sound for an input manufacturer or supplier. A 500-number marginal and small farmer member-led FPC may require inputs to the tune of INR 1 to 2.5 crore or more per annum, depending on the crop and catchment area.

An FPC may adopt a step-by-step procedure to perform this activity wherein a series of consultations at the FIG and/or member level and market levels may be undertaken.

Promotion of the facility

An FPC may advertise its services through a meeting of all members at least 45-50 days before the start of the sowing season (either Kharif or Rabi) to declare its intention to procure and supply agri-inputs among the farmers of a cluster or specific catchment area.

Collation of requirements or indents

Inputs need to be made available on time, and perhaps there is a need to arrange for necessary working capital. An FPC may therefore have to estimate the demand about 30-45 days before the season. The FPC members may be encouraged to club their requirements if the individual need for a particular input is lower than the standard packet sizes offered by input suppliers. A judgemental estimate may also be made vis-à-vis requirements of non-members, albeit conservatively.

As indicated, there is an option that any member, who wishes to procure inputs through an FPC, deposits the necessary amount in the account of the organisation and collects a receipt for the same. In this context, there is no need for external finance. However, as indicated, this is hardly feasible in typical cases, and therefore, working capital as a credit facility needs to be negotiated with an NBFC or FI, backed by a business plan. Inputs may be provided during or before the sowing time in Kharif and Rabi seasons. The cash credit limit or working capital facility leveraged may also be a value chain financing instrument where payment is made directly to the supplier rather than through the FPC. Many NBFCs, such as Samunnati Finance, offer such instruments. Further, the sequence of input requirements in a season, that is, first seeds, followed by fertilisers, and subsequently pesticides, needs to be planned to utilise and rotate borrowed capital effectively and efficiently.

Selection of the input manufacturer or supplier

Once the overall potential input requirement is finalised, the FPC may initiate dialogue with input suppliers (and manufacturers, ideally). Suppliers may be asked to quote their prices and supply terms and conditions for the inputs

that they can competitively supply. Based on the quotations, supply terms, and value-added crop advisory services that some may provide, the best option for each input category may be finalised.

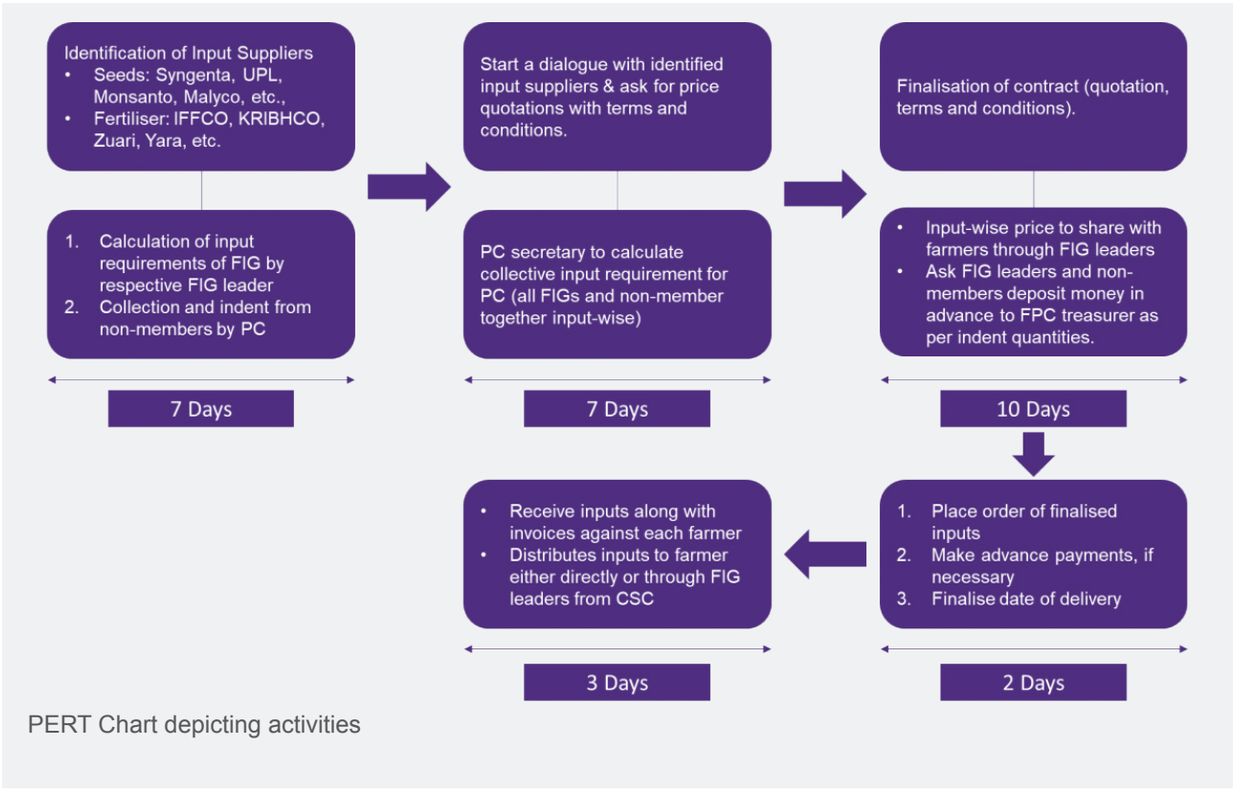
Pricing and payments

An FPC may add service charges, including the price finalised with the input supplier, to derive the price of inputs offered to members. Charges proposed to be levied by the FPC towards sourcing and supplying inputs need to be considered and based on the gross contribution margin derived by the FPC for each input. The price and expected delivery dates may be intimated through an open notice and shared in a meeting with the FPC and FIG leaders. The FPC must maintain a close relationship with the manufacturer or wholesaler and make enhanced deposits or advance payments to the suppliers, if necessary. This will ensure the smooth operation of the facility.

Delivery of inputs

Typically, manufacturers or their wholesalers or dealers will supply the indented inputs only to the FPC's facility, even in the possible case of indents from individual farmers. Non-members of an FPC are also typically serviced similarly.

The sequence of activity may be diagrammatically visualised in the PERT chart following:



PERT Chart depicting activities

6.4 Project economics and financials of a business plan for an agri-input facility

The business summary for an agri-input facility of ABC FPC may be prepared based on the following circumstance and assumptions:

Table 50: Assumptions considered in the business plan of an agri-input facility

Particulars	Y1	Y2	Y3	Y4	Y5
Total members	1,000	1,041	1,082	1,123	1,163
Total active members	500	541	584	629	675
Total non-members	50	52	54	56	58
Average land holding per farmer in hectare	1	1	1	1	1
Major commodities under cultivation – Kharif season (Active member and non-members) (ha)					
Okra	192.50	207.68	223.43	239.76	256.44
Pea	247.50	267.02	287.27	308.26	329.71
Major commodities area under cultivation – Rabi season (Active member and non-members) (ha)					
Tomato	72.60	78.32	84.27	90.42	96.72
Green chilli	72.60	78.32	84.27	90.42	96.72

Seed

Following is the projected business summary of seed facilitation services:

Table 51: Seed facilitation by an input facility

No.	Particulars	Y1	Y2	Y3	Y4	Y5
1	No. of members	1,000	1,041	1,082	1,123	1,163
2	No. of active members	500	541	584	629	675
3	No. of non-members	50	52	54	56	58
4	Seed quantity (kg)					
	Okra	963	1,038	1,117	1,199	1,282
	Pea	24,750	26,702	28,727	30,826	32,971
	Tomato	18	20	21	23	24
	Green chilli	18	20	21	23	24
5	Seed procurement value-cost (in INR)					
	Okra @ INR 2,250 per kg	21,65,625	24,53,214	27,71,267	31,22,468	35,06,695
	Pea @ INR 252 per kg	62,37,000	70,65,257	79,81,250	89,92,709	1,00,99,282
	Tomato @ INR 27,000 per kg	4,90,050	5,55,127	6,27,098	7,06,570	7,93,515
	Green chili @ INR 25,200 per kg	4,57,380	5,18,119	5,85,292	6,59,465	7,40,614
	Sub-total (INR)	93,50,055	1,05,91,717	1,19,64,908	1,34,81,213	1,51,40,107
6	Seed sales revenue – sale price (in INR)					
	Okra @ INR 2,362 per kg	22,73,907	25,75,875	29,09,831	32,78,592	36,82,031
	Pea @ INR 264 per kg	65,48,850	74,18,520	83,80,313	94,42,345	1,06,04,247
	Tomato @ INR 28,350 per kg	5,14,553	5,82,884	6,58,454	7,41,899	8,88,737
	Green chili @ INR 26,460 per kg	4,80,249	5,44,025	6,14,557	6,92,439	7,77,645
Sub-total (INR)		98,17,559	1,11,21,304	1,25,63,155	1,41,55,275	1,59,52,660

Critical assumptions

- The estimate of members willing to purchase seeds from the FPC is based on analysis by the BoDs of the FPC
- Growth in members is an estimate of the BoDs
- The area under members is based on the average area (1 ha) per producer in the FPC
- Seed rate per acre is based on the typical requirement
- Member/non-member growth is assumed as depicted in the tabulation
- Transportation expenses for inputs to and from the facility will be borne by farmers, and the transportation cost of delivering the inputs at the facility will be met with by the concerned supplier
- 5% inflation is considered for operating costs and revenue every year
- The rate for the seed is based upon the prevailing market rate and is subject to fluctuations

Fertiliser

Following is the business summary of fertiliser facilitation Services:

Table 52: Fertiliser facilitation by an input facility

No.	Particulars	Y1	Y2	Y3	Y4	Y5
1	No. of members	1,000	1,041	1,082	1,123	1,163
2	No. of active members	500	541	584	629	675
3	No. of non-members	50	52	54	56	58
4	Fertiliser quantity (kg)					
	Urea	79,673	85,956	92,476	99,233	1,06,137
	DAP	39,688	42,818	46,066	49,432	52,871
5	Fertiliser procurement value (in INR)					
	Urea @ INR 5.50 per kg	4,38,202	4,96,393	5,60,750	6,31,813	7,09,559
	DAP @ INR 24.50 per kg	9,72,356	11,01,482	12,44,287	14,01,974	15,74,491
	Sub-total (INR)	14,10,558	15,97,875	18,05,037	20,33,787	22,84,050
6	Fertiliser sales revenue (in INR)					
	Urea @ 5.85 per kg	4,66,685	5,28,660	5,97,199	6,72,882	7,55,681
	DAP @ 25.00 per kg	9,91,804	11,23,512	12,69,173	14,30,014	16,05,981
Sub-total (INR)		14,58,489	16,52,172	18,66,372	21,02,896	23,61,662

Critical assumptions

- The area under these members is based on the average area (1 ha) per member of the FPO
- Member growth is an estimate of the BoDs of the FPC
- Fertiliser dose per hectare is based on expert opinion
- The rate for fertiliser is based on the prevailing market prices
- Discount offered by the fertiliser supplier is incorporated
- Member/non-member growth is considered as tabulated above
- Around 5% inflation is considered for both cost and revenue every year

Pesticide

By way of illustration, following is the business summary of pesticide facilitation.

Table 53: Pesticide facilitation through an input facility

No.	Particulars	Y1	Y2	Y3	Y4	Y5
1	No. of members	1,000	1,041	1,082	1,123	1,163
2	No. of active members	500	541	584	629	675
3	No. of non-members	50	52	54	56	58
4	Pesticide application in hectares	585	631	679	729	780
5	Pesticide value @ INR 1,000 per ha	5,85,200	6,62,913	7,48,858	8,43,760	9,47,587
6	Pesticide revenue @ INR 1,200 per ha	7,02,240.00	7,95,495.56	8,98,629.65	10,12,512.43	11,37,104.39

Critical assumptions

- There are a range of pesticides and related suppliers. Therefore, the plan considers INR 1,000 per hectare as the purchase cost for pesticide
- Around 20% mark-up is considered on the pesticide's purchase cost

6.5 Project economics

The summary project economics of an agri-input facility for ABC FPC members may be viewed as follows:

Table 54: Project Economics of an Agri-Input facility

No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
A.	Direct income					
1	Seed	98,17,559	1,11,21,304	1,25,63,155	1,41,55,275	1,58,97,114
2	Fertiliser	14,58,489	16,52,172	18,66,372	21,02,896	23,61,662
3	Pesticide	7,02,240	7,95,496	8,98,630	10,12,512	11,37,104
	Subtotal (A)	1,19,78,288	1,35,68,972	15,328,157	1,72,70,683	1,93,95,880
B.	Direct expenditure					
1	Seed	93,50,055	1,05,91,717	1,19,64,908	1,34,81,213	1,51,40,107
2	Fertiliser	14,10,558	15,97,876	18,05,036	20,33,788	22,84,050
3	Pesticide	5,85,200	6,62,913	7,48,858	8,43,760	9,47,587
	Sub-total (B)	1,13,45,813	1,28,52,505	1,45,18,802	1,63,58,761	1,83,71,743
	Net direct income (A-B)	6,32,476	7,16,466	8,09,355	9,11,923	10,24,137

(Amount in INR)

This direct income of INR 6 lakh in the first year is more than enough to meet the operating expenditures of an input shop whose operating expenditure may be viewed in terms of the rental cost of facility + electricity expenses + salary of the qualified shop-manager + misc. expenditure (such as printing and stationery).

The total expenditure is not likely to be more than INR 20,000 per month or INR 2.4 lakh per annum. Even including interest costs on necessary working capital @ high 15% on an INR 10 lakh working capital loan for procurement activities, the plan is highly bankable.

It may be noted that the sale price of inputs pegged is typically 5-15% lower than typical market rates. Members secure quality and reliable inputs at competitive prices, and the FPC earns income to meet operating expenses and for future expansion plans.

Table 55: Input Requirement

No.	FPC	Total acreage	Kharif-Acreage distribution for April 2021- Mar 2022		Total purchase estimation (INR)
			Red gram	Groundnut	
	XYZ FPC	800	15%	85%	1,08,18,200

The table following presents the input requirement in the Kharif season:

Table 56: Input Requirement Analysis – Input Requirement (Volumes – Kharif)

No.	FPC	Total acreage	Company and input	Kharif-Purchase estimation (INR)		Total purchase estimation (INR)
		800		Red gram	Groundnut	
			Percentage of farmers growing	15%	85%	
Pesticides				11,280	4,20,920	4,32,200
			Chlorpyrifos = 3 to 4 ml per 1 kg of seed i.e., = 80 kg*4 ml = 360 ml required per acre	23	150	173
			M45 = 3 grams per 1 kg seed. i.e., = 80 kg*3 grams = 240 grams required per acre	17	110	127
			Neem oil = 4 ml per 1 per litre	22	149	171
			Confidor = 1.6 ml per 1 litre (100 litre per acre*1.6=160 ml	32	210	242
Fertiliser				1,26,000	47,60,000	48,86,000
			Single super phosphate-2 times*350=700	105	700	805
			Muriate of potash-2 times*800=1600	240	1,600	1,840
			DAP-2 times *1200=2400	360	2,400	2,760
			Gypsum-2 times*150=300	45	300	345
			Organic manure-1 tractor	300	2,000	2,300
Seed				60,000	54,40,000	55,00,000
		Groundnut	Bayer	Nigam		
					8,000	8,000
		Red gram				
			LRG 40-5 kg	500		500
Grand total				1,97,280	1,06,20,920	1,08,18,200

A total requirement of INR 1.08 crore of inputs is required by FPC members in the Kharif season for cultivation of red gram and groundnut.

Chapter 7 - Case studies of successful young FPCs

Highlights

This chapter presents case illustrations of relatively young FPOs from several states such as Andhra Pradesh, Karnataka, Maharashtra, Rajasthan and West Bengal.

Even young FPOs from Andhra Pradesh have initiated the business of agri-inputs selling, custom hiring centres, operation of market yard, operation of nursery, pack-house, cold store, etc.

Success stories are presented of FPOs of Maharashtra, a leading state in the FPO movement across the country.

Market linkage-based success of horticulture FPOs of the Karnataka showcase model may be followed by the newer generation of FPOs.

Case studies of the FPOs of Rajasthan that have supported their members in the following good practices, such as diggi (water tank) construction, polyhouse and shed net creation etc., are presented.

FPOs of West Bengal have proved their mettle in converging with state government schemes and reaching directly to consumers through retail outlets.

Learnings are compiled in the last section of the chapter extracting through the successful cases presented. The experience and learnings are presented under various aspects, such as mobilisation, management, governance, compliance, growth, marketing, financials, etc.

7.1 Some dynamic FPCs from Andhra Pradesh

The following case illustrations present operations of some horticulture-related FPCs in Andhra Pradesh. The state government played a pivotal role in this case.

7.1.1 Rapid upscaling of entry-point input operations by FPC through leveraging credit, Guntur, Andhra Pradesh

Introduction

The farmer producer organisation 'Krosur Mandal Krushi Farmers Producer Company Limited' was registered under the Companies Act, 2013, in the Guntur district of Andhra Pradesh in 2019. This FPC initially comprised 29 producer groups (PGs) with about 20 farmers mobilised from each of the 10 villages of the district, ultimately comprising some 585 member farmers. These groups were federated to form the producer company. In its capacity as a consultant, the Department of Horticulture, the government of Andhra Pradesh, and Grant Thornton Bharat (GTB) guided the preparation of the company's business plan and provided a range of incubation services. The FPC is supported by the Department of Horticulture of the state government, wherein a subsidy of up to 75% (maximum of INR 1 crore) is provisioned towards strengthening infrastructure and establishing common facilities. Assistance is leveraged under the Rashtriya Krishi Vikas Yojana (RKVY) scheme.[33]

33 Grant Thornton Bharat served as a consultant to successfully form and promote 30 horticulture related FPCs in Andhra Pradesh under this initiative.

Leveraging assistance under the RKVY and from the World Bank to promote FPCs at the state level

Other than Andhra Pradesh, many states, including Kerala, are effectively leveraging assistance under the RKVY to form and promote FPCs. The components and nature of assistance, including the intervention model, varies at the state level. In Andhra Pradesh, the Department of Horticulture targeted 100 FPCs and allocated the task to several service providers. In the case of Kerala, a project management unit (PMU), effectively an Agri Business Promotion Facility (ABPF), guides and monitors interventions by a number of selected resource institutions or service providers. In the case of Kerala, 100 new as well as existing FPCs, were targeted. In the case of Maharashtra, Rajasthan, Himachal Pradesh, Assam, and Tamil Nadu, 30 – 400 FPCs have evolved under World Bank-supported programmes.

Guntur has an area of around 11,391 sq. kms and is the second most populous district in the state, with a population of 48,89,230 as per the 2011 Census estimates. The district is often referred to as the 'Land of Chillies.' Notably, various interventions have been made over this FPC's formation, promotion, and growth. Notably, the outcome of the intervention in 2 to 3 years has ensured a substantial increase in the incomes of farmer members of the FPC. Also, the FPC has evolved into a sustainable platform providing a range of services to member farmers.

Formation of the FPC to redress constraints, facilitators, and management

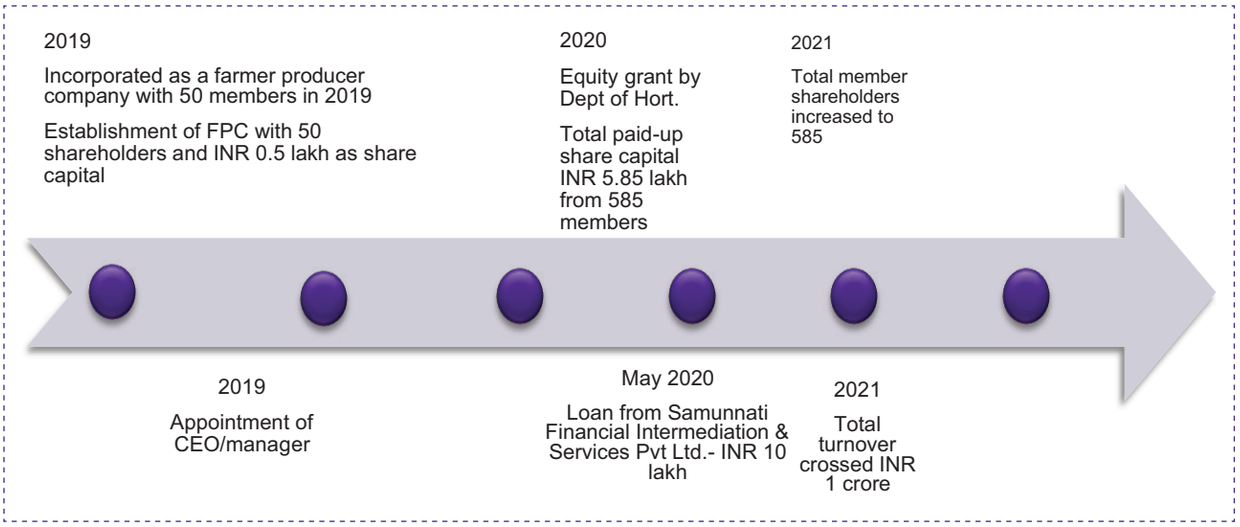
Basically, 585 farmers with average and typical land holding sizes of 1.02 ha each were mobilised. In terms of production features, most of the land in the catchment area cultivated by farmers is rain-fed and enables growing two major crops: red chilli and cotton. Nevertheless, chilli is primarily grown under the canal irrigation system. Production and post-harvest constraints identified during the pre-formation stage of the FPC are tabulated below.

Table 57: Commodity-wise constraints for farmers

Season	Commodity/ Crop	Constraints
Kharif	Red chilli	• Limited access to good quality inputs at competitive prices • Limited access to credit for direct procurement, marketing, and to avoid distress sale • Absence of direct market linkages • No facilities for sorting and grading of produce, nor storage
Summer crops	Vegetables	Limited storage facilities

The farmers were aggregated to redress the identified constraints jointly. Initially, INR 1,000 was collected from each member shareholder, and a Chief Executive Officer (CEO) was appointed. The authorised capital of the FPO was INR 10 lakh.

The growth of the FPO, in terms of its membership base and share capital, is presented below:



Growth trends of the FPO

Management of the FPC

The management team may be viewed in terms of its Board of Directors, including the Chairman and its CEO. Critical aspects related to its management include the conduct of board meetings, AGM, and the maintenance of a gamut of statutory records. Further, an important aspect of management is compliance with tax and company law requirements. The FPC has six male directors, some of whom are graduates, and one woman director. The company has also formed 'committees' for handling various enterprise operations and activities. These committees include:

Functional Committees of the FPO

Farmer Mobilisation Committee	Purchase/Procurement Committee	Audit & Finance Committee	Marketing Committee

Roles and responsibilities have been allocated among the directors. The FPC commenced its agri-input operations early, from September 2019 onwards. The CEO oversees day-to-day operations and meetings of statutory compliances and handles bookkeeping and accountancy.

In addition to the CEO, the FPC has engaged one person for procurement purposes, and the FPO bears his salary. The latter facilitates the purchase and sale of the fertiliser, pesticides, and other inputs, whereas the primary responsibility with respect to maintaining books of accounts is that of the CEO.

Board meetings and AGM, documentation, and compliances

The Annual General Meeting (AGM) of the KMKFPCL has been conducted typically and annually in December and witnesses the wide-scale participation of member shareholders. The major agenda in such AGMs has been to:

- Discuss the business activities and performance of the company
- Focus on the means to increase the share capital of the company

The board meetings are conducted regularly at the registered office of the company. Importantly, board members meet once a fortnight to informally discuss the operations of the FPC, apart from regular board meetings. The set of documents and records maintained by the FPC are as follows:

Table 58: Documents and Records Maintained

Physical records	Digital records
Shareholders list	Accounting in Excel & Tally
Inward-outward register	Business plan
General ledger, voucher books, bill books for pesticides, fertilisers, and general	Input sale & purchase (Flexy software)
Stock register for pesticides, fertilisers, and also a cashbook	
Minutes of meetings & visitors book	

Accounts of the FPC are regularly updated by the CEO and submitted for verification to the chartered accountant. The FPC transactions are typically routed through its bank account. The company maintains a chequebook for transactions.

Apart from such documentation and records, the FPC is also maintaining the following digital records:

- Shareholders list accounting in Excel & Tally
- Business plan
- Input sale & purchase (Flexy Software)

The CA prepares audited financial statements as per statutory requirements, certified and submitted to the Registrar of Companies. For undertaking business activities, the company has the necessary licenses, i.e., for fertilisers, pesticides, seeds, and trade licenses.

Accounting transactions

All the accounts of the FPC are updated by the CEO and submitted for verification to the CA. The FPCs transactions are typically routed through its bank account. The company has also installed the Tally software for bookkeeping and accounting. Payments to members, transporters, suppliers of input, and suppliers of the packaging material of the company are through cheque, a few transactions, such as those related to payment for part-time labour, are done on a cash basis.

Infrastructure and facilities with the FPO

Today, the FPC is establishing a farmers' common facility centre at a project cost of INR 68 lakh. A range of business services related to the Non Pesticidal Management (NPM), i.e., neem powder pulverisation machinery, a vermi compost unit, and a pack house, are envisaged. The Andhra Pradesh Irrigation and Livelihood Improvement Project (APILIP) is expected to provide grant assistance to the tune of about INR 50 lakh. Accordingly, land has been secured on a lease basis for 15 years.

Presently, the FPC is running the business from a rented input shop cum godown and paying a monthly rent of INR 3,500. The network has a desktop computer and has deployed six webcams to easily monitor sales and purchases in the input shop.

Access to credit

Access to working capital for operating the input business operations was a major hurdle. Hence, the FPC had approached an NBFC for a working capital limit of INR 10 lakh, with a scope of meeting ballooning requirements, albeit at higher interest rates of about 15%. The FPO secured and rotated this amount five times within five months. In the meantime, a business plan was prepared for a working capital loan to run the input operations and submitted to the Punjab National Bank, Sattenapalle branch. This was to facilitate access to cheaper credit progressively.

Business activities

Annual turnover and net profit of the FPC accrued initially, basically from input operations, may be viewed as follows:

Table 59: Annual Turnover and Profit of FPC

Financial year	Turnover (INR lakh)	PAT (INR lakh)
FY 20-21 (provisional figures)	84.54	2.74 (3.24 %)

Most of the benefit from bulk procurement was passed on to the members directly. Inputs were sold to member farmers only with a small markup to meet operational expenditure and accumulate reserves.

Input shop operations

Before establishing the input facility, member farmers had no option but to procure various agricultural inputs from the local retail shops. Very often, farmers bought spurious inputs at high prices and often on credit. Upon establishing the input shop, farmers enjoyed access to quality inputs at competitive prices. About INR 1.82 crore worth of related transactions have been undertaken by the network in a couple of years. Total sales for 2019-20 was INR 88.39 lakh, which decreased to 84.54 lakh during 2020-21 due to the adverse impact of Covid-19.

Table 60: Input Mix in Procurement

Category	Fertiliser (INR lakh)	Pesticides (INR lakh)	Organic (INR lakh)	Others (INR lakh)	Total (INR lakh)
Input-mix in procurement	11.57	49.37	18.23	5.37	84.54
	13.69%	58.40%	21.56%	6.35%	100%

Apparently, the major portion of the business has revolved around the procurement and sale of pesticides, accounting for 58.4% of the total revenue, followed by the sale of organic products/IPM products up to 21.56% and fertilisers up to 13.7% of the total revenue. Other products sold through the input shop include sprayers and tarpaulin sheets of different sizes. These account for about 6.35% of the total sales. Major agri-input pesticide-related firms that the FPC is associated with and the annual procurement value of agri-inputs from these firms are provided below:

Table 61: Major Agri-input Pesticide Firms

Name of the agri-input company	Annual procurement value of agri-inputs (FY 20-21) (INR lakh)	% share of pesticides procurement	Transaction type (Credit/cash)	No. of days Credit
Syngenta	7.78	15.76%	Credit	10 – 15 Days
Garuda	7.13	14.44%	Credit	10 – 15 Days
Bayer	6.17	12.50%	Credit	10 – 15 Days
UPL	5.03	10.19%	Credit	10 – 15 Days
FMC	4.38	8.88%	Credit	10 – 15 Days
TATA Rallis	3.69	7.48%	Credit	10 – 15 Days
PI	3.57	7.22%	Credit	10 – 15 Days
Cystal	3.50	7.09%	Credit	10 – 15 Days
Indofil	3.44	6.96%	Credit	10 – 15 Days
Dupont	2.56	5.19%	Credit	10 – 15 Days
Dhanuka	2.12	4.29%	Credit	10 – 15 Days
Total:	49.37	100.00%		

The procurement of inputs, including pesticides and fertilisers, input manufacturer-wise, is presented below:

Table 62: Input Procurement (Manufacturer-wise)

Name of the firm	Fungicides	Pesticides	Fertilisers	Herbicides	Micro-nutrients	Total (INR in lakh)
Syngenta	2.10 (27%)	3.50 (45%)	0	1.95 (25%)	0.39 (5%)	7.78
Garuda	1.57 (22%)	3.07 (43%)	0	1.28 (18%)	1.21 (17%)	7.13
Bayer	1.54 (25%)	2.96 (48%)	0	0.93 (15%)	0.74 (12%)	6.17
UPL	1.51 (30%)	1.76 (35%)	0	1.26 (25%)	0.50 (10%)	5.03
FMC	0.88 (20%)	2.63 (60%)	0	0.48 (11%)	0.39 (9%)	4.38
TATA Rallis	1.11 (30%)	1.40 (38%)	0	0.74 (20%)	0.44 (12%)	3.69
PI	0.78 (22%)	1.36 (38%)	0	0.61 (17%)	0.46 (13%)	3.57
Cystal	1.12 (32%)	1.33 (38%)	0	0.63 (18%)	0.42 (12%)	3.50
Indofil	2.06 (60%)	1.03 (30%)	0	0.21 (6%)	0.14 (4%)	3.44
Dupont	0.51 (20%)	1.54 (60%)	0	0.31 (12%)	0.21 (8%)	2.56
Dhanuka	0.47 (22%)	0.91 (43%)	0	0.38 (18%)	0.36 (17%)	2.12
Spic	0	0	2.14 (100%)	0	0	2.14
Gromor/ Coromandel	0	0.51 (10%)	4.09 (80%)	0	0.51 (10%)	5.11
Nagarjuna	0	0	4.32 (100%)	0	0	4.32
Total	13.65 (22.40%)	22.10 (36.27%)	10.55 (17.31%)	8.76 (14.38%)	5.78 (9.49%)	60.94

The major share accounted for by the agri-input companies is by Syngenta with 15.76% of the share in the total sales, followed by Garuda (14.44%), Bayer (12.5%), UPL (10.19%) and FMC with 8.88% share. The least share is occupied by Dhanuka, accounting for only 4.29% of the total FPC sales. With regard to input transactions, pesticide sales occupied the highest portion with 36.27%, followed by fungicides at 22.4%, fertilisers (17.31%), and herbicides (14.38%).

The annual turnover of the FPC in the first year of operation has been over INR 0.84 crore. Its de-facto impact on members patronising the FPC is higher, as the revenue as per the books of the FPC only reflects the discounted price at which inputs were procured and sold to members by the network.

7.1.2 PO offering custom hiring, input, cold store, and secondary processing in Chittoor, Andhra Pradesh

The NABARD has also extensively supported FPCs. This sub-section considers some of them.

The Cheldiganipalli Horticulture Farmers Mutually Aided Co-operative Society Ltd was registered in 2006 at Kuppam,

V. Kota of the Chittoor district. The region is of traditional repute in growing vegetables and flowers, leveraging the favourable agro-climatic conditions. The PO today has about a 200-member base and an equity shareholding of INR 2 lakh. The PO has realised an average turnover of about INR 5 crore per year in the last three years. The PO members are largely into cultivating horticultural crops like brinjal, cauliflower, beans, potato, tomato, and flowers like roses, lilies, and marigolds. Initially, the FPO dealt with agri-inputs like seeds (vegetables), pesticides and fertilisers. They subsequently progressed into a range of other activities.

The PO also supplies quality seeds, pesticides, and fertilisers to members. The PO has deployed two dedicated resources for educating farmers about Good Agriculture Practices. The PO has been supported in leveraging assistance through grant for setting up a cold storage and tomato processing unit. The project has been sanctioned assistance under the RKVY scheme. Around 1,000 farmers benefit from input shops, and the price charged to member farmers is 15 to 20% less than typical market rates. The earnings from the input shop are about INR 1.5 crore, largely from seeds and pesticides. The PO plans to expand its business by increasing its member base and offering custom hiring facilities.

Input, custom hiring, and post-harvest infrastructure by POs

Input facilitation services offer the scope of procuring quality inputs at a simple average of even 20% lower costs and enhancing productivity. Part of this cost advantage could be passed on to member units, and the balance retained as reserves in the account of the producer company. There is a need to raise equity to operate such a facility, and as indicated, credit by way of working capital may also be leveraged. There is also scope to tap the RKVY for support in establishing value-adding common facilities, ranging from cold stores to custom hiring facilities. Basically, mechanised services, including those related to land preparation, sowing, harvesting, and transportation of inputs and produce, are also to be facilitated. Land preparation includes three major operations: ploughing, levelling the land, and bed preparation.

7.1.3 Pack-house and input services in Chittoor district, Andhra Pradesh

The Kisan Suvidha Farmers Producer Company Ltd was registered in 2016 in Chittoor district. The farmers of this cluster and the FPC have progressively adopted improved agricultural practices. In the case of fruit and vegetable cultivation, mechanised processes are favoured for the laying of mulching paper and interculture operations. The cluster is rich in producing the mango variety used for processing, and today, the FPC has about a 6,000-member base and about 1,300 farmers with an equity shareholding of INR 13 lakh. The FPC has enjoyed an average turnover of about INR 15 crore per year in the last three years. The FPC members are largely into the cultivation of horticultural crops such as brinjal, cauliflower, beans, potato, tomato, and fruits like mango, pineapple, and grapes.

The FPC also undertakes the supply of quality seeds, pesticides, and fertilisers. The network offers these services at 5 to 10% below the prevailing market rates. The FPC is situated in a catchment region with abundant mango production. It has deployed two dedicated resources for educating farmers on Good Agriculture Practices through an agri-input shop. The FPC has availed financial support of about INR 30 lakh for setting up a pulping unit and is setting up an integrated pack house to process mango. Around 6,000 farmers are being benefitted in terms of the input shop. The earnings from the input shop are about INR 50 lakh largely from seeds, fertilisers, and pesticides. The network is planning to expand its business by value addition to mango, grapes, tomato, and pineapple crops.

Secondary processing, pulping as a common facility for avoiding distress sale

In the context of a typical FPC, a pulping unit is a secondary processing facility. This will facilitate the conversion of horticulture produce into pulp which can be stored for a longer period – basically extending the shelf life of the commodities. This is particularly important for fruits and vegetables like mangoes, tomatoes and some others, usually produced only for a couple of months a year. Processors require a year-round supply, and pulping storage and supply is a viable activity for growing FPCs.

7.1.4 Cold store facility in Kurnool district, Andhra Pradesh

The Y. Khanapuram Producer Company Limited was registered in 2016 at Khanapuram of Kurnool district. The region has a traditional reputation for growing all types of vegetable crops like onion, tomato, chilli, and okra. The horticulture department has supported the PO in leveraging funds for setting up cold storage facilities. The project

has been sanctioned assistance under RKVY at a cost of INR 15 lakh, with about INR 12 lakh as a subsidy amount. In view of the increasing member base, the PO plans to set up an input shop in the current financial year.

Storage to avoid distress sale

Establishing cold store and Controlled Atmosphere (CA) stores is an important intervention. For example, the storage of chilli during harvest and an off-season sale could enable producers to earn a mark-up of even 60% on sale price in some years. In the case of onion, this could be a 40% mark-up. In fact, even utilising the available cold storage (if available already) in a region could enable producers to earn higher sale prices of 20-30% after paying rental charges on cold storage and interest cost on working capital.

7.2 Some successful case studies from Maharashtra

The following case illustrations present the experiences of some young and dynamic FPCs in Maharashtra.

7.2.1 Quality seeds, custom hiring, storage, and MSP procurement services in Ahmednagar, Maharashtra

With a membership base of 269, an FPC was registered in Ahmednagar in 2019. The state government supported a common facility at a project cost of about INR 18.5 lakh, which facilitates cleaning, grading, packaging, and transport to benefit Amarsinh Agro Producer Co. Ltd. The activities undertaken by the network include facilitation of inputs, grading, sorting, and packaging of onion and pomegranate, and seed production of horse gram. About 400 such FPCs have been supported under the Maharashtra Agriculture Competitiveness Project (MACP)[34].

The built-up space and land for the common facility were secured on a rental basis at INR 40,000 per year. The workspace in this project is used as a collection facility, with tables for grading onions and pomegranates, their packaging and sale under a common brand. The average turnover of the producer company peaked at about INR 46 crore and profit was about INR 4.47 lakh for 2017. This farmer producer company is involved in the grading, sorting, packing, and selling of onions and pomegranates.

The members were initially using certified seeds and have now started using foundation seed, which has increased horse gram production. The members invested INR 1,000 per acre in production activity and have gained INR 6,000 per acre, a net profit of INR 5,000 per acre. The farmer members bring their produce to the FPC for value addition in cleaning, sorting, and grading onions and pomegranates. The processed produce of the farmer members is sold to traders and the local market. Since its inception, this network has been involved in various service-providing activities.

The producer company's godown is a Warehouse Corporation-accredited godown. Today, the network also plans on commencing warehouse receipt finance. This will enable members of the producer company to secure loans against warehouse receipts. The FPC also plans to purchase a vegetable pick-up van for better transportation and supply of vegetables. The FPC further aims at value addition to pomegranate in terms of 'Anardana'. The producer company also plans to develop its custom hiring facility to help increase the yield per hectare considerably for farmers. The FPC is today supplying even to Wal-Mart and has realised a turnover of over INR 40 crore through MSP services with respect to Tur.

Quality seeds, custom hiring and storage services and MSP procurement: A viable mix

The utilisation of GAP, including appropriate seed varieties, could contribute much towards increasing farmer livelihood incomes. Accrediting an FPC godown will also facilitate access to credit instruments like warehouse receipts. Custom hiring services and storage services with adequate credit linkages to avoid distress sales during the harvest season are important interventions before typical FPCs graduate into secondary processing. Providing services under the MSP initiative of the government is a service provided by many FPCs.

34 The MACP has been supported by the World Bank and Grant Thornton Bharat LLP has served as the Agri Business Promotion Facility under this initiative

7.2.2 Seed production, custom hiring, buffer stock and direct marketing services in Pune, Maharashtra

The Krushijeevan Agro Farmers Producer Company Limited was registered in 2014 in the Junnar taluka of Pune district. Since the early years of operation of the network, farm equipment has been given to member farmers and non-members by the FPC on rent for using them on their respective farmlands. The farmers of Junnar and the FPO have progressively adopted improved agricultural practices.

The FPC today has about 500 members. There are 12 directors who perform different roles in the FPC, which has enjoyed an average turnover of about INR 1.5 crore per year in the last three years. The FPC members are largely into the cultivation of horticultural crops like tomatoes, potatoes and onions. The ABPF has supported the FPC in the preparation of a business plan for custom hiring equipment.

Criticality of custom hiring services

The project has been sanctioned assistance under the MACP at a project cost of INR 15.5 lakh and with about INR 7.5 lakh as assistance under the common facility scheme; a tractor, rotavator, cultivator, and mulching paper laying machine have been secured by the FPC in 2015. These are offered to member farmers at 20% to 30% less than the average market rates. For the three-month cropping and harvesting season of tomatoes, for instance, there is an acute shortage of tractors, and farming and harvesting facilities. The typical loss to a farmer is about INR 2 lakh per acre per year. This is because, after the three months of farming and harvesting season of tomatoes, the yield per acre is about 20 MT per acre. If harvested and brought into the market on time, the earnings per tonne are even about INR 30/kg, yielding about INR 6 lakh to farmers. However, during this period, tractors and farm implements are available with a lag of 4 to 5 days, and many farmers bring out part of their harvest with a 15-day lag when prices may fall to even INR 20 per kg. Having access to such implements in time help reap benefits of a good market.

The gross income from the provision of custom hiring equipment services to members, also for potato and onion cultivation, has been about INR 30,000 per month. The salaries, fuel, and maintenance expenditures of the tractor and equipment account for about INR 23,000 per month, yielding a net income of about INR 84,000 per year from the operation of this service to the FPC. In addition, member farmers receive this service at 20% to 30% less than the exploitative market prices.

The FPC also produces good quality onion seeds in Yavatmal and Buldhana regions. In this activity in the recent past, the network has produced about 2,000 kg of seeds and sold them at the rate of INR 2,000 per kg to members. This is when market rates hover around even INR 3,000 per kg. This activity has lowered the related procurement cost to members by 30% and facilitated gross income of about INR 40 lakh to the FPC, of which net income after expenses has been to the tune of about INR 10 lakh. Quality seeds are now available to member farmers, increasing productivity. They had faced severe problems in securing quality seed earlier. The FPC has also undertaken direct marketing efforts and received fiscal assistance to establish two collection centres for horticultural produce from the Maharashtra State Agriculture Marketing Board. These centres are equipped with grading machines and packaging crates. The centres are supported by two 2 MT Bolero pick-ups costing about INR 7 lakh each, and partly subsidised by about INR 2 lakh each by the Maharashtra State Agriculture Marketing Board (MSAMB). The collection centres have a turnover of over INR 1 crore and yielded a net income to the tune of about INR 15 lakh to the FPC. The FPC has also worked with the government vis-à-vis buffer stock targets in storing onions from May end to August for about three months in 2015 as a buffer stock storage initiative. About 1,000 MT of onions has been procured at INR 22/kg, stored, and sold at INR 55/kg, yielding about INR 33 lakh as gross income to the network.

The network has also undertaken the export of pomegranates to the tune of 20 MT to Dubai. The Agricultural and Processed Food Products Export Development Authority (APEDA) introduced the FPC to exporters, facilitating such a transaction. Furthermore, the FPC has leveraged assistance to the tune of about INR 60 lakh under the RKVY scheme. The case illustration emphasises the critical role of various activities undertaken by such successful FPCs, which even realised a total business of about INR 4.5 crore in the last 2 to 3 years, benefitting thousands of farmers in the region. The FPC plans to expand its marketing network and enhance its export turnover.

Farm mechanisation and seed production

Facilitating custom hiring services and seed production activity are essential services that an FPO may offer to members. Custom hiring equipment such as tractors, rotavators, cultivators, and mulching paper-laying machines are farm equipment that are not easily available to farmers during the harvest season. This could lead to considerable loss to farmers, as the service costs are high, and in fact, not accessible when really required. Seed production activity is critical in some cases where the quality of seeds, price fluctuations, and damage during transportation affect value accruals to farmers. In fact, regarding onions, both seed production in 10-20 acres of land and storage capability could go a long way in enhancing the income levels of farmers.

7.2.3 Producing foundation seeds and related contract farming by an FPC in Aurangabad, Maharashtra

Jai Siddheshwar Krushi Producer Company Limited was registered in August 2014 with the objective of producing quality seeds of onion. It set an example by forming a company of 100 small farmers in Sillod Tehsil, Aurangabad district in Maharashtra, proving that they, too, can successfully produce foundation seeds at par with national standards.

Such has been the tremendous growth in the activities of the company that its membership has soared past 500 members, starting from 100 members initially. The company received a grant of INR 13.5 lakh from the state government. The company established a cleaning and grading unit (2 TPH), dal mill (2 TPD), and godown of 500 MT capacity. The FPC provides various services to its members, including distributing foundation seeds among its members (from those who produce them to those farmers who would sow them), and provides essential inputs for quality seed production, among others. The company's turnover reached an all-time high of INR 2 crore in the third year, which had started from INR 50 lakh in the first year and was INR 1.5 crore in the second year. As a result of these initiatives, the farmer members of the company have been at least earning an additional income of INR 1,000 per quintal for Tur procurement by the FPC. Also, since the company is carrying out job work-based cleaning and grading of wheat, the farmers make profits of up to INR 200-250 per quintal from the sale of processed wheat. The most profitable business of all has been the onion seed production, wherein INR 23,000 per quintal has been the benefit transferred to the producers.

Notably, the FPC entered into contract farming for onion seed production with a Nandurbar-based company at a selling price of INR 28,000 per quintal, while prices in the Sillod mandi were INR 5,000 per quintal. The company, however, faced the challenge of cold storage, which is in Aurangabad city, at a distance of 100 km. Yet, the onion (seeds) can be stored without cold storage facilities for up to 1 year. The FPC markets the certified seeds in 50 kg bags to seed companies based in Jalna, Mahabeej, Beej Nigam, and an American company located in Bangalore.

The FPC has set up its collection centre in Baradi, which is located 12 Km from Sillod. It caters to 5-6 villages in a radius of 10-15 Km. The company successfully processed 100 MT Tur dal through job work at the rate of INR 80 per kg. Similarly, it has processed 10 quintal moong dal. Maize was procured from farmers and then dried and graded into three categories. Grade A was sold to poultry feed units, grade B to flour mills, and grade C to beer processing units in Ahmednagar and Aurangabad. The FPC is now expanding its activities to include turmeric processing and packaging. It has received INR 15 lakh as a loan through MFIs, for purchasing machinery (capacity- 2TPH) for boiling, drying, and polishing turmeric rhizomes.

7.2.4 Crop advisory and market connect by MNCs, primary and secondary processing CFCs, in Aurangabad, Maharashtra

This case illustration presents the range of services that even a young FPC can provide its member farmers in a short time span of 3-4 years since its inception. Their services include dissemination of GAP, crop advisory, operation of an agri-input shop, common service centres for primary/secondary processing, alternate direct market linkages with large processors and retailers, and helping avoid distress sales through availing credit from the formal financial sector, etc.

A farmer producer company supported by the state government in Maharashtra[35] was registered in the Aurangabad

35 Under the Maharashtra Agriculture Competitiveness Project (MACP), where GT Bharat has served as the Agri Business Promotion Facility.

district of Maharashtra under the Companies Act in 2015. This FPC, Krushi Kranti Hi-tech Agro Producer Company Limited, involves 13 producer groups (PG) with about 20 farmers each from 11 villages of the district. These groups were federated to form a producer company. The Agricultural Technology Management Agency (ATMA) provided the service of the sensitisation of farmers and WIPRO also provided technical support. In its capacity as Agri Business Promotion Facility (ABPF), Grant Thornton Bharat guided the preparation of the company's business plan and catalysed a range of incubation services. In this specific context, all these agencies worked under the aegis of the World Bank-aided Maharashtra Agricultural Competitiveness Project (MACP), as in the case of other illustrations from Maharashtra. Most critically, implementing agency led many interventions and contributed by way of support to the FPC to evolve into a Tur procurement platform for procuring Tur of 2140 Qtl in 2016-17 through the state-level FPO, namely, the MAHAFPC, and the Krushi Kranti Hi-tech Agro Producer Company Limited (KKHAPCL) has secured a matching equity grant of INR 9.5 lakh.

The average size of landholding in Aurangabad is 1.3 ha. Notably, a range of interventions have been made over this FPC's formation, promotion, and growth. Importantly, the outcome of the intervention in 3 to 4 years has ensured a substantial increase in the incomes of farmer members of the FPC. Also, the FPC has evolved into a sustainable platform, providing a range of services to member farmers.

Formation of the FPO to redress constraints

Before 2015, the Agricultural Technology Management Agency (ATMA), Aurangabad, along with the Taluka Agriculture Officer (TAO) and Agriculture Department at the district level, had initiated work on collectivisation of farmers. Progressive farmers with leadership qualities were involved in the mobilisation process. About 200 farmers with average and typical landholdings of 3.01 acres each from 11 villages were mobilised.

In terms of production characteristics, the majority of land cultivated by the farmers in the catchment area is rain-fed and supported two crops in a year. The major crops produced in Kharif are-jowar, bajra, maize, cotton, banana, and in Rabi- wheat, chana, vegetables. The production and post-harvest constraints and scope of interventions identified in the pre-formation stage of the FPC were typical, as highlighted in the cases presented earlier.

The state government has supported the FPC to establish a Farmers Common Service Centre (FCSC) at a project cost of INR 15.5 lakh. A range of machinery and equipment was installed in the FCSC. The MACP provided grant assistance by way of a grant to the tune of INR 10 lakh.

Table 63: Grant assistance for KKHAPCL from MACP

No.	Name of machinery	Capacity	Cost of acquisition	Date/year of installation	Support received from
1	Grading machine	2 TPH	9,75,000	February 2017	MACP
2	Dal mill	200 kg per Hour	85,000	May 2017	MACP

The company has also purchased 2 tractors, 2 tillers, and 2 rotavators with their own contribution of INR 19 lakh. Also, the company has purchased a mini truck of Ashok Leyland worth INR 6.5 lakh. The company has leveraged assistance towards plant and machinery for cleaning and grading facilities. The company has received a grant and also mobilised its own funds towards contribution for machinery and a factory shed of about INR 4.59 lakh. Some of the other infrastructures of the FPO include:

- Godown (leased) having a capacity of 100 MT of around 875 sq. ft
- Factory shed having a total of 200-250 MT of around 1200 sq. ft
- Another godown of capacity 1,000 MT has been constructed

This equipment is housed in a building of about 1800 sq ft in terms of built-up area. Notably, the FPO has a range of primary processing, cleaning, and grading equipment and secondary processing equipment.

By virtue of the active involvement of BoDs, the shareholders increased from 200 to 711, and the company also secured a matching equity grant of INR. 9.5 lakh.

Access to working capital at competitive rates was a major hurdle that was overcome with ABPF's support and through professional inputs. Notably, KKHAPCL had been sanctioned a second loan of INR 31.50 lakh by Nabkisan Finance Ltd. A guarantee under the credit guarantee fund of the NABARD supported this loan.

Table 64: KKHAPCL-Loan under NABARD Scheme

Year	Sanction loan amount (INR lakh)	Rate of interest	Lending Institute
2015-16	15.00	21%	Samunnati Finance Ltd.
2016-17	25.00	19%	
2016-17	25.00	11%	Nabkisan Finance Ltd.
2017-18	31.50		

A common facility centre has been established. KKHAPCL is grading and cleaning wheat, bajra, jowar, black gram, moong, chana and tur at INR 100 per Qtl. The raw material requirement for the dal mill and commodity trading is procured from member farmers and non-members. Cleaning and grading are provided as a service to farmers. After value addition and primary processing (cleaning and grading) of commodities, the same is sold to Ambuja Industries, Chalisgaon, Bhushan Industries, Mehta Industries, NAFED, PV Sons, and other market players, including large MNC processors like CP seeds. The total revenue accrued to the FPO every year, in a short period of 4 to 5 years of operation, has been over INR 1 crore. Its de-facto turnover and impact on members is much higher as the revenue, as per books of the FPC, only reflects the service charge levied.

The paid-up capital of the FPC is INR 12.08 lakh, and the authorised capital is INR 20 lakh. The FPC had increased the number of shareholders to 508 in 2018-19. The FPC has a dal mill and a cleaning, grading unit. The company has generated INR 15 lakh worth of revenue using the dal mill after processing and selling urad dal, moong dal, and tur dal.

MNCs providing inputs, GAP, and a market

As a result of the tie-up with CP Seeds, the company provides inputs for maize at competitive prices to the member farmers, along with a buy-back arrangement of the produce. This advantage for the FPC is helping in increasing profitability and incomes at the farmer level. Notably, GAP was ensured through the services of experts from CP Seeds. Basically, new varieties of seeds are deployed, new market linkages have been established, and inputs are procured directly from wholesalers and manufacturers.

By incorporating GAP, it is important to note that maize production increased from 8-10 Qtl per acre to 15-20 Qtl per acre. Collectivisation has helped secure bargaining power and eradicated middlemen from the supply chain.

7.2.5 Input, crop advisory, and MNC market connect, common facilities in Aurangabad, Maharashtra

The district of Ahmednagar is hot and dry and is characterised by a hot summer and general dryness during a major part of the year, except during the South-West monsoon period. This district is one of the recognised drought-prone regions of Maharashtra. The Ahmednagar district receives an average of only 566 mm. of rainfall every year. Major rainfall is received from June to September.

Here, in the Sai Pravara Shetkari Producer Company Ltd, 15 producer groups (PGs) with about 20 farmers each from 10 villages of the district were initially mobilised, ultimately comprising some 300 member farmers. These groups were federated to form a producer company. The Agricultural Technology Management Agency (ATMA) provided the service of sensitisation of farmers, and technical support at the farmer level was provided by the Krishi Vigyan Kendra (KVK), Babaleshwar. Grant Thornton India LLP, in its capacity as an agri business promotion facility, guided the preparation of the company's business plan and provided a range of incubation services. In this specific context, all these agencies worked under the aegis of the World Bank-aided Maharashtra Agricultural Competitiveness Project (MACP). Most critically, the implementing agency supported many interventions and the FPO by matching the equity grant scheme to INR 5 lakh and enabling an INR 35 lakh loan to the FPO through providing credit guarantee cover to the lending institution. Interventions also helped the FPO evolve into a maize procurement platform for the first time.

Formation of the FPO to redress constraints

Around 2015, the Agricultural Technology Management Agency (ATMA), along with the local agriculture extension centre, namely the Krishi Vigyan Kendra, had initiated work on collectivisation of farmers at the district level. The catchment area farmers cultivate is rain-fed and supports two crops a year. The major crops produced were wheat, maize, soybean, and gram. Production and post-harvest constraints identified during the pre-formation stage of the FPO were as follows:

Season	Commodity/Crop	Constraints
Kharif	Soybean	• Limited access to good quality inputs at reasonable prices • No direct market linkages • Non-aggregation of produce • No means for sorting and grading of produce • Lack of access to storage facilities • Exploitative middlemen
	Maize	• No facility for grading and sorting for direct market connectivity and value addition • Limited access to quality seeds and quality crop advisory services
Rabi	Gram and Tur	• No storage facilities • No grading facilities
	Wheat	• No access to cleaning, sorting, and grading facilities for value addition
Summer	Vegetables	• No storage facility: credit facility to complement storage and avoid distress sale

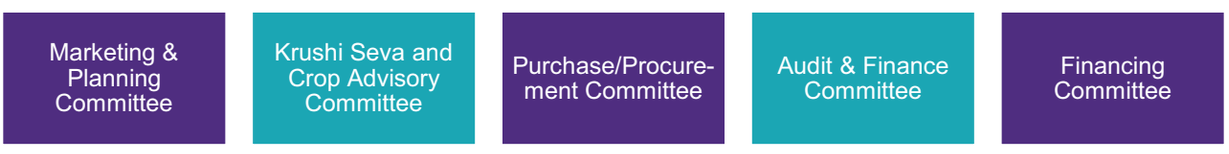
Accordingly, the PGs were federated into a producer company. Representatives of the producer groups involving 10 villages in the area assumed the mantle of the Board of Directors. Initially, INR 1,000 was collected from each member shareholder, and a CEO was appointed.

The gamut of supporting institutions and programmes

A range of supporting institutions and programmes were involved in forming and promoting this FPC, including SFAC, WIPRO, the MACP project, ATMA, and Grant Thornton Bharat.

Management of the FPC and its basic infrastructure

The management team of the FPC may be viewed in terms of its Board of Directors, including the Chairman and its CEO. Critical aspects related to its management included the regular conduct of board meetings, AGMs, and the maintenance of a gamut of records, as well as compliance with tax and company law activities. This FPC has 10 male directors and one woman director on board. The company also formed ‘committees’ for handling various enterprise operations and activities. These committees include:



Roles and responsibilities have been distributed amongst the directors. The CEO of the SPSPCL is effectively managing the company's operations and management. Bookkeeping and accountancy are also handled by this individual, as is meeting other statutory compliances. In addition to the manager, two other staff work full-time: a salesman and a helper. Others are employed as required on a piece-rate or daily wage basis. The AGM of the SPSPCL has been conducted typically and annually in September, and witnesses wide-scale participation of member shareholders. Board members meet once a week to informally discuss the operations of the FPC apart from regular board meetings. The set of documents and records maintained by the FPC is as follows:

Table 65: Documents and Records Maintained

Physical records	Digital records
Shareholders list	Accounting in Excel & Tally
Inward-outward register	Business plan
ATMA related documents	Input sale & purchase (software)
Stock register & cashbook	
Minutes of meetings & visitors' book	

Further, audited financial statements are prepared as per statutory requirements, certified by a chartered accountant, and submitted to the Registrar of Companies. In addition, the FPC has outsourced the services of a company secretary who updates and files submissions according to prevailing rules and regulations as per company law. The company has the necessary licenses in terms of Udyog Aadhaar and FSSAI for undertaking business activities. The FPC's transactions are typically routed through its bank account. The company has also installed Tally software for bookkeeping and accounting. Payments to members, transporters, suppliers of input, and suppliers of the packaging material of the company are through cheque.

Infrastructure and facilities available with the FPC

The state government has supported the FPC to establish a farmers' common facility centre at a project cost of INR 20 lakh. A range of machinery and equipment was installed in the FCSC. The MACP provided grant assistance to the tune of about INR 13.5 lakh.

Table 66: Common Facilities operated by the FPC

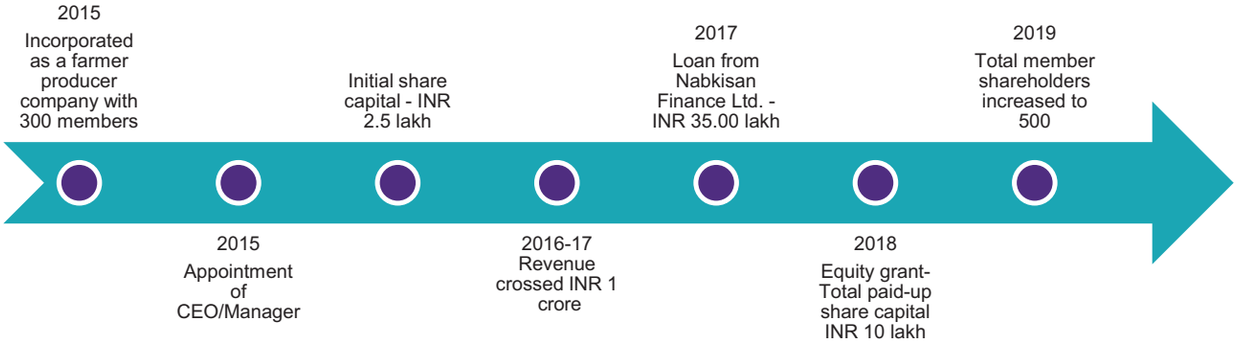
No.	Name of machinery	Capacity	Cost of acquisition	Date/year of installation	Support received from
1	Grading machine	1 metric tonne per hour	INR 10 lakh	2016	Maharashtra Agri Competitiveness Project (MACP)
2	Dal mill	1 metric tonne per hour	INR 2.20 lakh	2016	Under the post-harvest technology scheme of the state government
3	Cattle feed	4 metric tonne per day	INR 6.15 lakh	July 2017	Maharashtra Agri Competitiveness Project (MACP)
4	Polisher	-	INR 0.73 lakh	2016	Maharashtra Agri Competitiveness Project (MACP)

This equipment is housed in a building of about 1,800 sq. ft. in terms of built-up area. Notably, the FPC has a range of primary processing, cleaning and grading equipment, as well as secondary processing equipment.

Growth trajectory of the FPC

The growth of the FPO in terms of its membership base and share capital is depicted below:

Diagram 1: Membership and equity – Growth trends



The FPC has received support and inputs from the Krishi Vigyan Kendra (Rahuri), Agriculture University (Rahuri), and the Taluka Agriculture Office on cotton, maize, and onion trading and on basic Good Agriculture Practices (GAP). Larger buyers also facilitated the latter. Access to working capital at competitive rates was a major hurdle that was overcome with ABPF's support and professional inputs. Notably, Sai Pravara has availed of a loan of INR 30 lakh, and, subsequently, INR 35 lakh from NABKISAN Finance Ltd., an NBFC and a subsidiary of NABARD. A guarantee under the credit guarantee fund supported this loan.

Business activities over promotion and growth

The company initiated many business activities.

Farmers' Common Service Centre (FCSCs)

A CFC has been established. The SPSPCL established a Farmers' Common Facility Centre (FCFC) for taking up basic grading and cleaning activity. The network is grading and cleaning wheat, maize, bajra, soybean, chana, and tur at INR 100 per Qtl. About INR 42 lakh is the annual revenue accrued to the FPC from the cleaning and grading facility.

Other revenue-generating activities

Other revenue-generating activities may be viewed in terms of avoiding distress sales and trading in commodities like maize, onions and soybean. Its agri-input shop operation was also quite significant.

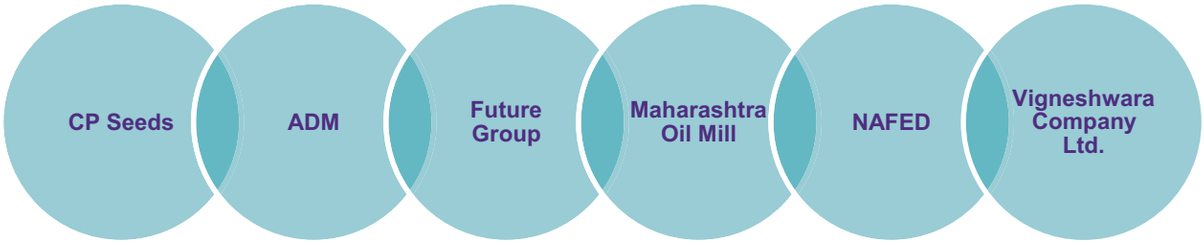
Table 67: Agri-input shop operation

<table>
<tr><th>No.</th><th>Activities undertaken</th><th>Remarks</th></tr>
<tr><td>1</td><td>Maize trading</td><td>The company has traded around 500 MT of maize in 2017-18 from 350 farmers. It has a well-established market arrangement with Thailand-based Multi-National Charoen Pokphand Foods Public Company Limited (CP Seeds) via its branch located in Ahmednagar district. The ABPF has helped the FPC establish this market arrangement. Apart from this arrangement, the Supa, Dhule, and Baramati markets presented good scope for marketing maize.
<table>
<tr><th>Maize trading</th><th>Year-wise purchase and sales details (In INR)</th><th></th></tr>
<tr><td></td><td>2016-17</td><td>2017-18</td></tr>
<tr><td>Purchase</td><td>27,80,119</td><td>1,28,404</td></tr>
<tr><td>Sales</td><td>32,73,828</td><td>1,32,417</td></tr>
</table></td></tr>
<tr><td>2</td><td>Onion trading</td><td>About 625 quintals of onions were procured from 35 members and non-members associated with the company. The onions were procured at INR 8 per kg and traded at INR 12 per kg. The procured onions were sold to Vigneshwara Enterprises, based in Bangalore.
Around 313 MT onions were procured at the minimum support price on behalf of NAFED from 216 farmers.
Another transaction was trading in onions, i.e., 48 MT, purchased from 13 farmers and supplied to the Future Group Malls.
The commission received from NAFED in 2019-20 was INR 15 per Qtl. The account transacted was INR 1.51 crore.</td></tr>
</table>

No.	Activities undertaken	Remarks
3	Pulses	The FPC also acted as the field-level agency to physically conduct procurement operations with technical and logistic support and the funding received. The company acted as the agent for procuring pulses worth INR 88 lakh from 204 farmers. The commission for Tur in 2016-17 was INR 46 per Qtl.
4	Soybean trading	The FPC procured 200 MT of soybean from 60 farmers in 2017-18 and supplied to the Maharashtra Oil Mill in Dhule and the ADM in Ahmednagar.
5	Input trading	There was an average margin realisation of 5%, which the FPC charges on inputs sold by them. In 2019-20, about 49 lakh of input were sold.

Market linkages

Direct market connectivity was provided to the FPC to a range of alternate processors and retailers and to NAFED. These included large MNC processors of maize and soybean and smaller players. Some of them included:



Maize seed production activity

The FPC is also engaged in the seed production of maize. A buy-back arrangement has been entered into with CP Seeds, a Thailand-based seed and cattle-feed-producing company. For the Kharif season in 2018-19, the company provided hybrid maize seeds from CP Seeds of variety CP-828 to approximately 300 farmers, covering 350 acres of land. The CP-828 variety yielded an additional 15 quintals of production and the protein content required for quality cattle-feed production.

Table 68: Maize seed production initiative

Year	Sowing area (in acre)	Production (in quintals)
2016-17	300	12,000
2017-18	700	28,000
2018-19	350	14,000

The FPC purchased seeds from farmers at the end of the harvesting period after primary processing. In the harvesting season 2018-19, the FPO procured 1,000 MT of maize seeds from its members. The company offered a premium of INR 150-250 higher than the market rate but not exceeding the MSP. The company received an INR 0.30/kg commission for aggregation and supply on behalf of CP Seeds. Notably, for the production of good quality seeds of maize, the directors, along with technical experts, created awareness and also provided training. Also, the company supplied necessary inputs from its two retail shops on a concessional basis.

Further, the SPSPCL has set up a cattle-feed unit with 2 tonnes per day capacity. The total cost of pellets production is INR 950 per 50 kg production. Expenses are INR 850 per 50 kg. Thus, the company can make a reasonable profit.

The annual revenue accrued to the FPC in the range of operation has been over INR 1.6 crore. Its de-facto turnover is, therefore, much higher, as the revenue, as per the books of the FPO, only reflects the service charge levied.

Table 69: Financial performance of the FPC

Year	Share capital	Reserves	Borrowings	Total Revenue
2017-18 (INR)	5,00,000	10,26,307	35,00,000	1,62,40,729

Notably, the turnover generated from the MSP Pulses procurement amounted to INR 88 lakh and INR 27 lakh from maize procurement and marketing. In 2017-18, it crossed INR 42 lakh from maize procurement and marketing, INR 35 lakh from onion marketing, INR 56 lakh from the input supply business, INR 5 lakh cattle-feed supply, and INR 1.5 lakh from cotton marketing.

Outcomes

The FPC has become a game changer for the farming community in at least 23 villages in this arid district. The farmers can reap benefits and realise higher price for their produce through the network services. Strengthening of backward linkages helped in providing quality inputs to the shareholders. The company has provided its services to 500 members and around 400 non-members in three blocks of the Ahmednagar district. The SPSPCL had established two input shops for selling agricultural inputs to the shareholders. Exploitation at the hands of retail shops, previously coupled with a lack of information on input quality, resulted in low yield, thereby impacting earnings at the member level. Farmer-level advisory services and good quality inputs have improved production and productivity. For example, onion seeds are now procured from the National Horticultural Research and Development Foundation (NHRDF), which has improved the resistance and helped increase production from 10-12 tonnes per acre to 17-20 tonnes. As a result of the tie-up with CP Seeds, the company is providing inputs for maize at competitive prices to the member farmers, along with a buy-back arrangement of the produce. This advantage for the FPCs is helping in increasing profitability and incomes at the farmer level. Yield of maize from 2012-2015 increased from 22 Qtl maize in 1 acre of land to 35-40 Qtl in 2017. It purchased CP Seeds of quality- CP 828 in 2016 at INR 950 from SPSUK compared to INR 1,200 for 4 kg in the retail market. Farmers benefitted from the market arrangement with CP Seeds, Thailand. Notably, GAP was ensured through the services of experts from CP Seeds. Basically, new varieties of seeds are deployed, new market linkages have been established, and inputs are procured directly from wholesalers and manufacturers.

Besides maize, the initiatives with respect to soybean were also successful with the support of the ABPF. Soybean was earlier sold to middlemen at INR 2,500-2,600 per Qtl. Through the new market connectivity established, the FPC sold the produce directly to ADM, Latur, and the Maharashtra Oil Mill, Dhule, at INR 2,800-3,100 per Qtl. Soybean productivity also increased from 7-8 Qtl per acre to 12-15 Qtl per acre by incorporating GAP.

Federation of FPCs

From the impact perspective, the SPSPCL expanded the FPC concept, and the Ahmednagar Jilha Shetkari Utpadak Sangh evolved. It is a network of farmer producer organisations (FPCs) formed primarily to promote the interests of FPOs in Ahmednagar. It currently has 22 registered farmers producer organisations (FPCs) as members, with a combined producer base of more than 6,000 farmers. With the primary mandate of creating an enabling environment for FPCs to do business, the Sangh has identified key business activities and has linkages with CP Seeds. The 'Sangh,' or federation, plans to sell 5,700 Qtl of maize to CP Seeds. The Sangh is actively pursuing the creation of an environment for FPCs to access credit/finance and provide capacity-building support among its other business activities.

Importantly, this illustration also highlights the need for synergised intervention by a range of service providers, including implementing agencies, ABPF, resource institutions, an ABPU or PMU, ATMA, and KVKs, for example, to ensure impact at the field level. Corporate connect on the marketing front has also been critical.

7.2.6 Input and output trading and common facilities, Aurangabad, Maharashtra

The Swaroop Shetkari Farmer Producer Company Ltd. (SSFPCL) was registered in the Aurangabad district of Maharashtra under the Companies Act in 2015. In this FPC, 13 producer groups (PGs) with about 20 farmers each from 7 villages of the district were mobilised, ultimately networking 225 member farmers. The district has a per capita income of INR 91,100 per annum. Cotton and maize constitute 60% of the total cropped area.

The Agricultural Technology Management Agency (ATMA) provided the service of sensitisation of farmers. Grant Thornton Bharat, in its capacity as Agri Business Promotion Facility (ABPF), also guided the preparation of the company's business plan and provided a range of incubation and business support services. In this specific context, all these agencies worked under the aegis of the World Bank-aided Maharashtra Agricultural Competitiveness Project (MACP). Most critically, the implementing agency led many interventions and supported the FPC through a matching equity grant scheme to the tune of INR 4.3 lakh. As a matter of fact, the FPC has also applied for a second tranche of INR 10.55 lakh. The company has also been enabled a loan of INR 100 lakh through the coverage of a credit guarantee to the lending institution, namely, Nabkisan Finance Ltd.

Around 2015, the Agricultural Technology Management Agency (ATMA) and the Krishi Vigyan Kendra at the district level initiated work on the collectivisation of farmers in Aurangabad. Thirteen producer groups (PGs) were effectively mobilised with 225 members in the Khultabad Taluka of the Aurangabad district in Maharashtra.

Farmers were aggregated to redress identified constraints jointly. Members initially contributed about INR 1,000 each towards share capital. Notably, about 1/4th of the shareholders are women. The share price is INR 1,000/ share, and authorised share capital is INR 20 lakh. The paid-up share capital of the network is INR 19.35 lakh. The FPC has also applied for support under the Equity Grant Scheme (EGS) for the second time for a matching grant of INR 10.55 lakh in 2020. Notably, the company was formed with 225 members and has grown to strengthen its membership base to 630 farmers. An increase in the membership base has resulted from increasing business transactions, availing of loans from Nabkisan Finance Ltd., and receiving a matching grant.

The main objectives of the FPC, as envisaged, include:

The company has developed and diversified its activity portfolio and even started trading in maize, moong, chana, wheat, and agri-inputs from 2016-17. The company has also ventured into silage production.

Common facility centres and custom hiring equipment

The FPC has been supported by the World Bank-aided Maharashtra Agricultural Competitiveness Project (MACP) to establish a Farmers' Common Facility Centre at a project cost of INR 18 lakh. A range of machinery and equipment was installed. The MACP provided grant-in-aid assistance to the tune of about INR 13.5 lakh, and INR 4.5 lakh was the FPO's own contribution in the form of paid-up share capital aggregated from members. The equipment included:

Some of these and other critical infrastructure facilities available with the FPC include:

Table 70: Common Facility Infrastructure with the FPC

No.	Name of machinery	Capacity	Cost of acquisition (INR)	Date/year of installation	Support received from
1	Grading machine	2 TPH	9,75,000	Jan 2017	MACP
2	Dal mill	200 kg per hour	85,000	May 2017	MACP
3	Silage baler	4 TPH	35,00,000	Sep 2018	Own contribution
4	Maize harvester	200 tonnes per day	12,00,000	Sep 2018	Own contribution

The network also acquired a seed grader and a gravity separator for seed processing in 2016-17. The capacity of the seed processor is 2 tonnes per hour with a 2 HP motor. It has received a grant for constructing a shed and plant, machinery to the tune of INR 11.5 lakh and constructed a godown cum seed processing machinery shed in land measuring 1420 sq.ft. in area.

The FPC has also received INR 5 lakh as a grant from NABARD, which is being utilised for:

- Capacity building
  - Skill development to enable the members to produce goods, both in farm and/or off-farm sector
  - Business planning
  - Technological extension through classroom training
  - Exposure visits, agricultural university tie-ups, expert meetings, etc.
  - Tie-ups with agribusiness incubators/professional agencies for business facilitation/incubation services
- Market linkage support

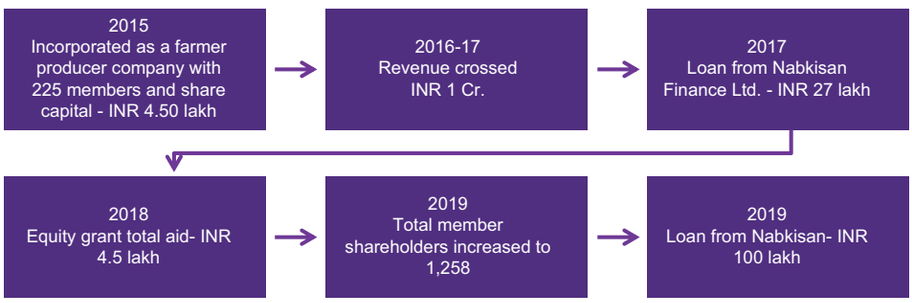
Market linkage support: NABARD's facilitator role

As per the scheme of assistance, support may be for setting up marketing infrastructure facilities to sell produce. Support could even be on the lines of a rural haat and rural mart or be structured differently based on the need. Moreover, FPCs can also develop members' skills in agriculture marketing by disseminating knowledge about the NCDEX platform.

Twinning the roles of support institutions was facilitated by the ABPF. Access to working capital at competitive rates was a major hurdle that was overcome with ABPF's support and professional input. Notably, Swaroop Shetkari has been sanctioned a loan of INR 100 lakh in 2019-20 from Nabkisan Finance Ltd., an NBFC and a subsidiary of NABARD. A guarantee under the credit guarantee fund supported this loan.

The growth of the FPC in terms of its membership base and share capital is presented below:

Membership and equity – Growth trends



The company initiated a number of business activities. The SSPCL is leveraging the benefits of economies of scale in production and marketing functions, enabling more efficient processes and better price discovery. Some of the major services that are being delivered and the business activities undertaken by the FPO are as under:

- Output trading: Procurement and trading of agricultural produce (maize, wheat, moong, chana, tur, vegetables)
- Input trading: Supply of seeds and fertilisers to members
- Cleaning and grading of pulses-Dal mill
- Silage production from maize

Financial growth-related performance is depicted in the following table:

Table 71: Financial progress

Year	Share capital (INR)	Borrowings (INR)	Revenue (INR)	Profit/Loss (INR)
2018-19	15,00,000	54,00,000	2,39,40,554	4,97,612

Output trading: Procurement and trading of agricultural produce

Procurement of produce from the member farmers and selling to companies and traders for realising better prices is a challenge that the FPC addressed by creating market linkages for their produce. Market linkages have been established with (and through) CP Seeds, Rajwardhan, Saguna Feeds, Riddhi Siddhi, NCDEX, Kiran Poultry, NAFED, MAHAFPC, etc. The SSPCL is also realising remunerative and competitive prices with value addition, processing, and branding of their produce. The FPC has traded in wheat, maize, tur, moong, vegetables, etc.

- In 2017, the FPC sold Tur at INR 5,050 per quintal as compared to INR 4,000 per quintal prevailing in the traditional market
- Primary processing of wheat involving cleaning and grading is subsequently marketed at housing societies in Aurangabad
- A state-level FPO-Maha Farmers Producer Co. Ltd. has been assigned as a state-level agent, and a centre has been allotted to the FPC to act as a subagent for the procurement of moong

Input trading: Supply of seeds, fertilisers, and pesticides to members

The FPC buys essential inputs, such as seeds, fertilisers, and pesticides, in bulk, and sells them through its retail outlet. The inputs are sold to members at a price that is below the market price and thereby helps member farmers to reduce the cost of inputs. This activity also ensures the timely delivery of quality inputs.

The FPC identified the following players to source inputs:

Table 72: Sourcing of inputs: Key market players

No.	Firm name	Commodities/Sector
1	IFFCO	Fertiliser
2	Ankur seeds PVT. LTD.	Onion, maize, soybean seeds
3	Green Gold Seeds	Maize, soybean, green gram, red gram seeds
4	Maharashtra Hybrid Seeds Company Ltd	Maize, soybean
5	Bayer Crop Science Pvt Ltd	Biopesticides
6	Bayer Crop Science Pvt Ltd	Onion seeds
7	Maxim Crop Science Ltd	Onion, green gram and black gram

Other services of the SSPCL

- SSPCL sells gunny bags at a reasonable price and therefore most members avail services from the FPC
- Members have purchased pesticides for wheat, chana, tur and maize from the FPC
- FPC has procured Tur from its members and sold to SFAC & NAFED under the MSP
- Maize market linkages are established with local, as well as other feed industries
- The FPC has availed a loan of INR 27 lakh from Nabkisan Finance Ltd for maize trading
- Others activities pursued by the FPC are tur and channa trading

Operations of the common facility

A CFC has been established. The SSPCL established an FPC for taking up basic grading and cleaning activity. The SPSPCL is grading and cleaning wheat, maize, bajra, soybean, chana, and tur at INR 100 per Qtl.

From the business activities undertaken by the FPC, farmers are reaping greater economic gain due to value addition by utilising the cleaning-grading facility. As a direct result of procurement and supply of maize to poultry units, farmers are realising an extra benefit of INR 50 per quintal. Payments are directly credited into the farmer's account within 15-20 days compared to the earlier 40-45 days. Agri-inputs are 5-10% cheaper in price than in the market. Also, due to MSP centres, the farmers realise a fair price for their produce.

Some of the good practices adopted by the FPC include:

- Value addition- Processing of commodities- cleaning, grading as per requirement
- Input shop established by the company in Sultanpur village
- FPC has been undertaking the business of agri-input trading and agri-commodity trading and has generated a turnover of INR 2.39 Cr. in 2018-19
- FPC has strong market linkages in maize with JAFPA, Kiran Poultry
- Exploitation of the NCDEX futures platform for maize
- FPO has increased share capital to INR 19.35 lakh in 2019 and has also applied for matching equity grant
- FPC has borrowed from an NBFC- Nabkisan Finance Ltd, which is a subsidiary of NABARD
- FPO has received an equity grant support, grant support for infrastructure from MACP, and grant support from NABARD for capacity-building and exposure visits

7.3 Some FPOs focused on market linkages from Karnataka

Grant Thornton Bharat (GTB) was appointed in 2018 to run a pilot project of handholding FPCs in Karnataka, Madhya Pradesh, and West Bengal. With the deployment of a specialised team of professionals, Grant Thornton Bharat served as an agribusiness promotion unit (ABPU), which further took over the extensive promotion of the young FPCs in terms of facilitating market linkages, credit linkages, the establishment of infrastructure and capacity building of its BoDs and the CEO. Some related case studies are considered in this section.

7.3.1 Market and logistics connect with retailers in Bangalore, Karnataka.

Rajaghatta Horticulture Farmer Producer Co. Ltd. had been established in 2016 at Rajaghatta village in Bangalore Rural district, approximately 70 km from Bangalore city. It has 1,000 shareholder farmers involving 50 FIGs and covers 32 villages in a radius of 20 km. The cluster is predominantly under horticulture cultivation. Enjoying proximity to a large city like Bangalore, most of the horticulture produce is marketed in Bangalore, apart from local consumption. Many supermarket chains like More, Reliance Retail, Star Bazar, Ninja Cart, and Big Basket have set up collection centres in and around the region.

Apart from its own equity of INR 10 lakh, the FPC has also received INR 10 lakh as a matching equity grant, which helped propel its business activities. The network had started its business with a small input shop and a CHC with a subsidy from the Horticulture Department, government of Karnataka. It also realised an impressive turnover of approximately INR 61 lakh in its first financial year of operation, in 2016-17. Progressively, in the consecutive fiscal, the FPC tied up with Waycool Foods Pvt. Ltd., which offered the FPC logistics support and started picking up aggregated vegetable truck loads from its member farmers daily. A little investment in sorting and grading tables and manpower boosted the network's income. The company started earning around INR 8 lakh a month from vegetable sales. The member farmers' income of the FPC was enhanced on two counts. Firstly, they started saving on logistics to get their produce either to the local mandi or the buyer's collection centres. Secondly, they started saving on the typical unscrupulous deduction of commission, up to even 10% by middlemen traders. Moreover, buyers like Zomato and Ninja Cart have also agreed to start farm pick up services from the FPC's doorstep.

7.3.2 Inputs, custom hiring, and corporate retail connect services, Chintamani, Karnataka

In the case of Shri Amaranarayana Horticulture Farmer Producer Company Ltd (SAHFPCL)", 50 producer groups (PGs), with about 20 farmers each from 18 villages of the district, were initially mobilised in 2016. These PGs were federated to form a producer company. A resource institution (RI)[36] provided technical support at the farmer level and provided a range of incubation services. Most critically, the implementing agency facilitated many interventions and contributed by way of support to the FPC through matching equity grant scheme to the tune of INR 10 lakh, as well as enabled an INR 10 lakh loan to the FPC through providing credit guarantee cover to the lending institution NABKISAN. The ABPU also helped the FPC, for the first time, to evolve into an input's platform and provided a range of complementary inputs. Notably, the outcome of the intervention in 3 to 4 years has ensured a substantial increase in the incomes of the farmer members of the FPC. Also, the FPC has evolved into a sustainable platform providing a range of services to member farmers.

The FPC members cultivated mango and tomato in the Kharif season, and ragi and other millets and maize in the Rabi season.

Farm mechanisation

The government of Karnataka, Department of Horticulture, facilitated deploying a range of related machinery and equipment. The Department of Horticulture provided grant assistance to the company to the extent of about INR 25 lakh.

The company initiated a number of business activities. These included operating custom hiring, input procurement, and common marketing services.

- Custom Hiring Centre (CHC): The FPC established a Custom Hiring Centre (CHC) comprising a rotavator, cultivator, ridger, and mulching machine. The revenue from the CHC touched INR 36,450 by 2021
- Output and input business: Other revenue-generating activities may be viewed in terms of avoiding distress sales and trading in horticulture. The FPC's agri-input shop operation was also quite significant. By 2019 and 2020, the FPC was primary processing and selling over INR 2.43 crore of fruits and vegetables to different buyers. Also, over INR 1.78 crore of input sales was achieved. Direct market connectivity was facilitated with the arrangement of alternate processors and retailers. These included large MNC processors of fruits and vegetables and smaller players, including SAFAL Retail, Waycool, Farmlink, Mother Dairy, More (of the Aditya Birla Group), and Reliance Fresh. The FPC has about 1,000 shareholders today and has enjoyed a turnover of about INR 4 crore. The FPC leveraged credit extensively to upscale its procurement and marketing activities

36 Vrutti Livelihood Resource Centre, Bangalore, had served as the RI

7.4 Some FPCs from West Bengal

The state government of West Bengal has been extensively supporting FPCs through various facilitator schemes. The Sufal Bangla scheme offering marketing and retail outlets to FPCs is among the more unique and rewarding for farmer collectives.

7.4.1 Organic farming in Bankura, West Bengal

Chhatna Agro Farmer Producer Company has its own mandi outlet, and the FPC runs two Sufal Bangla retail outlets enjoying transactions of more than INR 55,000 per day. The FPC is linked to input companies, markets, and best agriculture practices-related service providers. The network has its registered office at Village Chamkora, Chhatna, District Bankura, West Bengal. The producer company currently has 68 FIGs comprising 1,014 farmers across the Chhatna block of Bankura. It has 9 BoDs representing various Gram Panchayat and farmer interest groups (FIGs).

The company initiated a number of business activities:

- Agri-input shop: The FPC operates an input shop. The network has also successfully produced organic fertilisers: Amrit Pani, Amrit Khad, Tricodarma Viridi, etc. Initially, field demonstrations of the products were carried out on 17 fields of progressive farmers. The FPC is buying back the produced vermicompost and selling it to other vendors at an average price of INR 260 per 50 kg bag
- Custom Hiring Centre: A CHC has been established, which provides agri-implements to member farmers at reduced rates compared to the market. The FPC earned about INR 1,50,000 per annum by 2020-21 through this facility

The turnover of the FPC increased from INR 85.5 lakh (in 2018) to INR 378.34 lakh (in 2020) in a couple of years of intervention. As a result, the profit increased from INR 2 lakh to INR 8 lakh, and the paid-up capital of the network increased from INR 10 lakh to INR 13.36 lakh. The ABPU also assisted and guided the FPC to raise its share capital for securing a second tranche of the equity grant facility of INR 6.64 lakh.

The network is setting up a seed production unit with a godown facility for which they have identified land and have applied for a grant at a total project cost of INR 60 lakh. They also produce organic rice (Gobindobhog) under the PKVY scheme on 300 acres of land. As highlighted, they also manufacture organic pesticides to prevent pest attacks and fertiliser Amrit Pani to enhance soil fertility. The FPC successfully popularised the region's organic cultivation concept by promoting biofertilisers and biopesticides.

7.4.2 Seed production, custom hiring, and retail outlet services, Bankura Dist. West Bengal

Damodar Agro Producer Company Limited was registered in February 2015. The entity currently has 78 FIGs comprising 1,008 farmers across the Borjora block of the Bankura district of West Bengal. It had successfully raised share capital to the tune of INR 10 lakh from its farmer members. This network has its primary revenue-generating business activities in terms of collective purchase of inputs (seeds and fertilisers), equipment hiring services, product aggregation and marketing of produce, and basic primary processing of agricultural produce, that is, cleaning, sorting, and grading of the produce. The revenue during the consecutive Financial Years 2016-17 and 2017-18 were INR 10.03 lakh and INR 16.76 lakh, respectively. This increased considerably with interventions. The company has developed marketing linkages with companies like I-Farm, Keventers, and Mahabir Oil Mill to supply vegetables, oilseeds, and banana aggregated through its farmer members.

The network also operates a Sufal Bangla outlet for selling fresh vegetables and paddy. They have purchased 2 Bighas of land near the highway at Bankura to set up a seed processing unit. The FPC also plans to foray into retailing to sell produce directly to consumers in apartments and housing societies in Durgapur.

Initially, DAPCL was formed by RI, Indian Grameen Services (IGS), providing technical and institutional building support. The company initially had 1220 small and marginal farmers as shareholders. The major related vegetable crops harvested by FPC members are oilseeds, pulses, tomato, potato, cabbage, and fruit crops like papaya and banana. The members of the FPC comprise farmers from a group of 25 villages, spread over an area of 33 sq. kms.

Subsequently, ABPU facilitated a range of interventions. A market-led business plan was conceived to propel the FPC onto a higher level of business activity. Under this initiative, the FPC has purchased land of its own and applied to set up a seed production unit under the sub-mission of the Seed and Planting Material (SMSP) scheme.

The Agriculture Department of West Bengal has supported the FPC to establish a CHC at a project cost of INR 10 lakh. The department provided grant assistance to the tune of about INR 7.5 lakh; the network's equity contribution was INR 2.5 lakh, and an additional investment of INR 6.4 lakh was leveraged as a loan. Further, to expand the CHC, the FPC went in for a project in 2020 with a total outlay of INR 45 lakh (40% grant, 35% loan, and 25% equity) that comprises a tractor, harvester, mulcher, digger, planter, and paddy harvester. This equipment is housed in an entirely constructed building of about 2,000 sq. ft. in terms of built-up area. The FPC also operates a Sufal Bangla outlet for selling fresh vegetables and paddy under the Agri Marketing Department of West Bengal. They have purchased 2 Bighas of land near the highway at Bankura and established a seed processing unit. The FPC is also into retailing fresh fruits and vegetables (cucumber, watermelon, G-9 banana, pumpkin, mango), meat (chicken and goat), eggs directly to consumers in apartments and societies in Durgapur via a refrigerated van as well as has tie-ups with a few supermarkets. The network is also supplying mangoes to a local exporter who exports to the UAE. Notably, the FPC has also set up a common processing centre (cleaning-grading unit for pulses & grains) with a capacity of processing 8MT per shift of 8 hours.

The Company initiated a number of business activities. A CHC has been established, and its growth has been commendable. From a mere INR 84,750 in 2017-18, the service revenue from the CHC increased to INR 13 lakh by 2020-21. The FPC has their own Sufal Bangla outlet selling mustard and sesame seed oil. Interestingly, the FPC has tied up with Dal Mills and are selling pouch-packed pulses in retail under their own brand and mustard oil in consumer packs under their own brand. Ponds have been constructed on farmers' land, and fish culture is successfully undertaken for sale in district markets. Direct market connectivity was ensured with a range of alternate processors and retailers. These included large as well as small players:

7.4.3 Avant Garde Farmers Producer Company Ltd., Purbasthali, Purba Bardhaman

The Avant Garde Farmers Producer Company Ltd. comprises 1,358 producers from 5 gram panchayats and 14 villages with an aggregate landholding of 905 acres. The RI[37] served as resource institution and provided initial technical support to farmers. Further, the Krishi Vigyan Kendra (KVK) was also involved in the project to provide technical support to farmers. Subsequently, the ABPU was twinned to prepare a larger network business plan and offer a range of incubation services, including credit linkages, market connect, establishing common facilities, and capacity-building. Most critically, in this case, too, the implementing agency contributed by way of support to the FPC through a matching equity grant scheme by providing INR 9 lakh in the first tranche. After successfully mobilising an additional INR 6 lakh, the FPC has applied for a second tranche of equity grant amounting to INR 6 lakh. The FPC has also availed a loan to the tune of INR 7.82 lakh to run its business and create the necessary infrastructure. The Credit Guarantee scheme has enabled the FPC to secure a loan through the lending institution, State Bank of India (SBI).

During the financial year 2019-20, the company's turnover rose to INR 3.48 crore compared to INR 1.81 crore in the financial year 2018-19. The company's net profit was INR 2.4 lakh in FY 2019-20 compared to INR 1.13 lakh in FY 2018-19. Subsequently, greater growth was witnessed.

Formation of the FPC, facilitators, management

Even before 2014, the Department of Agriculture, the government of West Bengal, had been working with farmers directly to enhance their incomes. After that, the RI provided pivotal support for the formation of the FPC. The local agriculture extension centre, namely the Krishi Vigyan Kendra, also contributed. Progressive farmers with leadership qualities and potential were actively involved in the mobilisation process. Farmers from 14 villages were mobilised, including a total of 1,358 farmers with average landholdings of 0.12 ha each.

In terms of production characteristics, the majority of the land cultivated by the farmers in the catchment area is rain-fed and supports two crops in a year. The major crops produced were oilseeds, potatoes, paddy, and vegetables. Production and post-harvest constraints identified during the pre-formation stage of the FPC included those related

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to access to credit, market, processing, storage, and production. The FPC was conceived to redress these concerns. Representatives of the producer groups involving 14 villages in the area assumed the mantle of board of directors. Initially, INR 1,000 was collected from each member shareholder, and a CEO was appointed among the members. The FPC has four male directors and one female director on board to manage the gamut of affairs. The company has also formed 'committees' for handling various enterprise operations and activities.

Facilities with the FPC

The Agriculture Department of the West Bengal government has supported the FPC to establish a Farmers' Common Service Centre (FCSC) and CHC at a project cost of INR 20 lakh. A range of necessary machinery and equipment was installed in the same. The department provided grant assistance of about INR 13.5 lakh through its agriculture infrastructure scheme. The CHC has three tractors, two drum seeders, and seven sprinklers.

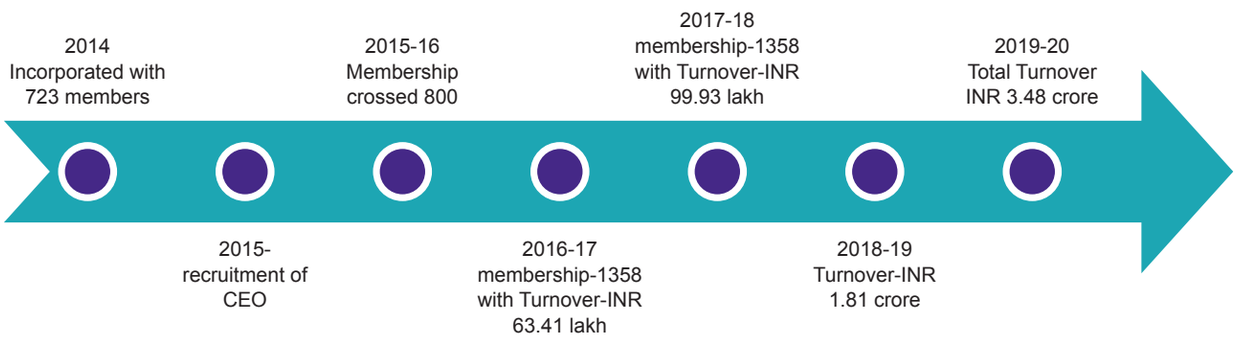
A range of other Common Facility Centre services are provided by the network:

Table 73: Common Facility services provided by the FPC

No.	Name of machinery	Capacity	Cost of acquisition	Date/year of installation	Support received from
1	Paddy de-husking machine	1 quintal per hour	INR 0.97 lakh	2018	Self-purchased
2	Dal mill	1 metric ton per hour	INR 1 lakh	2018	Department of Agri Marketing; government of West Bengal
3	Paddy separator	NA	INR 1.54 lakh	2019	Self-purchased
4	Motorised vending cart	NA	INR 4.82 lakh	2019	National vegetable initiative for urban clusters
5	Godown	1,000 MT	INR 32 lakh	2020	Self-constructed

The machinery and equipment listed above are installed in a building of about 2,200 sq. ft. in terms of built-up area. Notably, the FPC has a range of primary processing, cleaning, and grading equipment and secondary processing equipment. The growth and evolution of the FPC may be viewed as follows:

Diagram 1: Membership and turnover – Growth trends



- Formation: Mobilisation of farmers, collection of share capital, and the documentation requirements for incorporating a company were challenges that were overcome with the efforts of RI[38] and the Department of Agriculture, government of West Bengal
- Management: Support enabled the appointment of a CEO whose cost was initially borne by the implementing agency. The management is presently the forte of the CEO, as well as of the BoDs. The service of a professional CA is also being availed of

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- Equity and net worth: Increasing the membership base was also a challenge. However, by virtue of the active involvement of BoDs, the number of shareholders increased from 723 farmers in 2014 to more than 1,000 farmers in 3 to 4 years as shareholders of the company with a share capital of INR 10 lakh. The company also received a matching equity grant of INR 9 lakh, which was a critical support to help the FPC undertake its plan and expand its activities. Most importantly, this enabled an increase in the 'net worth' of the FPC, subsequently helping them leverage relatively large loans from the formal banking sector
- Supporting institutions: The FPC has received support and inputs from the Department of Agriculture, government of West Bengal, and Krishi Vigyan Kendra on basic Good Agriculture Practices (GAP). Larger buyers also facilitated the latter. Twinning the roles of support institutions was progressively facilitated by the RI and ABPU
- Access to credit: Access to working capital at competitive rates was a major hurdle that was overcome. A business plan was prepared with the assistance of the ABPU. Notably, the network has been sanctioned two loans, one of the amount INR 4.85 lakh, which was offered with cover under the credit guarantee scheme, and the other of INR 3 lakh from State Bank of India
- Management and technical training: FPC members lacked information on various aspects, including conformance requirements. Hence, the ABPU facilitated the training of the BoD and management team on statutory and legal compliance, on business planning, marketing, accounting and bookkeeping, futures market trading, and GAP
- Market connect: Presently, the FPC is undertaking business by running almost 56 Sufal Bangla Stalls-3 statics and 53 mobile outlets in Kolkata and recently started another static stall in Katwa in Purba Bardhaman

Business activities

The network has initiated a number of business activities in areas critical for small and marginal farmer members.

Avant Garde FPCL has established a warehouse of 2,000 sq. ft. size for INR 5.5 lakh where it has installed various machinery, such as a paddy dehusking machine, paddy separator and mini dal milling machine. As indicated, the CHC also has three tractors, two drum seeders and seven sprinklers procured at INR 16 lakh, INR 7 lakh and INR 10.5 lakh, respectively. Currently, The FPC owns a motorised van carrier (TATA Magna) and is managing 13 TATA vending cars under a lease agreement with Sufal Bangla of the Agriculture Marketing Department, the government of West Bengal.

Common Facility Centre (CFC) for primary processing

The AGFPCL, in 2018-19 established a CFC for taking up basic grading and cleaning activity. The facility provides cleaning and grading services for paddy and pulses at INR 100 per quintal.

Commodity trading and procurement, input shop operations

It also extensively traded commodities like paddy, dal, and vegetables. Its agri-input shop operation was also quite significant.

Range of alternate market linkages

Direct market connectivity was provided to a range of alternate processors and retailers, and institutional buyers like Sufal Bangla, ITC, Big Basket, Haringhata Meat, etc.

Sufal Bangla	ITC	Big Basket	Department of Marketing	Haringhata Meat

Basically, 14 types of vegetables and staples are procured and sold under the Sufal Bangla brand. These include onion, potato, tomato, cauliflower, cabbage, carrot, paddy, bottle gourd, brinjal, ladies finger, green papaya, pumpkin, cucumber, and bitter gourd. The following tabulation summarises the rate chart of the same of the produce. The mark-up is high at 30%.

Table 74: Typical Rate chart of farm produce-Procurement price and sale price

No.	Name	Procurement price (INR/kg)	Sale price (INR/kg)
1	Onion	25	33
2	Potato	7	12
3	Tomato	30	39
4	Cauliflower	25	33
5	Cabbage	25	33
6	Carrot	25	33

Financial performance of the FPC

The total revenue accrued to the FPC per annum increased to INR 13 crore in 4 to 5 years since registration. Share capital stands at INR 20 lakh today.

Table 75: Financial performance of the FPC over 2016-17 to 2020-21 (in INR)

Year	2016-17	2019-20	2020-21 (Provisional)
Turn over	63,41,116	3,48,15,220	13,00,00,000
Sales	50,63,307	3,24,93,941	12,35,00,000
Total income	56,03,473	3,48,15,220	--
Purchases	41,14,382	2,84,31,400	11,90,00,000
Total expenses	63,41,116	3,45,28,184	--
Profit/loss (Before tax)	(7,37,643)	2,87,036	40,00,000

The FPC has established 13 input shops for selling agricultural inputs to member shareholders. Previously, exploitation at the hands of retail shops, coupled with a lack of information on input quality, had resulted in low yield, thereby impacting the earnings at the member level. Farmer-level advisory services and good-quality inputs have improved production and productivity. There has been an almost 100% increase in yield and productivity. Basically, new varieties of seeds have been deployed, new market linkages have been established, and inputs procured directly from wholesalers and manufacturers. Transparency through regular meetings of members and good governance has helped attract more farmer shareholders to the AGFPCL, thereby increasing paid-up share capital and attracting SBI and other lending institutions to support the FPC.

Initiatives with respect to pulses were also successful, besides paddy, with the support of ABPU. Pulses were earlier sold to middlemen at INR 2,500-2,600 per Qtl. Through the new market connectivity, the FPC sold the produce directly to buyers at INR 2,800-3,100 per Qtl. By incorporating GAP, pulse productivity also increased from 7-8 Qtl per acre to 12-15 Qtl per acre. To sell their produce, the FPC also enjoys the benefit of 54 stalls/carts.

7.5 Enhancing farm incomes through GAP and crop diversification into horticulture

Not all interventions need to be through the services of an FPC. Individual farmers may also undertake upgrading initiatives. The following case illustrations present some of the notable interventions undertaken under the state government's initiatives in Rajasthan.[39] FPCs may also consider such value-adding options.

39 Rajasthan Agricultural Competitiveness Project (RACP). Grant Thornton Bharat had served as the Agri Business Promotion Facility for the project.

7.5.1 Diggi, polyhouse, and solar pump to upgrade farm practices and cultivate cucumber and capsicum

A farmer in Bikaner district used to cultivate crops such as groundnut in 1.2 hectares and guar in 1 hectare in the Kharif season. He sold the produce in the local mandi. The farmer was hardly able to undertake farming viably. His value accruals from farm activity were as follows:

Table 76: Economics of cultivation of groundnut, guar, and wheat in 1 hectare of farmland

No.	Crop	Land (hectare)	Cost of cultivation (INR)/ha	Grain production		Fodder production		Net income (INR)
				kg	Price/kg	kg	Price/kg	
			A	B	C	D	E	(B*C+D*E-A) =F
1	Groundnut (Kharif)	1	43,500	3,000	44	6,250	5	1,19,750
	Guar (Kharif)	1	15,500	500	40	800	2	6,100
2	Wheat (Rabi)	1	40,875	2,500	16			875
Total income								1,26,725

Evidently, the farmer used to earn barely INR 1,26,725 in an entire season, which was inadequate to meet livelihood needs. Accordingly, he was advised by extension service providers to get into polyhouse vegetable farming, where he can cultivate multiple crops with less labour intensity. The farmer decided to opt for the following initiatives supported by the state government: Diggi for use in water conservation and critical irrigation, polyhouse to undertake cultivation of vegetables as hi-tech agriculture, irrigation-related solar pump to ensure uninterrupted water supply and optimise the related cost of electricity.

The farmer received a grant of INR 31.62 lakh and the balance of INR 13.82 lakh was also mobilised through his Kisan Credit Card (KCC). Further, he secured a loan of INR 8 lakh from the Bank of Baroda at an attractive 8% interest rate. He constructed two polyhouses of 2,000 sq. mt each alongside, as well as a Diggi of size 110x110x12 ft. He benefited by way of grant assistance up to 70% of the total cost from the government for the construction of the polyhouses and installing a solar pump, and INR 3 lakh as grant for the construction of a Diggi. The intervention helped the farmer in many ways:

Table 77: Contribution-mix in the Project

No.	Facility	Government contribution (INR)	Farmer's contribution (INR)	Total cost (INR)
1	Polyhouse (4000 Sq.)	25,63,623	8,54,542	34,18,165
2	Diggi (110*110*12 ft.)	3,00,000	4,00,000	7,00,000
3	Solar pump	29,92,48	12,82,49	4,27,497
Total cost (INR)		31,62,871	13,82,791	45,45,662

Upon much deliberation, the farmer selected Jain Irrigation, an established brand in the polyhouse segment. At the outset, to operate a polyhouse efficiently and to better understand related GAPs, the farmer went through intensive training and watched videos on YouTube to understand the nuances of efficiently operating a polyhouse. He also visited nearby mandis to understand market trends, price volatility, demand and supply seasonality, and related gaps. Initially, he shortlisted a few vegetables and even flowers. He finally decided to go in for cucumber cultivation as the first crop in the polyhouse. His reasons for narrowing down to cucumber were as follows: the crop is typically always in high demand as a salad; due to high demand and low supply volumes, cucumber tends to fetch better prices compared to any other vegetable or crop; the cultivation practice of cucumber is not very complex; and one can harvest multiple crops in a year as cucumber is a 120-day crop. Typically, a farmer realises higher prices in summer.

Table 78: Cost-Benefit analysis of cultivation of Cucumber (two harvests per annum)

No.	Name of crop	Cost of cultivation (INR)	Production (Qtl)	Price per quintal (INR)	Value of produce (INR)	Total income (INR)
		A	B	C	A*B=D	D-A=E
1	Cucumber (Kharif)	2,00,000	250	2,000	5,00,000	3,00,000
2	Cucumber (Summer)	1,75,000	230	2,000	4,60,000	2,85,000
Total income						5,85,000

In 2017, the farmer cultivated two crop cycles of cucumber commencing in March. He procured the 'pepino' variety of cucumber seed and cultivated it with utmost care. He sold his end produce in different mandis. His produce fetched the highest price of INR 40 per kg in the first week of May and the lowest price of INR 15 per kg in June. On average, his produce fetched INR 20 per kg. Presently, the farmer is earning INR 5.85 lakh every year, three times more than he used to earn before, and with much less drudgery of work effort.

Capsicum does not require a different practice vis- à -vis land preparation and other input requirement. Hence, the farmer has sown capsicum alongside cucumber to increase his product portfolio mix and mitigate risk in the possible circumstance of a price crash in cucumber. Today, he is also planning to cultivate flowers, strawberries, and other cash crops.

Diggi and polyhouse for cucumber and capsicum cultivation

Selecting the right horticulture commodity for cultivation is essential. Selection may vary based on regional demand as well as agro-climatic conditions. A study of nearby mandis or markets to understand market trends, price volatility, and demand-supply gaps is also critical. A good commodity mix like capsicum and cucumber will serve as a risk-hedging option. Graduation into more value-yielding crops like flowers and strawberries is also an option.

7.5.2 Drip irrigation system combined with off-season chilli and brinjal cultivation

A farmer in the Alwar district of Rajasthan had a patch of inherited land of 0.63 ha where he grew cereals and oilseeds. Upon interaction with the government, he was advised to deploy a drip irrigation system to incur minimal water, fertigation, weeding, and labour costs. Officials also oriented him on soil PH, land preparation techniques, use of an improved variety of seeds, seed rate/acre, planting distance, manure and fertiliser application, irrigation scheduling, pest, disease management, and harvesting. The total cost of the drip system was INR 76,000, of which he only had to pay INR 19,000, that is, 25% of the project cost. The remaining 75% was the subsidy provided by the government. Along with the drip system, he was also offered a starter pack of seeds of chilli, pesticides, and fertilisers for 0.25 ha. Additionally, he had to contribute only INR 2,280 for the mulching sheet for 0.5 Ha, which was barely 25% of the investment outlay. The government bore the balance 75%, worth INR 6,840.

Table 79: Cost benefit analysis of chilli and brinjal production (3 crops each taken per annum

Expenditure (Feb 2017-Mar 2018)	Amount (INR)
Land preparation	7,500
Seed, mulch	12,000
Fertiliser	40,000
Pesticides	55,000
Transportation	60,000

Expenditure (Feb 2017-Mar 2018)	Amount (INR)
Labour	90,000
Electricity	7,500
Packaging	12,000
Total annual cost of production	2,80,000

Table 80: Crop-wise Revenue

Crop income particulars (Feb 2017-Mar 2018)	Production (Qtl)	Rate (INR/Qtl)	Gross revenue (INR)
Chilli (Feb-Aug 2017) 0.25 ha	150	2,600	3,90,000
Brinjal (Mar – Nov 2017) 0.25 ha	200	1,200	2,40,000
Watermelon (Jan-March 2018) 0.25 ha	80	800	64,000
Wheat (0.25 ha)	10	1,650	21,000 incl. fodder
Gross income			7,15,000
Net income after expenses			4,35,000
Earlier income from work as a welder @ Rs 1,20,000/annum			1,20,000
Net annual increase in income after returning to farming			3,15,000

He prepared his nursery of the chilli crop in Jan 2017 and later transplanted them in the field in February 2017. Apart from this, he also prepared a nursery of brinjal at his own expense and transplanted them in the balance 0.25 ha. He started plucking chillies and brinjal from April until October and plucked about 150 Qtl of chilli and 200 Qtl of brinjal during this period. The average price of chillies hovered at INR 2,600 per Qtl and that of brinjal at INR 1,200 per Qtl. Generally, farmers harvest around 120 Qtl of chilli per 0.25 ha. However, because of the GAP training, the farmer harvested around 150 Qtl per 0.25 ha (in 1 Bigha) of chilli.

The farmer realised net earnings of INR 4,35,000 in the first year due to the support and guidance from the government. His annual income while working as a labourer was a mere INR 1,20,000. Thus, he realised an additional income of INR 3,15,00 by adopting apt farming practices.

Presently, he cultivates vegetables throughout the year with scientific planning. He prepares the nursery for the Kharif season in July in a separate patch of land and continues harvesting previously planted vegetables till July-August when no other farmers produce vegetables. By the time the productivity of crops planted in February reduces in August, he again transplants the nursery from September. Deploying this technique, he is able to supply off-season vegetables and enjoys higher price realisation in the market. By deploying the earnings from vegetables, he completed a fencing job along the farmland, which cost him INR 40,000. He applied for a solar pump from the project in April 2018, utilising the additional income from farming. As a continuous improvement process, in April 2018, he further applied for a grant for installing a solar pump on his farm and had to pay only INR 1,05,000 against the total cost of INR 3,50,000, that is, he enjoyed 70% assistance by way of subsidy from the government. This helped him reduce the cost implication of electricity for watering purposes.

Cultivation of off-season vegetables for higher-value accruals

Producing and supplying off-season vegetables is an option to benefit from demand-supply gaps. When implemented with government assistance, drip irrigation systems, and solar pump options could significantly optimise production costs. Regional as well as distant mandis are good direct market options.

Optimising resource use through greenhouses

Use of water may be optimised, fungal infestation minimised due to the covered structure of a typical polyhouse, and water applied only in the root zone of vegetables through drip irrigation. This is possible through polyhouse-based operations. Manpower costs can also be substantially reduced. Furthermore, value-added commodities like hybrid Chinese cucumbers with higher productivity and prices may be cultivated only in a greenhouse environment.

Table 81: Comparative cost economics of open field cultivation of cucumber and Polyhouse cultivation of Cucumber

No.	Cropping season	Name of crop	Area cultivated ('000 M. Sq.)	Cost of cultivation ('000 Rs)						Total production (Qtl)	Market price (Rs/Qtl)	Revenue ('000INR)	Net profit ('000INR)
				Seed	FYM	Fert.	Pesti.	Labour	Total	B	C	B*C=D	D-A=E
1	Kharif 2016	Cucumber	3	15	10	5	10	10	50	80	900	72	22
2	Rabi 2017	Cucumber	3	50	30	10	10	30	130	150	1,800	270	140

The farmer procured 10,000 Chinese cucumber seeds @ INR 5 per seed. Notably, he used only water-soluble fertilisers in the polyhouse, and pesticide usage was limited.

7.5.3 Drip irrigation paves the way for farmers to shift from field crops to contract farming of potatoes for PepsiCo

A farmer from Dholpur district, Rajasthan, earned a typical annual income from farming of about INR 2,55,000 in 2016-17. The source of irrigation for his farm was a dug well. He undertook rain-fed farming in the Kharif season to grow bajra in 5 ha, and left 5 ha as fallow land for preparing it for the Rabi season. In the Rabi season, he used to grow wheat in 2 ha and mustard in 4 ha. The balance 4 ha was not cultivated in the Rabi season due to the limited water availability. Unfortunately, the income from field crops was barely sufficient for him to continue farming viably. In this setting, potato cultivation was picking up in the area with favourable agro-climatic conditions. However, potato cultivation is cost-intensive and has market risks. Limited water availability in the Rabi season was also a major risk factor. Nevertheless, an agent of PepsiCo motivated the farmer to initiate contract farming of potatoes.

Contract farming for MNCs

The farmer observed that farming potatoes could help him earn higher returns. However, a pre-condition by PepsiCo was to enter into an MoU with only those farmers with drip irrigation systems installed in their farms. Essentially, PepsiCo insisted on the drip system for potato cultivation, as a potato under a drip system performs much better than under a flood irrigation system and is also less prone to soil-borne diseases. Therefore, the farmer and a few other farmers in the region opted for the drip system and took up the potato crop. However, the seeds of the specific variety of potato (FC-3) from PepsiCo were very costly (INR 2,200/Qtl), and he required 100 Qtl of seeds worth INR 2,20,000. The high investment requirements of a drip system and the high cost of potato seeds were major hurdles for the farmer. The government came to the rescue of the farmer and facilitated it by providing a starter pack of potato seeds, along with the drip system of irrigation, as well as a starter dose of fertilisers. The package for the farmer for 4 ha was made available at just INR 1,60,000. This was a mere 25% of the overall cost, and the balance 75% of the total cost of INR 6,40,000 was borne by the government.

Earlier, very little water was left in his well to cultivate other crops in the unused 4 ha land for any crop with flood irrigation. However, using the drip system, the farmer could grow potatoes in the balance 4 ha of land, utilising existing water. This facilitated water use efficiency.

Before this, farmers in his area grew the table variety of potatoes, and prices during harvesting season dropped to INR 400 per quintal. The farmer, however, was free from any such worries now on low prices during the harvest season, as he had entered into an MoU with PepsiCo, where PepsiCo had agreed to provide technical know-how and extension support. The farmer, in turn, has agreed to sell all potatoes of size above 40 mm to PepsiCo at a pre-decided price of INR 960 per quintal, which was around INR 560 higher than the lowest market price of table-grade potatoes in the area during harvest every March.

As a result of the initiative, the farmer obtained a yield of 1,280 quintals of potatoes, out of which 1,152 quintals were above 40 mm in size. As per his terms with PepsiCo, he supplied them 1,152 quintals, which were picked from his farm. This saved him at least INR 50 per quintal, including the cost of labour for packing in gunny bags and transportation to the local cold store in Dholpur, where most of the farmers in the area store table-grade potatoes, as prices during harvesting time, are a meagre INR 400 per quintal. Generally, in the case of the table-grade potato, a yield above 40mm would be around 60%. However, in the case of the PepsiCo variety seed, the yield ratio above 40 mm was 90%. He stored the balance 128 Qtl potato as seed stock for the following year, which had an opportunity cost of INR 2,200 per quintal. Basically, his net annual income grew from INR 2,55,500 in 16-17 to INR 6,61,220 through the introduction of potatoes in the drip-based system. The linkage with PepsiCo gave him the courage to invest in new crop techniques.

7.6 Summary learnings from performing FPCs

The case illustrations presented in this section illustrate the wide range of services that even a young FPO can provide member farmers in a short period of 3-4 years since inception. The cases considered are primarily of FPCs from different states. The learnings are significant:

Formation and mobilisation

Initially, 15 producer groups (PGs), with about 20 farmers each, are mobilised from about 15 villages in a block comprising about 300 farmers. Mobilisation is invariably facilitated by proactive farmers and a competent resource institution; after that, the matching equity grant scheme is leveraged. Notably, progressive farmers are often actively involved in the mobilisation process. About INR 1,000 is collected from each of the shareholders. Before this, the FPC is registered with 5-10 board of directors and members, and a bank account is opened to deposit the share capital collected. In some cases, the PGs collect the share capital and deposit the same in their account, and after that, transfer the same to the account of the FPC once the same is registered and its bank account opened. The mobilisation of 300 members usually takes 6-9 months by a good resource institution. Today, CBBOs complete this phase of intervention even sooner. The directors of many FPOs are typically in their 40s or older and are SSLC qualified. A handful are even graduates or postgraduates, with the occasional graduate in the field of agriculture. The profile of directors and education may, of course, vary significantly between states and regions.

Preliminary activities

The board of directors meets and appoints a CEO or manager for the FPC. Additional support staff (one or two) may also be appointed. This may be for bookkeeping and/or for marketing purposes. In the BoD meeting, different committees may be formed, assigning specific management tasks to the directors. These may include a marketing committee, a planning committee, etc. An auditor is appointed. The BoD meetings initiate business planning of an FPC, including finalising share capital mobilisation initiatives and prioritising preliminary activities.

Basically, today, the thrust is onboarding at least 300 members and applying for assistance under the matching equity grant scheme.

Management of an FPC

The backup of committed directors and leadership of BoDs and the Chairman has been pivotal in an FPC's effective management and growth. It must be understood that a CEO or manager is but a (that too, not very well) paid employee, not necessarily with long-term stakes in an FPC's growth.

In many FPCs, the farmers are mature and around or over their 40s. Education levels may be primarily only of Std X or SSLC levels, typically with a few graduates and postgraduates. Though few have experience in post-

harvest agribusiness activities, many have strong entrepreneurial tendencies and business concerns. With basic management and entrepreneurship training of a few days, business planning and management skills may be instilled.

FPCs invariably designate different committees to delegate activities. These include a marketing committee, a financial committee, a technical committee, etc. The 10 to 15-odd directors are accommodated in specific committees to facilitate management.

A CEO (manager) is appointed to manage day-to-day operations. Bookkeeping and accounting work is mainly the responsibility of the CEO. One or two support staff, sometimes an accountant, are also appointed for this purpose.

Board meetings and the AGM need to be conducted as per norms, i.e., four board meetings and one AGM every year. Nevertheless, performing FPCs have a more proactive board, and members may meet every week to discuss management issues. Typically, the agenda of the AGM is to discuss present and planned activities of the company, discuss financial performance, share mobilisation, and dividend declaration, etc.

All FPC accounts and related statements are updated by the CEO/manager/accountant and submitted for verification by the chartered accountant. The FPC's transactions are primarily routed through its bank account. FPCs usually install Tally software in their systems for bookkeeping and accounting. Payments to members, transporters, suppliers of input, and suppliers of packaging material of the company are through cheque. However, a few transactions, such as those related to payment for part-time manpower and piece-rate manpower, are often on a cash basis.

Compliance requirements

A performing FPC maintains various documents and records. These may be viewed in terms of physical records and digital records.

Physical records	Digital records
• Shareholders list	• Accounting in Excel and Tally
• Inward – outward register	• Business plan
• Stock register	• Input purchase and sale
• Cash book	• Production of farmers
• Minutes of meetings	
• Visitors book	
• Share transfer-related documents	

The accountant prepares financial statements per statutory requirements and they must be certified by a CA and submitted to the RoCE. FPCs may also avail of the services of a company secretary who updates and files submissions as per company law.

Growth of FPCs

Typically, over a period of 3-4 years, the membership of an FPC, which may initially be at barely 300 shareholders in the first year, increases to 1,000 or more. The equity of the FPC rises to INR 10,00,000 as the shareholders usually contribute INR 1,000 each. With the benefit of leveraging assistance under the matching equity grant scheme, the typical performing FPC enjoys a net worth of about INR 10 lakh in the first four years. This is particularly because 'reserves' from accumulated profits are also low in the usual FPC management model, where benefits of the activity are passed on directly to members. Earning from dividends is rarely a thrust.

A range of supporting institutions and instruments are widely leveraged by performing FPCs. These include implementing agencies like NAFED, SFAC, NABARD, etc. The critical institutions that come next are the supporting resource institutions (and, now) CBBOs. The state-level line departments also play a crucial role; they have been implementing FPC formation and promotion programmes for many years. The KVKs and agricultural universities have also contributed to the critical areas of crop advisory and post-harvest management of produce. There are at least a dozen such input, large market, and credit-related stakeholders that FPCs connect and work with over their growth trajectory.

Activities of an FPC

Some FPCs have taken up dealerships of firms like Netafim for providing drip irrigation systems to their member farmers to propel horticulture production. Invariably, however, the common activities of a performing FPC may be viewed in terms of:

- Operating an input shop for seeds, pesticides, and fertiliser
- Providing custom hiring services to member farmers
- Providing direct market connect to member farmers
- Accessing credit to facilitate input or output operations
- Many also leverage assistance under state government-led or implemented schemes such as the RKVY or World Bank-assisted projects to establish common facilities through primary processing and storage facilities

Financial support

FPCs invariably realise the support of between INR 3-10 lakh as a matching equity grant support in about a year of commencement of operations, and this support facilitates the kick-starting of business plans of FPOs. Even INR 10 lakh can help an FPC undertake an annual business of INR 1.5 crore in input business alone by processing and selling seeds, pesticides, and fertilisers from large suppliers at competitive prices.

Therefore, many FPCs in the first year of operations secure credit from NBFCs such as Samunnati, Friends of Women's World Banking (FWWB), etc., and commence input or output operations. Unfortunately, nationalised banks also enjoy credit guarantee cover and require a year's audited balance sheet before financing FPCs. The member lending institutions under the Credit Guarantee Scheme can also enjoy cover only if an FPC has submitted one year's audited balance sheet. Also, even more, mature FPCs that do not enjoy a credit history nor have undertaken too many operations find it far easier to secure credit from NBFCs initially. Subsequently, they shift to regular financial institutions offering credit at cheaper prices.

Marketing

Many supermarket chains like MORE, Reliance Retail, Green Veggies, Zomato Hyperpure, Mother Diary, Farm Link, Star Bazar, and Big Basket have even established collection centres in significant production clusters. They are quite comfortable in procuring from FPCs. Firms like Waycool Foods procure from the very doorsteps of FPCs. To enable market connect, there is a need to have access to basic common facilities such as sorting and grading tables and plastic crates, in the case of horticulture, and cleaning and grading facilities for typical food crops. FPOs also benefit through the reduced incidence of unscrupulous price deductions by traditional middlemen commission agents in markets. Value realisation from graded and sorted produce is sometimes even 10-15 times more than what is realisable for non-graded produce.

NCDEX commodity trading is also undertaken by some FPCs rather extensively; for example, by maize-based FPCs in Bihar in the recent past.

Many FPCs have ventured into e-Nam-based marketing. However, the volumes are rarely even in 100's of tonnes of produce marketed through this channel.

Many FPCs have found the benefits of B2C marketing by establishing retail outlets in towns and cities and using mobile outlets.

Typically, links with nearby processors and retailers have proven to be a great success in terms of direct marketing efforts by FPCs. Logistical constraints and transport diseconomies affect procurement by established large corporate processors and retailers from FPCs in remote locations. Perhaps in this context, market connect with such players has not been very successful by FPCs operating in industrially backward districts and states without forward-integration linkage options in the region.

Financial performance

In 3-4 years, it is reasonable to expect a performing FPC to realise a turnover of INR 2 to 4 crore from two major activities, i.e., input business and output business-in equal proportion.

The profit-after figures may be barely in lakh. This is because many FPCs may prudently pass on the benefits of various activities, such as input shop operations, to members and retain only a small portion as the user charge

to meet operating expenditures. The same principle also applies typically to common facility primary processing facilities. This may also be minimising the incidence of Minimum Alternate Tax (MAT) payable.

In fact, even when high discounts of even 20% are realised in the procurement of some inputs, only 20-30% of the benefit is retained to meet operating expenses, and 70-80% discount received from the input manufacturer is passed on to member farmers. In the case of the operation of a CFC, a user charge of between INR 90-100, usually less than the market rate, is imposed on user-member farmers. In the case of output marketing, a mere 1% service charge is often levied on the transaction.

While these cases trace the growth of FPCs, a summary rating tool has also been developed to assess an FPC for its performance and contribution towards the development of the rural ecosystem. Inclusiveness in operation is also accorded priority.

FPC rating tool

GT Bharat has developed an FPC rating tool that evolved and deployed in some World Bank and other supported projects. The rating tool assesses the performance of an FPC across 8 areas for a total of 100 marks. The parameters and their relative weightage include:

- General information
- Governance (8)
- Regulatory compliances (6)
- Net worth and financial strength (12)
- Legal compliance (6)
- Sales performance (28)
- Services offered (36)
- Credit worthiness (4)
- The general information section collects basic information regarding the FPC, like name, address, key-related value chain, cluster of activity, etc.
- Institutional compliances/governance-related parameters have a weightage of 8 marks which assess the Chairman's and BoDs' participation in meetings, activities of an FPC, presence of the CEO, etc.
- Regulatory compliance-related parameters encompass possessing various licenses like the seed license, fertiliser license, insecticide license, GST, etc., for a total weightage of 6 marks
- Statutory compliance/net worth and financial strength-related compliance section is for a total of 12 marks, which includes areas like total shareholders in an FPC, total paid-up capital, etc.
- Legal compliance-related parameters have a weightage of 6 marks, which checks whether major filings like RoC filing, GST, and IT filing have been done on time over the previous years
- After that, the sales performance of the FPC is assessed by sub-parameters for a total of 28 marks, which help assess the FPC's financial turnover, net profit, net estimated profit, etc.
- The FPC is also assessed by the services it offers for a total of 36 marks, which looks into whether the FPC has an input shop, own processing unit, own land, use of trading platforms, presence of a value chain that interests buyers, etc.
- An FPC's credit-worthiness is assessed in terms of its net worth (which includes equity + reserves) and turnover trends. Loans are typically offered to the extent of 3 to 4 times an FPC's net worth

Thus, an FPC is assessed on various parameters and rated for 100 marks across the parameters. Typically, a performing FPC will have a score of 75-80 marks or more.

Chapter 8 - Necessary statutory compliances for an FPC

Highlights

This chapter presents the required compliances for an FPC. Compliances are basically with regard to company law as well as taxation laws.

The Annual General Meeting is to be conducted within 90 days of the registration of the company and regular AGMs are to be conducted. In the AGM, directors are selected or elected, annual reports are presented and decision of distribution of dividend is taken.

The annual filing of documents and registers need to be maintained. Financial management in terms of share book and accounts are important.

The FPC has to ensure electronic data filing to the Registrar of Companies (RoC).

The FPC has to maintain statutory registers, such as KYC registers, minutes book, register of members, books of accounts, etc.

The CEO or manager to be appointed is appropriately selected under certain parameters.

Share certificates are to be distributed to members of the FPC and the list of resolutions submitted to the RoC.

Income tax returns are to be filed annually and GST returns monthly as per the norms.

General reserves are necessary to be maintained to meet future and unforeseen obligations. These reserves increase through retained earnings of FPC.

Other compliances such as DIR 3 to be filed every financial year.

8.1 Incorporation of a producer company

The following is a checklist for the incorporation of a producer company:

- Name of the proposed producer company (at least four options needs to be submitted)
- Authorised and paid-up share capital
- Utility bill of the registered office – Not older than one month
- Rent or lease agreement or proof of ownership of the registered office-On stamp paper of INR 500
- E-mail ID of the company and all subscribers and directors (Minimum five directors and five subscribers)
- Mobile number of all directors and subscribers
- Bank statement of subscribers
- Copy of Pan Card and Aadhar Card of all directors and subscribers (self-attested)

- No. of shares to be subscribed by each subscriber
- Occupation (with details of the area of location)
- Passport size photos-2 copies
- Place of birth of all subscribers
- Educational qualification of all directors and subscribers
- Duration of stay at the present address
- A video clip of each subscriber specifying important KYC details
- Proof of a farmership certificate from the competent authority to the effect that the promoter is a farmer and is exclusively engaged as a primary producer, duly certified by the Agricultural Officer/Tahsildar/SDM/district administration, or proof of ownership of agricultural land (Khasra/katauni) to show that each promoter is a farmer and is exclusively engaged as a primary producer to fulfil the requirement of Section 581C(1) of the Companies Act, 1956. Basically, only producers can be subscribers of a producer company.
- Proof of farming activity by all the subscribers
- Inc-9
- Dir-2
- Declaration as per Section 581B of the Companies Act, 1956

8.2 Post-registration activities of an FPC

8.2.1 Board meeting

A board meeting should be held every three months, and at least four board meetings should be held every year. Further:

- All the directors should be invited to this meeting. Further, in this meeting, decisions regarding the AGM's date, place, and time may also be decided. Discussion on the business plan and budget is also undertaken in these meetings
- Quorum (minimum attendance): Minimum 1/3rd of directors, subject to a minimum attendance of three
- The chairman decides how to notify members
- The directors are notified at least seven days before the meeting
- If members agree, it can be arranged on shorter notice too

8.2.2 Annual General Meeting (AGM)

The Annual General Meeting should be conducted within 90 days of incorporation. Further:

- The decision for the AGM is taken in the BoD meeting
- Any date is decided after a BoD meeting, and the members are notified at least 14 days before the meeting
- All of the members (shareholders) need to be invited to this meeting
- Quorum in AGM: At least 1/4th of the total no. of members should be present in the meeting

Agenda of the first AGM:

- To appoint the Chairman
- To discuss, approve and adopt the MoA and AoA
- To formulate, change, or adapt the business plan of the company
- To consider pre-incorporation charges
- Any other matter may also be discussed with the permission of the Chairman

Further AGMs:

- They should be conducted before 30th September of each financial year (Moreover, not more than 15 months should elapse between two consecutive AGMs)
- To receive, consider and approve the financial statement for the previous year
- To formulate, change or adapt the business plan for the coming year as prepared by BODs with or without modification
- Election for appointing a new director in a company is undertaken during the AGMs
- Any rotation in BoDs should be undertaken during the AGM
- Auditor appointments (whenever required) should be made during the AGM
- Discussions may be carried out on dividends and bonuses to be given to members
- The AGM should be held on working days, not Sundays or other holidays
- Notice for the date of the AGM, time, and place should be sent to every member and the auditor
- Proceedings of the AGM with the directors' report, audited report, and P&L account should be submitted to the RoC within 60 days of the meeting. It should be noted that a penalty of INR 100/day is applicable if not submitted in time
- Voting right is one vote for each member in any election
- In case of even distribution of votes, the Chairman has an additional vote

Registers and books to be maintained

The registers and books to be maintained include:

- Member register
- Directors register
- Fixed assets register
- Meeting register
- Stock register
- Cash book
- Bank Book
- Sale register
- Purchase register
- Expenses vouchers

Appointment of a CEO

- A producer company needs to have a full-time CEO (basically, a manager) who the board should appoint from among the persons other than the members

In the context of selecting a CEO by an FPC, the selection criteria and process have been illustratively designed, along with the process guidelines in the following subsections.

8.2.3 Selection criteria of a CEO

Education qualification:

- (Ideally) Graduate or post-graduate in agriculture/horticulture/agribusiness
- The above will also facilitate their position as employees while securing input licenses

Vehicle:

The job demands extensive local travel. Therefore, candidates with own or leased vehicles (typically, two-wheeler) may be preferred.

Remuneration:

The remuneration offered under various programmes in India may be viewed as follows:

Table 82: Renumeration of a CEO

No.	Education qualification of candidate	Monthly remuneration (typical)
1	Minimum qualification of degree in agriculture/horticulture/agribusiness	INR 20,000/month
2	Degree and post-graduation in agriculture/horticulture/agribusiness + computer knowledge	INR. 25,000/month
3	Degree and MBA in agribusiness + computer knowledge + 3 years' experience	INR. 30,000/month

*TA and allowances @ INR 3,000 per month.

8.2.4 Internal audit

- A producer company shall have an internal audit of its accounts carried out in intervals and manner as specified by its articles or by a chartered accountant
- Internal audits evaluate a company's internal controls, including its corporate governance and accounting processes. They ensure compliance with laws and regulations, accurate and timely financial reporting and data collection, and help maintain operational efficiency by identifying problems and solving them

8.2.5 General reserves

- Every FPC needs to maintain a general reserve every year, in addition to the reserves as may be specified in the articles
- The general reserves are a company's retained earnings that are kept aside from a company's accrued profits to meet future (known or unknown) obligations. Such reserves are necessary to compute a company's net worth while seeking credit support

8.2.6 Share certificate distribution and its prerequisites

- Complete list of shareholder members compiled in Excel
- Bank statement of each member (updated)
- Members' ID proof
- Host BoD meeting to increase share capital and distribute new shares
- Host EOGM (Extra Ordinary General Meeting) inviting all the existing shareholder members and seeking permission to ask for new allotments only if they agree not to buy the newly allotted shares
- Subsequently, share certificates may be distributed after following all these procedures, and this is how allotment will be made for the share capital
- A common seal is also to be made

8.2.7 List of resolutions required to be submitted to the RoC within 30 days of approval

- Change in address of the registered office
- Change in BoDs
- Creation of charge
- Increase in authorised share capital

- Private placement/rights issue of capital
- Change in MoA/AoA

8.2.8 DIR-3 KYC

As of 31 March of a fiscal year, every individual with DIN must submit the e-form DIR 3 KYC on or before 30 September of the immediate next FY. If not submitted, a penalty of INR 5,000/director is levied.

8.2.9 Income tax returns

- Every FPC needs to file the ITR before 30 September for each financial year
- A producer company should get audits done by a CA if the turnover exceeds INR 1 crore
- Presently, 100% tax exemption for 5 years up to INR 100 crore turnover is available for FPCs. However, a Minimum Alternate Tax (MAT) is applicable
- Income tax rate: 30% (25% from FY 2017-18) for turnover above INR 100 crore
- The benefits are available from 2018-19

8.2.10 Goods and Service Tax

- Every dealer should compulsorily be registered if turnover exceeds INR 20 lakh
- Every registered dealer shall file three returns after the month end if the turnover exceeds INR 1.5 crore
- GSTR-1- up to 10 days (sale details)
- GSTR-2- 10 to 15 days (purchase details)
- GSTR-3 -18-20 days (consolidated)
- Dealers with a turnover of less than INR 1.5 crore must file returns quarterly
- However, every dealer has to pay tax every month by the 20th day of the following month
- Late filing fees for GST returns is INR 50 per day and INR 20 per day in case of NIL returns

8.2.11 RoC compliance calendar

The following tabulation summarises the compliance requirements with timelines vis-à-vis the RoC:

Table 83: RoC Compliance Calendar

No.	Legal compliances	Frequency
1	Financial compliance of 60 days	One time within 1 month from 60 days of registration
2	1st Annual General Meeting	One time within 90 days of registration
3	Annual General Meeting (AGM)	
a	Notice to members	21 days before the AGM date
b	Meeting	15 months from the last AGM or before 30 September
c	Finalising of minutes of meeting &RoC filing	Within 30 days of the meeting
4	Board meeting	
a	Notice to BoD	7 days before the meeting date
b	Meeting	Monthly
c	Finalising of minutes of meeting	Monthly
5	IT-Returns	Before 30 September

No.	Legal compliances	Frequency
6	GST Filing	
	GST-1	Before the 10th of every month
	GST-2	Before the 15th of every month
	GST-3	Before the 20th of every month
7	Seed license renewal	Every 3 years
8	Fertiliser license renewal	Every 3 years
9	Insecticide license renewal	Every 3 years
10	Mandi license renewal	
B	Operational compliances	
1	Physical stock tally	End of each month
2	Reconciliation of cash book	End of each month
3	Shareholders register update	Weekly
4	CEO salary	
a	Progress report submission to the Chairman	1st week of each month
b	Approval of incentive from the chairman	1st week of each month
c	Salary payments	1st week of each month
5	Reimbursement (Grant)-Depending on the programme/scheme	

Chapter 9 - Schemes that may be leveraged for FPCs

Highlights

This chapter considers the schemes that may be leveraged over the promotion phase of FPCs. The schemes cover those under the auspices of SFAC and NABARD, such as the Credit Guarantee Fund Scheme for FPCs as well as the Matching Equity Grant Scheme.

The cold chain, backward and forward linkages scheme, and the scheme for expansion of food processing capacities of the MoFPI are also considered. The PMEGP and agri-clinic scheme of the Ministry of MSME are also presented, along with schemes of the NHB.

Further, the chapter also considers central schemes related to insurance, micro-irrigation as well as some state government-led schemes under the Mission for Integrated Development of Horticulture.

9.1 Central government schemes for FPCs

9.1.1 Credit Guarantee Fund Scheme for FPCs

The fund has been set up with the primary objective of providing a credit guarantee cover to eligible lending institutions (ELIs- like scheduled commercial banks included in the 2nd schedule of the RBI Act), RRBs, NCDC, etc., and enable them to provide collateral-free credit to FPCs by minimising their lending risks with respect to loans not exceeding INR 100 lakh, and in turn, enable FPCs to get a collateral-free loan.

Eligibility criteria for an FPC

- It is a duly registered FPC under Part IX of the Companies Act, 1956, and has raised equity from its members as laid down in its articles of association/bye-laws
- The number of its individual shareholders is not lower than 500, and a minimum of 33% of its shareholders are small, marginal and landless tenant farmers, and the maximum shareholding by any member other than an institutional member is not more than 5% of the total equity of the FPC
- It has a duly elected Board of Directors (BoD) with a minimum of five members, adequate representation from farmers, and a minimum of one woman member
- The FPC should also have a business plan for the following 18 months

Checklist of documents

- The application should be per the prescribed format and bear the signature with the bank's seal
- Recommendations with the amount of the CGC sought on the bank's letterhead with the date and dispatch number duly signed by the branch manager on each page
- Sanction letter of the sanctioning authority addressed to the recommending branch
- Bank's approved appraisal/process note bearing the signature of sanctioning authority
- Potential impact – Social, environmental, and risk analysis report
- The bank confirms the implementation schedule
- Equity/CA Certificate/RCS Certificate

- Form-2, Form-5, and Form-23 filed with RoC for Company/RCS
- Field inspection report of the bank official as on the recent date

Credit guarantee cover

- The ELI shall be eligible to seek a guarantee cover for a credit facility sanctioned with respect to a single FPC borrower for a maximum of two times over five years
- The maximum guarantee cover shall be restricted to the extent of 85% of the eligible sanctioned credit facility or to INR 85 lakh, whichever is lower
- The cover shall only be granted after the ELI enters into an agreement with SFAC and shall be granted or delivered in accordance with the terms and conditions decided upon from time to time

9.1.2 Equity Grant Scheme for FPOs

The Equity Grant Scheme extends support to the equity base of farmer producer companies (FPCs) by providing matching equity grants subject to a maximum of INR 10 lakh per FPC in two tranches, and to address nascent and emerging FPCs which have paid up capital not exceeding INR 30 lakh with a view of the primary objectives:

- Enhancing viability and sustainability of FPCs
- Enhancing credit worthiness of FPCs
- Enhancing the shareholding of members to increase their ownership and participation in their FPC

Eligibility criteria for FPCs:

An FPC shall be eligible to apply for an equity grant under the scheme based on it fulfilling the following criteria:

- It is a duly registered FPC
- As laid down in its association/bye laws articles, it has raised equity from its members
- The number of its individual shareholders is not less than 50
- The paid-up equity does not exceed INR 30 lakh
- A minimum of 33% of the shareholders are small, marginal, and landless tenant farmers as defined by the Agriculture Census carried out periodically by the Ministry of Agriculture, GoI
- Maximum shareholding by any one member other than an institutional member is not more than 5% of the total equity of the FPC
- The maximum shareholding of an institutional member is not more than 10% of the total equity of the FPC
- Duly elected Board of Directors (BoD) with a minimum of five members with adequate representation from member farmers and a minimum of one woman member
- Duly constituted management committee responsible for the business of the FPC
- A business plan and budget for the next 18 months that is based on a sustainable revenue model as may be determined by the implementing agency
- The FPC has an account with a 'Nationalised Bank'
- It has a statement of accounts audited by a chartered accountant (CA) for at least one full financial year

Contact:

Small Farmers' Agribusiness Consortium-Head Office

NCUI Auditorium Building,
5th Floor, 3, Siri Institutional Area,
August Kranti Marg, Hauz Khas, New Delhi-110016.
Contact No.-+91-11- 41060075, 26966017, 26966037
Fax: +91-11- 26862367
Website: www.sfacindia.com

9.1.3 MoFPI's scheme for cold chain, value addition, and preservation infrastructure

The scheme of cold chain, value addition, and preservation infrastructure aims to provide integrated cold chain and preservation infrastructure facilities, without any break, from the farm gate to the consumer. It covers pre-cooling facilities at production sites, reefer vans, mobile cooling units, as well as value addition centres, which include infrastructural facilities like processing/multiline processing/collection centres, etc., for horticulture, organic produce, marine, dairy, meat, and poultry, etc.

Pattern of assistance

Financial assistance (grant-in-aid) of 35% is the total cost of plant and machinery and technical civil works in general areas, and 50% for the NE region and difficult areas (for storage); and financial assistance (grant-in-aid) of 50% is the total cost of plant and machinery and technical civil works in general areas, and 75% for the NE region and difficult areas (for processing), subject to a maximum of INR 10 crore.

Eligibility criteria

- The applicant's net worth should be at least 1.5 times the grant applied for
- Availing a term loan from the bank/financial Institution for a minimum of 20% of the total project cost
- The commercial production date should not be before the application submission date

Eligible components

As stated below, a minimum of two components need to be set up to qualify for the scheme. Irradiation facility is treated on a stand-alone basis.

MPC/farm level infra

- Facility for weighing, sorting, grading, waxing, packing, pre-cooling
- Controlled Atmosphere (CA)/Modified Atmosphere (MA) cold storage
- Normal storage
- Individual Quick Freezing (IQF)

Reefer transport

- Mobile pre-cooling trucks and reefer trucks, which are suitable for the transportation of perishable agricultural produce/horticulture/dairy/meat/fish produce

Distribution hub

- Hubs with multi products and multi CA/MA chambers/cold storage/variable humidity chambers
- Packing facility
- Cleaning in Process (CIP) fog treatment
- Individual Quick Freezing (IQF)
- Blast freezing

Exclusions

- Cost of land, preoperative expenses, margin money for working capital, and contingency

Eligible implementing agencies under the scheme: Organisations such as central and state PSUs/joint ventures/ farmer producer organisations/NGOs/Co-operatives/SHGs/corporate entities/proprietorship firms engaged or proposed to be engaged in the creation, expansion, modernisation of food processing and preservation capacities are eligible under the scheme.

9.1.4 Scheme for creation of backward and forward linkages

The scheme's objective is to provide effective and seamless backward and forward integration for the processed food industry by plugging the supply chain gaps in terms of raw material availability and linkages with the market.

Under the scheme, financial assistance is provided for setting up primary processing centres/collection centres at farm gate and modern retail outlets at the front end, along with connectivity through insulated/refrigerated transport.

Pattern of assistance

The maximum admissible grant for each project will be 35% for general areas, and 50% of the eligible project cost for North East states, Himalayan states, ITDP areas and islands subject to a maximum of INR 5 crore per project. Assistance to farmer producer organisations would be provided @35% and 50% for general areas and difficult areas, respectively.

Eligible components

The following are the eligible components and facilities for which assistance may be availed:

Backward linkage: -

- Integrated Pack-house(s) (with mechanised sorting and grading line/packing line/waxing line/staging cold rooms, etc.)
- Milk chilling centres/Bulk milk coolers
- Pre-cooling unit(s)
- Mobile pre-cooling vans
- Reefer boats

Forward linkage: -

- Ripening chamber(s)
- Retail chain of outlets for perishables, including meat shops with facilities such as frozen storage/deep freezers/ refrigerated display cabinets/cold room
- Retail refrigerated carts, temperature controlled solar powered retail carts

Transport: - Refrigerated/insulated transport/reefer vans

Eligible implementing agencies under the scheme

- Promoters of existing food processing units
- Groups of producers such as co-operatives, farmer producer organisations (FPOs), farmer producer companies (FPCs), self-help groups (SHGs), etc., linked to food processing units
- Retailers of processed food
- Logistics suppliers

The applicants in the above categories may be organisations such as central and state PSUs/joint ventures/ farmer producer organisations (FPOs)/NGOs/co-operatives/SHGs/public and private companies/limited liability partnerships, corporate entities/proprietorship firms/partnership firms, etc.

9.1.5 Scheme for creation/expansion of food processing and preservation capacities

The scheme's main objective is to create processing and preservation capacities and modernisation/expansion of existing food processing units to increase the level of processing and value addition leading to reduced wastage. The setting up of new units and modernisation/expansion of existing units are covered under the scheme. The processing units undertake a wide range of processing activities depending on the processing sectors, which result in value addition and/or enhancing the shelf life of the processed products.

Pattern of assistance

- 35% of the eligible project cost, which is a maximum of INR 5 crore for general areas
- 50% of the eligible project cost, which is a maximum of INR 5 crore for North East states, including Sikkim, Himalayan States, Island area, and ITDP areas

Eligibility criteria

- Promoter's capital/equity investment on the project should not be less than 20% of the total project cost (not applicable for government proposals)
- The proposal should have a minimum eligible project cost of more than INR 3 crore
- The date of commercial production should not be before the date of submission of the application
- Only those proposals will be eligible in which the sanction of term loan has been accorded by the bank/FI

Eligible organisations

- Organisations such as central and state PSUs/joint ventures/farmer producer organisations/NGOs/co-operatives/SHGs/corporate entities/proprietorship firms engaged in or proposed to be engaged in the creation, expansion, modernisation of food processing and preservation capacities are eligible under the scheme
- The rice milling facility is only eligible for the Eastern and North-Eastern states

Preference to the proposals:

- Allocation to food processing units shall be done on the basis of state-wise allocation
- The proposals for the creation/expansion/modernisation of food processing and preservation units in mega food parks assisted by the ministry will be given preference within the state

Contact:

Ministry of Food Processing Industries

Panchsheel Bhawan, August Kranti Marg
Khelgaon, New Delhi-110049
Fax No. 011-26493228
EPBAX No. 011-26492216/26492174/26493227/26490933

9.1.6 Prime Minister's Employment Generation Programme (PMEGP)

Introduction

The government of India has approved the introduction of a new credit-linked subsidy programme called the Prime Minister's Employment Generation Programme (PMEGP) by merging the two schemes that were in operation till 31.03.2008, namely, the Prime Minister's Rojgar Yojana (PMRY) and Rural Employment Generation Programme (REGP) for the generation of employment opportunities through the establishment of micro-enterprises in rural as well as urban areas. The PMEGP will be a central sector scheme to be administered by the Ministry of Micro, Small and Medium Enterprises (MoMSME).

Objectives

- To generate employment opportunities in rural and urban areas of the country by setting up new self-employment ventures/projects/micro enterprises
- To bring together widely dispersed traditional artisans/rural and urban unemployed youth and give them self-employment opportunities to the extent possible at their place
- To provide continuous and sustainable employment to a large segment of traditional and prospective artisans and rural unemployed youth in the country to help arrest migration of rural youth to urban areas
- To increase artisans' wage-earning capacity and increase the growth rate of rural and urban employment

Quantum and nature of financial assistance

Levels of funding under PMEGP

Table 84: Levels of funding under PMEGP

Categories of beneficiaries under PMEGP	Beneficiary's contribution (of project cost)	Rate of subsidy (of project cost)	
Area (location of project/unit)		Urban	Rural
General category	10%	15%	25%
Special (including SC/ST/OBC/Minorities/ Women, Ex-servicemen, Physically handicapped, NER, Hill and Border areas, etc.	5%	25%	35%

Note:

- The maximum cost of the project/unit admissible under the manufacturing sector is INR 25 lakh
- The maximum cost of the project/unit admissible under the business/service sector is INR 10 lakh
- Banks will provide the balance amount of the total project cost as a term loan

Contact:

State Director, KVIC

Address available at http://www.kviconline.gov.in
Dy. CEO (PMEGP), KVIC, Mumbai
Contact no : 022-26714370
Email: dyceoksr@gmail.com

9.1.7 Agri-Clinics and Agribusiness Centres (ACABC) scheme

Agri-clinics are envisaged to provide expert advice and services to farmers on various technologies, including soil health, cropping practices, plant protection, crop insurance, post-harvest technology, and clinical services.

Agribusiness centres are commercial units of agri-ventures established by trained agriculture professionals. Such ventures may include maintenance and custom hiring of farm equipment, sale of inputs, and other services in agriculture and allied areas, including post-harvest management and market linkages for income generation and entrepreneurship development.

Revised training cost

The revised training cost per trainee is limited to INR 35,000 per trainee. An additional 10% of approved charges on food, accommodation, honorarium, training expenditure, and handholding charges have been provided for North-Eastern states and hill states (J & K, Uttarakhand, and Himachal Pradesh).

Release of handholding fund

Half of the handholding amount, i.e., INR 2,500 per trained candidate, shall be released to the NTI on receipt of the list of projects submitted to the bank (for candidates who intend to establish the venture with bank finance), along with proof of submission. The remaining 50% of the handholding amount, i.e., INR 2,500 per established candidate, shall be released to the NTI on receipt of proof for the agri-venture establishment.

Incentives to candidates and NTIs

NTIs with cumulative and respective batch success rates of more than 50% are eligible for an additional incentive of INR 2,000 per candidate for every candidate established after 50% success rate reported in the respective batch.

Every candidate who establishes their venture, and submits proof to that effect, is eligible to receive an incentive of INR 1,000.

Credit support

Linkage with credit:

Assistance under the scheme is purely credit-linked and subject to the sanction of the project by banks based on economic viability and commercial considerations. The eligible financial institutions under the scheme are: commercial banks, regional rural banks, state co-operative banks, state co-operative agriculture and rural development banks and other such institutions eligible for re-finance from NABARD.

Project cost ceiling:

The ceiling of project cost for the subsidy has been enhanced to INR 20 lakh for an individual project (INR 25 lakh in case of highly successful individual projects) and up to INR 100 lakh for a group project (established by a group comprising at least five trained persons under the scheme, out of which one could be from a management background). The bank may, nevertheless, subject to their own satisfaction, finance groups formed by two or more trained persons under the scheme (a person with a management background can only be included in groups of five or more) within the TFO ceiling of INR 20 lakh per trained person and overall ceiling of INR 100 lakh, whichever is less for subsidy. However, the actual credit sanctioned by the bank for a venture established under the scheme could be higher, depending on the financial viability and technical feasibility. Thus, for instance, if an individual is granted a loan for a TFO of INR 35 lakh, the subsidy shall be reckoned only on TFO of INR 20 lakh. To encourage exceptionally successful individual agripreneurs, the project cost limit for subsidy purposes may be extended by INR 5 lakh, and the generally applicable project cost limit of INR 20 lakh for calculating subsidy. This will incentivise agripreneurs to expand their already established and successful ventures.

Change of capital and interest subsidy to composite subsidy:

The subsidy pattern has been revised from ‘capital and interest subsidy’ to ‘composite subsidy’, which will be back-ended in nature. It will be 44% of the project cost for women, SC/ST, and all categories of candidates from the NE and Hill states, and 36% of the project cost for all others. The interest subsidy scheme is replaced with an enhanced quantum of back-ended subsidy.

Contact:

Director General-MANAGE

Dr. Saravanan Raj, Director (Agricultural Extension)
Email id-saravanan.raj@manage.gov.in

9.1.8 Scheme of Fund for Regeneration of Traditional Industries (SFURTI)

The main objective of SFURTI is to organise the traditional industries and artisans (including farmers in beekeeping, etc.), into clusters to make them competitive and provide support for their long-term sustainability and economy of scale and to provide sustained employment for traditional industry artisans and rural entrepreneurs. Producer organisations and farmers have leveraged this scheme to establish honey processing and horticulture processing facilities.

Soft interventions

Soft interventions under the project consist of activities like general awareness, counselling, trust building, skill development, and capacity-building for the entire value chain; different skills need to be imparted, such as institution development, exposure visits, market promotion initiatives, design and product development, participation in seminars, workshops, and training programmes on technology upgradation, etc.

Hard interventions

Hard interventions will include the creation of facilities like multiple facilities for multiple products and packaging wherever needed; Common Facility Centres (CFCs); raw material banks (RMBs); upgradation of production infrastructure; tools and technological upgradation such as charkha upgradation, toolkit distribution, warehousing facility; training centre, value addition and processing centre/multi-products.

Thematic interventions

Thematic interventions include brand building and promotion campaigns, new media marketing, e-Commerce initiatives, innovation, research and development initiatives, and developing institutional linkages with the existing and proposed clusters.

The financial assistance provided for any specific project is subject to a maximum of INR 8 crore:

Table 85: Types of clusters under SFURTI

Types of clusters	Per cluster budget limit
Heritage clusters (1000-2500 artisans)	INR 8.00 crore
Major clusters (500-1000 artisans)	INR 3.00 crore
Mini clusters (Up to 500 artisans)	INR 1.50 crore

Table 86: Funding pattern under SFURTI

No.	Project intervention	Scheme funding	Financial limit	IA share
A	Cluster interventions	-		-
A1	Soft interventions, including skill trainings, capacity-building, design development	100%	Subject to a maximum 33% of the total cost of cluster intervention (both hard and soft interventions) or INR 25 lakh, whichever is less	NIL
A2	Hard intervention, including CFCs, RMBs, training centres, etc.	75%	-	25% of the project cost, including land cost and own contribution as equity
B	Cost of TA	100%	8% of A1+A2 (Total cost of the cluster interventions both hard and soft interventions)	NIL
C	Cost of IA/SPV, including CDE	100%	Maximum INR 20 lakh per project	NIL

Contact:

Web Information Manager

Ministry of Micro, Small and Medium Enterprises, Room No 123, Udyog Bhawan, Rafi Marg,
New Delhi-110011
Phone No: 011-23061431
e-mail: www.msme.gov.in

9.1.9 Development of commercial horticulture through production and post-harvest management of horticulture crops – by NHB

Objective:

- To develop high-quality horticultural farms in identified belts and make such areas vibrant with horticultural activity, which will act as hubs for developing commercial horticulture by adopting high-tech horticulture techniques
- To develop post-harvest management infrastructure

- To improve linkages between horticulture producers and marketers
- To create an integrated network for the marketing of horticulture produce
- To increase the producer's share in the consumer price
- To encourage the networking of schemes for resource mobilisation with all other related agencies/organisations, both of the government of India and the respective states/UT's governments, financial Institutions, and private agencies engaged in horticulture promotion in the country

Components:

- Production related-High-quality commercial horticulture crops, indigenous crops/produce, aromatic plants, seed & nursery, biotechnology, tissue culture, biopesticides, organic foods, and the establishment of horticulture health clinics/laboratory
- PHM/primary processing related-Grading/packing/washing/waxing/sorting/drying centres, pre-cooling unit/cool stores, reefer van/containers (with multi-chamber, multiproduct facility), specialised transport vehicles, retail outlets, auction platform, ripening/curing chamber, market yards/rope ways, radiation unit/dehydration unit/ vapour heat treatment unit, primary processing of products, fermentation, extraction, distillation, juice vending pulping, dressing, cutting, chopping, etc., horticulture ancillary industry, plastic crates, cartons, baskets, aseptic packaging and nets

Eligibility projects:

Projects with any of the following broad criteria pertaining to high-quality commercial production of horticulture produce shall be eligible for financial assistance from NHB as a back-ended capital investment subsidy:

- High-density plantations include adopting appropriate plant density/canopy management, quality planting material, support, and management system with appropriate inputs
- Hi-tech cultivation under controlled climatic conditions, i.e., in polyhouses, green houses, net houses, etc.
- Rain-fed production through efficient water management techniques, mulching for soil moisture conservation, use of barriers in the soil to reduce percolation, irrigation by drip, sprinklers, fertigation, and water harvesting structures, etc.
- Nursery management for quality seed/plant production of vegetables, flowers, ornamentals, fruit, etc.
- Hybrid seed production
- Organic farming
- Hydroponics for year-round quality production
- Use of plastics in horticulture
- Biotechnology
- Genetically Modified Organisms (GMOs)

Pattern of assistance:

Back-ended capital investment subsidy @ not exceeding 20% of the total project cost with a maximum limit of INR 25 lakh per project shall be provided under the scheme to these projects which are found technically and financially viable. However, for the North-Eastern/tribal/hilly areas, the maximum subsidy limit would be INR 30 lakh per project.

The subsidy would be sanctioned and released under the scheme somewhat on the pattern of the cold storage scheme, which is as under:

- Through participating banks/FIs
- Through NCDC, in the case of the co-operative sector

Contact:

National Horticulture Board

MCAER Building 132/B, Bhambhurda Bhosale Nagar, Pune-411 007
Contact No:/Fax: 020-25530582-83, Email:nhbpune@gmail.com

9.1.10 Capital Investment Subsidy scheme for construction/expansion/modernisation of cold storage and storages for horticulture products – by NHB

Components:

Credit-linked projects relating to cold storage, including controlled atmosphere (CA) and their modernisation, are eligible for assistance under this component. The subsidy need not be credit linked for institutions like public sector units, panchayats, co-operatives, registered societies/trust and public limited companies, provided they can meet the remaining share of the project cost out of their own resources. Such projects will have to be appraised by an appraising agency approved by the NHB.

Eligibility criteria:

A natural person, a group of individuals, or a legal person (Partnership firm, a trust, co-operative society, a society registered under the Registration of Society Act, a company, a self-help group, a farmer producer organisation, co-operative marketing federations, agricultural produce marketing committees, marketing boards/committees, municipal corporations/committees, agro-industries corporations) may apply for assistance.

Pattern of assistance:

The assistance will be given as a subsidy @ 35% of the project's capital cost in general areas, and 50% in the case of NE, hilly and scheduled areas for a storage capacity above 5,000 MT up to 10,000 MT.

Calculation of capacity for subsidy:

For calculation of capacity, 3.4 cubic metres (cm.) (120 cubic feet (cft.)) of chamber volume shall be considered equivalent to 1 MT storage capacity.

Table 87: Description of components and Cost Norms of Capital Investment Subsidy Scheme by NHB

No.	Description	Cost norms
1	Cold storage units Type 1 – basic mezzanine structure with large chamber (of > 250 MT) type with single temperature zone	• @ INR 8,000/MT for capacity up to 5,000 MT • @ INR 7,600/MT for capacity between 5,001 to 6,500 MT • @ INR 7,200/MT for capacity between 6,501 to 8,000 MT • @ INR 6,800/MT for capacity between 8,001 to 10,000 MT
2	Cold storage units Type 2 – Pre-engineered building (PEB) type for multiple temperature and product use, more than 6 chambers of <250 MT) and basic material handling equipment	• @ INR10,000/MT for capacity up to 5,000 MT • @ INR 9,500/MT for capacity between 5,001 to 6,500 MT • @ INR 9,000/MT for capacity between 6,501 to 8,000 MT • @ INR 8,500/MT for capacity between 8,001 to 10,000 MT
3	Cold storage units Type 2 with add-on technology for Controlled Atmosphere	Additional INR 10,000/MT for add-on components of controlled atmosphere technology as per component- wise cost (As per detailed guidelines)
4	Technology induction and modernisation of cold chain	• @ INR 5,000/MT for capacity between 5,001 to 10,000 MT • Components of modernisation include PLC equipment, packaging lines, dock levellers, advanced graders, alternate technologies, stacking system, modernisation of insulation and refrigeration, etc. Details are in the complete guidelines.

General conditions for cold storage projects:

For credit-linked projects, credit components as means of project finance should be term loans from banking or non-

banking financial institutions. For credit-linked projects under NHB, the eligible subsidy amount is to be capped at par with the term loan sanctioned by the lending banks/FI.

Contact:

National Horticulture Board

MCAER Building 132/B, Bhambhurda Bhosale Nagar,
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Contact No/Fax 020-25530582-83
Email: nhbpune@gmail.com

9.1.11 Venture Capital Assistance scheme for agribusiness development

The SFAC provides venture capital to agribusiness projects by way of soft loans to supplement the financial gap worked out by the sanctioning authority of the term loan under means of finance with respect to the cost of the project, subject to the fulfilment of the following conditions:

Qualifying projects under Venture Capital

- Projects should be in agriculture or allied sector or related to agricultural services. Poultry and dairy projects will also be covered under the scheme
- The project should provide an assured market to farmers/producer groups
- The project should encourage farmers to diversify into high-value crops to increase farm incomes
- The project should be accepted by a notified financial institution for a grant of term loan

The quantum of Venture Capital Assistance will depend on the project cost and will be the lowest of the following:

- 26% of the promoter's equity
- INR 50 lakh
- Provided that for projects located in the North-Eastern region, hilly states (Uttarakhand, Himachal Pradesh, Jammu and Kashmir), and in all cases in any part of the country where a registered farmer producer organisation promotes the project, the quantum of venture capital will be the lowest of the following:
- 40% of the promoter's equity
- INR 50 lakh

Eligible persons

Assistance under the scheme will be available to individuals, farmers, producer groups, partnership/proprietary firms, self-help groups, companies, agripreneurs, units in agri-export zones, and agriculture graduates individually or in groups for setting up agribusiness projects. For professional management and accountability, the groups have to preferably form into companies or producer companies under the relevant act.

Contact:

Small Farmers' Agribusiness Consortium- Head Office

NCUI Auditorium Building,
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Website: www.sfacindia.com

9.1.12 Pradhan Mantri Formalisation of Micro Food Processing Enterprise (PMFME) scheme

Introduction

The Ministry of Food Processing Industries (MoFPI), in partnership with the states, has launched the PM Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme) for providing financial, technical, and business support for the upgradation of existing micro food processing enterprises. One of the main objectives of the scheme is providing support to farmer producer organisations (FPOs), self help groups (SHGs), producer co-operatives for capital investment, common infrastructure, and support branding and marketing.

Support to farmer producer organisations/Co-operatives

FPOs and producer co-operatives are provided the following support:

- Grant @35% with credit linkage
- Training support
- Maximum limit of grant in such cases would be as prescribed

Eligibility criteria for co-operatives/FPOs

- It should preferably be engaged in the processing of ODOP produce
- It should have a minimum turnover of INR1 crore
- The proposed project cost should not be higher than the present turnover
- The members should have sufficient knowledge and experience in dealing with the product for a minimum period of 3 years
- The co-operative/FPO should have sufficient internal resources or sanction from the state government to meet 10% of the project cost and margin money for working capital

Support for common infrastructure

A credit-linked grant @35% would be provided to FPOs, SHGs, co-operatives, state-owned agencies, and private entrepreneurs to develop common infrastructure, including a common processing facility, lab, warehouse, cold storage, packaging, and an incubation centre.

Support for branding and marketing

Marketing and branding support will be provided at the state or regional level to FPOs/SHGs/co-operatives or an SPV of micro food processing enterprises under the scheme following the ODOP approach for developing common packaging and branding with provision for quality control, standardisation, and adhering to food safety parameters for consumer retail sale. These organisations will be supported based on the DPR they prepared and recommended by the state nodal agency. Support for branding and marketing will be limited to 50% of the total expenditure.

Procedure for applying

Applications for support from FPOs/SHGs/co-operatives for common infrastructure, marketing, and branding should be submitted to the state nodal agency (SNA), along with a DPR. The SNA will appraise the project and recommend it for a bank loan. A grant by the government will be deposited in the beneficiary's account in the lending bank. If, after three years from the disbursement of the last tranche of the loan, the beneficiary account is still standard and the unit is operational, this amount will be adjusted in the beneficiary's bank account.

Contact:

For guideline details, refer: https://www.mofpi.gov.in/pmfme/docs/SchemeGuidelines.pdf

For other details regarding the scheme, one can contact the state nodal Agencies of their respective state/UT regarding the rollout of the scheme and contact points at the district level.

9.1.13 Agri Infrastructure Fund (AIF)

Introduction

A financing facility of INR 1,00,000 crore will be provided for funding agriculture infrastructure projects at farm gate and aggregation points (Primary agricultural co-operative societies, farmer producer organisations, agriculture entrepreneurs, start-ups, etc.). as an impetus for the development of farm gate and aggregation points, affordable and financially viable post-harvest management infrastructure. Accordingly, DAC&FW has formulated the central sector scheme to mobilise a medium-long-term debt financing facility for investment in viable projects relating to post-harvest management infrastructure and community farming assets through incentives and financial support.

Objectives of the scheme with regard to farmers/FPOs/PACS/co-operatives

- Improved marketing infrastructure allows farmers to sell directly to a larger consumer base, increasing value realisation for the farmers. This will improve the overall income of farmers
- With investments in logistic infrastructure, farmers can sell in the market with reduced post-harvest losses and a smaller number of intermediaries. This will make farmers independent and improve market access
- With modern packaging and cold storage system access, farmers can further decide when to sell in the market and improve realisation
- Community farming assets for improved productivity and optimisation of inputs will result in substantial savings for farmers

Government budgetary support

Table 88: Govt. Budgetary Support-IAF

No.	Component	Norms
1	Interest subvention cost	All loans under this financing facility will have an interest subvention of 3% per annum up to a limit of INR 2 crore. This subvention will be available for a maximum period of 7 years. In the case of loans beyond INR 2 crore, interest subvention will be limited up to 2 crore. The extent and percentage of funding to private entrepreneurs out of the total financing facility may be fixed by the National Monitoring Committee.
2	Credit guarantee cost	Credit guarantee coverage will be available for eligible borrowers from this financing facility under the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme for a loan up to INR 2 crore. The government will pay the fee for this coverage. In the case of FPOs, the credit guarantee may be availed from the facility created under the FPO promotion scheme of DACFW.
3	Administration cost of PMU	The Farmers Welfare Programme Implementation Society under the DACFW will provide PMU support to the scheme at the central level and state PMUs of PM KISAN at the state level. Services of knowledge partners will be engaged to identify clusters, including export clusters and gaps in supply chains, to target projects and prepare viable project reports to support the beneficiaries.

Eligible projects

- Post-harvest management projects-(i) Supply chain services, including e-marketing platforms, (ii) Warehouses, (iii) Silos, (iv) Pack houses, (v) Assaying units, (vi) Sorting & grading units, (vii) Cold chains, (viii) Logistics facilities, (ix) Primary processing centres, (x) Ripening chambers
- Viable projects for building community farming assets-(i) Organic inputs production, (ii) Biostimulant production units, (iii) Infrastructure for smart and precision agriculture, (iv) Projects identified for providing supply chain infrastructure for clusters of crops, including export clusters, (v) Projects promoted by central/state/local governments or their agencies under PPP for building community farming assets or post-harvest management projects

Eligible beneficiaries:

Primary Agricultural Credit Societies (PACS), marketing co-operative societies, farmer producer organisations (FPOs), self-help group (SHG), farmers, joint liability groups (JLG), multipurpose co-operative societies, agri-entrepreneurs, start-ups, and central/state agency or local body sponsored public-private partnership projects.

Contact:

Refer: https://agriinfra.dac.gov.in/

9.1.14 PM Kisan Sinchayee Yojna

Introduction

Out of about 141 million ha of net area sown in the country, about 65 million ha (or 45%) is presently covered under irrigation. Substantial dependency on rainfall makes cultivation in unirrigated areas a high-risk and less productive profession. The overreaching vision of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) will be to ensure access to some means of protective irrigation to all agricultural farms in the country, to produce 'per drop more crop,' thus bringing much desired rural prosperity.

Objectives

- Achieve convergence of investments in irrigation at the field level (preparation of district level and, if required, subdistrict level water use plans)
- Enhance the physical access to water on the farm and expand cultivable area under assured irrigation (Har khet ko pani)
- Integration of water source, distribution, and its efficient use, to make the best use of water through appropriate technologies and practices
- Improve on-farm water use efficiency to reduce wastage and increase availability in duration and extent
- Enhance the adoption of precision irrigation and other water-saving technologies (More crop per drop)
- Enhance recharge of aquifers and introduce sustainable water conservation practices
- Ensure the integrated development of rain-fed areas using the watershed approach towards soil and water conservation, regeneration of groundwater, arresting runoff, providing livelihood options, and other NRM activities
- Promote extension activities relating to water harvesting, water management, and crop alignment for farmers and grass root level field functionaries
- Explore the feasibility of reusing treated municipal wastewater for peri-urban agriculture
- Attract greater private investments in irrigation

Table 89: Project Components of PMKSY

No.	Component	Illustrative activities
1	AIBP	To focus on faster completion of ongoing major and medium irrigation (including national) projects.
2	PMKSY (Har Khet ko Pani)	• Creation of new water sources through minor irrigation (both surface and groundwater) • Repair, restoration, and renovation of water bodies; strengthening carrying capacity of traditional water sources; construction of rainwater harvesting structures (Jal Sanchay) • Command area development, strengthening, and creation of the distribution network from the source to the farm

No.	Component	Illustrative activities
		• Improvement in water management and distribution system for water bodies to take advantage of the available source, which is not tapped to its fullest capacity (deriving benefits from low-hanging fruits). At least 10% of the command area is to be covered under micro/precision irrigation • Diversion of water from the source of different locations, where it is plenty to nearby water-scarce areas, lift irrigation from water bodies/rivers at lower elevations to supplement requirements beyond IWMP and MGNREGS irrespective of irrigation command • Creation and rejuvenation of traditional water storage systems like Jal Mandir (Gujarat); Khatri, Kuhl (H.P.); Zabo (Nagaland); Eri, Ooranis (T.N.); Dongs (Assam); Katas, Bandhas (Odisha and M.P.), etc., at feasible locations
3	PMKSY (Watershed)	• Water harvesting structures, such as check dams, nala bund, farm ponds, tanks, etc. • Capacity-building, entry point activities, ridge area treatment, drainage line treatment, soil and moisture conservation, nursery raising, afforestation, horticulture, pasture development, livelihood activities for the asset-less person, production system and micro-enterprises for small and marginal farmers, etc. • Effective rainfall management includes field bunding, contour bunding/trenching, staggered trenching, land levelling, and mulching
4	PMKSY (Per drop more crop)	• Programme management, preparation of state/district irrigation plan, approval of annual action plan, monitoring, etc. • Promoting efficient water conveyance and precision water application devices like drips, sprinklers, pivots, and rain guns in the farm (Jal Sinchan) • Topping up of input cost, particularly under civil construction beyond the permissible limit (40%), under MGNREGS for activities like lining inlet, outlet, silt traps, distribution system, etc. • Construction of micro-irrigation structures to supplement source creation activities, including tube wells and dug wells (in areas where groundwater is available and not under semi-critical/critical/over-exploited category of development), which are not supported under PMKSY (WR), PMKSY (Watershed) and MGNREGS. • Secondary storage structures at the tail-end of the canal system to store water when available in abundance (rainy season) or from perennial sources like streams for use during dry periods through effective on-farm water management • Water lifting devices like diesel/electric/solar pump sets, including water carriage pipes • Extension activities for promoting scientific moisture conservation and agronomic measures, including cropping alignment to maximise the use of available water, including rainfall, and minimise irrigation requirements (Jal sarankchan) • Capacity-building, training for encouraging potential water source use through technological, agronomic, and management practices, including community irrigation • Awareness campaign on water-saving technologies, practices, programmes etc., organisation of workshops, conferences, publication of booklets, pamphlets, success stories, documentaries, advertisements, etc. • Improved/innovative distribution systems like pipe and box outlet systems with controlled outlets and other activities to enhance water-use efficiency

No.	Component	Illustrative activities
5	MGNREGA	• Water harvesting structures on individual lands of vulnerable sections, creation of new irrigation sources, upgradation/desilting of traditional water bodies, water conservation works, etc. • Supplementing soil and water conservation works in the identified backward rain-fed blocks by overlaying the plans with watershed projects for development to full potential • Desiltation of canal and distribution system, deepening and desiltation of existing water bodies, strengthening of bunds/embankments, etc. • Restoring the potential of traditional water storage systems like Jal Mandir, Khatri, Kuhl, Zabo, Ooranis, Dongs, Katas, Bandhas, etc., through disiltation and deepening activities

Contact:

Ministry of Agriculture & Farmers Welfare,

Department of Agriculture & Farmers Welfare, Room-118-B, Shastri Bhawan,
New Delhi-110001.
Website: https://pmksy.gov.in/Contacts.aspx

9.1.15 PM Fasal Bima Yojna

Introduction

PMFBY provides a comprehensive insurance cover against the failure of the crop, thus helping in stabilising the farmers' income and encouraging them to adopt innovative practices. The scheme can cover all food and oilseed crops and annual commercial/horticultural crops for which past yield data is available and for which the requisite number of Crop Cutting Experiments (CCEs) will be conducted being a part of the General Crop Estimation Survey (GCES).

Management of the scheme

The existing State Level Co-ordination Committee on Crop Insurance (SLCCCI), sub committee to SLCCCI, District Level Monitoring Committee (DLMC) already overseeing the implementation and monitoring of the ongoing crop insurance schemes like the National Agricultural Insurance Scheme (NAIS), Weather Based Crop Insurance Scheme (WBCIS), Modified National Agricultural Insurance Scheme (MNAIS) and Coconut Palm Insurance Scheme (CPIS) shall be responsible for proper management of the scheme. The IA shall be an active member of the SLCCCI and the District Level Monitoring Committee (DLMC) of the scheme.

Crops

The scheme can cover all the crops for which past yield data is available and grown during the notified season in a notified area and for which yield estimation at the notified area level will be available based on the requisite number of Crop Cutting Experiments (CCEs) being a part of the General Crop Estimation Survey (GCES).

Notified area

The notified area is the unit of insurance the state government decides for notifying a crop during a season. The size of the insurance unit shall depend on the area under cultivation within the unit. For major crops, the unit of insurance shall ordinarily be village/village panchayat level, and for minor crops, it may be at a higher level, so that the requisite number of CCEs could be conducted during the notified crop season. States may notify village/village panchayat as insurance units in case of minor crops too, if they so desire.

Exclusions

Risks and losses arising out of the following perils shall be excluded: War & kindred perils, nuclear risks, riots, malicious damage, theft, an act of enmity, grazed and/or destroyed by domestic and/or wild animals; In case of post-harvest losses, the harvested crop bundled and heaped at a place before threshing, and other preventable risks.

Premium rates

Table 90: Insurance Charges-PMFBY

No.	Season	Crops	Maximum insurance charges payable by farmers
1	Kharif	Food and oilseed crops (all cereals, millets, & oilseeds, pulses)	2.0% of SI or actuarial rate, whichever is less
2	Rabi	Food and oilseed crops (all cereals, millets, & oilseeds, pulses)	1.5% of SI or actuarial rate, whichever is less
3	Kharif & Rabi	Annual commercial/annual horticultural crops	5% of SI or actuarial rate, whichever is less

Contact:

Website: https://pmfby.gov.in/help

9.1.16 Rashtriya Gokul Mission

Introduction

The Rashtriya Gokul Mission (RGM) has been implemented to develop and conserve indigenous bovine breeds since December 2014. The scheme is vital in enhancing milk production and productivity of bovines to meet the growing demand for milk and making dairying more remunerative to the country's rural farmers. The scheme is also continued under the umbrella scheme of Rashtriya Pashudhan Vikas Yojna from 2021 to 2026 with a budget outlay of INR 2400 crore. The RGM will result in enhanced productivity, and the benefit of the programme percolating to all cattle and buffaloes of India, especially with small and marginal farmers. This programme will also benefit women since over 70% of the work involved in livestock farming is undertaken by women.

Objectives

- To enhance the productivity of bovines and sustainably increase milk production using advanced technologies
- To propagate the use of high genetic merit bulls for breeding purposes
- To enhance artificial insemination coverage through strengthening the breeding network and delivery of artificial insemination services at the farmer's doorstep
- To promote indigenous cattle and buffalo rearing and conservation scientifically and holistically

Funding pattern

All the components of the scheme will be implemented on a 100% grant-in-aid basis except the components of: i) accelerated breed improvement programme under the component subsidy of INR 5,000 per IVF pregnancy will be made available to participating farmers as the GoI share, ii) promoting sex-sorted semen under the component subsidy up to 50% of the cost of sex-sorted semen will be made available to participating farmers, iii) establishment of breed multiplication farm under the component subsidy up to 50% of the capital cost of a maximum up to INR 2 crore of the project will be made available to the entrepreneur.

Components of RGM

- Availability of high genetic merit germplasm
- Extension of artificial insemination network

- Development and conservation of indigenous breeds
- Skill development
- Farmers awareness
- Research development and innovation in bovine breeding

Contact:

Department of Animal Husbandry and Dairying

Ministry of Animal Husbandry and Dairying, Room 245, Krishi Bawan, New Delhi-110001

9.1.17 Animal Husbandry Infrastructure Development Fund (AHIDF)

The Animal Husbandry Infrastructure Development (AHIDF) has been approved for incentivising investments by individual entrepreneurs, private companies, MSME, farmer producer organisations (FPOs), and Section 8 companies to establish: (i) the dairy processing and value addition infrastructure, (ii) meat processing and value addition infrastructure, (iii) Animal feed plant.

Objectives

- To help increase milk and meat processing capacity and product diversification, thereby providing greater access for unorganised rural milk and meat producers to organised milk and meat markets
- To make available an increased price realisation for the producer
- To make available quality milk and meat products for the domestic consumer
- To fulfil the objective of protein-enriched quality food requirements of the country's growing population and prevent malnutrition in one of the highest malnourished child populations in the world
- Develop entrepreneurship and generate employment
- To promote exports and increase the export contribution in the milk and meat sectors
- To make available quality concentrated animal feed to cattle, buffalo, sheep, goat, pig, and poultry to provide balanced rations at affordable prices

Contact:

Department of Animal Husbandry and Dairying

Ministry of Animal Husbandry and Dairying, Room 245, Krishi Bawan, New Delhi-110001

9.1.18 Supporting Dairy Co-operatives & Farmer Producer Organisations (SDCFPO):

The scheme provides working capital loans to state co-operatives and federations. An amount of INR 303 crore has been released to the National Dairy Development Board till December 2021 for implementation of the scheme.

Objectives

- To assist the state dairy co-operative federations by providing soft working capital loans to tide over the crisis due to severely adverse market conditions or natural calamities
- To provide stable market access to dairy farmers
- To enable state co-operative dairy federations to continue to make timely payments of dues to the farmers
- To enable the co-operatives to procure milk at a remunerative price from the farmers, even during the flush season

Contact:

Department of Animal Husbandry and Dairying

Ministry of Animal Husbandry and Dairying, Room 245, Krishi Bawan, New Delhi-110001

9.2 State MIDH-related schemes for FPCs

Schemes of the government of Andhra Pradesh may be considered as an illustration[40], particularly under the MIDH schemes.

Primary processing/Minimal processing units

Table 91: Pattern of assistance for Primary Processing/Minimal Processing Units under MIDH Scheme

No.	Component	Unit cost	Pattern of assistance
1	Functional pack house/On-farm collection unit	INR 4.00 lakh per unit with size of 9M X 6M	50% of the capital cost
2	Low-cost onion storage structure (25MT)	INR 1.75 lakh per unit	50% of the capital cost
3	Zero energy cool chamber	INR 4,000 per unit	50% of the capital cost

Cold storage (Construction, expansion and modernisation)

Table 92: Pattern of assistance for Cold storage under MIDH Scheme

No.	Component	Unit cost	Pattern of assistance
i)	Cold storage units Type-1 basic mechanised structure with large chamber (of >250MT) type with a single temperature zone	INR 8,000/MT (max 5,000 MT capacity	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
ii)	Cold storage units type-2 with add-on technology for controlled atmosphere	Additional INR 10,000/- MT for add-on components of controlled atmosphere technology	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
5	Integrated pack house with facilities for conveyer belt. Sorting, grading units, washing, drying, and weighing	INR 50.00 lakh per unit with size of 9M X 18M	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
6	Pre-cooling unit	INR 25 lakh/unit with a capacity of 6 MT	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
7	Cold room (staging)	INR 15 lakh/unit of 30 MT capacity	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs

40 Cost norms are merely indicative and subject to change over time

No.	Component	Unit cost	Pattern of assistance
8	Refrigerated transport vehicles	INR 25 lakh for 9 MT	Credit linked back-ended subsidy @35% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
9	Primary/Mobile/Minimal processing unit	INR 25 lakh/unit	Credit linked back-ended subsidy @40% of the cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for individual entrepreneurs
10	Ripening chamber	INR 1 lakh/unit	Credit linked back-ended subsidy @35% of the capital cost of the project in general areas and 50% of the cost in the case of hilly and scheduled areas for a maximum of 300 MT per beneficiary

Secondary processing

Table 93: Pattern of assistance for Secondary Processing under MIDH Scheme

No.	Component	Unit cost (INR lakh)	Assistance
1	Cashew processing unit	25.00	Credit linked back-ended subsidy @40% of the capital cost of the project in general areas and 55% in case of hilly and scheduled areas
2	Tomato ketchup plant	25.00	
3	Turmeric cooking plant	25.00	
4	Garlic/Onion dehydration plant	25.00	
5	Honey process plant	25.00	
6	Papaya Tooty Fruity processing plant	25.00	
7	Red chilli dryer plant	25.00	
8	Pineapple processing plant	25.00	

Plantation and infrastructure development (by credit-linked back-end subsidy)

Table 94: Pattern of assistance for Plantation & Infrastructure Development under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Small nurseries-Public sector	7.50
2	Setting tissue culture units-Public sector	100.00

Creation of water resources

Table 95: Pattern of assistance for Creation of Water Resources under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Community farm ponds	20.00
2	Individual farm ponds	0.75

Protected cultivation

Table 96: Pattern of assistance for Protected Cultivation under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Polyhouses	
	1008 Sq. Mt. (0.25 Ha)	46.75
	2080 Sq. Mt. (0.50 Ha)	44.50
	4000 Sq. Mt. (1 Ha)	42.50
2	Shade net houses	
	1000 Sq. Mt.	35.30
	2000 Sq. Mt	35.50
	4000 Sq. Mt.	35.50
3	Cost of planting material and cultivation of high-value vegetables @ 70/Sq. Mt.	7.00
4	Cost of planting material and cultivation of high-value flowers	
	Orchid & Anthurium @ INR 305 Sq. Mt.	35.00
	Carnation & Gerbera @ INR 305 Sq. Mt.	30.50
	Chrysanthemum @ INR 213 Sq. Mt.	21.30
5	Plastic mulching	0.16

Integrated post-harvest management

Table 97: Pattern of assistance for Integrated Post-Harvest Management under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Pack House (9m x 6m)	2.00
2	Integrated pack house	17.50
3	Pre-cooling units (6 MT)	8.75
4	Cold room (Staging) 30 MT	5.25
5	Cold storage	140.00
6	Refrigerated transport vehicle of 9 MT capacity	9.10
7	Primary/Mobile/Minimal processing units	10.00
8	Ripening chambers	21.00
9	Low-cost onion storage structures (25 MT)	0.88

Marketing infrastructures

Table 98: Pattern of assistance for Marketing Infrastructure under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Rural marketing	10.00
2	Retail markets/outlets	5.25
3	Static/Mobile vending cart/Platform with cool chamber	0.15

Pollination support through beekeeping

Table 99: Pattern of assistance for Beekeeping under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Honeybee colony INR 2,000/colony of 8 frames limit to 50 colonies/ beneficiary (Unit-No)	0.008
2	Bee hives INR 2,000/hive up to max of 50 colonies/beneficiary (Unit-No)	0.01
3	Equipment, including honey extractor (Unit-No)	0.08

Horticulture mechanisation

Table 100: Pattern of assistance for Horticulture Mechanisation under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Tractor up to 20 TPH	0.75
2	Power tiller	
	A. Below 8 BHP	0.40
	B. 8 BHP & above	0.60
3	Tractor/power tiller below 20 BHP driven equipment	
	A. Land development tillage, seed bed, preparation equipment	0.12
	B. Sowing, planting, and digging equipment	0.12
	C. Plastic mulching laying machine	0.28

Plant protection equipment

Table 101: Pattern of assistance for Plant Protection Equipment under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
1	Manual sprayers	0.005
2	Taiwan sprayers	
	A. 8-12 lit capacity	0.025
	B. 12-16 lit capacity	0.030
	C. Above>16 lit capacity	0.080
3	Tractor mounted sprayer	
	A. Below 20 BHP	0.080
	B. Above 35 NHP	0.500

Human resources development

Table 102: Pattern of assistance for Human Resources Development under MIDH Scheme

No.	Components	Financial assistance (INR lakh)
	Skill development	0.1642
1	Training of farmers (within state)	0.01
2	Exposure visit to farmers (within state)	0.004
	Exposure visit to farmers (outside State)	0.0625
3	Training of officers/Staff (within state)	0.01
	Training of officers/Staff (outside state)	0.02

Annexures

Annexure 1: Sample baseline survey schedule for farmers

Farmer baseline survey

Basic data:

- District; Mandal; Village
- Name of respondent; Name of the Head of the Family (HoF); Relationship of respondent with the HoF; No. of family members
- Gender; Caste; Religion
- Mobile No; PAN No, Aadhar No.

Source of livelihood

- Primary and secondary source of livelihood, and annual income

Farmer asset details:

- Type and area of house
- Own means of transport; availability of electricity, television, mobile phones
- Loans and savings

Agriculture land details

- Agriculture land description: Own land/taken on lease/land given on lease/taken on share (batai): Area under cultivation; irrigated area; Rainfed area; Other-barren or fallow land

Farm equipment details

- Own farm equipment
- Estimated value
- Subsidy for buying farm equipment

Livestock

- Livestock numbers: Oxen; Buffaloes; Cows; Goats; Poultry birds

Irrigation details

- Source of irrigation

Cropping details

- Name; season
- Cultivated area, production; productivity
- Mode of irrigation
- Cost of production; Income

Modern techniques

- Modern techniques used-Greenhouse polyhouse; shed net; area; crops

Financial services

- Source of finance for agriculture
- Loan from informal sources: Rate of interest; repayment period

- Bank account
- Membership in PACS/any co-operative society/SHG
- LIC policy
- Crop insurance

Marketing details

- Marketing channels; commission, if any
- Produce sold at farm gate: Commodity; quantity; selling price; reasons for selling at farm gate; mode of payment received
- Produce sold at market/mandi: Name of nearest market/APMC/mandi; distance from farm; commodity; quantity; selling price; reasons for selling at farmgate; mode of payment received; transportation mode; cost
- Storage practices: Commodity; name of the storage; distance from farm; charges

Annexure 2: Sample baseline report format/structure

- General information: Demographics; assets, livelihoods/incomes; household size, members, and details of occupation
- Economics of agriculture: Cost of production; current productivity; agri-Inputs; scope for adoption of new technologies; seasonality chart; harvesting schedule; post-harvest management
- Production: Quality and quantity of inputs; technological levels; input suppliers and vendors; seasonality of production; availability and tied sale
- Financial aspects: Share capital contribution; loans, grants; interest rate; access to government schemes; risks and its mitigation strategy
- Risk aspect: Historical risks; computation of losses; coping mechanisms
- Marketing aspects: Marketing channels; margins and costs at various levels; quality aspects; price sensitivity; seasonality of markets; alternate market structure
- Best practices: District level; state level; national level
- Constraints and challenges: Business environment; SWOT analysis; scope of FPO
- Prospects and opportunities

Annexure 3: Sample FGD schedule for farmers

- General information: District; cluster; village; group
- Crop details: Season; crops; area of cultivation; average landholding; yield; agri-input requirement and sources, water requirement
- Major problems in crop production: Land preparation; labour; agri-inputs; irrigation; farm mechanisation; pest infestation; cultivation practices; others
- Willingness to do primary processing on a commercial basis
- Knowledge about current practices and technological inclusion and challenges
- Agri-input- How shortage is fulfilled; Source and terms of agri-credit; support institution in the vicinity and its services; hybrid seed usage
- Grant/subsidy from the government or private organisation
- Organisation involved in promoting farmers' groups/company/organisation
- Post-harvest management- Harvesting; storage quantity, structure, charge details; self-consumption percentage
- Marketing of produce- Buyers; payment terms; mode of knowing market prices of your produce
- Stakeholders involved in the existing value chain of crops: Major markets-distance, nature, timings, type of commodities dealt with, local buyer details; malpractices carried out by buyers; details of tied-up sale, cost of transportation borne by the vegetable farmer during marketing
- Regulated markets-Margin/commission in regulated markets; trader margin details
- Willingness to work in a group and farmer producer company
- Comparative analysis of agricultural practices and changes in cropping pattern: Crop diversification, willingness to shift from existing cropping pattern for better benefits

Annexure 4: Sample FGD schedule for BDS providers

- General information: District; Block; Villages in block; Number of farmers in the block; Crops; Area; Production; Nearest APMC/mandi; Details of existing FPOs/FPCs/FIGs; Farmer's distribution based on landholding
- Pre-harvest management: Input availability; Current practices; Constraints; Recommended Good Agricultural Practices
- Post-harvest management (PHM): Current practices; Constraints; Recommended interventions
- Markets: Major Markets for different commodities- Market size, arrivals and dispatches, Price variations across markets; Constraints; Recommended interventions
- Marketing information and extension support: Present services offered; Recommended interventions
- Institutional support and infrastructure availability: Farm advisory services; Credit; Post-harvest infrastructure facilities; Primary and secondary processing; Recommended intervention
- Commercially viable commodity list: Rationale of selecting the commodity

Annexure 5: Sample value chain report format/Structure

Executive summary

Chapter 1 Introduction: Global Scenario; Indian Scenario; State Scenario; District and cluster scenario; Approach to Value Chain Analysis.

Chapter 2: Pre-harvest management: Major Commercial Varieties Grown; New initiatives and Practices; Land preparation; Sowing/Planting/Consumption; Climatic and Soil Requirement; Nutrient Management; Water management; Pest & Disease management; Weed control & Interculture operations; Recommended Good Agriculture Practices; Harvesting.

Chapter 3: Post-harvest management: Post-Harvest Losses, Harvesting care and Post-Harvest Equipment; Grade Specification & Grading at Producer level; Major storage Disease and Pest and their Control Measure.

Chapter 4: Cost of production and net value accruals to producers.

Chapter 5: Supply chain of commodity: Seasonal Availability; Market Arrivals & Prices in Major Markets; Existing value chain; Alternative Systems of Marketing.

Chapter 6: Processing Infrastructure availability and utilisation: Processing; Stakeholder's Share in Consumer Rupee; Price build up & Marketing Efficiency Analysis; Consumer preference Analysis.

Chapter 7: Existing Institutional support and Infrastructure facility: Support at cultivation stage; Support at post-harvest stage.

Chapter 8: Gap & Constraint Analysis: As Perceived by Producers and Other Stakeholders; SWOT analysis of the indicative Value Chain; Key constraints in commodity; PIESTEC Framework.

Chapter 9: Proposed Intervention and Investments: Intervention areas for Value chain strengthening; Proposed investment in primary processing unit of commodity; Proposed Post Intervention Value Chain Map; Conclusion.

Annexure: Stakeholders consulted over the study.

Annexure 6: Some large corporate processors and retailers procuring from FPOs

Corporates	Typical products of interest
Walmart	Fruits and vegetables, spices, groundnut, green gram, Bengal gram, Isabgol
Cargill	Maize, rapeseed, mustard seeds
Reliance Fresh	Fruits and vegetables, spices, groundnut, green gram, Bengal gram, Isabgol
Coca cola	Guava, Kinnow, orange
PepsiCo	Potato, pulses
ITC	Red chilli, wheat
Haldiram's	Spices, pulses, potato
Soufflet	Barley
TM Colman	Pulses
Bikano	Spices, pulses, fruits and vegetables
CP Seeds	Maize
Shreeji	Groundnuts
JVs food	Barley, spices, soybean, maize
Kansara Foods	Green gram
Poddar Foods	Spices
Dave Masale	Spices
Iscon Balaji	Spices, pulses
Tata Rallis	Pulses
Suguna Feeds	Maize
INI Farms	Banana, pomegranate
Desai Fruits	Banana
LEAF	Fruits and vegetables
Waycool	Fruits and vegetables
Udaan	Horticulture produce
Keventer	Mango, tomato, banana
Mother Dairy-Safal	Horticulture produce, sweet corn, etc.
Adani Wilmar Ltd	Soybean, mustard, rice, groundnut, cottonseed and sunflower
ADM Agro Industries	Soybean
Ninjacart	Fruit and vegetables
Kamathan	Interested in fruit and vegetable suppliers

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42. Under the World Bank assisted Assam Project for Agriculture and Rural Transformation (APART). Team GT has been providing Technical support to FPCs under this initiative
43. In this context, it is pertinent to mention that GT Bharat has facilitated publication of several related manuals and tool-kits, which may also be used as reference material. This publication is also expected to complement capacity building initiatives of BoDs
44. Also see Padmanand and Kurian, 2009 and Padmanand et al, 2018
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46. Under the Tamil Nadu Irrigated Agriculture Modernisation Project (TNIAMP) supported by The World Bank.
47. Grant Thornton Bharat served as a consultant to successfully form and promote 30 horticulture related FPCs in Andhra Pradesh under this initiative
48. The MACP has been supported by the World Bank and Grant Thornton Bharat has served as the Agri Business Promotion Facility under this initiative
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50. Vrutti Livelihood Resource Centre, Bangalore, had served as the RI
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54. Cost norms are merely indicative and subject to change over time

"The Manual on FPOs is in the nature of a 'Master Guide' that will benefit all stakeholders along the agri-value chain beginning with the farmers, who realise the value of FPOs in promoting income approach to agriculture. The Manual is comprehensive and will impart farmers with necessary confidence. Simultaneously, government functionaries at both the policy and execution stages, as also other actors can derive immense clarity. I congratulate the authors for their painstaking, but passionate contribution to FPOs through this Manual."

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"Farmer Producer Organisations are critical vehicles through which the typical small farmer can reap scale economies and enhance their livelihood incomes. In this context this publication is a significant and useful value addition to the literature and related tool-kits."

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"Doubling of farmers income has been an elusive goal despite best efforts of all stakeholder's which needs to be bolstered now with the active involvement of FPOs, Investing in the value addition and processing chain and utilising the potential of Digital marketing in earning more value for the farmers. This manual is a definite step in enhancing all elements of this new value chain in agriculture."

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S J Chiru, IAS, Principal Secretary to Government, Social Welfare and Women Empowerment Department, Government of Tamil Nadu and Former Commissioner of Agricultural Marketing and Agri Business, Government of Tamil Nadu

"The manual is all set to bring about a profound transformation in the lives of the farmers who embrace the institution of FPO. The authors have done commendable work in bringing together not only the basics of FPO's functioning , but also crystal clear goals and actionable insights for the betterment of farmers. Hats off to the authors."

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"A very useful publication for policy makers and implementers. It is also important to appreciate the fact that Grant Thornton Bharat has helped trigger the Farmers Co-operative Revolution in Assam, where co-operation is naturally ingrained within society."

Vinod Sheshan, IAS, Former Project Director, Assam Agribusiness and Rural Transformation Project (APART), Assam

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