A COMPREHENSIVE STUDY FOR IDENTIFICATION OF VIBRANT FPO CLUSTERS FOR EFFECTIVE MARKET INTEGRATION

FPO - Market Linkages in 49 Clusters across 52 Districts of India

Study by: TATA TRUSTS

Undertaken by: aryagroup
A NATIONAL STUDY REGARDING:

Identifying and profiling of Pan India Clusters of Farmer Producer Organizations (FPOs).

Study of FPOs Key Crop Value chains in identified Clusters.

Study of Key Market Players operating in identified Value-Chains of the Cluster.

Existing Gaps in the Cluster that hinder successful Value Chain integration with Market Players and subsequent interventions that can bridge these Gaps.
FOREWORD

The Tata Trusts are India’s oldest philanthropic organizations. They have continuously supported and prioritized development of poor communities in rural India for over a century. Its Rural Upliftment Portfolio targets rural income generation through farm and non-farm activities, including production, post-harvest activities and the marketing of produced goods. The Trust operates through development, strengthening and supporting institutions like Farmer Producer Organizations (FPOs). Lately this support is increasingly focused on enhancing the ecosystem within which these institutions operate. This implies understanding and working with markets and market players while continuing to support and address issues in production.

Farmer Producer Collectives (FPOs) and their promoting institutions play an increasingly significant role in improving the efficiency of small and marginal farmers across the country. While Indian agriculture has transformed post-independence from an importer of food grain to a major exporter of food-grain, marketing systems and post-harvest marketing infrastructure have kept pace with the growing production and resulting marketable surplus. Therefore, a focus on the integration of producer collectives with market players, will lead to improved earnings, financial independence, and long-term sustainability.

The Government of India on 13th November 2013, approved a proposal of the Department of Agriculture and Cooperation, for the continuation and integration of the on-going Central Sector Schemes as Integrated Scheme for Agricultural Marketing (ISAM) during the XII Plan (2012-2017). While there are many ways of implementing this, a tried and tested method is to bring in expertise to the Collectives, while providing them with options for networking and linkage establishment. Towards this, the Tata Trusts aim to create Centers of Excellence in Agriculture Development (CEAD), in several needy districts across India, in close collaboration with different partners and state governments.

To identify districts suitable for the CEADs the Trusts commissioned a nation-wide study covering 52 districts and a range of agriculture value-chains. This study was conducted by ARYA, a post-harvest value chain integrator, with reputable experience in consulting, training and research. Specific focus was on the production quality, volumes and presence of market players.

As this study is an initial step in the effort to form operational FPO clusters, potential clusters ripe for CEAD establishment have been identified. The study considers viewpoints and feedback from different stakeholders, including market players and collectives. From this, the study outlines specific intervention requirements and creates baselines required to intervene in these clusters. This report will therefore be immensely useful for teams planning impactful interventions in these regions. Furthermore, the design of this survey is replicable in the planning of rural agricultural FPO clusters and value chains across the country.

The report further brings to the fore the urgency to provide farmers with access to competitive markets with adequate infrastructure, including cold chain logistics, to enable them to realize better prices on one hand, and provide nutritious food to consumers at stable and affordable prices on the other. With this objective in view, it is expected that the study’s results will be explored and adopted not just by the Tata Trusts own state initiatives, associate organizations and partners, but also by other state and non-state organizations.

Vijay Singh
Vice Chairman
Tata Trusts
ACKNOWLEDGMENT

Arya, as a value chain integrator, deals with all players offering professional warehousing, procurement and market linkages, financing and knowledge services. We strive to bring these services closer to farmers and their organizations through offerings of innovative products. This study provided us a unique opportunity of detail study of select value chains from the vantage point of both the market and of farmer organizations. On the procurement side we met and analysed 1833 FPOs in 52 districts of 18 states, which work in 49 value chains. On the market side, we met with 399 market players including large national and regional corporates, processors and large traders. This was an unparalleled opportunity to enhance and leverage the Arya connect across players in the value chain to develop profitable options for farmer organizations. In the process we uncovered the immense value FPOs can add to market players in opening new segments, in realizing efficiency and increasing competitiveness. Each value chain we studied showed abundant options to increase share of FPOs at stages of pre harvest, storage, processing, presales and marketing. Collaboration with existing players, reducing information asymmetry, value addition are amongst options that can be explored. In the chapters and in detailed cluster reports, this central idea repeats.

Partnerships between markets and farmers need to be catalysed to realize gains for both. In the words of the Father of the milk revolution, Dr. Verghese Kurien,

India’s place in the sun will come from the partnership between the wisdom of its rural people and the skill of its professionals

A study of this scale would not be possible without support from numerous government officials, corporate and trade community and development actors. We are grateful for their participation and insights.

The Tata Trusts are a very suitable partner as their focus on this study ends in programs and not just in a product. We are grateful to Mr. Vijay Singh, Mr. Arun Pandhi, Dr. Malavika Chauhan and Dr. Sudhir Kumar Goel for maintaining that focus throughout the project.

We hope that with this study we can begin building an ecosystem of partnership with farmer organizations.

M Prasanna Rao
Managing Director
ARYA Collateral Warehousing Services Pvt Ltd.
The Tata Trusts partnered with ARYA for a national study of Farmer Producer Organizations (FPOs) in an endeavour to strengthen their linkages with markets at scale. The study envisaged identification of FPO clusters in a congruent geography in order to facilitate their effective market integration. It also identified 365 local and 34 regional and national Market Players active across 45 value chains most relevant to FPOs in the identified clusters.

The study investigated gaps impeding business transactions between FPOs and market players and subsequently recommended interventions to bridge these gaps. An objective of the study was also to identify the most congenial FPO clusters that necessitates setting up of possible Centers of Excellence in Agricultural marketing and Development (CEADs) to facilitate market integration of FPOs.

The study was undertaken through a primary survey of 1833 FPOs and 399 market players. The key findings of the study covered 45 value chains across 49 FPO clusters in 18 Indian states.

The study enumerates key characteristics of the current FPO ecosystem. Of the 1,833 FPOs surveyed, 750 were found to be active. Business activity was evaluated either through their reported transactions or their business preparedness. 47% of the active FPOs had business revenues and 42% had a GST registration. The studied FPOs represented 1.47% of the total gross cropped area of their geographies contributing to 2.3% of the total production of Key Value Chains in these geographies.

The study also categorized Market Players in the identified clusters and categorized them into 6 groups based on their interaction with FPOs. These categories included Out for Business Players, Channel Mix Seekers, Strategic Collaborators, Differentiation Seekers, Circularity Enablers and Supply Chain Collaborators.

The study established that effective market linkages are as much a need of the market players as they are of the FPOs. If efficiently created, these linkages can span the critical gaps in agriculture value chains including availability of infrastructure and credit, information asymmetry and value addition.

For each of the identified clusters, the study lists a set of most appropriate market players for creation of prospective market linkages in the selected value chains.

Key gaps impeding such market linkages have been identified for each of the FPO clusters. These gaps are grouped as Organization and Capability related, Technology related, Financial and Infrastructure related and Marketing related. Each of these gaps have been mapped through different levels of the value chain.

The study recommends key factors, an interplay of which, would determine the efficacy of any intervention from CEAD in a cluster. These factors revolve around the potential offered and the presence of key enablers in a cluster. As a result of a detailed iterative process, the study recommends 9 priority clusters for CEAD related interventions. These clusters include Amravati, Nagpur, Tehri, Dahod, Chittoor, Kolar, Tumkur, Nashik, Mayurbhanj and Kamrup.
1. STUDY BACKGROUND

Producers Collectives and their Promoting Institutions play a significant role in improving efficiency and productivity of Small and Marginal farmers.

An aim of rural agricultural development is to make these Producers Collectives operationally sustainable. Integration of Producers Collectives with Market Players is a key requirement that can improve earnings and bring financial independence for these Farmer Organizations.

To help accomplish the above objective, Tata Trusts plans to establish Centre for Excellence in Agriculture Development (CEAD) in some of the identified Clusters.

In order to identify suitable locations for CEAD, Tata Trusts conducted this study assisted by ARYA, a Post-Harvest Value Chain Integrator with reputed experience in Consulting and Training.

2. STUDY OBJECTIVES

The team set out to accomplish the following objectives as part of the Project deliverables:

- Identify actionable Clusters of FPOs for the country.

- Survey of FPOs in selected clusters to identify those with marketing potential.

- Identify Key Value Chains of FPOs in selected Clusters and their commodity line diagrams.

- Identify Key Market Players active in selected Clusters working in identified value chains.

- Evaluate position of FPOs in overall strategy of Market Players.

- Identify Gaps effecting Market Linkages and interventions that can bridge the gaps to promote linkages.

- Identify potential Clusters for a CEAD led intervention by Tata Trusts.
3. APPROACH AND METHODOLOGY

The broad steps followed for the study are listed below:

- Sourcing of FPOs and identification of the Clusters.
- Study of FPOs and their Key Value Chains in the selected Cluster.
- Study of Key Market Players in identified Value Chains.
- Study of gaps impeding Market Linkages and interventions to bridge the gaps.
- Evaluation of Clusters for possible CEAD led interventions.
- Recommendation of Key Clusters identified for proposed CEAD establishment.

Each of the above steps is explained below.

List of FPOs for study:

4732
Number of FPOs pan India under Cos Act

103
Number of FPOs under MAC

4835
Number of FPOs pan India

The list for study was obtained from Producer Collectives registered under Companies Act. As of December 2017, there were 4,732 producer companies registered under the Companies Act. The Project team added 103 companies which were registered under the Mutually Aided Cooperative Societies (MACS) Act. A total of 4,835 FPOs were included in the study.

Clustering Exercise:

District limits were assumed as geographical boundary for a Cluster and the presence of a required minimum number of FPOs was the criteria to select a district as a Cluster. In cases where density of FPOs were thin, 2 or more districts were joined to form a Cluster.

Hence for 12 States, the presence of a minimum of 20 FPOs in a district was the requirement for designating the district as a cluster.

For 7 other states, the above criteria was diluted to 8 FPOs per district to designate it as a cluster. This was due to the relatively low presence of FPOs in these states.
This exercise resulted in 49 clusters (Annexure 1) across 52 districts in 18 states. The total number of FPOs in these 49 clusters were 1,833.

With 18 clusters in 19 districts, Maharashtra had the largest number of clusters selected for the study.

**FPO and Market Player study Methodology:**

After identification of the clusters, 3-step approach was adopted to study each identified cluster.

- **Step 01: FPO study**
  - Contacting FPOs with address available.
  - Contacting POPIs in clusters.
  - Obtaining reference of other FPOs from Key FPOs.
  - Enquiry for FPOs in vicinity for confirming.
  - Inactiveness of FPOs.
  - Administering questionnaire.
  - Informal discussion on key crops, challenges in Marketing of key crops, experience of FPOs with respect to marketing channels.

- **Step 02: Market Study**
  - Contacting local, regional players in key identified value chains from FPO study
  - Challenges faced by market players in sourcing commodities directly from collectives

- **Step 03: Coliation and Analysis**
  - Identifying Key gaps between requirement of collectives and Market players.
  - Brainstorming and suggestions to bridge the gaps enabling transactions.
STEP 1

As an initial step, a predesigned questionnaire was administered to the FPO office bearers. Assistance from POPIs (Producer Organization Promoting Institution) and fellow FPOs was sought to contact other FPOs. The crops with maximum FPO participation in each Cluster were selected as Key crops for the study. In some cases, the selected crops did not have maximum production in the Cluster. This was either because FPOs were not active in production of these crops, or those crops, though large in volumes, had limited possibilities for market linkages.

STEP 2

As the next step, important Market Players active in the selected Value Chains were studied. A questionnaire designed for them was then administered.

STEP 3

The information and data collected from surveys were analyzed and key challenges that inhibit FPO market linkages in their respective Clusters were plotted. The project steering team deliberated on possible interventions to bridge the identified gaps, which were noted in the cluster reports.

Compilation of detailed Cluster reports

This synthesis report only gives a brief summary of the detailed cluster reports. Comprehensive Individual cluster reports have been developed based on the information gathered from the field.

Evaluation of Clusters for Potential CEAD locations

An objective of the study was to identify potential clusters for CEAD led interventions by Tata Trusts. Upon completion of cluster studies, each of the clusters were evaluated on key factors, - the interplay of which, determined the probable efficacy of any CEAD intervention. The detailed process for this evaluation is documented in Section 7. As a result of this evaluation 10 clusters were identified for potential CEAD establishment.
4. KEY FINDINGS

49 Clusters, across 18 States of India, were identified. A total of 750 FPOs were ascertained as active. 45 Key Value Chains were construed from these studied Clusters. Value Chain integration possibilities were listed out for 34 National and Regional players. This excludes the other 365 local processors, exporters and large traders who were explored for possible future collaboration opportunities.

A brief about the findings from the study is detailed in the next pages:

4.1. General characteristics of the studied FPOs:

**Member farmers of FPOs and their land holdings**

Given the diverse nature of the geographies, constraints and the difference in stages of evolution, it is difficult to generalize about the FPOs. However, a broad classification was done based on few static characteristics.

The 750 FPOs surveyed had 3.6 Lakh farmers as members. The average land holding per member farmer was 1.02 Ha. The average number of member farmers per FPO was 491.

**Cluster level business of FPOs**

The business activity undertaken by the FPOs in the cluster is a key determinant of the commercial progress made by the FPO. There were 9 clusters where aggregate turnover of FPOs was more than INR 5 Cr. In 18 clusters, the aggregate turnover of FPOs ranged from INR 1 Cr-INR 5 Cr. In 14 clusters, aggregate turnover of FPOs was less than INR 1 Cr.

In a cluster, the average turnover of FPO was INR 23 Lakhs in 2016 and INR 20 Lakhs in 2017. In 2017, aggregate turnover ranged from lowest of INR 4 Lakhs in Ranchi cluster, to the highest of INR 20 Cr in Sangli cluster.
Out of the total 750 FPOs in the survey, 47% reported business activities and 42% had a GST registration. Overall, the FPOs have shown low level of business activity.

Other important parameters in classifying FPOs are a) their share in the total gross cropped area and b) their share in the total production of the selected value chains for the study.

At a national level, the total land holdings of the studied FPOs constituted about 1.47% of the total gross cropped area of the selected clusters.

The total production of the FPOs constituted 2.3% of the total production of the value chains in the selected clusters.

### 4.2. General characteristics of the studied Market Players:

The market players are classified into 6 categories based on two parameters mentioned below:

**Centrality of FPO partnership to business**

Under this criterion each Market Player was evaluated in terms of importance accorded by them to business association with FPOs. One to one discussion were held with the Market Players to ascertain this factor.
Possibility of higher returns to FPOs

The second criterion was anchored on the relative possibility of providing higher returns for the FPOs. As per the study findings, FPOs held most business transactions with traditional Market Players, who were the least paying entities to the FPOs. The increase in revenue earned by the FPOs is a key desired outcome through exploring the linkages with the National and Regional level corporate players.

The Six Categories of Market Players

Upon iteration of the Market Players on the matrix with above mentioned criteria as coordinates, the market players are classified in 6 different categories. They are:

1. OUT FOR BUSINESS PLAYERS:
   These are players who are indifferent to the profile of suppliers and do not have special consideration for Producer Collectives. These market players are primarily concerned about parameters and contractual obligations. The business transaction with this class of Market Players yielded lowest returns for the FPOs.

2. CHANNEL MIX SEEKERS:
   This category includes market players keen on understanding FPOs and open to exploring business possibilities with them. These are large corporate commodity players and fiercely compete in open markets for commodity procurement.
   Some of these players are vertically integrated with processing and marketing of the finished produce in multi-channel format. These players are very sensitive to any changes in their raw material supply ecosystem and carefully track any new development. They recognize the potential of FPOs as game changers in the commodity supply ecosystem. They do not want to lose out in establishing FPO linkages for future gains. Hence, they are willing to offer a small premium to FPOs on business deals.

3. STRATEGIC COLLABORATORS:
   This set of Market Players view FPOs as central to their business strategy. Association with the FPOs is not by choice but an unavoidable business reality for these players. Such strategic intent may be driven by various factors, some of which are enumerated below.
   **Visibility of Supply Chain:**
   In order to meet the ever-increasing stringent quality norms of the export market and to tap better paying customers, these market players supervise the quality of raw material from the farm gate itself. Collaboration with FPOs for procurement provides the practical way to ensure traceability and control over raw material.
   **Organizational Vision:**
   Farmers and producer collectives are central to the strategy of such organizations. The companies will make every effort to make the association feasible despite several challenges in transactions with the FPOs.
**Regulatory Ring-Fencing Strategy:**
For some Corporates, association with FPOs is much more than business. They understand that such associations can shield them from adverse government policy decisions. By being central to livelihood of many farmers they solidify their position as contributors to a conductive farm ecosystem, which also lends them a good global and local CSR score.

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**4. DIFFERENTIATION SEEKERS:**
These are Market Players who seek differentiation in their product offerings. They have specific needs that can be met only through integrating procurement from the farm gate itself. These players offer attractive returns to FPOs. Some of the examples are narrated below:

**Organic and ‘Low Residue Safe Produce’ Players:**
These players are not dependent on the Mandi or the traditional channels for their procurement requirements. Direct association with the FPOs is the low cost and effective solution for them.

**Special agronomy output seekers:**
These Market Players have specific requirements for commodities produced through specific package of practices. Examples are Cotton produced though BCI- Cotton program or Soybean cultivated through low residue package of practices.

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**5. CIRCULARITY ENABLERS:**
These are Market Players that enable procurement and supplies within the same ecosystem. Instances of these can be seen within an SHG ecosystem that has producing as well as consuming entities. Similarly, there are enablers that could procure from farmers and supply to consumers in same geographies.

For example, the collectives in the hilly areas of Tehri produce Peas and Vegetables which travel all the way downhill to the Dehradun Mandi. From this Mandi the produce travels back as supplies to the schools, hotels and pilgrim centers which are in the vicinity of the collectives. Presently, both the producing and consuming bodies are dependent on this multi-layered traditional channel for the demand supply transactions. The Circularity Enablers help to connect collectives to the above-mentioned consumption entities. Here the relationship is not transactional as there is a mutual dependence for business and hence the returns are amongst the highest.

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There are instances in other places where collectives have tried connecting directly to consumption entities like hotels. This has failed as the production collectives could not meet the year-round requirements of hotels. Also, collectives do not have the wherewithal to supply hotels with their complete basket of requirements.
CHARACTERISING MARKET PLAYERS

- Price and parameters if you meet they buy
- Who are looking for diversification of sources
- FPO is part of their strategy which may include regulatory ringfencing
- Quality concerns are guiding thus value chain integration is imperative for them
- Establishing linkages within the ecosystem
- Players who are looking for scale

Possibility of Higher Returns to FPOs
6. SUPPLY-CHAIN COLLABORATORS:

These are Market Players specializing in sourcing and distribution of specific fruits. They prefer to procure directly from the farm gate due to strict quality sensitivity of their premium clients. In order to scale up their business, partnership with FPOs is very important for these players. Therefore, these Market Players were willing to collaborate extensively with the FPOs. The collaboration between the Market Player and FPO is for the long term and a lot more integrated than rest of the groups of players.

4.3. Sustainability of association emanating from complementarity of objectives

There is certain complementarity of objectives of FPOs and Market Players driving the sustainability of the association between them.

This can be better explained with three important outcomes detailed below.

**Ecosystem level thrust for greater association**

Growth and market share aspirations of Processors and Exporters take them to new markets and high margin clients who are sensitive to quality and residue standards. Quality risk can be significantly controlled by taking care of the produce from the farm gate onwards. At a granular level this is practically impossible without linkages with the farmer collectives. An example for this can be found in Chittoor Cluster. Mango processors and exporters in the Cluster are forced to connect with FPOs in order to improve Mango Pulp quality. This is also beneficial to FPOs since this alternate channel is far more remunerative than Pre-Harvest Contractors.

**Requirement for a differentiated produce**

Organic Certifications and Safe Produce brandings are ways in which the FPOs can differentiate their produce from being just another Mandi commodity. These activities are effective when done in a collective format instead of on an individual farmer basis. The FPOs in Dahod cluster are a good example. Though they produce vegetables using a proper package of practices and at safe residue level, they are unable to command premium price at the local market. However, other upmarket grocery stores like Godrej Fresh and Mahindra Agri have visible growing demand for such low residue safe produce. For these Market Players, it is unviable to deal with individual farmers but viable to associate with FPOs which make it mutually beneficial for both parties.

**FPOs to enable scale up speciality produce players**

Market Players who specialize in Fruits, source produce directly from the Farm Gate. They face challenges in scaling up their volumes due to disaggregated and granular nature of Indian Farming. INI farms and Allfresh are specialty players in Pomegranate and Orange respectively. Both companies source the produce directly from farm gates instead of sourcing from the Mandi and face challenges in scaling up operations. These Market Players views FPOs as natural partners who can help improve their business.
4.4. A stage-wise brief about the value chain interventions

There are critical interventions which can bridge the gaps impeding linkages with Market Players. A select few interventions are briefed below.

**Pre-harvest**

**Scale up of BCI-Cotton Program**

According to Cotton Market Players like Louis Dreyfus (LD), there is a growing requirement for sustainably grown Cotton which is presently synonymous with BCI Cotton. Resolving existing challenges in scaling up BCI Cotton model can ensure low input cost as well as higher returns for the farmer.

**Collaboration with low residue produce players**

Suminter India Organics selects and trains farmers on companies special package of practices for Soybean. This package has been proven to reduce costs and improve price. The Company could be a partner with the CEAD in select clusters to scale up the operations.

**Organic Certification process in vegetables**

Organic Certification helps to differentiate produce. In clusters like Tehri, crops have natural advantages of having low chemical residue.

These can be monetised by completing the Organic Certification.

**Digital Platform and Collectivisation in Mango Clusters**

In horticultural crops, especially in Mango, there is heavy dependence of producers on the pre-harvest contractors which can be attributed to two reasons:

1. Lack of formal credit access.
2. Challenges in organizing logistics for aggregation and transportation of the produce.

A digital platform which can integrate the FPOs and Processors is the suggested intervention here. This platform can improve coordination between Processors and FPOs. The platform can also help Banks extend funding to collectives based on business information from the platform.

**Parameter Trainings**

One major reason for rejection of produce is mismatch in quality parameters. Often FPOs are not aware of the Quality Parameter requirements of Market Players. Exhibit 1 illustrates quality parameters as required by Orange market Players. For Grade A, number of pieces required in crate is 140 and 170.

Diameter of the fruit should be 66 to 74 mm. Weight of fruit should be 125 to 164 gm/fruit. 6 to 8 pieces should make a kilo of fruit. Similar parameters are outlined for Grades B, C and D also.
On field Solar Dryer
At Alwar and Jaipur Clusters, farmers face challenges in drying Mustard due to unfavourable climate during the harvesting months. The Solar Dryer is the suggested intervention here. Market Players are willing to procure mustard directly from FPOs once moisture is within the specified parameter level.

Hub and Spoke procurement model
Similarly, unblemished skin is the important parameter for Bananas. A hub and spoke model of procurement is the intervention suggested.

Grading at Farm Gate
At Chittoor and Mayurbhanj grading of produce at the farm gate can bring down the rejection percentages.

Storage

Price Support and Credit Guarantee programs
Converting raw Cotton to bales for storage can increase the returns by 12% to 13%. Price Risk and Credit Guarantee interventions are suggested to encourage storage of Cotton.

Cocoon Storage of Maize and Paddy
Market Players have stopped procuring Maize in Perambalur Cluster due to natural disadvantages in the region which includes heavy pest attack and small size of grains. Cocoonas as a storage innovation are suggested remedy here. Subsequent favourable Aflatoxin and zero chemical residue profile help in differentiating the produce in market.

Temporary Steel Shelters of Onion
Onion stored in credit worthy temporary storage structures supported by Price Risk and Credit Guarantee program is the intervention suggested to mitigate the seasonal price crash for the produce.
SUMMARY OF VALUE CHAINS INTERVENTIONS

Preharvest
- Vegetables
  - Organic certification process
  - Soybean
  - Parameter training & collaboration with Suminter
- Cotton
  - BCI cotton scale up

Farmgate
- Mango
  - Collectivise for logistics and credit linkages
  - Better information transfer across players
- Mustard
  - Drying on field using solar dryers increases return

Storage
- Cotton
  - Conversion to bales to help stocking
  - Price risk & credit guarantee program for risk mitigation
  - Storing helps improve margin to 10-15%
- Paddy, Maize, Groundnut, Tur
  - Storage in coconuts improves product quality
  - Onion
    - Low cost scientific temporary storage
    - Formal funding sources
    - Price risk and credit guarantee program

Marketing
- Tur
  - Marketing of the produce to SHG ecosystem
- Vegetables
  - Partnership with circularity enablers for connecting to end customer
  - Digital solutions & transport arrangements to manage the logistics complexities
- Peas; Capsicum; Cabbage
  - Explore potential for a separate brand for clusters with natural advantage

Processing
- Paddy, Maize, Tur
  - Selling rice post milling help improve returns by 20%
  - Small scale feedmill for meeting local demand
- Brinjal, Cabbage, Okra
  - Grading to reduce rejections

Presales
- Mango, Orange
  - Digital platform for financing and stakeholder interaction
  - Better prices through matching customer preferences (Advanced colour sensor grader)
- Digital solutions & transport arrangements to manage the logistics complexities

Hub & Spoke
- Converting to bales to help stocking
- Price risk & credit guarantee program for risk mitigation
- Storing helps improve margin to 10-15%
- Storage in coconuts improves product quality
- Low cost scientific temporary storage
- Formal funding sources
- Price risk and credit guarantee program
Explore circularity advantages for lowering cost and improving earnings

Focus Prism as an enabler is the intervention suggested to connect Vegetable and Peas collectives of Tehri cluster to consumers in the same Cluster.

Special brand for ‘Naturally Low Residue Safe Produce’

FPOs in hills have naturally grown produce. However, these crops do not get premium price in the local Mandis. Few market Players have expressed interest for such produce, which are not certified as organic but have safe consumption benefits compared to produce available at Mandis. A separate Branding strategy in collaboration with the interested Market Players is the intervention suggested here.

4.4.1. Domino impact of interventions on Ecosystem

The interventions apart from helping collectives also have a domino effect on the overall ecosystem. The output from FPOs maybe the raw material inputs for MSME (Micro Small and Medium Enterprises) entities around the cluster. Hence, improvement at the input side will have a favourable impact on these stake holders. Below are some examples on how this takes place.

Impact on MSME

Cotton Ginning Mills of Maharashtra face challenges due to underutilization. Currently Cotton from Maharashtra is transported to more efficient and large-scale facilities in Gujarat. The suggested intervention of converting Cotton to Bales for stocking will result in business improvement and year-round capacity utilization for local Ginning Mills of Maharashtra.

Similarly, fruit processors in Chittoor cluster will benefit when interventions result in increased fruit pulp export. Currently, out of 41 small and medium processing plants, only few have more than 50% utilization.

Export purchasers face quality variations while buying from Rice Mills in Bhandara. Suggested interventions in this Cluster will result in quality improvement and higher earning from export for Rice Mills in this Cluster.

Impact on credit business

Interventions enriches the business profile and credit worthiness of FPOs. Resultant increase in credit profile and higher credit off take by FPOs and related entities will fuel a growth in the rural credit business.
5. CLUSTER REPORT SUMMARY

Every cluster has its unique set of FPOs, Market Players and their challenges. Innovative solutions are identified for these clusters, to bridge gaps effecting successful market linkages. A summary of all the 49 clusters studied is mentioned below in separate cluster wise sections.

The clusters are grouped into priority clusters and four geographic zones. Priority clusters were prioritized in the sequence for early completion of the study. These were also evaluated similar to other clusters that were to be selected as potential locations for CEAD.

PRIORITY CLUSTERS

AMRAVATI CLUSTER

Amravati cluster comprises of the district Amravati of Maharashtra. The total geographical area of the cluster is 12.21 Lakh Ha and the gross cropped area is 6.32 Lakh Ha. As per the latest census, the cluster has a population of 28.88 Lakhs.

1. Profile of Major Crop selected for the study

The top 4 crops selected for the study are Cotton, Soybean, Tur and Orange.

Cotton:
This is the major crop in this cluster. 8 Lakh MT Cotton is produced by 1.2 Lakh growers. Corporates procure Cotton only in the form of bales. Hence 100% of raw Cotton by FPO/ Farmers is sold through the traditional channel. Like in other clusters of Maharashtra, Ginning mills in Amravati operate with large unutilized capacity of 40-60%.

Tur:
The next important crop in the cluster is Tur. 60,000 growers cultivate around 1.4 Lakh MT of Tur. Almost 100% of the production moves through the regulated market. In the last season, a glut in production led to a price fall below the declared MSP amounting to losses for farmers.

Soybean:
1.5 Lakh growers cultivate around 4.8 Lakh MT of Soybean in the cluster. There is large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production is significantly diminished due to reduction in yield and area under cultivation since farmer prefers to grow Cotton which provides better revenues.

Orange:
60,000 growers produce around 5 Lakh MT of Oranges in the cluster. Nagpur Orange variety, which is cultivated in this cluster, is a thin skin variety with low shelf life. Its pan India consumer acceptance is a unique feature of this produce. There are four grades of this Orange. The top two grades are reserved for table consumption and the lower two grades are sold to low paying markets for rural consumption or utilized by the processing sector as raw material.

2. Profile of FPOs in the cluster

There are 56 FPOs registered under the Companies Act in this cluster. 40 FPOs participated in the survey. Out of these, 16 FPOs are involved in business activities.
Business activity details of the FPOs
16 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 4.06 Cr and in 2017-18, it was INR 8.63 Cr. Dharmangaon Agro Company had maximum turnover in the cluster. 8 FPOs facilitate cleaning and grading of Soybean, 1 FPO has an Orange grader & sorter and 1 FPO is running a small Dal mill.
3 FPOs have GST registration, 3 FPOs have Mandi license and 8 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 15,052. They possess 24,186 Ha of land, representing about 9.36% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 0.07% of the total production of Cotton lint, 0.38% of the total production of Soybean, 0.68% of the total production of Tur and 0.82% of the total production of Orange.

3. Market Players profile of the cluster
The market player mix is dominated by traditional entities for the commodities, with limited presence for alternate market players. In case of crops such as Orange, the pre-harvest contractor is the single dominant market player.
In Orange linkages, alternate market players such as Allfresh and Citrus International offers potential benefits for this cluster.
In case of Cotton, BCI (Better Cotton Initiative) certified cotton has a possibility of linking with LD (Louis Dryfeus).
Suminter India is a market player specializing in low residue Soybean. FPOs partnership with Suminter will entail following a specific package of practices and verification of the participating farms by them.

FPO sales to market players
FPOs did a business of INR 4 Cr and INR 8 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster
Orange:
More than 95% of the stock is sold through traditional channels. Due to absence of grading facilities, the aggregate produce of FPOs is sold to Mandi traders and they are unable to connect with clients offering high returns or seize export opportunities for the table variety. It also prevents them from connecting with processors who procure C and D grades of produce.
C and D grade quality Oranges are sold at just 20% of the market price of higher grades. By connecting these Oranges with processors, 20% -30% increase in returns is expected. This is significant as, in an orchard, 25% to 40% of the produce falls in C and D grade quality.
Proper grading of produce can help FPOs connect successfully with processors such as Citrus International, based out of Nanded, who are keen on procuring from FPOs. However, FPOs are reluctant to supply to Citrus International as the weight and price decisions currently take place at the Nanded company site.
Using advanced electronic sensor graders, traders can respond to market preferences and earn higher price. Waxing of produce help extend the shelf life and market reach of the produce. Residue free produce can create newer market opportunities in high return markets. Lab facilities for testing residues are not present in Nagpur and at INR 11,000 per sample they are expensive for FPOs. Most FPOs do not use these facilities.
Dried Oranges can be an additional income source since they are made from discarded produce. At present, no corporate is purchasing dried Oranges from FPOs.

Market players exporting the produce require low residue Oranges. Currently, FPOs do not have scientific storage structures or access to advanced labs for residue testing.

**Tur:**
Even in times of a price crash, as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg/INR 40/kg. At the same time, consumers were buying the produce at INR 74/Kg. Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for aggregation, processing and marketing. No FPO in the cluster is involved in processing of Tur and marketing of Dal.

**Cotton:**
Cotton is the largest commodity in the cluster with 10 FPOs producing Cotton as a major crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support. Due to lack of warehousing and processing/ginning facility, farmers sell raw Cotton immediately after harvesting. BCI Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional revenue of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

5. Alternative marketing channel possibilities in the cluster

1) Alifresh, Waycool, Citrus International and Big Basket are the possibilities for alternate marketing channels for Oranges in the cluster.
2) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
3) Suminter India can be an alternate marketing possibility for Soybean.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
1) A critical activity of storing Cotton is conversion into bales. Partnerships with ginning mills in the cluster can help farmer avail Cotton ginning services.
2) Increased outreach of BCI program and minimum pesticide intervention package of Suminter for Soybean can be achieved through partnerships.

**Financial**
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

**Marketing**
1) CEAD can facilitate purchase of small transportable graders and large mechanical graders to FPOs for grading of Oranges. It can also support FPOs with advanced sensor graders and waxing equipment for longer shelf-life and market reach efforts of FPOs.
2) Advanced testing lab for Orange juice analysis to enable quality supply to processing market players is a requirement.
3) CEAD can facilitate residue analysis at its site. This is currently done at Pune and at very high costs.
4) CEAD can install a facility for processing dried Oranges for small FPOs.
5) CEAD can be a focal point for exploring inter-collective opportunities.
6) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business-intelligence marketing companies to build FPO access to right market information.
7) CEAD can facilitate availability of and training in usage of scientific storage structures such as Cocoons.

7. Recommended POPIs in the cluster

CAIM is doing commendable work in the cluster. CAIM has promoted 11 FPOs in the cluster.

**CHITTOOR CLUSTER**

Chittoor cluster comprises of Chittoor district of Andhra Pradesh. The total geographical area of the cluster is 15.15 Lakh Ha and the gross cropped area is 4.08 Lakh Ha. As per the latest 2011 census, the cluster has a population of 41.7 Lakhs. The cluster comprises of 66 Mandalas of the district.

1. Profiles of major crops selected for the study

The major crops selected for the study are Mango, Tomato and vegetables.

**Mango:**
Mango is the most important crop of the cluster and is cultivated by approximately 1 Lakh growers producing about 7-8 Lakh MT of Mango. 70% of Mango produced in the district is of Totapori variety and remaining 30% belongs to table varieties. Almost all the Totapori variety is processed.

**Tomato:**
Approximately 50,000 farmers produce around 3 Lakh MT of the produce. Majority of the Tomato cultivated in the cluster is the table variety. The shelf life of this variety is very short (approximately 5 days), and therefore it is inappropriate for cold storage, also, long distance transport becomes complex.

**Vegetables:**
This is a major Vegetable producing cluster. Daily shipment of Vegetables are transported to nearby hubs of Coimbatore, Selam, Krishnagiri and Hyderabad. Among Vegetables, Brinjal and Okra are cultivated by around 50,000 farmers, producing about 2.5 Lakh MT of the produce.

2. Profile of FPOs in the cluster

20 FPOs were surveyed for the study. There are 6 major POPIs, who have promoted 19 of these 20 FPOs. All FPOs have business activity or are planning to start business activity.

In this cluster, POPIs have substantial influence on the FPOs and all FPOs, except one, depend on their POPIs for decision making. Almost all FPOs in the district are registered under the MACS (Mutually Aided Cooperative Society Act), given the simplified processes and compliances. The Mahila Abhivrudhhi Society (MAS) is taking steps to register their FPOs under the Companies Act.

Among the studied FPOs, only 7 are engaged in business activity. 6 FPOs maintain their accounts. MAS (Mahila Abhivrudhhi Society) promoted FPOs are making progress in the marketing of produce and have transactions with Big Basket and Metro. A turnover of INR 4.86 Cr was achieved in the previous financial year by 6 FPOs. The Cheldiganipalli FPO raked in maximum turnover of INR 3.5 Cr.

3 FPOs have GST registration.
Member base and farm holding of the FPOs
The member farmers of the FPOs studied represent 1.6% of the total production of Mango, 2.5% of the total production of Tomato and 4.1% of the total production of vegetables (Brinjal and Okra). The approximate aggregated quantities reflect the confidence of members in conducting business activity in these commodities.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 1.6% of the total production of Mango, 2.5% of the total production of Tomato and 4.1% of the total production of vegetables (Brinjal and Okra). Overall, 5.2 MT of Mango, 0.6 MT of Tomato and 2.8 MT of Brinjal and Okra represent possible quantities for aggregation by FPOs.

3. Profiles of Market Players in the cluster

Approximately 90% of the selected commodities are sold to traditional players such as pre-harvest contractors and traders. Farmers are dependent on pre-harvest contractors for two reasons. First, the contractors provide them the necessary credit in the pre-season itself. Secondly, transporting the produce to market is complex and costly. This helps the contractors lock the supply and availability of produce.

There are 56 processors who process 70% of the local Mango production. These processors are located in the cluster itself. Out of these 56 processing plants, 15 are large integrated processing units with annual capacities varying from 15,000 MT to 35,000 MT pulp. The remaining units are small and medium scale plants with capacities of less than 5,000 MT.

Big Basket, Metro, LEAF (Lawrencedale Agro Processing), KPN (Kovai Pazhamudir Nilayam), Jain Irrigation and Heritage are the alternate marketing channels active in this cluster.

FPO sales to market players
At present, direct sales from FPOs to the processors and alternate market players is minimal, amounting to only 1%-2% of sales, despite being offered higher prices than the traditional channels. Though there are 56 processors located in the cluster which process 70% of the Mango production, only 2% of the produce is sold directly to these processors. 6 FPOs did manage a business of INR 4.2 Cr with the market players. The Tirumala Tirupathi Devasthanam (TTD) buys exclusively from the Chelidiganipalli self-promoted FPO. TTD is also the largest business partner with FPOs among the market players in terms of business value. There are 17 commodities procured by the market players and Tomato is the major produce purchased from FPOs by the market players with 200 MT of reported sales.

4. Identified gaps in the cluster

Financing need gap
In Mango value chain, bulk of the produce is sold to pre-harvest contractors who offer the lowest return. The primary reason for this being, the farmers, as well as the processors, depend on contractors for credit, since formal banking is inaccessible.

Marketing arrangement gap
1) Presently the Mango produce moves through several hands thereby suffering handling damage and quality related issues. Due to lack of aggregation activity and consequent logistics efficiency, direct buying of the produce by the processor is limited.
2) Lack of proper packaging facilities at the right locations also hampers, the direct selling of vegetables by the farmers to Big Basket or Metro.

Gaps in cultivation practices organizational capability
1) Lack of awareness about scientific picking methods affects the quality of Mango pulp and therefore, competitiveness of processors in the global market.
2) Lack of awareness about the right usage of pesticides for Mango results in carbendazem residue, leading to rejection of produce by the exports clients.
3) FPOs in the cluster are not aggregating the produce. There is no interactive platform existing between the Mango farmers and the processors.
CHITTOOR CLUSTER

Active Members in FPOs
- 1,000+ 5 FPOs
- 200-500 5 FPOs
- 50-200 2 FPOs
- Above 100 4 FPOs

Percentage share of FPO members in total production of each commodity
- Mango 10,371 12%
- Tomato 7,220 8%
- Tamarind 2,000 15%

Number of FPOs in these commodities
- Mango 12,180 13%
- Tomato 7,772 6%
- Tamarind 1,276 1%

Number of farmers in FPOs in these commodities
- Mango 15%
- Tomato 8%
- Tamarind 4%

Volume contribution of FPOs to the commodity in MT
- Mango 4.2%
- Tomato 1.5%
- Tamarind 1.1%

20 FPOs in Total
- 13 Inactive FPOs
- 7 Active FPOs

CHALLENGES
- Excessive power failure due to lack of awareness on power management
- High cost of inputs and transportation
- Lack of access to credit facilities
- Difficulty in accessing markets for produce

SOLUTIONS
- Formation of marketing co-operatives to help farmers access bank financing and work towards gaining higher returns on their produce
- Development of a quality assurance program to improve the quality of produce and attract higher prices
- Creation of a marketing network to facilitate direct sales to processors and exporters

QUALITY PARAMETERS
- Maturity (pale yellow)
- Fruit should have no scratches

The traditional channel does not pay any price premium. But if the FPO engages the patronage of the farmer-owned channel, then the realised price is more than that of traditional channel.
4) Lack of knowledge and insufficient training programs results in higher rejection percentage for Tomato and other vegetables crop in their transactions with alternate channels.

5. Alternative marketing channel possibilities in the cluster

Among the alternate channels present in the cluster, Big Basket and Metro already have agreements and ongoing transactions with the FPOs. Furthermore, LEAF and KPN have initiated contacting the FPOs.

6. Required services/minimal infrastructures from the CEAD

1) CEAD can facilitate collectivization of Mango farmers.
2) CEAD can facilitate a scientific grading facility and capacity building.
3) CEAD can facilitate a finance facilitation platform for FPO-Market Player transactions.
4) CEAD can facilitate a platform for regular interaction between producers and market players.

7. Recommended POPIs in the cluster

Mahila Abhivruddhi Society and SERP are the recommended POPIs in the cluster.

NAGPUR CLUSTER

The Nagpur cluster encompasses the district Nagpur of Maharashtra. The total geographical area of the cluster is 9.86 Lakh Ha and the gross cropped area 6.15 Lakh Ha. As per the latest census, the cluster has a population of 46 Lakhs. The cluster comprises of 14 Mandals of Nagpur district.

1. Profiles of Major Crops selected for the study

The top 4 crops selected for the study are Orange, Cotton, Soybean, and Paddy.

Orange:
45,000 growers produce around 2 Lakh MT of Orange in the cluster. Nagpur Orange is a thin skin variety with low shelf life. Its pan India consumer acceptance is a unique feature of this produce. There are four grades of this Orange. While top two grades are consumed for table purpose, last two grades are consumed by low paying rural markets or by the processing sector.

Paddy:
1.3 Lakh growers produce around 1.7 Lakh MT of Rice in the cluster. 40% of the production moves through the regulated market and remaining 60% moves through processors/Rice Millers. Nagpur cluster produces fine grain varieties of Rice namely Jai Sri Ram and Kolam. A unique feature for this variety is that, while it is consumed across Maharashtra, it is produced in a few select pockets only. Unlike Basmati, these varieties have no price fluctuations, due to market dynamics in other areas.

Cotton:
Cotton is the major crop in the cluster. 5.5 Lakh MT Cotton is produced by 1.5 Lakh growers. 100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 40%-60% of their capacity which is a common feature in Maharashtra.

Soybean:
2 Lakh growers cultivate around 2.04 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, cotton cultivation has infringed upon Soybean cultivated area due to better price realization.
2. Profile of FPOs in the cluster

There are 28 FPOs in Nagpur Cluster of which 15 FPOs participated in the study. 9 FPOs are promoted by ATMA and MACP, 1 is promoted by NABARD, 3 are promoted by ISAP and the remaining 2 are independent.

Business activity details of the FPOs
The 2 FPOs are engaged in business activities, and had a turnover in of INR 8 Cr in 2016-17 and INR 5.3 Cr in 2017-18. Vidharbha Agriculture Producer Company had maximum turnover in the cluster. 8 FPOs in Nagpur have recently installed cleaning and grading units. Shri Krushna Farmer Producer Company Ltd., Kalmeshwar, Nagpur has a small dal processing facility. 8 FPOs have Mandi license. 2 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 6,006 and they have 9,226 Ha of land under them representing about 3.5 % of the total cropped area of the cluster. ATMA/ MACP promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 1.14% of the total production of Cotton lint, 3.5% of the total production of Soybean, 1.15% of the total production of Orange and 1.3% of the total production of paddy.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities for all the commodities, with limited presence of alternate market players.

In case of Orange the pre-harvest contractors are the dominant market player. Market players such as Allfresh and Citrus International offer potential benefits to the farmers.

In case of Cotton, BCI (Better Cotton Initiative) certified Cotton has a possibility of connecting with LD (Louis Dryfeus). Mogrique traders, a niche export player, who require 100% varietal purity, is a potential market player for the Paddy FPOs.

Suminter India is a market player specializing in low residue Soybean. FPOs partnership with Suminter will require a specific set of package of practices and verification of the participating farms by them.

4. Identified gaps in the cluster

Orange:
More than 95% of the stock is sold through traditional channels. Due to absence of grading facilities, FPOs are unable to connect with high return clients or utilize export opportunities for the table variety. It also prevents them from connecting with processors who procure C and D grade of produce.

C and D grade Oranges are sold at just 20% of the market price of higher grades. Sales of these grades to the processors can increase the revenue by 20% -30%. This will fill a significant gap as, in an orchard, 25%-40% of the produce falls in C and D grade.

Proper grading can help FPOs in connecting with markets outside Mandis. Processors such as Citrus International, based out of Nanded, are keen on procuring from FPOs. FPOs are, however, reluctant to supply commodity to Citrus International as the weight and price decisions are made by the company at Nanded.

Grading with advanced electronic sensor graders helps traders in responding to market preferences and earning higher price. Waxing can extend the shelf life and market reach of the produce. Residue free and low residue produce can create opportunities in high return segments of domestic markets and also in export markets. Laboratory facilities for testing residues are not present in Nagpur and at INR 11,000 per sample they are expensive for FPOs.

Dried Oranges can be an additional income source for FPOs since they are made from discarded produce. Despite enquiries, there are no sales of dried Oranges from FPOs.

Paddy:
By storing Paddy, processing it, and marketing it as Rice, there is an opportunity to increase the revenue of farms by 20%.

At present, there is no aggregation or processing carried out in the cluster.
Cotton:
Cotton is the largest commodity, by volume, in the cluster and for 10 FPOs Cotton is a major crop. However, none of the FPOs are aggregating Cotton. Cotton is a very sensitive commodity with high price volatility. At present there are no tools available to protect farmers from the price risk.

BCI Better Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

Soybean:
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. There are 12 FPOs with Soybean as a major crop. 8 of these FPOs have recently acquired grading and sorting facilities. The FPOs are still unaware about the quality parameters and proper use of the machines.

Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are unaware of this program.

5. Alternative marketing channel possibilities in the cluster

1) Alifresh, Waycool, Citrus International and Big Basket are the possibilities for alternate marketing channels for Orange in the cluster.
2) For BCI certified Cotton, Louis Dryfeus can be an alternate market player.
3) Suminter India is an alternate marketing possibility for Soybean.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) A critical activity of storing Cotton is its conversion into bales. Partnerships with Ginning Mills in the cluster can help farmer avail Cotton ginning services.
2) Increasing outreach of BCI program and minimum pesticide intervention package of Suminter for Soybean can be achieved through partnerships.

Financial
Partnerships can be explored to develop region specific Price-Risk managing programs to support aggregation of Cotton.

Marketing
1) CEAD can facilitate purchase of small transportable graders and large mechanical graders to FPOs for grading of Oranges. It can also support FPOs with advanced sensor graders and waxing equipment for longer shelf life and market reach efforts of FPOs.
2) CEAD can help in establishing advanced testing lab for Orange juice analysis to enable quality supply to processing market players is a requirement.
3) CEAD can facilitate residue analysis at its site. This is currently done at Pune and at very higher costs.
4) CEAD can facilitate discovery of the most efficient way to process dried Oranges. Install a facility for processing dried Oranges for small FPOs.
5) CEAD can be the focal point for exploring inter-collective opportunities.
COTTON

- Additional Income: Rs. 300/yarn through Better Cotton Initiative practices
- If the farmer sold cotton at Rs. 4500/kg during arrival to market, she would have earned Rs. 21000 on five quintals of cotton.

QUALITY PARAMETERS

- Length (mm): 31-28
- Mic (ug/inch): 3.7-4
- Strength (g(tex)): 32-28
- Range: Higher grade parameter to lower lower grade

PADDY

- Stocking Paddy: Possible increase in return by 15-20%
- Selling Rice Post Milling: Possible increase in return by 20-30%

- Aggregation
- Warehouse/Cocoon
- Arrangement with the millers
- Leveraging ecosystem to link with existing marketing collectives

QUALITY PARAMETERS

- Foreign Matter: 0%
- Broken: Less than 5%
- Chalky: Less than 1%
6) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business-intelligence marketing companies to build FPO access to right market information.

7) CEAD can facilitate availability and training in usage of scientific storage structures such as Cocoons.

CAIM is doing commendable work in the cluster. CAIM has promoted 11 FPOs in the cluster.

**TEHRI CLUSTER**

Tehri cluster covers the district Tehri of Uttarakhand. The total geographical area of the district is 3.79 Lakh Ha and the gross cropped area is 88,461 Ha. The gross cropped area available in this cluster is only 23% compared to that of 60% for all India. A large percentage of production is consumed within the state.

The cluster comprises of 7 Mandals of Tehri district.

1. **Profile of Major Crops selected for the study**

The top 4 crops selected for the study are Potato, Peas, Cabbage and Capsicum.

**Potato:**
8,000 growers produce around 49,000 MT of Potato in this cluster. Potato is largely consumed within the state.

**Peas:**
Peas is the most important crop from the cluster due to high revenues. 10,000 growers produce about 21,300 MT of Peas in the cluster. The Kharif harvested Peas fetches premium price from traders, since it is not harvested in the plains during the summer. Peas from the cluster is sold to different markets across India.

**Cabbage:**
Cabbage is another important vegetable grown in the cluster. 7,000 MT is grown by 5,000 growers in the cluster.

**Capsicum:**
1,500 MT of Capsicum is grown by 5,000 growers in the cluster. Generally, Cabbage and Capsicum are subjected to excessive pesticide sprays. But in Tehri cluster pesticide usage is far lower compared to the rest of India. Almost 50% of the crop is grown organically. For the remaining 50% crop, the pesticide usage is still at a lower rate.

2. **Profile of FPOs in the cluster**

28 FPOs were covered in Tehri cluster out of which 11 FPOs are active. These FPOs are promoted by 4 POPIs.

**Business activity details of the FPOs**
5 FPOs reported business activity. Their total turnover in 2016-17 was INR 2.94 Cr and in 2017-18, it was INR 3.49 Cr. Umang Swayat Sahkarita, promoted by Himmotthan and MVDA, had maximum turnover in the cluster. 2 FPOs have both the GST registration and the Mandi license, while other 2 FPOs have only the GST registration.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied FPOs is 6,467. They own 4,550 Ha of land representing about 5.14% of the total cropped area of the Tehri cluster.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the studied FPOs represent 1.74% of the total production of Potato 2.78% of the total production of Peas, 6.85 % of the total production of Cabbage and 0.25% of the total production of Capsicum.

3. **Profile of Market Players in the cluster**

The cluster is dominated by traditional traders. There are no alternate marketing channel in the cluster.
TEHRI CLUSTER

POSSIBLE SOLUTIONS FOR FPOs
1) 65% of all pea production is in April-August season
2) Prices usually peak in September; delay by a month will increase returns for farmers.

GAPS/PROBLEMS FOR THE PRODUCERS

POSSIBLE SOLUTIONS FOR FPOs
1) No market linkages or differentiated offering strategy
2) Partnership with UGCDA for organic certification
3) Explore potential for a separate brand for the cluster radiating the benefits of the produce.

POSSIBLE SOLUTIONS FOR TRANSPORTATION CHARGES
1) Loss of visibility due to extreme weather situations
2) Long delays in movement due to tardy slides
3) Truck capacity utilization issues

POSSIBLE SOLUTIONS FOR FPOs
1) Digital aggregation tools to give idea of weekly business potential
2) Business agreements with the local transporters

POSSIBLE SOLUTIONS FOR MARKET INFORMATION
1) Awareness on mandi-wise price trends for focus crops and consider changes in cropping cycle
FPO sales to market players
FPOs did a business of INR 2.94 Cr and INR 3.47 Cr in 2016-17 and 2017-18 respectively with the Mandi traders. Market linkages of FPOs are at a nascent stage. In 2017-18, 5 FPOs, consisting of approximately 3,000 farmers, facilitated sale of 285 MT of Potato, 120 MT of Peas and 5 MT of Cabbage.

4. Identified gaps in the cluster

Infrastructure gap
The hilly terrain of the cluster poses natural challenges in transporting produce to markets. For an average distance of 80 to 100 km the transportation cost is INR 100/Quintal. This is a major constraint for the farmers and their collectives in market linkages.

There are inherent risks in this business and geography, which result in the high transport charges. Some of these risks are:
1) Business is close to zero in the extreme weather conditions, often lasting upto four months of the year.
2) Frequent roadblocks due to landslides and restricted night-time movements.
3) No guarantee of full capacity utilization of the vehicles.

Possible solutions for FPOs:
1) Explore circularity opportunities.
2) Establish collective stalls in the Mandi and exploit virtues of eNAM to connect with alternate market players such as Big Basket and Safal.

Lack of market information
Production cycle followed by the farmers can be made more market oriented. For example, bulk harvesting of Peas in Tehri starts in August. Price for Peas in Azadpur Mandi is likely to peak in October, a month after harvesting in Tehri. If the Tehri producers can delay their harvesting, they can gain upto 40% in returns. Besides these long-term trends, there are frequent price swings due to local issues. If collectives can hold their produce for short periods, they could potentially hedge themselves from such losses and realise gains during upswings.

Inability to exploit benefits of natural advantages for produce and no market linkages or differentiated offering strategy is another issue identified.

Possible solutions for FPOs:
1) Partnership with USOCA for organic certification.
2) Explore potential for a separate brand for the cluster highlighting the benefits of the produce.

Lack of leverage of natural advantages
The vegetable produced in the cluster is naturally organic, due to the very low use of pesticides and fertilizers. This natural advantage has not been translated into higher returns for the farmers. Possibilities of market linkages and differentiated offerings through organic certification has not been explored.

5. Alternative marketing channel possibilities in the cluster

1) At present the cluster does not have any alternate marketing channel. Big Basket and Safal are possible alternate players for the cluster. Possibilities need to be explored to connect the organic qualities of the commodities in the cluster with the right clients.

2) The cluster is in proximity to significantly large consumption bases, which includes tourist locations and educational institutions. Produce flows to these consumption centers through traditional trade channel. In similar situations elsewhere, there are enablers directly connecting these consumption bodies and producers. With a reasonable consumption base this cluster also has a potential for bringing in circularity in produce value chains studied here. At present there are no similar initiatives in this cluster. With collectives improving their marketing activities, value chain enablers can also be explored for possible roles in the cluster.
6. Required services/minimal infrastructures from the CEAD

1) Possibilities to optimize returns for farmers, within existing circumstances like helping local fleet owners improve capacity utilization supported by digital technology interventions.
2) Possibilities for creating multiplier effect on returns by organic certification and creating a separate brand for the regions safe profile produces.

7. Recommended POPIs in the cluster

Himmotthan and ILSP (Integrated Livelihood Support Project) are the recommended POPIs in the cluster.

NORTH ZONE CLUSTERS

AGRA CLUSTER

Agra cluster covers the district Agra of Uttar Pradesh. The total geographical area of the cluster is 3.99 Lakh Ha and the gross cropped area is 4.08 Lakh Ha, as it is cropped twice. As per the latest census, the cluster has population of 43.8 Lakhs.

The cluster comprises of 6 mandal and 15 blocks of the Agra district.

1. Profile of Major Crops selected for the study

Potato:
Potato is the most important horticulture crop of the cluster and is cultivated by approximately 2.1 Lakh growers producing about 14.4 Lakh MT. 75% of Potato produced in the cluster is of Kufari Bahar E-3797 variety and the remaining 25% are table varieties. Almost all the Kufari Bahar E-3797 variety is processed.

Wheat:
This is the largest commodity in the cluster. Wheat is cultivated by approximately 2 Lakh growers producing about 10.5 Lakh MT PBW-502 and 2329 varieties of wheat are mainly grown in Agra cluster.

Paddy:
Paddy is the second major crop of this cluster. Paddy is cultivated by approximately 1 lakh growers producing about 8.6 Lakh MT. Paddy produced are of S-5, 1509 and Basanti varieties. Majority of farmers grow S-5 and 1509 varieties for processing mills.

2. Profile of FPOs in the cluster

There are 19 FPOs in the cluster, 5 FPOs participated in the study. 4 FPOs are promoted by NABARD, One of these 4 FPOs, Digital Farmers Produce Company Ltd., has agri-input sales. Divyabhoomi Agri Crop Produce Company Ltd. has started milk collection.

Business activity details of the FPOs
2 FPOs have business activity in the cluster with turnovers of INR 5 Lakhs and INR 15 Lakhs in 2016-17 and 2017-18 respectively. None of the FPOs have GST registration while 3 FPOs have Mandi License.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 1,819 and they own 837 Ha of cultivated land representing about 4.8% of the total cropped area in the district.

Fatehabad Farmers Producer Company has maximum land holdings and maximum number of member farmers.
Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied in the cluster grow 1.7% of total production of Potato, 2.09% of total production of Wheat and 2.31% of total production of Paddy.

3. Profile of Market Players in the cluster

For major commodities like Paddy and Wheat, the traditional channels mainly procure the crop.
In case of Potato, the cluster offers one of the best storage opportunities with 250 cold storages located in the area and 85% of the production in storage.

FPO sales to market players
The FPOs are currently not dealing with any market players.

4. Identified gaps in the cluster

There are good opportunities for FPOs to connect with alternate market players in crops like Potato but most of the FPOs registered in the cluster are non-functional.

5. Alternative marketing channel possibilities in the cluster

Direct sales to corporates processing Potato and Rice is a possibility but institutional arrangement is the first step to connect farmers to markets and this is not currently available.

6. Required services/minimal infrastructures from the CEAD

Administrative
Encouraging POPIs, which are active in other parts of Uttar Pradesh, to start their activities in the Agra cluster to promote FPOs.

7. Recommended POPIs in the cluster

At present only NABARD is active POPI in this cluster.

ALWAR CLUSTER

Alwar cluster covers the district Alwar of Rajasthan. The total geographical area of the cluster is 7.82 Lakh Ha and the gross cropped area is 8.12 Lakh Ha, as it is cropped twice. As per the latest census, the cluster has a population of 36.7 Lakhs.

The cluster comprises of 16 Mandals of Alwar district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Wheat, Pearl Millet and Mustard.

Wheat:
Wheat is the most important crop of the cluster and it is cultivated by approximately 2 Lakh growers, producing about 8.68 Lakh MT.

Pearl Millet:
Another major crop produced in the cluster is Pearl Millet. Approximately 2.5 Lakh farmers produce around 5.4 Lakh MT of the produce.

Mustard:
Approximately 2 Lakh farmers produce around 4.67 Lakh MT of Mustard in the cluster.

2. Profile of FPOs in the cluster

There are 14 FPOs registered under the Companies Act in this cluster. 7 FPOs participated in the survey, out of these 3 FPOs are into Dairy Farming and 1 FPO is involved in Goat Farming, 3 FPOs are involved in crop cultivation and are promoted by NABARD.
Business activity details of the FPOs
FPOs have business activity in Alwar cluster. The total turnover of these 3 FPOs in 2016-17 was INR 17 Lakhs and in 2017-18, it was INR 27 Lakhs. Behrod Bansur Agro Veg Producer Company Ltd. had maximum turnover in the cluster. Only one FPO, the Behrod Bansur Agro Veg Producer Company Ltd. has both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied 3 FPOs is 3,301 and they cultivate 1,603 Ha of land representing about 0.5% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 0.61% of total production of Wheat, 0.49% of total production of Pearl Millet and 1.43% of total production of Mustard.

3. Profile of Market Players in the cluster

Alternate channels such as corporate buyers and processors are active in this cluster. The market player mix consists of traditional players, Government procurement and Corporate buyers.

FPO sales to market players
FPOs did a business of INR 17 Lakhs and INR 27 Lakhs in 2016-17 and 2017-18 respectively, selling produce to the market players.

4. Identified gaps in the cluster

Gaps in organization capabilities
Wheat, Pearl Millet and Mustard are the largest commodities in the cluster. However, the FPOs are not undertaking any value addition activities in these commodities.

Wheat, since government procurement is only 12% of the total production, is mostly sold in the open market at depressed prices. A relatively bigger role is played by corporates in this cluster. FPOs have an opportunity to connect with better paying market players provided they address the capability gap issues. Corporate buyers and processors like ITC, Cargill, Glencore and General Mills are active in the cluster for procurement of Wheat, and are ready to accept supplies from FPOs, if the produce is as per the specified parameter.

Technology Gap
For Mustard, high moisture content restricts its aggregation and linkages in the cluster.

5. Alternative marketing channel possibilities in the cluster

ITC, Cargill, Glencore and General Mills can be the alternate market players for the Wheat cultivated by the FPOs in this cluster.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) CEAD can facilitate meetings between corporates and FPOs
2) CEAD can provide capability building training programs for the FPOs.

Technology Gap
FPOs working in the Mustard, can be provided with equipment for drying the produce.

7. Recommended POPIs in the cluster

NABARD is the only POPI in the cluster.
DELHI CLUSTER

Delhi cluster covers the state of Delhi. The total geographical area of the district is 1.48 lakh Ha and the gross cropped area is 33,454 Ha. As per the latest census, the cluster has a population of 1.67 Cr.

The cluster comprises of 8 districts of Delhis Union Territory.

1. Profile of Major Crops selected for the study

Wheat is the largest grown commodity in the cluster. Wheat is cultivated by approximately 35,000 growers producing about 85,558 MT, grown in around 19,360 Ha of area.

2. Profile of FPOs in the cluster

There are 42 FPOs in the district out of which only 10 FPOs are active in activities such as Small-Scale Industries (Handicraft, Pest control, Media, etc.).

Business activity details of the FPOs
As mentioned above only 10 of the FPOs in this cluster are doing any business activity. Also, none of the FPOs have GST registration, though 3 FPOs have their Mandi License.

3. Profile of Market Players in the cluster

The cluster has traditional traders and processors. There are alternate marketing channels, but individual farmers restrict themselves to local traders and processors.

Alternative Marketing Channels active in the cluster
There is no alternate marketing channel.

FPO sales to market players
The FPOs are currently not dealing with any market players.

4. Identified gaps in the cluster

Most of the FPOs registered in the cluster are non-functional. Therefore, there are no gaps and interventions identified for market linkage in this cluster.

5. Alternative marketing channel possibilities in the cluster

There are abundant opportunities to connect with market players in this cluster. However, first requirement is to have functional FPOs.

6. Required services/minimal infrastructures from the CEAD

Administrative
In this cluster, majority of FPOs are not functional. Therefore, the cluster was not pursued for evaluation as potential CEAD centre.

7. Recommended POPIs in the cluster

There are no POPIs to partner with.

FAZILKA CLUSTER

This cluster was studied for Kinnow fruit in prominent growing areas of Punjab. Information was collected by interacting with farmer groups, Mandi traders, senior experts at the post-harvest cell of the Punjab Agricultural University, and with traders/exporters dealing in the fruit.
1. Kinnow Growing Areas of Punjab

The Kinnow crop is grown in Bhatinda, Fazilika and Hoshiarpur district in the state of Punjab. The Abohar region in Fazilika district is the largest pocket for Kinnow with 30,000 Ha of land under the crop, followed by Hoshiarpur.

2. Short Profile of Kinnow Crop

Kinnow was introduced in India in 1959 and released by PAU in the year 1973. But rapid increase in area occurred between 2004 to 2010 due to the States push for crop diversification. Currently, all the three pockets put together produce about 12.5 MMT of Kinnow. The fruit is largely consumed for the table purpose. There is very low quantity of the fruit processed for juice due to the unstable nature of its juice. The Hoshiarpur fruit is small and fetch lower price compared to the Abohar produce.

3. Producer Profile for Kinnow

65% - 70% of the produce is contributed by Fazilika belt and remaining by Bhatinda and Hoshiarpur belt. At Abohar belt, which is the major belt, the average farm holding is between 4-6 Ha. Small land holding farmers are less than 10% of the total producers in this belt. The farm sizes are smaller in the Hoshiarpur belt, i.e., in the range of 1.2 - 1.6 Ha.

There are no producer organizations working at present in the Kinnow crops, as the individual farm sizes are large and the producers are not inclined to form an FPO as the perceived incremental gains are not enough.

4. Profiles of Market Players in the cluster

Close to 80% of Kinnow is sold to pre-harvest contractors. Unlike in rest of India, where orchards are handed to preharvest contractors largely due to lack of capital, in this cluster, orchards are given to pre-harvest contractors as producers are not keen to sell the fruits directly. A small percentage of fruits is exported to Russia, Middle East, Iran, Bangladesh and Indonesia.

Alternative Marketing Channels active in the cluster

There is no alternate marketing channel in the cluster.

5. Identified gaps in the cluster

Gaps in Cultivation Practices organizational capability

By selling to pre-harvest contractors, farmers earn between is INR 7/kg - INR 10/Kg, whereas the retail price of the fruit is between INR 40/kg - INR 50/Kg in southern Indian cities such as Bangalore. If the producers are organized into collectives, it would help in transporting the fruit to the other better paying hubs in India.

Infrastructure gap

Losses due to transport in open trucks is 28%. These losses can be drastically reduced by engaging Reefer trucks. The establishment of collectives can help in risk sharing and exploring of efficient logistics for transport. Several grading facilities exists in the area including 150 mechanical grading machines. However, fruit processing units are absent in the cluster with only one major pulp processing plant set up by the Punjab Government also lying idle. A challenge in setting up advanced processing units is capacity utilization as no other fruits are available in the cluster to process. Sourcing fruits from other areas is economically unviable.

Gaps in marketing arrangements

Consumers from premium price paying countries prefer soft skin seedless varieties of Kinnow. Hence entering these markets is a challenging task for Kinnow exporters. The other available markets of Russia, Bangladesh and Middle East are price sensitive and Indian fruit is often more expensive than its counterpart from Pakistan. There are, however, opportunities that can be explored in the domestic market. Sufficient awareness about Kinnow is not present in other high fruit consuming parts of India. A Citrus specialty market player, Ailifresh, stated that they do not deal with Kinnow fruit due to unresolved technology challenges involved in transportation of the fruit.

6. Alternative marketing channel possibilities in the cluster

There is no alternate marketing channel in the cluster.
7. Required Services/Minimal Infrastructures from the Cead

One major challenge is the lack of interest from producers to take any initiative to improve the returns. Most of the producers are happy leaving their farms to caretakers and dealing with the contractor for marketing the produce. Farm sizes being large, there is no motivation to make efforts in raising income and revenues.

**Administrative**
CEAD can organize training programs for farmers on advantages of collectives.

**Infrastructure**
CEAD can provide refrigerated transport and cold storage.

**Marketing**
CEAD can intervene in the demand/awareness creation in major fruit consumption areas in partnership with the corporate retailers.

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8. Recommended POPIs in the Cluster

There is no recommendation for POPI in the cluster.

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**GWALIOR CLUSTER**

Gwalior cluster covers Gwalior district of Madhya Pradesh. The total geographical area of the cluster is 4.56 Lakh Ha and gross cropped area is 2.51 Lakhs Ha. As per the latest census, the cluster has a population of 20.32 Lakhs.

The cluster comprises 3 Mandals of Gwalior district.

1. **Profile of Major Crops selected for the study**

The major crops grown in the cluster are Paddy, Wheat, Mustard and Sesamum.

**Wheat:**
Wheat is the most important crop in the cluster and is grown in 1.36 lakh Ha. Approximately 2 Lakh growers produce around 5.15 lakh MT of Wheat.

**Paddy:**
Paddy is the second most important crop in the cluster and is grown in about 53,000 Ha. Approximately 50,000 growers produce around 2.25 lakh MT of Paddy in the cluster.

**Mustard:**
Mustard is also one of the important crops in the cluster and is grown in 23,000 Ha. Around 20,000 growers produce about 27,000 MT of Mustard in the cluster.

**Sesamum:**
Around 50,000 growers produce about 30,000 MT of Sesamum in the cluster 70% of which is exported to Middle East as oil, dehulled Sesamum Seed and whole Sesamum Seed.

2. **Profile of FPOs in the cluster**

There are 16 FPOs registered under the Companies Act in the cluster. 5 FPOs participated in the survey. All of them were promoted by NABARD.

Out of the above 5 FPOs, 4 FPOs have business activity.

**Business activity details of the FPOs**
The total turnover in 2016-17 was INR 17 Lakh and for 2017-18 was INR 18 Lakh. Saransh India Farmer Producer Company had maximum turnover in the cluster. None of the FPOs have GST registration or Mandi license.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied 5 FPOs is 3,006 and they own 1,202 Ha of land representing about 0.05% of the total cropped area of the Gwalior cluster.
Main crops being grown in cluster and volume of each vis-à-vis that of FPOs

The member farmers of the FPOs studied represent 0.05% of the total production of Wheat, 0.09% of total production of Paddy, 0.7% of the total production of Mustard and 0.5% of total production of Sesamum.

3. Profile of Market Players in the cluster

While traditional players are active in Paddy, Wheat and Mustard, in case of Sesamum, there are exporters who are major market players in the cluster.

FPO sales to market players

FPOs did a business of INR 17 Lakh and INR 18 Lakh in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

Gaps in organization capabilities

Wheat:
Corporate buyers ITC, Cargill and Glencore are buying Wheat from the cluster. There is potential for the FPOs to connect with the corporate players.

Paddy:
FPO members sell Paddy immediately after harvesting. By aggregating and selling the commodity later, FPO members can take advantage of price rise to the tune of 20%-30%. But at present none of the FPOs undertake aggregation and sales of commodity.

Sesamum and Mustard:
Sesamum FPOs can gain 10%-15% revenue by selling directly to processors. Cluster based Sesamum exporters, Paras White Gold Agro Industries, Sheetal Industries, Shiva Sakti Till Mill, Shri Hari Industries and Pawan Kumar Budhamal, regularly require Sesamum and are willing to purchase from the FPOs. At present none of the FPOs engage in aggregation and selling of the produce.

Local Mustard Oil processors, like Krishna Kishore Agritech and K S Oils, are willing to buy produce from the FPOs providing 5% premium over the Mandi traders. Presently, none of the FPOs undertake aggregation of the produce.

5. Alternative marketing channel possibilities in the cluster

ITC, Cargill, Krishna Kishore Agritech and K S Oils and Paras White Gold Agro Industries are the possible alternate marketing channels for these commodities.

6. Required Services/Minimal Infrastructures from the Cead

1) CEAD can coordinate the meetings between the alternate market players in the cluster and the producers.
2) CEAD can coordinate the training on aggregation and warehousing support for the initial period for the FPOs.

7. Recommended POPIs in the Cluster

NABARD has promoted all active FPOs in the cluster.

JAIPUR CLUSTER

Jaipur cluster comprises of the district Jaipur of Rajasthan. The total geographical area of the cluster is 11.15 Lakh Ha and the gross cropped area is 8.48 Lakh Ha. As per the latest census, the cluster has a population of 66.6 Lakh.

The cluster comprises of 12 Mandals of Jaipur district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Wheat, Pearl Millet, Cluster Bean and Mustard.
Wheat:
Wheat is the most important crop of the cluster and it is cultivated by approximately 1.5 Lakh growers, producing about 5.12 Lakh MT.

Pearl Millet:
Another major crop produced in the cluster is Pearl Millet. Approximately 2.5 Lakh farmers produce around 4.45 Lakh MT.

Cluster Bean:
Approximately 50,000 farmers produce around 50,122 MT of Cluster Bean.

Mustard:
Approximately 50,000 farmers produce around 1.1 Lakh MT Mustard.

2. Profile of FPOs in the cluster

There are 36 FPOs registered under the Companies Act in the cluster. 24 FPOs participated in the survey. Out of these, 3 FPOs are involved in dairy farming and 1 FPO is engaged in leather business. The remaining 20 FPOs are into crop cultivation, of which 15 are promoted by 6 POPIs and 5 FPOs are self-promoted.

Business activity details of the FPOs
4 FPOs have business activity in Jaipur cluster. The total turnover of these 4 FPOs was INR 1.34 Cr and INR 1.81 Cr respectively in 2016-17 and 2017-18. Jamwa Ramgarh Farmer Producer Company Ltd. had maximum turnover in the cluster. 14 FPOs have GST registration and 8 FPOs have Mandi licenses. 8 FPOs have both GST registration and Mandi licenses.

FPO sales to market players
FPOs did a business of INR 1.34 Cr and INR 1.81 Cr in 2016-17 and 2017-18 respectively with the market players.

Member base and farm holding of the FPOs
The total number of members of the studied FPOs is 19,730 and they own 18,598 Ha of land representing about 2% of the total cropped area of the cluster. SFAC promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 2.76% of total production of Wheat, 1.88% of total production of Pearl Millet, 3.2% of the total production of Cluster Bean and 1.2% of total production of Mustard.

3. Profile of Market Players in the cluster

There is strong role played by alternate channels like corporate buyers and processors in these commodities. The market player mix is dominated by traditional players, Government procurement and corporate buyers.

4. Identified gaps in the cluster

Gaps in organization capabilities
Wheat, Pearl Millet, Mustard and Cluster Bean are the largest commodities in the cluster but none of the FPOs undertake any value-addition activities in these commodities.

In Wheat, Government procurement is only 12% of the total production. Most of the quantity is sold in open market for depressed prices. Corporates play a relatively bigger role in the cluster. FPOs can connect to these market players provided they can address the capability gap issues.

Corporate buyers and processors, like ITC, Cargill, Glencore and General Mills, are active in the cluster for Wheat and Pearl Millet. They accept supplies from FPOs provided the product is as per the specified parameters.

Corporate players like Jai Bharat Gum and Chemicals Ltd. expressed their interest in buying Cluster Bean seeds directly from FPOs on a condition being that the seeds meet the parameter specifications.

Technology gap
High moisture content is one reason restricting aggregation and market linking of Mustard and Cluster Beans in the cluster.
5. Alternative marketing channel possibilities in the cluster

ITC, Cargill, Glencore and General Mills and Jai Bharat Gum and Chemicals Ltd. are the alternate market players in this cluster.

6. Required Services/Minimal Infrastructures from the Cead

Administrative
1) Facilitation meetings between the corporates and producers is required.
2) Capability building training programs will be required for the FPOs.

Technology gap
FPOs working in Mustard can be provided equipment for drying the produce.

7. Recommended POPIs in the Cluster

NABARD is doing commendable work in the cluster and has promoted 3 FPOs in the cluster.

KANPUR DEHAT CLUSTER

Kanpur Dehat cluster comprises of the district Kanpur Dehat of Uttar Pradesh. The total geographical area of the cluster is 3.15 Lakh Ha and the gross cropped area is 2.93 lakh Ha. As per the latest census, the cluster has a population of 17.9 Lakh.

1. Profile of Major Crops selected for the study

The major crops selected for the project study as per the production data are Wheat, Paddy and Redgram.

Wheat:
Wheat is the most important crop of the cluster and is cultivated by approximately 2.5 Lakh of farmers producing about 4.3 Lakh MT.

Paddy:
1 lakh grower cultivates around 100,000 MT of Paddy in the cluster.

Redgram:
Approximately 10,000 farmers produce the 12,000 MT of Redgram in the Kanpur cluster. Kanpur is hub of processing of pulses although production is low. The pulses produced from Bundelkhand area Jhansi, Tikamgarh, etc. are processed in Kanpur.

2. Profile of FPOs in the cluster

There are 25 FPOs registered under the Companies Act in the cluster. 10 FPOs participated in the survey. These 10 FPOs are promoted by 3 POPIs.

Business activity details of the FPOs
9 FPOs conduct business activity in the cluster. The total turnover in 2016-17 was INR 83 Lakhs. Kabir Bhu-Mitra Producer Company had the maximum turnover of INR 38.9 Lakh in the cluster. Shobhan Agro Producer Company has its own processing and packaging unit from which it sells the produce directly to the end consumers under FPOs brand name Shobhan Foods
5 FPOs have GST registration whereas only 1 FPO has Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied 10 FPOs is 6,989 and they own 2,883 Ha of land representing about 0.98% of the total cropped area of the Kanpur Dehat cluster. Uttar Pradesh Bhoomi Sudhar Nigam promoted FPOs have maximum land holdings and maximum number of member farmers.
Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 0.2% of the total production of Wheat, 1% of the total production of Redgram. Contribution to Paddy is negligible.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities in case of all the commodities and there is hardly any role played by alternate channels in these commodities.

FPO sales to market players
FPOs did a business of INR 83 Lakhs in 2016-17 with the traditional market players.

4. Identified gaps in the cluster

Gaps in organization capabilities
For 4 FPOs promoted by Bhoomi Sudhar Nigam, the technical support extended by organization named BASIX ended in December 2018. Considering the current level of these FPOs, their future sustainability is questionable.

Though the FPOs have secured pesticide and fertilizer licenses, they are not able to compete with the large input traders in market. FPOs are unable to secure their financing requirement from the formal banking sources. FPOs have expressed the challenges in managing the statutory and tax compliances.

Marketing gaps
While ITC has been procuring Wheat form this cluster, FPOs are unable to supply to the company.

5. Alternative marketing channel possibilities in the cluster

ITC can be an alternative marketing partner in the cluster.

6. Required Services/Minimal Infrastructures from the Cead

Administrative
CEAD can facilitate capacity building training programs for the FPOs. FPOs can be trained on demand forecasting and sales planning with the help of the input companies.

Marketing
Meetings need to be facilitated with ITC to initiate direct procurement from the FPO.

7. Recommended POPIs in the Cluster

NABARD and Uttar Pradesh Bhoomi Sudhar Nigam are the recommended POPIs in the cluster.

KANPUR NAGAR CLUSTER

Kanpur Nagar cluster comprises of the district Kanpur Nagar of Uttar Pradesh. The total geographical area of the cluster is 3.01 Lakh Ha and the gross cropped area is 2.66 Lakh Ha. As per the latest census, the cluster has a population of 63.77 Lakhs.

1. Profile of Major Crops selected for the study

The major crops selected for the project study are Wheat, Paddy and Potato.

Wheat:
Wheat is the most important crop of the cluster and is cultivated by approximately 1.8 Lakh of farmers producing about 3.17 Lakh MT.
Paddy:
Approximately 70,000 growers cultivate around 0.75 Lakh MT of Paddy in the cluster.

Potato:
Approximately 33,000 farmers produce around 2.07 Lakh MT of Potato in the Kanpur cluster.

2. Profile of FPOs in the cluster

There are 24 FPOs registered under the Companies Act in the cluster. 5 FPOs participated in the study. These 5 FPOs are promoted by 2 POPIs.

Business activity details of the FPOs
All 5 FPOs are involved in business activity in the cluster. Their total turnover in 2016-17 was INR 60 Lakhs. Chetna Nature Farming Produce Company Ltd. had maximum turnover of INR 18 Lakh in the cluster.

Member base and farm holding of the FPOs
The total number of member farmers of the studied 5 FPOs is 2,930 and they have 1,110 Ha of land under them representing about 0.41% of the total cropped area of the Kanpur Nagar cluster. Uttar Pradesh Bhoomi Sudhar Nigam promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 0.11% of the total production of Wheat, 0.14% of the total production of Potato while the share of Paddy is negligible.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities for all the commodities with minimum role played by alternate channel in these commodities.

FPO sales to market players
FPOs did a business of INR 60 Lakhs in 2016-17 with the traditional market players.

4. Identified gaps in the cluster

Gaps in organization capabilities

Wheat:
Corporate buyers ITC, Cargill and Glencore procure Wheat from the cluster. There is potential for the FPOs to connect with these corporate players. Aggregation of Wheat and its sale at later date could also generate higher profits.

Paddy:
FPO members sell Paddy immediately after harvesting. By aggregating and selling the commodity later, the FPO members can increase their profits by 20%-30%.

Potato:
At present the collectives are selling ungraded Potato in the local market. Grading the Potato and selling to the right client segments will help the collectives to earn better returns.

5. Alternative marketing channel possibilities in the cluster

ITC and Glencore are the possible alternate market players in the cluster for Wheat procurement.

6. Required Services/Minimal Infrastructures from the Cead

Administrative
CEAD can facilitate capacity building training programs for the FPOs.

Marketing
CEAD can facilitate meetings between market players, such as ITC, Cargill, and Glencore, and FPOs can ensure procurement by these corporates.
7. Recommended POPIs in the Cluster

Uttar Pradesh Bhoomi Sudhar Nigam and NABARD are the recommended POPIs in the cluster.

# KARNAL CLUSTER

Karnal cluster comprises of Karnal district of Haryana. The total geographical area of the cluster is 2.46 Lakh Ha and the gross cropped area is 3.85 Lakh Ha, as it is cropped twice. As per the latest census, the cluster has a population of 15.05 Lakh.

Karnal District comprises of five mandals and 8 blocks.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Wheat, Paddy and vegetables.

**Wheat:**
Wheat is the most important crop of the cluster and it is cultivated by approximately 1.5 Lakh growers, producing about 7.4 Lakh MT.

**Paddy:**
Another major crop produced in the cluster is Paddy. Approximately 1.5 Lakh farmers produce around 5.3 Lakh MT of the Paddy.

**Vegetables:**
Approximately 1 Lakh farmers produce around 6.24 Lakh MT of vegetables in the cluster. The major vegetables grown in the cluster are Tomatoes, Okra, Cauliflower, Radish and Potatoes.

2. Profile of FPOs in the cluster

4 FPOs registered business activity in Karnal cluster. The total turnover of these FPOs in 2016-17 was INR 81 Lakh and INR 1.15 Cr in 2017-18. Pro-growers Producer Company Ltd. had maximum turnover in the cluster.

6 FPOs have GST registration and 2 FPOs have Mandi licenses. 2 FPOs have both GST registration and Mandi licenses.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied FPOs is 2,426 and they have 3,881 Ha of land under them representing about 1% of the total cropped area of the cluster. Nilokheri Farmers Producer Company Ltd. have maximum land holdings and maximum number of member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the studied FPOs represent 1.07% of total production of Wheat, 1.13% of total production of Paddy and 0.72% of total production of Vegetables.

3. Profile of Market Players in the cluster

Government is a dominant market player in this cluster for Wheat and Non-Basmati Paddy. Basmati Rice is procured by large Processors located in cluster and nearby areas.

**FPO sales to market players**
FPOs conducted business of INR 81 Lakh and INR 1.15 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

**Gaps in cultivation practices and organizational capability**
An important agenda of the State Government is reducing the dependence on traditional crops and increasing the area under horticultural crops. Currently only 2 FPOs are engaged in vegetable production but they are not aggregating and marketing the produce.
5. Alternative marketing channel possibilities in the cluster

Reliance Fresh and Safal are the two alternate possibilities in the cluster.

6. Required services/minimal infrastructures from the CEAD

Administrative

The Crop Cluster Development Program (CCDP) by the State Government is an integrated effort by the State Government for crop diversification and increasing the area under vegetable cultivation. CEAD can partner with this program to scale up the vegetable cultivation by the FPOs. CEAD can explore partnership with the Centre of Excellence for Vegetables (Indo-Israel Agriculture Cooperation Project) in Karnal for effective training of the FPOs.

7. Recommended POPIs in the cluster

The only active POPI in the cluster is NABARD.

LUCKNOW CLUSTER

The Lucknow cluster covers Lucknow district of Uttar Pradesh. The total geographical area of the cluster is 2.52 Lakh Ha and the gross cropped area is 1.38 Lakh Ha. As per the latest census, the cluster has a population of 45.9 Lakh.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Wheat, Paddy, Mustard, and Mango.

Wheat:
Wheat is the most important crop of the cluster and it is cultivated by approximately 1 Lakh growers, producing about 2.28 Lakh MT of Wheat. 50% of the produce is sold to the nearby markets such as Hardoi and Sitapur since the price realization is 5%-6% higher in these Mandis. 15% of the produce is purchased by the Government as part of the procurement program where MSP declared is 15%-20% higher than the local market rate.

Paddy:
Another major crop produced in the cluster is Paddy. Approximately 80,000 farmers produce around 1.02 Lakh MT of the produce. Like Wheat, 50% of the produce goes to Hardoi and Sitapur Mandis where the rates are higher by 2%-3%. Government procures 15%-20% of Paddy at MSP, which is higher than the market rate by 8%-10%.

Mustard:
Approximately 50,000 farmers produce 2,416 MT of Mustard in the cluster. The important varieties are Goldie and Kaveri.

Mango:
There are approximately 50,000 growers of Mango with production of 1.89 Lakh MT in the cluster. The most common varieties are Langda, Chausa and Lucknowabi. Most of varieties produced are table varieties which are not suitable for processing.

2. Profile of FPOs in the cluster

There are 63 FPOs registered under the Companies Act in this cluster. 21 FPOs participated in the survey. Out of these 21 FPOs, 2 are promoted by NABARD, 2 are promoted by SFAC (Small Farmers Agribusiness Consortium), 3 are promoted by Uttar Pradesh Bhoomi Sudhar Nigam, a Government agency, and 14 are independently promoted.

There are SHGs at a step-down level in all the FPOs promoted by Uttar Pradesh Bhoomi Sudhar Nigam and each SHG is represented in the FPO by a single member.

Business activity details of the FPOs
3 FPOs registered business activity in the cluster. The total turnover of these 3 FPOs in 2016-17 was INR 2 Cr and in 2017-18, it was INR 2.1 Cr. Shiv Kisan Producer Company had maximum turnover in the cluster.

Only 2 FPOs have both GST registration and Mandi license.
Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 12,566 and they have 703 Ha of land under them representing about 2.2% of the total cropped area of the Lucknow cluster. Uttar Pradesh Bhoomi Sudhar Nigam promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 2% of the total production of Wheat, 4.8% of the total production of Mustard and 10.58% of the total production of Mango in the cluster.

3. Profile of Market Players in the cluster

The market player mix in the cluster is dominated by Government procurement agencies and traditional players such as regulated markets.

There are no alternative market players present in the cluster.

FPO sales to market players
FPOs did business of INR 2 Cr and INR 2.1 Cr in 2016-17 and 2017-18 respectively. Their major source of income is through agriculture input selling to member farmers. These FPOs also run help centers in villages with the help of IFFCO and disseminate farm information to farmers. One FPO also administers a MSP procurement centre for which it gets a commission of INR 20/Quintal.

4. Identified Gaps in the Cluster

Gaps in cultivation practices and organizational capability

Grains:
More than 50% of the production from this cluster is sold at Hardoi and Sitapur Mandis due to higher price for grains in these Mandis. There is an additional cost incurred for transporting material. Alternatively, if FPOs aggregate produce in the cluster, they can benefit from negotiating for better price and reduce transportation costs.

Given the current circumstances of higher MSPs than the prevailing market prices, the producers sell produce to the Government. However, the Government procurement is only 15%-20% of the total production. FPOs can become MSP procurement centers, to get larger share in Government procurement which will be more remunerative.

There is a gap in terms of understanding about scientific storage interventions and quality parameters at the FPO level. The cluster can undertake the aggregation, grading and market linkages.

Mango:
In the case of Mango, the price realization is higher when Mango is sold to buyers located outside the state. Price from the large wholesalers is 25%-30% higher than the local market. FPOs therefore have an opportunity to improve their income by becoming large wholesalers.

5. Alternative marketing channel possibilities in the cluster

Safal, Big Basket and Allfresh are the possible alternate marketing channel for the cluster.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) One suitable intervention for FPOs is to run the MSP procurement center. FPOs can be trained on starting and scientifically managing a grain procurement center. The CEAD can partner with expert organizations in the post-harvest arena to impart such training.

2) Ripening chamber and pack-houses will be needed for Mango by the FPOs to successfully link with market players.

7. Recommended POPIs in the cluster

Uttar Pradesh Bhoomi Sudhar Nigam is doing commendable work in the cluster. FPOs promoted by this POPI are availing support from BASIX and IFFCO to deliver more services to their members through the village help centers.
LUDHIANA CLUSTER

Ludhiana cluster comprises of the district Ludhiana of Panjab. The total geographical area of the cluster is 3.68 lakh Ha and the gross cropped area is 5.95 lakh Ha. (Almost 100% of the net area sown is double cropped hence the gross cropped area is more than the geographical area) As per the latest census, the cluster has a population of 34.9 lakhs. The cluster composes of 7 Mandals and 13 blocks of the Cluster.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Wheat and Paddy. Majority of the produce is procured by government.

Wheat:
Wheat is the largest commodity in the cluster. Wheat is cultivated by approximately 2 Lakh growers, producing about 11.37 Lakh MT.

Paddy:
Paddy is other major crop in the cluster. 2 Lakh growers produce about 11.35 Lakh MT of Paddy.

2. Profile of FPOs in the cluster

There are 9 FPOs in the cluster. Of these, 7 FPOs are non-existing. The remaining 2 FPOs are promoted by NABARD but are not engaged in any business activity.

Business activity details of the FPOs
No FPO is engaged in any business activity.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 270 and they have 346 Ha of land under cultivation representing about 0.05% of the total cropped area in the district.

Farmway Farmer Producer Company Ltd. is having maximum land holding and maximum number of member farmers.

3. Profile of Market Players in the cluster

For major commodities like Paddy and Wheat, Government procurement plays a major part.

FPO sales to market players
The FPOs are currently not dealing with any market players.

4. Identified gaps in the cluster

Most of the FPOs registered in the cluster are non-functional. Therefore, there are no gaps and interventions for market linkage in this cluster.

5. Alternative marketing channel possibilities in the cluster

Given the existing circumstances, there is no possibilities for any connections with alternate channels in this cluster.

6. Recommended POPIs in the cluster

Government being such a dominant market player, there is no scope for any POPI to undertake post-harvest activities.
MANDLA CLUSTER

Mandla cluster comprises of district Mandla of Madhya Pradesh. The total geographical area of the cluster is 9.65 Lakh Ha and gross cropped area is 2.79 Lakh Ha. As per the latest census, the cluster has a population of 10.54 Lakh.

1. Profile of Major Crops selected for the study

The major crops grown in the cluster are Paddy, Wheat and Gram.

Paddy:
In this cluster approximately 2 Lakh growers produce around 3.93 Lakh MT of Paddy. Majority of the produce is sold immediately after harvesting and flows through the traditional channels.

Wheat:
Wheat is the second most important crop in the cluster. 50,000 growers produce around 1.07 Lakh MT of Wheat. Though Madhya Pradesh is an important belt for corporate procurement of Wheat, there are no corporates procuring from this cluster.

Gram:
Around 30,000 growers produce about 34,000 MT of Gram in the cluster. This State is a belt for processing of Gram. Most of the Gram produce from this cluster is sold to processing hubs of Jabalpur and Katni.

2. Profile of FPOs in the cluster

There are 18 FPOs registered under the Companies Act in the cluster. 15 FPOs participated in the study. These FPOs are promoted by 9 POPIs and 1 FPO is independently promoted. Out of total 15 FPOs, 10 FPOs are involved in business activity.

Business activity details of the FPOs
The total turnover in 2016-17 was INR 1.9 Cr and in 2017-18, it was INR 2.7 Cr. Mandla Tribal Farmer Producer Company Ltd. had the maximum turnover in the cluster.

6 FPOs have GST registration, and 11 FPOs have Mandi license. 5 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 21,943 and they own 19,021 Ha of land representing about 6.8% of the total cropped area of the Mandla cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 7.2% of the total production of Paddy, 5.8% of the total production of Wheat and 10% of the total production of Gram.

3. Profile of Market Players in the cluster

Producers sell majority of their produce to Government agencies followed by traditional players.

FPO sales to market players
FPOs did a business of INR 1.9 Cr and INR 2.7 Cr in 2016-17 and 2017-18 respectively with the market players and the traders.

4. Identified gaps in the cluster

Marketing arrangement gap

Wheat:
Corporate buyers like ITC, Cargill and Glencore have presence in the cluster. There is potential for the FPOs to connect to these corporate players. There are 12 FPOs producing 6,243 MT of Wheat in this cluster. But at present none of the FPOs are linked to any corporates.
Gram:
The produce has 4 grades as special, good, fair and reject. The special grade is usually procured by Reliance, Future Group and Patanjali as whole or as Dal. The good grade is procured by besan (Gram flour) makers. The fair grade is also procured by second rung besan makers. The reject grade or the lowest quality is consumed by the animal feed industry.

By grading the produce, and selling to correct segment, FPOs can increase their revenue by 4%-5%, compared to revenues earned through sale in local Mandis.

Katni based Gram processing units, like Sarda Dal Mill, BR Foods etc., have regular requirement for these commodities and are willing to procure from the FPOs.

Paddy:
Jabalpur based processors like Ma Amba Rice Mill and LLD Food have shown willingness to procure Paddy from the FPOs.

Gaps in cultivation practices and organizational capability

Paddy:
At present, FPOs are not aggregating Paddy in the cluster, though the members produce 28,491 MT of Paddy. Members sell the produce immediately after harvesting. If FPO members aggregate the produce and store Paddy to be sold later, they can increase their revenues by 20%-30% due to price rise.

5. Alternative marketing channel possibilities in the cluster

1) ITC and Cargill are the possible alternate channel partners for Wheat.
2) LLD Food and Maa Amba Rice Mill based out of Jabalpur are possible alternate channel for Paddy.
3) Future group, Reliance, Big Basket, Sharda Dal mill and BR Foods are the possibilities for alternate marketing channel for Gram.

6. Required services/minimal infrastructures from the CEAD

Administrative

1) CEAD can train FPOs on procurement and storage.
2) CEAD can facilitate meetings between market players and FPOs.

7. Recommended POPIs in the cluster

Ek Gaon Technology is doing commendable work in the cluster. Ek Gaon Technology has promoted 3 FPOs in the cluster.

NAGAUR CLUSTER

Nagaur cluster covers the district Nagaur of Rajasthan. The total geographical area of the cluster is 17.64 Lakh Ha and the gross cropped area is 14.21 Lakh Ha. As per the latest census, the cluster has a population of 33 Lakhs.

The cluster comprises 10 Mandals of Nagaur district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Moong, Pearl Millet, Cluster Bean and Wheat.

Moong:
Moong is the most important crop of the cluster and it is cultivated by approximately 2 Lakh growers, producing about 3.13 Lakh MT of Moong.

Pearl Millet:
Another major crop produced in the cluster is Pearl Millet. Approximately 2 Lakh farmers produce around 2.81 Lakh MT of the produce.
Cluster Bean:
Approximately 50,000 farmers produce around 46,064 MT of Cluster Beans.

Wheat:
Approximately 50,000 farmers produce Wheat around 1.47 Lakh MT.

2. Profile of FPOs in the cluster

There are 22 FPOs registered under the Companies Act in the cluster. 8 FPOs participated in the survey. Out of these 7 are promoted by NABARD and 1 FPO is promoted by SFAC.

Business activity details of the FPOs
5 FPOs registered business activity in the cluster. The total turnover of these 5 FPOs in 2016-17 was INR 29 Lakhs and for 2017-18 it was INR 55 Lakhs. Nayajula Mahila Kisan Producer Company had maximum business turnover in the cluster.

4 FPOs have GST registration and 1 FPO has Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 4,301 and they own 3,912 Ha of land which represents about 0.3% of the total cropped area of the cluster. NABARD promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represents 1.7% of total production of Moong, 1.2% of total production of Pearl Millet, 1.6% of the total production of Cluster Bean and 0.3% of total production of Wheat.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional players and Government procurement. RAJFED and NAFED procure 60% of the Moong produced in this cluster.

FPO sales to market players
FPOs did a business of INR 29 Lakhs and INR 55 Lakhs, in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

Gaps in organization capabilities
Moong, Pearl Millet, Cluster Bean and Wheat are the largest commodities in the cluster but none of the FPOs are aggregating these crops.

Wheat:
Corporate buyers and processors like ITC, Glencore and Olam are active in the cluster. There is opportunity for FPOs to sell Wheat to corporates provided the produce meets their parameter specifications.

At present none of the FPOs are using this channel. Instead their members sell their produce either to Government agencies or at the Mandi.

Cluster Bean:
Large manufacturers and exporters, like Jai Bharat Gum and Chemicals Ltd., Hindustan Gum and Indian Glycols Ltd., produce Guar gum and Guar powder. They have started programs to buy Guar seed from farmers directly, as per the specification of NCDEX. At present the FPOs are not aggregating or trading Guar.

Green Gram:
This cluster is an important cluster for Green Gram in the country. The produce has 3 grades - Special, Standard and General. The Special grade is procured by corporates like Reliance, Future Group and Patanjali at prices higher than MSP. The General grade is procured by snack makers. The lowest quality, generally designated as D grade, is used by the animal feed industry. By grading the produce, and selling it to the correct segment, FPOs can increase their revenue by 4%-5%, compared to revenues earned through sale in local Mandis.
5. Alternative marketing channel possibilities in the cluster

1) ITC, Glencore and Olam can be the alternate market player for Wheat.
2) Jai Bharat Gum and Chemicals Ltd., Hindustan Gum and Indian Glycols Ltd. can be the alternate marketing channel for Cluster Beans.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) CEAD can facilitate training on procurement and storage of commodity.
2) CEAD can facilitate meetings between market players and FPOs.

7. Recommended POPIs in the cluster

NABARD is doing commendable work in the cluster. NABARD has promoted 7 FPOs in the cluster.

PALAMPUR CLUSTER

Palampur cluster covers the district Kangra of Himachal Pradesh with a total geographical area of 5.77 Lakh Ha and gross cropped area of 2.13 Lakh Ha which is only 37% of its geographic area, compared to 60% for rest of the country. Hence, large percentage of its produce is consumed with the state.

As per the latest census, the cluster has a population of 15.10 Lakhs.

Dharamshala and Baijnath are the major tourist attractions in the cluster and present good sales opportunity for the collectives in the cluster. Palampur is also host to several Government institutes and establishments.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Potato, Maize and Cucurbits.

Potato:
15,000 Growers produce around 15,000 MT of Potato in this cluster. Potato produced in the cluster is of high demand due to the high dry matter (20%) content in it. Bulk of the produce is purchased by corporates directly or indirectly through agents. Compared to Potato farmers from the plains there is no distress sales of produce in this cluster. Potato is harvested and sold from May to July when the supply from other major growing areas is down.

Maize:
58,700 growers produce around 91,900 MT of Maize in this cluster.

Cucurbits
1,500 growers produce about 2,020 MT of Cucurbits this cluster.

Farmers in the region apply chemicals for controlling pests and diseases.

2. Profile of FPOs in the cluster

There are no registered FPOs in the cluster. However, Himmotthan Society, a Tata Trusts Associate Organization, is working with milk producers in the cluster, with farmers of 13 villages of Baijnath block and 17 villages of Rait block.

3. Profile of Market Players in the cluster

Traditional channels play a dominant role among the market players. There is no alternate channel found in the cluster. Farmers are selling around 30% of their produce at the local Palampur Mandi and 70% of the produce at Damtal Mandi, near the Punjab border.
Alternative Marketing Channels active in the cluster

There are no alternate marketing channel in the cluster.

4. Identified gaps in the cluster

Organisational

Potato:
Potato cultivation in this cluster is close to two decades old. The quality of the produce from this cluster is recognized by the processing industry. But despite these advantages there are no attempts towards production of value-added produce from Potato.

Cucurbits other vegetables
There are many attempts by Government of India towards differentiating hill area produce as organic and having minimum residue, safe produce. Unfortunately, there is an increasing tendency of applying chemicals in this cluster that prohibits the producers from taking advantage of the mission organic initiatives from Government.

5. Alternative marketing channel possibilities in the cluster

1) SV Agri has shown willingness to work with producer groups as a franchise for making value added products from Potato. The cluster is good consumption base for the product. Due to costly logistics, other players are not active in the cluster.

2) Due to the presence of high consumption locations closer to the cluster, opportunities can be explored with market connectors, such as Focus Prism.

6. Required services/minimal infrastructures from the CEAD

Administrative

1) Business arrangement with SV Agri can be explored to create a model which is mutually beneficial for the collectives and the company. The consumption base within the cluster is a strong advantage and market players like Focus Prism can be explored in selling the produce directly to end consumers.

2) Farmers can be trained regarding advantages of minimum intervention agriculture so that the produce can be labelled naturally safe due to low chemical usages.

7. Recommended POPIs in the cluster

Himmothan can be a potential POPI in the cluster.

WEST ZONE CLUSTERS

AHMEDNAGAR CLUSTER

Ahmednagar cluster covers the Ahmednagar district of Maharashtra. The total geographical area of the cluster is 17.02 Lakh Ha and the gross cropped area is 15.09 Lakh Ha. As per the latest census, the cluster has a population of 45.43 Lakhs.

The cluster comprises of 14 Mandals of Ahmednagar District.

1. Profile of Major Crops selected for the study

The crops selected for the study are Onion, Pomegranate and Tur.

Onion:
Onion is the most important crop in this cluster. 80,000 growers produce 7.4 Lakh MT Onion in this cluster. Alternate market channels are present in a small percentage.
Pomegranate:
65,000 growers cultivate 3.5 Lakh MT of Pomegranate in this cluster.

Tur:
50,000 growers cultivate 80,000 MT of Tur crop in this cluster. Due to its low prices, millers process and sell Tur under their own brand. FPOs in this cluster have also started processing and selling Tur, even to the neighbouring districts.

2. Profile of FPOs in the cluster

There are 50 FPOs registered under the Companies Act in this cluster. 40 FPOs participated in the survey. These are promoted by 4 POPIs. Out of 40 FPOs, 32 FPOs also engage in business activity.

Business activity details of the FPOs
The total turnover of these 32 FPOs in 2016-17 was INR 10.15 Cr and in 2017-18, it was INR 3.6 Cr. Amarsingh Agro Producer Company had maximum turnover in the cluster. This FPO sold Pomegranates to Bengaluru and Delhi markets. Dattakrupa Krishi Producer Company Ltd. processed and sold Tur under its own brand name in local markets. This increased their revenue by nearly 100%.

Out of 40 FPOs, 36 FPOs have GST registration and 34 FPOs have Mandi licenses. 30 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 15,945 and they own 15,633 Ha of land representing about 1.04% of the total cropped area of the Ahmednagar cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 9.8% of the total production of Onion, 3.4% of the total production of Pomegranate, 1.7% of the total production of Tur in the cluster.

3. Profile of Market Players in the cluster

Though majority are traditional market players, few corporate players like Walmart and Patanjali are also present in this cluster.

4. Identified gaps in the cluster

Gaps in cultivation practices and organizational capability

Pomegranate:
Currently 95% of the produce is sold through traditional market players giving low returns to the farmers. Though there are 6 FPOs in the Pomegranate belt, only 1 FPO is active in aggregation and selling of Pomegranate. Amarsingh Agro Producer Company is aggregating and distributing Pomegranate to markets of Delhi and Bangalore. This FPO earns additional INR 5/kg-INR 7/kg by sale to these markets.

Onion:
There are 18 FPOs operating in Onion. At present the FPOs do not dry the Onions. White Onions can be processed as dried Onions. It can be a hedge in times of glut and low Onion prices. Dried Onions have a good export market. India’s export potential for dried Onions is 50,000 MT per annum.

Marketing arrangement gap

Pomegranate:
Walmart has 2 procurement centers based out of Amravati and Aurangabad but none in this cluster. The volumes sold by FPOs to Walmart are low. Walmart has strict parameters for procurement, which the FPOs are unable to meet, leading to further rejection.

Redgram:
Dattakrupa Krishi Producer processes the produce and sells it as dal. Instead of selling their produce in market at lower prices, the FPO does processing of Tur and marketing of Dal.

This FPO also uses the discarded Tur as raw material for their animal feed business. The FPO almost earns twice the revenue in comparison, had they been selling unprocessed Tur in the mandi.

This FPO used to sell their organic Dal to Patanjali. But later they stopped doing business with Patanjali, as the price offered was only at par with mandi price and no premium was paid for the organic benefit of the produce.
Technology & financial need gap

**Onion:**
It is not financially or logistically viable for farmers to store Onion under professional warehousing structures as the space requirement is large and costs are higher.

In order to store Onions, farmers have traditionally used temporary shelters/shades. Under these structures Onion can be stored up to a year.

However, for FPOs, using temporary shelters is not suitable. As the aggregated quantities are higher, there is high probability of damage. Further, Onion stored in this manner cannot serve as collateral for fund requirements.

Local resources and knowledge is available to construct robust yet low cost storage structures. One such example on a smaller scale is present in the Nashik Cluster. Scientifically proven large low-cost structure designs can also be constructed. However, such structures need to be audited and approved by banks for credit linkages.

Extreme price volatility also poses a challenge for funding from banks for Onion. At present there is no price risk and credit guarantee scheme for FPOs.

5. Alternative marketing channel possibilities in the cluster

1) Walmart, Big Basket, Waycool and INI Farms are the possible alternate players in this cluster for Pomegranate.
2) Amarsingh Agro Producer Company Ltd. and Dattakrupa Krishi Producer Company can support smaller FPOs in selling their Pomegranate and Redgram produce respectively to the market players offering better returns.

**Infrastructure skilling requirements for better connectivity with the alternate channel**

By grading and processing Onion and Pomegranate, farmers can reduce the rejected produce, giving them higher returns.

6. Required services/minimal infrastructures from the CEAD

**Technology Intervention:**
FPOs require support to develop scientific storage structures for Onion. The Steel Major, JSW, has agreed to introduce FPOs to capable fabricators who can design and manufacture steel structures for storing Onion. This must be an integrated effort in coordination with commodity banking experts, so that Onion stored in these structures can act as suitable collateral for warehouse receipt loans.

**Financial**
Price risk and credit guarantee program are required in the case of Onion.

**Marketing**
Interaction with the market players and training programs on procurement parameters can reduce rejections in the case of FPOs dealing in Pomegranate.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster, promoting 29 FPOs in Ahmednagar.

**AKOLA CLUSTER**

Akola cluster covers the Akola district of Maharashtra. The total geographical area of the cluster is 5.4 Lakh Ha and the gross cropped area is 4.55 Lakh Ha. As per the latest census, the cluster has a population of 18.13 Lakh.

The cluster comprises of 7 Mandals of Akola district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, Tur (Redgram) and Gram.

**Cotton:**
Cotton is the major crop in the cluster. 1.75 Lakh MT Cotton is produced by 1 Lakh growers. Corporates procure Cotton only in the form of bales. 100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra. 40% of the Cotton produced is taken to processing centers in neighbouring states.
Soybean:
1 Lakh growers cultivate around 1.37 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

Tur:
28,000 growers cultivate around 38,700 MT of Tur. Almost 100% of the production moves through the regulated market. In the last season, due to overproduction, farmers revenue from the crop was lower than the MSP declared.

Gram:
20,000 growers cultivate around 40,700 MT of Gram. Almost 100% of the production moves through the regulated market.

2. Profile of FPOs in the cluster

There are 29 FPOs registered under the Companies Act in the cluster. 20 FPOs participated in the survey. These FPOs are promoted by 3 POPIs.

Business activity details of the FPOs
12 FPOs registered business activity in the Akola cluster. The total turnover in 2016-17 was INR 7.45 Cr and for 2017-18 was INR 3.56 Cr. Purnamai Farmer Producing Company Ltd. and Akot Agro Producer Company Ltd. had maximum turnover in the cluster.

FPOs have Mandi license and 8 FPOs have GST registration. 8 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 8,656 and they own 17,057 Ha of land representing about 3.79% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 0.99% of the total production of Cotton lint, 3.9% of the total production of Soybean, 4.2% of the total production of Tur and 2.08% of the total production of Gram.

3. Profile of Market Players in the cluster

There is hardly any role played by alternate channels in these commodities. The market player mix is dominated by traditional entities in case of Cotton, Soybean and Tur. Since the MSP declared by Government is higher than the market price, almost all sale happens at the regulated markets. There are no processors or alternate marketing channel in the cluster.

FPO sales to market players
FPOs did a business of INR 7.45 Cr and INR 3.56 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

Infrastructure gap
Cotton:
Cotton is an important commodity in the cluster. 12 FPOs are producing the crop, but none of these FPOs is aggregating Cotton. Producers can benefit if they store Cotton as bales and sell them when the price increases. This approach will need processing, warehousing and financing support. Due to lack of warehousing and processing/ginning support, farmers sell raw Cotton immediately after harvesting.

To offset price volatility, FPOs should invest in processing lint into bales, thus enabling them to store produce to sell at a suitable price later.

Financing need gap
Cotton:
Cotton is a sensitive commodity with high price volatility. At present there are no tools available to protect the farmers from price fluctuation.
Gaps in cultivation practices and organizational capability

**Cotton:**
BCI or Better Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

**Tur:**
Even in times of price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg, INR 40/kg. At the same time, consumers were buying the produce at INR 74/kg. Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing. No FPO in the cluster is involved in processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

1) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
2) Suminter India Organics is an alternate marketing possibility for Soybean.
3) The Future Group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can all be business partners for processed Dal.
4) Soybean processors, Siddharth Private Ltd. and Ambuja have purchased the crop from producers/FPOs for an additional INR 50 Quintal. Nagpur based processors Daylu Dal Mill and Yogeswar Dal Mill have procured Tur from FPOs paying an additional 1% over market price. These relationships can be explored further.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
1. A critical activity for storing Cotton is conversion into bales. Partnerships with Ginning mills in the cluster can help farmers avail Cotton ginning services.
2. Increase outreach of activities, such as BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean, can be achieved through partnerships.

**Financial**
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific, Price-Risk managing programs need to be developed.

**Marketing**
1. CEAD can act as the focal point for exploring inter collective marketing opportunities.
2. CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, banks and other corporates for storage and sale.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster. ATMA has promoted 16 FPOs in the cluster.

**AURANGABAD CLUSTER**

Aurangabad cluster covers the Aurangabad district of Maharashtra. The total geographical area of the cluster is 10.07 Lakh Ha and the gross cropped area is 7.84 Lakh Ha. As per the latest census, the cluster has a population of 37 Lacks. The cluster covers 9 Mandals of Aurangabad district.
1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Maize, Tur (Redgram) and Mosambi.

**Cotton:**

Cotton is the major crop in the cluster. 4.03 Lakh MT Cotton is produced by 2.7 Lakh growers. Corporates procure Cotton only in the form of bales. 100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 60%-70% of their capacity only, which is also a common feature in Maharashtra. 40% of the Cotton produced is taken to processing centers in neighboring states.

**Maize:**

1.2 Lakh growers cultivate around 2.47 Lakh MT of Maize in the cluster.

**Tur:**

The next important crop in the cluster is Tur. 20,000 growers cultivate around 24,000 MT of Tur. Almost 100% of the produce is sold through the regulated market. In the last season, due to overproduction, producers revenue from the crop was lower than the declared MSP.

**Mosambi:**

Mosambi is another important crop in the cluster. 30,000 growers cultivate around 1.60 Lakh MT of Mosambi. Almost 80% of the production is procured by the pre-harvest contractors.

This cluster accounts for 50% of the total production of Mosambi in Maharashtra and 15% of the country.

2. Profile of FPOs in the cluster

There are 69 FPOs registered under the Companies Act in the cluster. 36 FPOs participated in the survey. These 36 FPOs are promoted by 9 POPIs.

**Business activity details of the FPOs**

26 FPOs registered business activity in the Aurangabad cluster. The total turnover in 2016-17 was INR 8.26 Cr and in 2017-18, it was INR 15.15 Cr. Bhagwan Krushi Producer Company Ltd. and Krushi Kranti Hitech Agro Company Ltd. had maximum turnover in the cluster. 11 FPOs have Mandi license and 14 FPOs have GST registration. 7 FPOs have both GST registration and Mandi license.

**Member base and farm holding of the FPOs**

The total number of member farmers of the studied FPOs is 11,691 and they own 15,411 Ha of land representing about 2.35% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**

The member farmers of the studied FPOs represent 0.67% of the total production of Cotton (in lint), 0.9% of the total production of Maize, 5.2% of the total production of Redgram and 0.46% of the total production of Mosambi.

3. Profile of Market Players in the cluster

In case of Cotton, Maize and Tur, the market player mix is dominated by traditional entities. Since the MSP declared by Government is higher than the market price, processors do not procure from the farmer. Almost all the produce is sold at the regulated market.

In case of Mosambi, the pre-harvest contractors are the dominant market players. Citrus International based out of Nanded is an alternate player.

**FPO sales to market players**

FPOs did business of INR 8.26 Cr and INR 15.15 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

**Infrastructure gap**

**Mosambi:**

More than 90% of produce is sold through traditional market players. FPOs are unable to connect with clients offering higher returns or with exporters due to absence of grading facilities. This is also a limiting factor for sales to Processors.
who procure C and D grade of produce. Grading improves overall returns of FPOs by 20%-30%. Grading can help FPOs connect with alternate market players who pay premium of 30%-40% for A and B grade produce. Grading will also help FPOs connect with Processors who pay 20% more than the Mandi price for the C and D grade quality produce.

**Cotton:**
Cotton is the largest commodity in the cluster. 5 FPOs are producing the crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.

Due to lack of warehousing and processing/ginning support, farmers resort to sell raw Cotton immediately after harvesting.

To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

**Financing need gap**

**Cotton:**
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from the price risk.

**Marketing arrangement gap**

**Maize:**
Corporates like Glencore, Suguna, Roquette, Japfa and Cargil, have expressed interest to procure from FPOs. So far, no FPO in this cluster have sold directly to these corporates. This disengagement can be attributed to mutual lack of familiarity on the rules of engagement and experience in dealing with each other.

There is also the opportunity for FPOs to manufacture cattle and poultry feed for consumption within the cluster. FPOs need exposure visits to collectives engaged in similar activities and support in demand estimation and marketing support.

**Mosambi:**
Citrus International is keen to procure produce from the FPOs. However, the transaction has not happened, as the FPOs want weighing and confirmation of price to be done at farm gate whereas the company provides this information at their premises based in Nanded.

**Tur:**
Currently, 3 FPOs in the cluster are processing Tur and selling it in the local market, in small quantities. FPOs can scale up the operation and connect to alternate market players such as city-based marketing SHGs in the State.

**Gaps in cultivation practices and organizational capability**

**Cotton:**
BCI Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer upon certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

5. Alternative marketing channel possibilities in the cluster

1) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.

2) In case of Maize, corporates like Glencore, Suguna, Roquette, Japfa and Cargil are the possible alternate channels.

3) Future group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for processed Dal.

4) Allfresh, Waycool, Citrus International and Big Basket are the possibilities for alternate marketing channel for Mosambi in the cluster.

5. Alternative marketing channel possibilities in the cluster

**Administrative**

A critical activity of storing Cotton is conversion into bales. Partnerships with Ginning Mills in the cluster can help farmer avail Cotton ginning services.
Financial  
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

Marketing  
1) CEAD can be the focal point for exploring the inter-collective opportunities in case of marketing of commodities like Tur.  
2) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.  
3) CEAD can facilitate purchase of small transportable graders and large mechanical graders to FPOs so that grading of produce can happen.  
4) CEAD can coordinate with Citrus International for weighing and rate confirmation for Mosambi FPOs.

7. Recommended POPIs in the cluster

ATMA has promoted largest number of FPOs in the cluster and is the recommended organization for working with the FPOs.

BHANDARA CLUSTER

Bhandara cluster comprises of the district Bhandara of Maharashtra. The total geographical area of the cluster is 3.42 Lakh Ha. and the gross cropped area is 1.78 Lakh Ha. As per the latest census, the cluster has a population of 9 Lakhs.

The cluster comprises of 7 Mandals of Bhandara district.

1. Profile of Major Crops selected for the study

Paddy is the main crop in the cluster.

Paddy:  
1.80 Lakh farmers produce around 2.19 Lakh MT of Paddy in the cluster. 50% of the marketed surplus is sold through regulated market and 50% moves through processors/Rice Millers. There are 135 Rice Millers in Bhandara and major quantity of production is processed in the cluster itself.

The Rice varieties, Kolam and Jai Shriram, cultivated in this cluster is consumed across Maharashtra but produced only in a few select pockets of the state.

2. Profile of FPOs in the cluster

There are 19 FPOs registered under the Companies Act in the cluster. 13 FPOs participated in the survey. 11 FPOs are promoted by ATMA/MACP and 2 FPOs are independent. Out of 13 FPOs, 3 FPOs are involved in business activity.

Business activity details of the FPOs

The total turnover in 2016-17 was INR 20.2 Lakhs and in 2017-18, it was INR 40 Lakhs. Surganga Farmer Producer Company had the maximum turnover in the cluster. 12 FPOs have Mandi license but none of the FPOs have GST registration.

Member base and farm holding of the FPOs

The total number of member farmers of the studied FPOs is 4,112 and they own 4,477 Ha. of land representing about 2.5% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs

The member farmers of the studied FPOs represent 1.7% of the total production of Paddy.

3. Profile of Market Players in the cluster

There is hardly any role played by alternate channels in this commodity.

FPO sales to market players

FPOs conducted a business of INR 20.20 Lakh and INR 40 Lakhs in 2016-17 and 2017-18 respectively with traditional players.
4. Identified gaps in the cluster

Paddy:

Marketing arrangement gap
The average price during the harvesting period i.e. in December, is INR 25/Kg which increases up to INR 40/Kg by May-June. There is an opportunity to increase income by 20% through storage and processing of Paddy and sale of Rice.

Niche players, like Moguire Traders, source and export Paddy from Nagpur region. They face the challenge of getting genuine produce from millers. FPOs have scope of selling directly to such market players providing higher returns.

Infrastructure and technology gap
Paddy:
Export oriented market players require low residue produce. Currently, the FPOs do not have scientific storage structures or access to advanced labs for residue testing.

Gaps in cultivation practices and organizational capability
Paddy:
The gap in organizational capabilities with regards to storage capacity and storage quality, and access to laboratory testing for quality parameters, prevents FPOs from leveraging such ecosystem opportunities.

5. Alternative marketing channel possibilities in the cluster

Moguire Traders, Big Basket and Marketing SHGs of MAVIM are the possibilities for alternate marketing channel for Rice.

6. Required services/minimal infrastructures from the CEAD

Marketing
CEAD can be the focal point for exploring inter-collective opportunities.

Infrastructure and technology
CEAD can ensure availability of scientific storage structure, such as Cocoon and can train FPOs on its usage.

7. Recommended POPIs in the cluster

ATMA-MACP is doing commendable work in the cluster and has promoted 11 FPOs in the cluster.

BULDANA CLUSTER

Buldana cluster covers district Buldana of Maharashtra. The total geographical area of the cluster is 9.67 Lakh Ha and the gross cropped area is 7.40 Lakh Ha. As per the latest census, the cluster has a population of 25.86 Lakh.

The cluster comprises 13 Mandals of Buldana district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, and Tur.

Cotton:
Cotton is the major crop in the cluster. 2.34 Lakh MT Cotton is produced by 1.2 Lakh growers. Majority of Cotton is sold through the traditional market players. Ginning mills in the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra. 30% of the Cotton produced is taken to processing centers in neighbouring states.

Soybean:
1 Lakh growers cultivate around 1.77 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.
There are two Soybean plants in Buldana, Durga Shakti Foods Private Ltd. at Khamgaon and Rasoya Proteins at Malkapur.

**Tur:**
The next important crop in the cluster is Tur. 40,000 growers cultivate around 43,000 MT of Tur. Major Dal Mills have started processing and selling Tur under their own brands.

2. Profile of FPOs in the cluster

There are 48 FPOs registered under the Companies Act in the cluster. 16 FPOs participated in the survey. These 16 FPOs are promoted by 4 POPIs.

**Business activity details of the FPOs**
13 FPOs registered business activity in the Buldana cluster. The total turnover in 2016-17 was INR 8.62 Cr and in 2017-18, it was INR 5.97 Cr. Amdapur Agro Producer Company Ltd. and Indradhanu Farmers Producer Company Ltd. had maximum turnover in the cluster.
9 FPOs have GST registration and 13 FPOs have Mandi licenses. 7 FPOs have both GST registration and Mandi licenses.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied FPOs is 5,029 and they own 7,566 Ha. of land representing about 1.02% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 0.42% of the total production of Cotton lint, 5.54% of the total production of Soybean, and 7.2% of the total production of Tur.

3. Profile of Market Players in the cluster

There is hardly any role played by alternate channels in these commodities. The market player mix is dominated by traditional entities in case of Cotton, Soybean and Tur. Since the MSP declared by Government is higher than the market price, there is lack of incentive for processors to actively procure from the market.

**FPO sales to market players**
FPOs did a business of INR 8.62 Cr and INR 5.97 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

**Infrastructure gap**
**Cotton:**
Cotton is the largest commodity in the cluster and there are 4 FPOs producing the crop. However, none of the FPOs are aggregating Cotton. Producers can benefit if they resort to store Cotton as bales and sell at a later date when the price increases. This process needs processing, warehousing and financing support.
Due to lack of warehousing and processing/ginning facility, farmers sell raw Cotton immediately after harvesting.
To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

**Financing need gap**
**Cotton:**
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from the price risk.

**Gaps in cultivation practices and organizational capability**
**Cotton:**
Better Cotton Initiative (BCI) is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.
Soybean:
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

Tur:
Even in times of a price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg INR 40/kg At the same time, consumers were buying the produce at INR 74/Kg. Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.
No FPO in the cluster is involved in processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

1) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
2) Suminter India is an alternate marketing possibility for Soybean.
3) Future Group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for the processed Dal.

6. Required services/minimal infrastructures from the CEAD

Administrative
A critical activity of storing Cotton is conversion into bales. Partnerships with Ginning mills in the cluster can help farmers avail Cotton ginning services.

Increased outreach of activities, like BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean, can be achieved through partnerships.

Financial
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

Marketing
1) CEAD can be the focal point for exploring inter collective opportunities.
2) CEAD can coordinate with the ecosystem stakeholders, like warehouse service providers, business-intelligence marketing companies etc., to ensure FPOs have access to right market information.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster and has promoted 16 FPOs in the cluster.

DHULE CLUSTER

Dhule cluster covers district Dhule of Maharashtra. The total geographical area of the cluster is 8.24 Lakh Ha and the gross cropped area is 4.64 Lakh Ha. As per the latest census, the cluster has a population of 20 lakhs.

The cluster comprises of 4 Mandals of Dhule district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, and Maize.

Cotton:
Cotton is the major crop in the cluster. 3.04 Lakh MT of Cotton is produced by 1.75 Lakh growers. Corporates procure Cotton only in the form of bales.100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 50%-60% of their capacity which is a common feature in Maharashtra. 40%-50% of the Cotton produced is taken to processing centers in neighbouring state of Madhya Pradesh.
Soybean:
80,000 growers cultivate around 1 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

Maize:
60,000 growers cultivate around 1.63 Lakh MT of Maize in the cluster.

2. Profile of FPOs in the cluster

There are 25 FPOs registered under the Companies Act in the cluster. 13 FPOs participated in the survey. These FPOs are promoted by ATMA. 6 FPOs are engaged in business activity.

Business activity details of the FPOs
6 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 28 Lakh and for 2017-18 was INR 97 Lakh. Katwan Parisar Farmer Producing Company Ltd. and Khandesh Vikas Farmers Producer Company Ltd. had maximum turnover in the cluster. 12 FPOs have GST registration. 6 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 1,091 and they have 1,204 Ha of land under them representing about 0.25% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 0.02% of the total production of Cotton lint, 1.02% of the total production of Soybean, and 0.41% of the total production of Maize.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities for these commodities, with limited presence of alternate market players.

FPO sales to market players
FPOs did a business of INR 28 Lakh and INR 97 Lakh in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

Marketing arrangement gap
Maize:
Corporates like Glencore, Suguna, Roquette, Japfa and Cargill, they expressed their interest to procure from FPOs. So far, no FPO in this cluster have sold directly to these corporates. This disengagement can be attributed to mutual lack of familiarity on the rules of engagement and experience in dealing with each other. There is also the opportunity for FPOs to manufacture cattle and poultry feed for consumption within the cluster. FPOs need exposure visits to collectives engaged in similar activities and support in demand estimation and marketing support.

Infrastructure gap
Cotton:
Cotton is the largest commodity in the cluster. 3 FPOs are producing the crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.
Due to lack of warehousing and processing/ginning facility, farmers sell raw Cotton immediately after harvesting.
To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

Financing need gap
Cotton:
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.
Gaps in cultivation practices and organizational capability

Cotton:
Better Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, not only does the farmer get a higher rate for the produce but can also significantly reduce the cost of inputs. FPOs are yet to take advantage of this program.

As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative. This can be expanded.

Soybean:
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

5. Alternative marketing channel possibilities in the cluster

1) For Maize corporates like Glencore, Suguna, Roquette, Japfa and Cargil are probable alternate market players.
2) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
3) Suminter India is an alternate marketing possibility for Soybean.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) A critical activity of storing Cotton is conversion into bales. Partnerships with Ginning mills in the cluster can help farmers avail Cotton ginning services.
2) Increased outreach of activities, such as BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean, can be achieved through partnerships.

Financial
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

Marketing
1) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.
2) Periodic meetings between the FPOs and Corporates moderated by senior state agricultural functionaries at ministerial level is a requirement to improve the familiarity between FPOs and Corporates.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster. ATMA has promoted 13 FPOs in the cluster.

JALNA CLUSTER

Jalna cluster covers district Jalna of Maharashtra. The total geographical area of the cluster is 7.72 Lakh Ha. and the gross cropped area is 7.12 Lakh Ha. As per the latest census, the cluster has a population of 19.59 Lakhs.

The cluster comprises of 8 Mandals of Jalna.

1. Profile of Major Crops selected for the study

The major crops selected for study are Cotton, Soybean, and Maize.

Cotton:
Cotton is the major crop in the cluster. 2.54 Lakh MT Cotton is produced by 2 Lakh growers. Corporates procure Cotton only in the form of bales. 100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in
the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra. 40% of the Cotton produced is taken to processing centers in neighbouring states.

**Soybean:**
60,000 growers cultivate around 74,881 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

**Maize:**
70,000 growers cultivate around 1.26 Lakh MT of Maize in the cluster.

### 2. Profile of FPOs in the cluster

In this cluster there were 41 FPOs registered under the Companies Act. 21 FPOs participated in the survey. These 21 FPOs are promoted by 8 POPIs.

**Business activity details of the FPOs**
12 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 1.39 Cr and for 2017-18 was INR 2.52 Cr. Walsavangi Agri Producer Company Ltd. and Purna Kelna Farmers Producer Company Ltd. had maximum turnover in the cluster.

15 FPOs have Mandi licenses and 9 FPOs have GST registration. 9 FPOs have both GST registration and Mandi license.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied 21 FPOs is 6,897 and they own 8,112 Ha of land representing about 1.13% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 1.5% of the total production of Cotton lint, 4.11% of the total production of Soybean and 2.4% of the total production of Maize.

### 3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities for all the commodities, with limited presence of alternate market players.

**FPO sales to market players**
FPOs did a business of INR 1.39 Cr and INR 2.52 Cr in 2016-17 and 2017-18 respectively with the market players.

### 4. Identified gaps in the cluster

**Marketing arrangement gap**

**Maize:**
Corporates like Glencore, Suguna, Roquette, Japfa and Cargil have expressed interest to procure from FPOs. So far, no FPO in this cluster have sold directly to these corporates. This disengagement can be attributed to mutual lack of familiarity on the rules of engagement and experience in dealing with each other.

There is also the opportunity for FPOs to manufacture cattle and poultry feed for consumption within the cluster. FPOs need exposure visits to collectives engaged in similar activities and support in demand estimation and marketing support.

**Infrastructure gap**

**Cotton:**
Cotton is the largest commodity in the cluster and there are 15 FPOs having Cotton as the major crop.

No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.
Due to lack of warehousing and processing/ginning facility, farmers sell raw Cotton immediately after harvesting. To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

**Finance need gap**

**Cotton:**
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.

**Gaps in cultivation practices and organizational capability**

**Cotton:**
Better Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

**5. Alternative marketing channel possibilities in the cluster**

1) For Maize corporates like Glencore, Suguna, Roquette, Japfa and Cargil are probable alternate market players.
2) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
3) Suminter India is an alternate marketing possibility for Soybean.

**6. Required services/minimal infrastructures from the CEAD**

**Administrative**
1) A critical activity of storing Cotton is conversion into bales. Partnerships with Ginning mills in the cluster can help farmer avail Cotton ginning services.
2) Increased outreach of activities such as BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean can be achieved through partnerships.

**Financial**
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

**Marketing**
1. CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.
2. CEAD can facilitate meetings between the FPOs and Corporates, moderated by senior state agricultural functionaries at ministerial level, to increase familiarity between FPOs and Corporates.

**7. Recommended POPIs in the cluster**

ATMA is doing commendable work in the cluster. ATMA has promoted 11 FPOs in the cluster.

**THANE CLUSTER**

Thane cluster comprises of the districts Thane, Palghar and Mumbai of Maharashtra. The total geographical area of Thane cluster is 9.34 Lakh Ha and the gross cropped area is 3.92 Lakh Ha. As per the latest census, the cluster has a population of 111 Lakh.
1. Profile of Major Crops selected for the study

The major crops selected for the project study as per the production data are Paddy, Okra, Cucumber and Brinjal.

**Paddy:**
Paddy is the major crop almost in all districts of the cluster area. The total production of Paddy in the cluster is 3.52 Lakh MT and it is produced by 2 Lakh growers. The varieties grown are coarse grain varieties which is mainly grown for self-consumption.

**Okra:**
In this cluster 60,000 growers produce around 1.01 Lakh MT produce.

**Brinjal:**
Maharashtra is the 6th leading producer of Brinjal in India and contributes about 5% of the total production of Brinjal in the country. The production of Brinjal in the district is nearly 55,000 MT produced by 30,000 growers.

**Cucurbits:**
52,000 growers produce around 95,000 MT of Cucumber in this cluster.

2. Profile of FPOs in the cluster

There are 34 FPOs registered under the Companies Act. 16 FPOs participated in the survey. These 16 FPOs are promoted by 4 POPIs.

**Business activity details of the FPOs**
6 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 83 Lakh and in 2017-18, it was INR 1.64 Cr. Murbad Taluka Farmers Producer Company Ltd. had maximum turnover in the cluster.

Batsa Shetkari Producer Company Ltd. has a Rice Processing Unit. The company has taken Government tender to process Rice which it supplies back to the Government agencies.

All 16 FPOs have GST registration and Mandi license. The State Government has allotted space to FPOs in 100 vegetable Mandis in Mumbai and Thane, which the FPOs have failed to utilize.

Murbad Taluka Farmers Producer Company Ltd. had facilitated export of Okra. The FPO can supply 1 MT of residue free Okra for export.

Shri Sai Mauli Shetimal Producer Company Ltd. provides input supply to members for cultivating Okra, Brinjal and Cucumber.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied 16 FPOs is 3,338 and they own 3,300 Ha of land representing about 0.8% of the total cropped area of the cluster. Pragathi Pratishthan promoted FPOs have maximum land holding while ATMA promoted FPOs have maximum number of member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 9.5% of the total production of Paddy, 2.4% of the total production of Okra, 0.56% of the total production of Cucumber and 1.4% of the total production of Brinjal.

3. Profile of Market Players in the cluster

The market player mix is dominated by Government agencies and traditional regulated markets including Rice Mills. Rice Mills purchase Paddy directly from farmers or through traders who act as their representatives. Thane has a total of 8 APMCIs out of which Vashi caters to the Mumbai and the export markets. Vashi market is predominantly a traders market.

**FPO sales to market players**
FPOs did a business of INR 83 Lakh and INR 1.64 Cr in 2016-17 and 2017-18 respectively largely through input business, aggregation and selling output to alternate channels.
4. Identified gaps in the cluster

Uniqueness about this cluster is availability of a strong market due to its proximity to Mumbai and Thane city consumers. Despite the presence of this large consumption market and a good presence of alternate channels, majority sales move through the traditional channels.

Gaps in organization capabilities
One major gap in this cluster is the inability of the FPOs to organize logistics for delivery of the produce to market players. FPOs are unwilling to deliver the produce to the client location.

Farmers are also apprehensive about low prices or rejections by the market player, which adds to their unwillingness to transport the produce.

FPOs follow traditional cultivation practices and this results in lower productivity. They have not adopted scientific cultivation practices yet.

Gaps in infrastructure
FPOs in this cluster do not have access to cold storage facilities. Cold storage can provide support for aggregation and storage for longer period of the commodities. Shri Sai Mauli Shetmal Producer Company Ltd. is planning to install cold storage.

Marketing arrangement gap
As mentioned above, owing to the large city-based consumption and bigger market size this cluster has large presence of alternate markets like Reliance Fresh, Big Basket, Future Group etc. Currently the FPOs are unaware about such opportunities.

5. Alternative marketing channel possibilities in the cluster

The major alternate players in the cluster are Big Basket, Big Bazaar, D-Mart, Easy Day, Food World, Hyper City, Aditya Birlas More, Reliance Fresh, and Spencers.

6. Required services/minimal infrastructures from the CEAD

Marketing
1) CEAD can facilitate meetings between the FPOs and the market players.
2) CEAD can facilitate training programs for the FPOs about the parameter requirement of the alternate market players.

Infrastructure
Cold storages are required by the FPOs in aggregating and storing the produce.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster and has promoted 10 FPOs in the cluster.

Nanded Cluster

Nanded cluster covers the district Nanded of Maharashtra. The total geographical area of the cluster is 10.3 Lakh Ha and the gross cropped area is 8.08 Lakh Ha. As per the latest census, the cluster has a population of 33 Lakhs.

The cluster comprises of 16 Mandals of Nanded district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, Tur (Redgram) and Gram.

Cotton:
Cotton is the major crop in the cluster. 1.44 Lakh MT Cotton is produced by 1 Lakh growers. Corporates procure Cotton only in the form of bales. 100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra. 40% of the Cotton produced is taken to processing centers in neighbouring states.
Soybean:
95,000 growers cultivate around 1.3 Lakh MT of Soybean in the cluster. There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

Tur:
The next important crop in the cluster is Tur. 28,000 growers cultivate around 37,000 MT of Tur. Almost 100% of the production moves through the regulated market. In the last season, due to overproduction, producers revenue from the crop was lower than the declared MSP.

Gram:
It is another important crop in the cluster. 15,000 growers cultivate around 17,000 MT of Gram. Almost 100% of the production moves through the regulated market.

2. Profile of FPOs in the cluster

There are 28 FPOs registered under the Companies Act in the cluster. 24 FPOs participated in the survey. These 24 FPOs are promoted by 5 POPIs.

Business activity details of the FPOs
7 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 93 Lakh and in 2017-18, it was INR 2.59 Cr. Purwareshwar Agro Farmer Producing Company Ltd. and Manad Farmers Producer Company Ltd. had maximum turnover in the cluster.

3 FPOs have GST registration and 14 FPO have Mandi license. 2 FPOs have both GST registration and Mandi license.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 12,401 and they have 20,869 Ha of land under them representing about 2.58% of the total cropped area of the cluster. MACP promoted FPO have maximum land holdings and also maximum number of member farmers.

Member base and farm holding of the FPOs
The member farmers of the FPOs studied represent 1.15% of the total production of Cotton lint, 3.27% of the total production of Soybean, 5.6% of the total production of Tur and 6.85% of the total production of Gram.

3. Profile of Market Players in the cluster

The market player mix is dominated by traditional entities for all the commodities, with limited presence of alternate market players.

FPO sales to market players
FPOs did a business of INR 93 Lakhs and INR 2.59 Cr in 2016-17 and 2017-18 respectively with the market players.

4. Identified gaps in the cluster

Infrastructure gap
Cotton:
100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning mills in the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra. 40% of the Cotton produced is taken to processing centers in neighbouring states

Cotton is the largest commodity in the cluster. 8 FPOs are producing the crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.

Due to lack of warehousing and processing/ginning facility, farmers sell raw cotton immediately after harvesting.

To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

Infrastructure gap
Cotton:
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.
**Gaps in cultivation practices and organizational capability**

**Cotton:**
BCCI or Better Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

**Tur:**
Even in times of a price crash, as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg INR 40/kg. At the same time, consumers were buying the produce at INR 74/Kg. Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.

No FPO in the cluster is involved in processing of Tur and marketing of Dal.

### 5. Alternative marketing channel possibilities in the cluster

For BCI certified Cotton Louis Derfus can be an alternate market player and Suminter India Organics is an alternate marketing possibility for Soybean. Future group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for the processed Dal.

### 6. Required services/minimal infrastructures from the CEAD

**Administrative**
1) A critical activity of storing Cotton is conversion into bales. Partnerships with ginning mills in the cluster can help farmers avail Cotton ginning services seamlessly.
2) Increased outreach of activities, such as BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean, can be achieved through partnerships.

**Financial**
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

**Marketing**
1) CEAD can be the focal point for exploring the inter-collective opportunities in case of marketing of commodities like Tur.
2) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.

### 7. Recommended POPIs in the cluster

MACP is doing commendable work in the cluster. MACP has promoted 14 FPOs in the cluster.

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**NASHIK CLUSTER**

Nashik cluster comprises of the district of Nashik in Maharashtra. The total geographical area of the district is 15.36 Lakh Ha and the gross cropped area is 7.98 Lakh Ha. As per the latest census, the cluster has a population of 14.86 Lakhs.

The cluster comprises of 15 Mandal of Nashik district.
1. Profile of Major Crops selected for the study

The major crops selected for the project study are Onions, Grapes, Pomegranates and Tomatoes

Onion:
The largest grown horticulture crop in the cluster is Onion which is grown on 1.5 Lakh Ha area and with a total production of 15.32 Lakh MT cultivated by over 100,000 producers.

Grapes:
The total area under Grape plantation in the district is about 70,000 Ha, including 22,413 Ha plantation registered only for grape export. The total production is 16 Lakh MT produced by over 100,000 growers.

Pomegranates:
The total area under Pomegranate plantation in the district is 48,527 Ha and the total production is 6.8 Lakh MT produced by 50,000 growers.

Tomatoes:
The total area under Tomato in the district is 10,000 Ha with a total production of 2.39 Lakh MT produced by 30,000 growers.

2. Profile of FPOs in the cluster

There are 74 FPOs in the cluster, 19 FPOs participated in the survey. 4 of these FPOs are promoted by ATMA, 8 by MACP (Maharashtra Agriculture Competitiveness Project), 2 are promoted by NABARD, 1 is promoted by a Nashik based Akhil Bharati, a Nashik based NGO, and the remaining 4 are independently promoted.

7 FPOs have their own retail shops where they sell pesticides, seeds and fertilizers.

Business activity details of the FPOs

5 FPOs have business activity in the Nashik cluster. The total turnover of these FPOs in 2016-17 was INR 2.33 Cr and in 2017-18, it was INR 5.92 Cr. Om Gayatri Farmer Producer Company Ltd. had the maximum turnover in the cluster. 7 FPOs have GST registration with a Mandi license.

Member base and farm holding of the FPOs

The total number of member farmers in the FPOs studied were 7,903 controlling 11,210 Ha of land under them and representing about 3.3 % of the total cropped area of the Nashik cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs

The member farmers of the studied FPOs represent 3.79% of the total production of onion, 2.05% of the total production of Grapes, 0.7% of the total production of Pomegranate and 12.39% of the total production of Tomato in the cluster.

3. Profile of Market Players in the cluster

The cluster represents a mix of traditional traders, exporters and processors. Big Basket was the only alternate market player, procuring fruits and vegetables from FPOs.

Alternative Marketing Channels active in the cluster

Big Basket is an alternate market player in the cluster procuring Cabbage, Cauliflower and Tomato from farmers in the cluster with a daily volume of between 8 MT10 MT. It purchases higher grade produce, offering INR 2/kg-INR 3/kg more than the prevailing market price.

FPO sales to market players

FPOs did a business of 2.33 Cr and 5.92 Cr in 2016-17 and 2017-18 respectively with the market players. The key market players with whom the transaction was done were traders.

4. Identified gaps in the cluster

Technology & financial need gap
Onion:
Farmers traditionally store Onions in temporary shelter/shades. Under these structures Onion can be stored up to a year. Professional warehousing services for Onions exist.

However, it is challenging for FPOs to store aggregated produce of Onions in temporary shelters due to larger volume which increases the risk of damage. Also, Onion stored in these shelters cannot serve as collateral for availing post-harvest loans from banks.

While local resources and knowledge is available, scientifically proven larger volume storage designs are not available for FPOs. Such a structure would have to be approved by banks for credit linkages a vital need to facilitate storage of crop. Extreme price volatility is another challenge for banks to extend financing on Onions. At present there are no price risk or credit guarantee mechanism for FPOs.

Grapes:
Raisin making is an activity that shields farmer from low price for low quality Grapes that cannot be exported. It also acts as a cushion against price volatility. But none of the FPOs are currently undertaking this activity due to unavailability of funding against storage of raisin. The raisin, while stored in cold storages, needs washing in between. Once the stock is under lien of a lender, it is not allowed to be taken out for washing. This acts as an impediment in getting credit against stored raisin. At present there are no guarantors who could facilitate such financing to FPOs.

Marketing arrangement gap
Revenues earned from exporting the produce is higher than other sources. But none of the FPOs are exporting the Grapes. The main reason is lack of ecosystem knowledge. Hence, they are dependent on third party exporters. There is no nodal body that could coordinate the export of Grapes for the FPOs. Further, FPOs, on their part, have not explored a tie up with any other professional agency who could act on their behalf.

Grapes:
Big Baskets Nashik unit had attempted procuring Grapes from FPOs. Their requirement was for Grapes with 16% of sugar content and smooth skin. Since FPOs were not aware of these parameters, rejection percentages were very high.

Onion:
Big Baskets Nashik unit had also attempted to buy Onions from FPOs. Their requirement was for Onions of sizes 50-65 mm with double skin and no blemishes. Here again rejections were very high as FPOs were not aware of the parameters.

Pomegranate:
Big basket again tried procuring Pomegranate from FPOs. Their requirement was for fruits weighing between 200-250 gm. Due to lack of adherence to parameters, rejection were very high for pomegranate.

Gaps in cultivation practices and organizational capability

Grapes, Onions and Tomato:
Opportunities to link with other marketing collectives in Maharashtra may be explored for better prices. Women collectives under MAVIM (Mahila Arthik Vikas Mahamandal), provide an opportunity of using their SHGs for marketing of FPO products in Mumbai. Such opportunities may be explored for selling their processed outputs like, Onion paste, dried Onions, Tomato products, Grape raisins etc. At present there exists a gap in leveraging such interconnected opportunities.

Similarly, in case of Onion, there is lack of ability to develop a business case for infrastructural requirement. For example, to mitigate price-risk the Green Vision FPO had plans to cultivate white Onions, as white Onions can be processed as dried Onions. (Dried Onions has a good export market. India’s export potential for dried Onions is 50,000 MT per annum). But the nearest processing plant is at Jalgaon which is 246 kms away. There is a requirement for installation of a dehydration plant closer to Nashik.

The FPO is aware of the business potential for dried Onions and understands the equipment needed. But they are unable to develop business case to secure financing for such infrastructure.

1) Most farmers are dependent on APMCs for sale of their produce. They are not aware of the alternate marketing channels in the cluster. INI Farms, Big Basket etc. can be of interest as an alternate marketing channel for the cluster.
2) INI Farms is a Pomegranate exporter, who is interested to procure from relevant FPOs. Waycool and Mahindra Agri Exports are the other possible alternate channel in the cluster.

3) Big Basket operates a collection center at Nashik, and they strive to procure from FPOs. The volumes offered by FPOs so far had high rejection percentages, as FPOs did not follow the specifications. Similarly, the FPOs can connect with the Sahyadri Farmer Producer Company and Varun Agro who are processors, exporters and sellers from the cluster. These companies have a good understanding of the FPO ecosystem as they promote FPOs.

6. Required services/minimal infrastructures from the CEAD

Technology Intervention
Support is required to develop scientific storage structures for Onion. The current digital intervention of Mkrishi can be scaled to include market players for below support:
1) Parameter and business enquiries from market players.
2) Mobile based visual parameter verification to reduce rejections.
3) Communicating special package of practices from market players to FPOs.
4) Integrating with other players that could facilitate post-harvest interventions for FPOs such as credit requirement, warehouse requirement etc.

Administrative & Financial
1) Price risk and credit guarantee program are required for Onions and raisins.
2) Skilling and capability development programs required for business case preparation and leveraging the ecosystem for produce marketing opportunities.

Marketing
CEAD can coordinate with the market players, such as Big Basket, for better revenue sharing arrangements. CEAD can consider the following possibilities to facilitate export of Grapes:
1) Coordinate with the FPOs to form a nodal body to facilitate exports.
2) Explore involvement of existing bodies, such as MAHAFPC, to act on behalf of FPOs.
3) Evaluate scope to connect FPOs to other third-party professional export houses.

7. Recommended POPIs in the cluster

Yuva Mitra is doing commendable work in the cluster along with the MACP (Maharashtra Agriculture Competitiveness Project), ATMA and NABARD.

SANGLI CLUSTER

Sangli cluster comprises of the district Sangli of Maharashtra. The total geographical area of the district is 8.61 Lakh Ha and the gross cropped area is 5.95 Lakh Ha. As per the latest census, the cluster has a population of 28.22 Lakhs. The cluster comprises of 10 Mandals of Sangli district.

1. Profile of Major Crops selected for the study

The major crops selected for the project are Grapes, Maize, Soybean and Tomato.

**Grapes:**
Grapes is an important crop in this cluster where 20,000 growers produce 2.3 Lakh MT of produce. 20% of this crop is also exported to EU and GCC nations.

**Maize:**
Maize is the other important crop where 40,000 growers produce around 91,000 MT per annum.

**Soybean:**
1 Lakh grower produce around 1.76 Lakh MT of commodity per annum.
Tomato:
50,000 growers produce around 4.41 Lakh MT of Tomato in this cluster.

2. Profile of FPOs in the cluster

There are 28 FPOs registered under the Companies Act in the cluster. 13 FPOs participated in the survey. ATMA has promoted 6 FPOs in this cluster. 7 FPOs are independently promoted.

Business activity details of the FPOs
There are 28 FPOs registered under the Companies Act in the cluster. 13 FPOs participated in the survey. ATMA has promoted 6 FPOs in this cluster. 7 FPOs are independently promoted.

Member base and farm holding of the FPOs
The total number of member farmers of the studied FPOs is 4,270 and they have 4,456 Ha of land under them representing about 0.75% of the total cropped area of the Sangli cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 1.14% of the total production of maize, 5.98% of the total production of Grapes, 0.38% of the total production of Soybean and 0.10% of the total production of Tomato.

3. Profile of Market Players in the cluster

Grape exporters and Maize processors are the non-traditional channels active in the cluster.

Alternative Marketing Channels active in the cluster
20% of the Grape produced in the cluster are produced done by exporters. Similarly, 7 to 8 local processors procure 10% of the total Maize produced in the cluster.

FPO sales to market players
FPOs did a business of INR 1.99 Cr and INR 20.50 Cr in 2016-17 and 2017-18 respectively with the market players. The key market players were traders.

4. Identified gaps in the cluster

Gaps in cultivation practices and organizational capability

Grape:
Vishwtej Farmers Producer Company is a Grape FPO in the cluster involved in grading of raisin. By grading raisins, farmer gets 4%-5% more than the market price. The other 3 FPOs working in Grape are not involved in value addition. Exporters ensure that proper package of practices are followed by the contract farmers. It is a win-win situation for the exporters and farmers to work together and FPO provides a platform for this interaction. The other 3 FPOs can also contact the exporters to make use of this opportunity in the future.

Though maximum revenue is generated by exporting, no FPO is exporting the crop. The main reason is the fear of losses due to stock rejection. While the export houses have a good knowledge of the export ecosystem, the FPOs at present dont have these inputs.

Soybean:
There are 3 FPOs currently engaged in aggregation and trading of the Soybean. Mahaganapati Agro Producer Company has significantly scaled up their operations improving their turnover from INR 28 Lakhs to INR 1.22 Cr. They aggregate and sell the produce once price increases. Farmers receive their share, after deduction of the costs and 2% commission. But at present all sales are made to the traditional channel.

Maize:
Rayat Farmer Producer Company sells seed, fertilizer and pesticides to its members. The FPO also aggregate produce from farmers, stocks the same and sells when the price increase. Currently the sales are made only through the traditional channel. The FPO can diversify its client base by adding processors and corporates to its buyers list. FPO, having a large client base and stability, can look for value additions like processing of animal feed.

Financing need gap
Vishwtej FPO is involved in grading of the Grapes. Apart from connecting to the exporters, the FPO can also aggregate and store raisins. Formal bank funding is a challenge for the FPOs in taking up this activity.
The raisin, while stored in cold storages, needs washing in between. Once the stock is under lien of a lender, it is not allowed to be taken out for washing. This acts as an impediment in getting credit against stored raisin. At present there are no guarantors who could facilitate such financing to FPOs.

**Financing need gap**

**Maize:**
Corporates like Glencore, Suguna, Roquette, Japfa and Cargil, they expressed their interest to procure from FPOs. So far, no FPO in this cluster have sold directly to these corporates. This disengagement can be attributed to mutual lack of familiarity on the rules of engagement and experience in dealing with each other.

**Soybean:**
Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

5. Alternative marketing channel possibilities in the cluster

1) For Maize corporates like Glencore, Suguna, Roquette, Japfa and Cargil are suitable alternate market players.
2) Suminter India is an alternate marketing possibility for Soybean.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
1) CEAD can facilitate meetings between Grape FPO and exporters.
2) CEAD can facilitate meeting between Suminter and Soybean FPO.
3) Exposure visit for the Maize FPOs to animal feed making plants.

**Marketing**
Facilitating meetings are required for Maize FPOs with the corporate market players in the study.

**Financial**
CEAD can either act as a guarantor or facilitate with its good offices a guarantor on behalf of Grape FPOs, to banks to help in storage of raisins.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster.

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**SATARA CLUSTER**

Satara cluster comprises of the district Satara of Maharashtra. The total geographical area of the cluster is 10.48 Lakh Ha and the gross cropped area is 7.99 Lakh Ha. As per the latest census, the cluster has a population of 30 Lakhs.

The cluster comprises of 11 Mandals of Satara district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Jowar, Pomegranate and Strawberry.

**Strawberry:**
Strawberry is an important high value crop in the cluster. The total production is around 30,000 MT cultivated by 10,000 growers. The cluster contributes to 80% of total production of Strawberry produced in the country.

**Jowar:**
1 Lakh growers produce around 2.7 Lakh MT of Jowar.

**Pomegranates:**
5,000 growers produce around 43,000 MT of Pomegranate in the cluster.
2. Profile of FPOs in the cluster

There are 29 FPOs registered under the Companies Act in the Cluster. 12 FPOs participated in the survey. 10 FPOs are promoted by 2 POPIs and 2 FPOs are independent.

Business activity details of the FPOs

5 FPOs have business activity in the cluster. The total turnover in 2016-17 was INR 76 Lakhs and in 2017-18, it was 99 Lakhs. Gopal Krishna Farmer Agro Producer Company Ltd. recorded the maximum turnover in the cluster.

Only 1 FPO i.e. Kalpataru Food Processing Producer Company Ltd. have both GST registration and Mandi license. 8 FPOs have Mandi Licenses but do not have GST registration.

Member base and farm holding of the FPOs

The total number of member farmers in the studied FPOs were 4,565 controlling 2,959 Ha of land under them and representing about 0.36% of the total cropped area of the Satara cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs

The member farmers of the FPOs studied represent 0.6% of total production of Sorghum, 0.9% of total production of Pomegranate and 0.3% of total production of Strawberry in the Cluster.

3. Profile of Market Players in the cluster

The cluster represents a mix of traditional traders, exporters and processors.

Alternative Marketing Channels active in the cluster

Mahafresh is an alternate channel active in the cluster for Strawberries.

FPO sales to market players

FPOs did a business of INR 76 Lakhs and INR 99 Lakhs in 2016-17 and 2017-18 respectively, mostly with the traditional market players.

4. Identified gaps in the cluster

Marketing arrangement gap

Strawberries:

The FPO Mahafresh Producer Company Ltd. exported limited quantities of produce to GCC countries. While the A grade produce is sold at INR 60/Kg in local market the same is sold at about INR 100/Kg in export markets. The export volumes are limited due to absence of cold storage facilities in the cluster.

In typical Strawberry farm, 20%-30% of the produce is grade C, which provides 30% less price than the A and B grade. Returns of Grade C can increase, if the fruit is graded as per requirement of Mahafresh FPO. At present Strawberry FPOs are not connected to alternate channel such as Allfresh, Mahindra Exports or Way Cool.

Jowar:

Jowar roti, especially made from the Desi Jowar is a preferred food choice for Maharashtrian families. At present entire commodity is sold in Mandi at INR 17/kg whereas the flour sells at INR 60/kg. Inter collective opportunities such as of Mumbai-Thane city based SHGs of MAVIM need to be explored for marketing of Jowar flour. Jowar flour making is a low risk activity with good income potential.

5. Alternative marketing channel possibilities in the cluster

1) Export markets is a possible alternative marketing channel for Strawberry, while city-based marketing SHGs are opportunity for Jowar flour.

2) Alternate channel such as Way Cool, Allfresh and Big Basket can be explored for Strawberry direct marketing.

6. Required services/minimal infrastructures from the CEAD

Strawberry FPOs, unlike other FPOs, does not have any resource crunch. They need stage wise advisory for their new initiatives. Facilitation meetings with the alternate channel is to be organized.
7. Recommended POPIs in the cluster

ATMA is recommended POPI in the cluster.

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**SOLAPUR CLUSTER**

Solapur cluster comprises of the district Solapur of Maharashtra. The total geographical area of the district is 14.87 Lakh Ha and the gross cropped area is 10.30 Lakh Ha. As per the latest census, the cluster has a population of 43.17 Lakhs.

The cluster comprises of 11 Mandals of Solapur district.

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1. **Profile of Major Crops selected for the study**

The major crops selected for the project study are Pomegranate, Maize and Tur.

**Pomegranate:**
Pomegranate is the most important crop in the cluster with 30,000 growers cultivating about 2.8 Lakh MT of produce. 80% of the produce is sold through the traditional channel.

**Maize:**
Maize crop is cultivated by 35,000 growers producing 57,000 MT of produce.

**Tur:**
20,000 farmers produce around 27,000 MT of Tur in Solapur cluster. In this cluster there is a success story of one FPO, that produces organic Tur, processes the same and sells, it obtains 40% higher price than the market rate by the entire process.

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2. **Profile of FPOs in the cluster**

There are 42 FPOs registered under the Companies Act in this cluster. 28 FPOs participated in the survey. These 28 FPOs are promoted by 4 POPIs.

**Business activity details of the FPOs**
20 FPOs have business activity in the cluster. The total turnover in 2016-17 was INR 6.99 Cr and in 2017-18, it was INR 7.37 Cr. Sorvaday Farmer Producer Company Ltd. had maximum turnover in the cluster.

13 FPOs have GST registration and 17 FPOs have Mandi license. 11 FPOs have GST registration and Mandi license both.

**Member base and farm holding of the FPOs**
The total number of member farmers of the studied FPOs is 8,106 and they have 14,621 Ha of land under them representing about 1.4% of the total cropped area of the cluster.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 1.13% of the total production of Pomegranate, 1.92% of the total production of maize and 5.18% of the total production of Tur. The approximate quantities that can be aggregated represents the confidence of members in doing business activity in these commodities.

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3. **Profile of Market Players in the cluster**

Due to Pomegranate, this cluster has a presence of Exporters and Processors in the market player mix, though they play a limited role now.

**Alternative Marketing Channels active in the cluster**
INI farms, Mahindra Export, Waycool, Big Basket and Mahadhan Agro, Pune are the alternate channel active in this cluster.

**FPO sales to market players**
FPOs did a business of INR 6.99 Cr and INR 7.37 Cr in 2016-17 and 2017-18 respectively with the market players. Mahadhan Agro, Pune and INI Farms procured limited quantities directly from farmers but not from FPOs.
4. Identified gaps in the cluster

Gaps in cultivation practices and organizational capability

**Pomegranate:**
Currently 90% of the produce is sold through traditional market players which provides low returns. Though there are 6 FPOs in the Pomegranate belt, only 2 are active in aggregation and selling of Pomegranate. Only Green Horizon Farmer Producer Company Ltd. is successfully aggregating and exporting Pomegranate thereby improving their returns by additional 40% over the traditional channel.

**Marketing arrangement gap**

**Pomegranate:**
Spiritual Farming Natural Agro Producer Company Ltd. is undertaking cultivation of organic Pomegranate. But they are unable to get premium for their produce. This FPO is mixing the organic produce with non-organic and selling it at Mandi price.

**Maize:**
Corporates like Glencore, Suguna, Roquette, Japfa and Cargil, they expressed their interest to procure from FPOs. So far, no FPO in this cluster has sold directly to these corporates. This disengagement can be attributed to mutual lack of familiarity on the rules of engagement and experience in dealing with each other.

There is also an opportunity for FPOs to manufacture cattle and poultry feed for consumption within the cluster. FPOs need exposure visits to collectives engaged in similar activities and support in demand estimation and marketing.

**Redgram:**
Yashaswini Agro Producer Company Ltd. produces organic Tur, processes it and sells it under their own brand name in the local market at 30%-40% premium over the market price of Dal.

Even in those seasons when the price for Tur was very low, consumers were buying the produce at INR 74/Kg. So, after incurring INR 1420 as total cost of aggregation, processing and marketing, still producer was making an additional earning of 10.4% by packing and selling the produce to end consumer. At present out of 3 FPOs only one FPO in the cluster is resorting to processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

INI farms, Big Basket, Allfresh, Waycool and Reliance Fresh are the alternate channel possibilities for Pomegranate. Glencore, Suguna, Roquette, Japfa and Cargil are the alternate channel possibilities for Maize.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
Capacity building and exposure visits for FPOs are required for the Pomegranate FPOs who are not engaged in aggregation activity.

The experience of organic Tur can be leveraged across the clusters.

**Marketing**
There are opportunities for organic farming in this cluster. In case of Pomegranate the FPO need appropriate marketing partner for their produce.

Facilitation of meetings are required for Maize FPOs with the corporate market players. Similar meetings can also be organized for Pomegranate FPOs in the cluster.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster.

**WARDHA CLUSTER**

Wardha cluster comprises of 8 Mandals of district Wardha of Maharashtra. The total geographical area of the cluster is 6.29 Lakh Ha and the gross cropped area is 4.42 lakh Ha. As per the latest census, the cluster has a population of 13 Lakhs.
1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, Tur (Redgram) and Orange.

**Cotton:**
Cotton is the major crop in the cluster. 2.9 Lakh MT Cotton is produced by 1.3 Lakh growers. There is spare capacity at the Ginning Mills of Yavatmal and Wardha. Ginning Mills in the cluster are operating at 60% of their capacity which is a common feature in Maharashtra. Out of total production, 50% of the Cotton produced is taken to ginning mills in Gujarat.

**Tur:**
The next important crop in the cluster is Tur. 40,000 growers cultivate around 65,000 MT of Tur. Almost 100% of the production moves through the regulated market.

**Soybean:**
78,000 growers cultivate around 1.5 Lakh MT of Soybean in the cluster.
There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

There were four Soybean plants in Wardha. Deegun Bela, Shetkari solvents at Narayanpur Mavan Fats and Suguna at Wani, out of which only Suguna is currently working.

**Orange:**
30,000 growers produce around 1 Lakh MT of Orange in the cluster. Nagpur Orange variety, which is cultivated in this cluster, is a thin skin variety with low shelf life compared to oranges from other areas. This variety is not preferred for processing and entire quantity is often consumed for table purpose.

2. Profile of FPOs in the cluster

There are 35 FPOs registered under the Companies Act in the cluster. 29 FPOs participated in the survey. Out of these 29 FPOs, business activity is being done by 7 FPOs. 2 FPOs, Kejaji Agro Farmer Producing Company Ltd. and Satianusaya Mata AgroProducer Company Ltd., have their own retail shops.

**Business activity details of the FPOs**
7 FPOs are engaged in business activity in the Wardha cluster. The total turnover in 2016-17 was INR 4.1 Cr and in 2017-18, it was INR 3.17 Cr. Vartaman AgroProducer Company Ltd. had maximum business turnover in the cluster.
3 FPOs have GST registration and 4 FPO have Mandi licenses. 2 FPOs have both GST registration and Mandi license.

**Member base and Farm Holding of the FPOs**
The total number of member farmers of the studied FPOs is 11,496 and they have 16,682 Ha of land under them representing about 3.7% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 3.5% of the total production of Cotton lint, 5.5% of the total production of Soybean, 7.7% of the total production of Tur and 0.5% of the total production of Orange.

3. Profile of the Market Players in the cluster

The market player mix is dominated by traditional entities in case of Cotton, Soybean and Tur.

In case of Orange, pre-harvest contractor is the single dominant market player.

**FPO sales to market players**
FPOs did a business of INR 4 Cr and INR 3 Cr in 2016-17 and 2017-18 respectively with the market players. The key market player was SFAC. Kejaji AgroFarmer Producing Company and Satianusaya Mata AgroProducer Company have their own retail shop.
4. Identified gaps in the cluster

**Infrastructure Gap**

**Cotton:**
Cotton is the largest commodity in the cluster. 17 FPOs are producing the crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.

Due to lack of warehousing and processing/ginning facility, farmers sell raw cotton immediately after harvesting.

To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

**Finance need gap**

**Cotton:**
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.

**Gaps in cultivation practices and organizational capability**

**Cotton:**
BCI Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an addition price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

**Orange:**
For 30,000 growers cultivating 1 Lakh MT of produce, there is only 1 FPO whose members are Orange farmers. There is scope for aggregation among Orange farmers which would improve grading activities and help in utilization of discarded produce as dried Oranges.

**Tur:**
Even in times of a price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kgINR 40/kg At the same time, consumers were buying the produce at INR 74/Kg.

Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.

At present only one FPO (Kelzar Shetkari Producer Company Ltd.) is processing Tur and marketing it as Dal. under their brand name Jai Kisan

5. Alternative marketing channel possibilities in the cluster

1) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
2) Suminter India is an alternate marketing possibility for Soybean.
3) Future group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for the processed Dal.

6. Required services/minimal infrastructure from the CEAD

**Administrative**

1) A critical activity of storing cotton is conversion into bales. Partnerships by CEAD with ginning mills in the cluster can help farmer avail Cotton ginning services. (In this cluster, Bajaj Foundation is engaged in converting raw cotton to downstream products. Learnings from this activity can be leveraged for other collectives).
2) Increased outreach of BCI program and minimum pesticide intervention package of Suminter for Soybean can be achieved through partnerships.

3) For Orange, collectivization of farmers would be the initial step that can promote other activities like Grading, Market Linkage etc.

Financial
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

Marketing
1) CEAD can be the focal point for exploring inter-collective opportunities.
2) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business-intelligence marketing companies to help FPOs have access to right market information.

Infrastructure
25% of the FPOs in this cluster do not have access to storage space. New generation scientific storage facilities can be made available to producers for this purpose.

7. Recommended POPIs in the cluster

Bajaj Foundation is doing commendable work in the cluster. Bajaj Foundation has promoted 6 FPO in the cluster. They are also engaged in processing Cotton to downstream products.

**WASHIM CLUSTER**

Washim cluster covers the district Washim of Maharashtra. The total geographical area of the cluster is 5.13 Lakh Ha and the gross cropped area is 4.12 Lakh Ha. As per the latest census, the cluster has a population of 11.96 Lakhs.
The cluster comprises 6 Mandals of Washim district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cotton, Soybean, Tur (Redgram) and Wheat.

**Cotton:**
Cotton is the major crop in the cluster. 1.5 Lakh MT Cotton is produced by 75,000 growers. Corporates procure Cotton only in the form of bales.

100% of raw Cotton by FPO/farmers is sold through the traditional channel. Ginning Mills in the cluster are operating at 60%-70% of their capacity which is a common feature in Maharashtra.

**Tur:**
The next important crop in the cluster is Tur. 1 Lakh growers cultivate around 1.6 Lakh MT of Tur. Almost 100% of the production moves through the regulated market.

**Soybean:**
1.75 Lakh growers cultivate around 2.8 Lakh MT of Soybean in the cluster. The entire quantity of Soybean commodity is processed.
There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

**Wheat:**
In Washim cluster, 75,000 wheat growers cultivate around 1 Lakh MT of Wheat. Almost 100% of the production moves through the regulated market. Major flour mills have started processing and selling wheat flour. Wheat production fluctuates from one year to another. Due to uncertainty, Corporates have stopped procuring Wheat from the cluster.
2. Profile of FPOs in the cluster

There are 23 FPOs registered under the Companies Act in the cluster. 19 FPOs participated in the study. Of these 19 FPOs, 13 are promoted by ATMA under Maharashtra Agriculture Competitiveness Project (MACP), 3 are promoted by Indian Society of Agribusiness Professionals (ISAP) and 3 are self-promoted.

Business activity details of the FPOs
11 FPOs are engaged in business activity in the cluster. The total turnover in 2016-17 was INR 5.88 Cr and in 2017-18, it was INR 4.44 Cr. Hariom Agro Producer Company had maximum turnover in the cluster.

8 FPOs are facilitating cleaning and grading for Soybean and 1 FPO has a Seed Processing Unit. 2 FPOs, Bailath Farmer Producer Company and Sodhav Farmer Producer Company, have small Dal mills.

6 FPOs have completed GST registration and another 6 FPOs have Mandi license. 4 FPOs have both GST registration and Mandi licenses.

Member base and Farm Holding of the FPOs
The total number of member farmers of the studied FPOs is 7,083 and they own 11,131 Ha of land representing about 2.7% of the total cropped area of the cluster. ATMA promoted FPOs have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis a vis that of FPOs
The member farmers of the studied FPOs represent 0.48% of the total production of Cotton lint, 4% of the total production of Soyabean, 1.37% of the total production of Tur and 2.2% of the total production of wheat and 1.2% of the total production of gram.

3. Profile of the Market Players in the cluster

In case of Cotton, Soybean and Tur, the market player mix is dominated by traditional entities. Since the MSP declared by Government is higher than the market price, there are no processors active in the Tur market. Almost all produce is sold through regulated market.

There are no alternate marketing channels present in the cluster.

FPO sales to market players
FPOs did a business of INR 5.88 Cr and INR 4.44 Cr in 2016-17 and 2017-18 respectively with the market players. 4 FPOs had a turnover more than INR 1 Cr in 2016-17.

4. Identified gaps in the cluster

Infrastructure and Technology gap

Cotton:
1) Cotton is an important commodity in the cluster. 5 FPOs are producing the crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.
2) Due to lack of warehousing and processing/ginning facility, farmers sell raw cotton immediately after harvesting.
3) To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

Financial need gap

Cotton:
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.
Gaps in cultivation practices and organizational capability

**Cotton:**
BCI Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs. Further, as verified from LD (Louis Dreyfus) an addition price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Summit India is a market player specializing in low residue Soybean. Summit procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

There are 14 FPOs with Soybean as a major crop and 7 of these have recently acquired grading and sorting facility. However, FPOs are neither trained on use of these machineries nor they are aware about the parameters of grading.

**Tur:**
Even in times of a price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg INR 40/kg At the same time, consumers were buying the produce at INR 74/Kg.

Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.

No FPO in the cluster is involved in processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

1. For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
2. Summit India is an alternate marketing possibility for Soybean.
3. Future group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for processed Dal.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
1. A critical activity of storing cotton is conversion into bales. Partnerships with ginning mills in the cluster can help farmer avail Cotton ginning services.
2. Increase outreach of BCI program and minimum pesticide intervention agronomy package of Summit for Soybean, can be achieved through partnerships.

**Financial**
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

**Marketing**
1. CEAD can be the focal point for exploring the inter-collective opportunities in case of marketing of commodities like Tur.
2. CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.
3. CEAD can facilitate purchase of new generation scientific storage facilities for storage of Tur and Soybean.
4. CEAD can also facilitate training for aggregation of Tur.

7. Recommended POPIs in the cluster

ATMA is doing commendable work in the cluster and has promoted 13 FPO in the cluster.
YAVATMAL CLUSTER

Yavatmal cluster comprises of 16 Mandals of Yavatmal district of Maharashtra. The total geographical area of the cluster is 13.52 Lakh Ha and the gross cropped area is 8.99 Lakh Ha. As per the latest census the cluster has a population of 27.7 Lakhs.

1. Profile of Major Crops selected for the study

The four crops selected for the study are Cotton, Soybean, Tur (Red gram) and Orange.

Cotton:
Cotton is the most important crop in the cluster and is cultivated by approximately 3.7 Lakh growers producing about 8.4 Lakh MT lint. Ginning Mills in the cluster are operating at 60% of their capacity which is a common feature in Maharashtra. 0% of the Cotton produced is taken to processing centers in Gujarat.

Soybean:
Another major produce for the cluster is Soybean. 1.36 Lakh growers cultivate around 2.72 Lakh MT of Soybean. The entire quantity of Soybean commodity is processed.

There is a large unutilized capacity at Soybean processing plants due to lack of raw commodity. Production has significantly fallen due to lower yields. Therefore, Cotton cultivation has infringed upon Soybean cultivated area due to better price realization.

Srinivasa Soya plant and Rasoia Protein Wani are two Soybean plants in Yavatmal district. Presently, Srinivasa soya plant is the only functioning plant.

Tur:
Tur is another major crop cultivated in the cluster. 60,000 growers cultivate 1 Lakh MT of Tur. Almost 100% of the production is sold through the regulated market.

Orange:
Orange is yet another major produce from the cluster. 50,000 growers produce around 1.5 Lakh MT of Orange. Nagpur Orange variety, which is cultivated in this cluster, is a thin skin variety with low shelf life. This variety is is not preferred for processing, due to its loose peel and fewer segments. Citrus International, a large MNC processing company based in Nanded, procures Oranges from this cluster. But the supply is limited since most of the produce is sold for table consumption.

2. Profile of FPOs in the cluster

There are 41 FPOs registered under the Companies Act in the cluster. 37 FPOs participated in the survey. These 37 FPOs are promoted by 8 POPIs. Out of these 37 FPOs, 8 FPOs are engaged in business activities. 1 FPO, Manthan Agro Producer Company, has its own retail shop.

Business activity details of the FPOs

8 FPOs had turnover of INR 2.5 Cr and INR 261 Lakhs in financial years 2016-17 and 2017-18 respectively. Manthan Agro Producer Company and Trimurthy Farmer Producer Company had maximum turnover in the cluster with a revenues crossing INR 100 Lakhs in the financial year. 4 FPOs have GST registration and 4 FPO have Mandi license. Only 1 FPO has both GST registration and Mandi license.

Member base and Farm Holding of the FPOs

The total number of member farmers of the studied FPOs is 23,478 and they own 39,736 Ha of land representing about 4.4% of the total cropped area in the district. The FPOs registered by SFAC had maximum land and maximum number of farmers members.

Main crops being grown in cluster and volume of each vis a vis that of FPOs

The member farmers of the FPOs studied represent 3.6% of the total production of Cotton lint, 7.5% of the total production of Soybean, less than 1% of total production of Orange and 18.2% of total production of Tur. Overall 5,610 MT of Cotton lint, 4,170 MT of Soybean and 4,415 MT of Tur are possible quantities of aggregation for market linkages.
3. Profile of the Market Players in the cluster

The market player mix is dominated by traditional entities for Cotton, Soybean and Tur, with limited presence for alternate market players. Since the MSP declared TUR is higher than the market price there are no processors active in the Tur market.

In case of crops such as Orange, the pre-harvest contractors are the dominant market players.

FPO sales to market players
FPOs did a business of INR 2.5 Cr and INR 2.6 Cr in 2016-17 and 2017-18 respectively with the market players. FPOs sold Tur, Cotton, Gram, Soybean and Wheat to market players with Tur being the most important.

4. Identified gaps in the cluster

**Infrastructure need gap**

**Cotton:**
Cotton is the largest commodity in the cluster with 31 FPOs producing Cotton as a major crop. No FPO is aggregating Cotton. Producers can benefit if they stock Cotton as bales and sell later when the price increases. This process will need processing, warehousing and financing support.

Due to lack of warehousing and processing/ginning facility, farmers sell raw cotton immediately after harvesting.

**Financial need gap**

**Cotton:**
Cotton is a very sensitive commodity with high price volatility. At present, there are no tools available to protect farmers from the price risk.

**Risks in cultivation practices and organisational capability**

**Cotton:**
BCI Cotton Initiative is a marquee project by IDH of Netherlands. By enlisting in the program, the farmer gets a higher rate for the produce, and also a significant reduction in the cost of inputs.

Further, as verified from LD (Louis Dreyfus), an additional price of INR 300/Candy can be earned by the farmer by certifying the Cotton as BCI Cotton. FPOs are yet to take advantage of this program. As of now only 7.5% of the total Cotton farmers of Maharashtra participate in Better Cotton Initiative.

Although Cotton is a major pesticide consuming crop, only 2 FPOs, promoted by AFFARM, operate input supply centers for their members.

**Soybean:**
Soybean with low damage percentage and low moisture content is sold at a higher price. Lack of knowledge about such parameters result in FPOs getting lower price for the produce. Suminter India is a market player specializing in low residue Soybean. Suminter procures Soybean from farms with low pesticide usage rates. FPOs are not aware of this program.

**Orange:**
For 30,000 growers cultivating about 1 Lakh MT of produce, there is only 1 FPO which produces Orange. There is scope for aggregation among the Orange farmers. Absence of collectivism among farmers also prevents grading activities or utilization of discarded produce as dried Oranges.

**Tur (Redgram):**
Even in times of a price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg INR 40/kg at the same time, consumers were buying the produce at INR 74/Kg.

Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.

No FPO in the cluster is involved in processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

1) For BCI certified Cotton, Louis Dreyfus can be an alternate market player.
2) Suminter India is an alternate marketing possibility for Soybean.
3) Future group, Big Basket, TATA Chemicals and Marketing collectives of MAVIM can be business partners for the processed Dal.
Administrative
1) A critical activity of storing cotton is conversion into bales. Partnerships with ginning mills in the cluster can help farmers avail Cotton ginning services. (Tata Trusts local team did a pilot project with Yavatmal Krushi Samrudhi Collective of aggregation and processing of Cotton to make yarn. Cotton was processed to yarn and exported to international market, which provided additional earnings for the farmers.)

2) Increase outreach of BCI program and minimum pesticide intervention agronomy package of Suminter for Soybean, can be achieved through partnerships.

3) Aggregation of produce is the initial step for Orange market linkages. By aggregation, other activities like grading, sorting, waxing, would follow, enabling linkages with different markets.

Financial
To support aggregation of Cotton, partnerships need to be explored and innovative region-specific Price-Risk managing programs need to be developed.

Marketing
1) CEAD can be the focal point for exploring the inter-collective opportunities in case of marketing of commodities like Tur.

2) CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.

3) CEAD can facilitate building Dal processing units.

4) CEAD can be the focal point for exploring inter-collective opportunities. The FPOs in Wardha cluster are mostly production FPOs. Opportunities for linking these FPOs with collectives around consumption centres (like Mumbai) can to be explored CEAD can explore collaborations between FPOs and MAVIM (Mahila Arthik Vikas Mahamandal) for marketing of Dal under their brand name.

5) For Cotton, Soybean and Tur, CEAD can coordinate with the ecosystem stakeholders like warehouse service providers, business intelligence and marketing companies to help FPOs access right market information.

6) For Oranges, CEAD can facilitate linkages with organizations willing to buy Grade C and D quality oranges.

Infrastructure and technology
1) CEAD can facilitate installation of new generation scientific storage facilities for storage of Tur and Soybean.

2) CEAD can also facilitate training for aggregation of Tur.

AHMEDABAD CLUSTER
Ahmedabad cluster covers the Ahmedabad district of Gujarat. The total geographical area of the cluster is 7.93 Lakh Ha and gross cropped area is 6.84 Lakh Ha. As per the latest census, the cluster has a population of 72.14 Lakhs.

The cluster comprises of 11 Mandals of Ahmedabad district.

1. Profile of Major Crops selected for the study

The major crops grown in the cluster are Cotton, Wheat and Paddy.

Cotton:
Cotton is most important crop in the cluster which is grown in 1.75 Lakh Ha. Approximately 2 Lakh growers produce around 2.56 Lakh MT of Cotton.

Wheat:
Wheat is the second most important crop in the cluster which is cultivated in about 1.5 Lakh Ha. Approximately 1 Lakh growers produce around 2.75 Lakh MT of Wheat in the cluster.
Paddy:
Paddy is the third most important crop in the cluster with 1.08 Lakh Ha under cultivation, in the cluster. Around 1 Lakh growers produce about 2.22 Lakh MT of Paddy in the cluster. Local varieties are grown in cluster and are consumed for Rice Flakes and producing Puffed Rice.

2. Profile of FPOs in the cluster

There are 9 FPOs registered under the Companies Act in the cluster. 2 FPOs were participated in the survey. 1 FPO registered business activity.

Business activity details of the FPOs
The total turnover in 2016-17 was INR 5 Cr and for 2017-18 was INR 17 Cr. Krushidhan Producer Company Ltd. had maximum turnover in the cluster.
This FPO also has GST and Mandi license.

Member base and Farm Holding of the FPOs
The total number of member farmers of the studied FPOs is 510 and they own 220 Ha of land representing about 0.03% of the total cropped area of the Ahmedabad cluster.

Main crops being grown in cluster and volume of each vis a vis that of FPOs
The member farmers of the studied FPOs are not engaged in aggregation or crops, and related activities.

3. Profile of the Market Players in the cluster

Traditional players like traders, processors and agents are the main market players in the cluster.

FPO sales to market players
Krushidhan Producer Company registered a business of INR 5 Cr and INR 17 Cr in 2016-17 and 2017-18 respectively, largely through participating in the Government procurement program.

4. Identified gaps in the cluster

Gaps in organizational capabilities

Wheat and Paddy:
Corporate buyers like ITC, Cargill and local mid-size processors like Mamta Industries, Tilak Foods and Laxmi foods are present in the cluster and are currently buying Wheat and Paddy from the cluster. There is potential for the FPOs to connect with these players, and marginally increase their revenues by 2% to 3%.

Cotton:
There are close to 150 ginning mills at Kadi, a town located close to the cluster. Apart from Gujarat, these mills buy Cotton from Maharashtra. Louis Dreyfus procures Cotton bales from traders in this cluster and has warehouses for storing Cotton in the cluster.
To offset price volatility, FPOs can invest in processing lint into bales, thus enabling them to store produce, which can be sold later at better price.

5. Alternative marketing channel possibilities in the cluster

ITC, Cargill, Mamta Industries, Tilak Foods, Laxmi Foods, Louis Dreyfus etc. are the alternate channel possibilities in the cluster.

6. Required services/minimal infrastructures from the CEAD

Administrative
In this cluster the majority of FPOs are inactive. A massive effort to initiate and nurture healthy FPOs will be required, the basic requirement of this cluster is to have functional FPOs and POPIs which closely nurture the FPOs.
There are no recommendations for POPIs in the cluster.

**DAHOD CLUSTER**

Dahod cluster covers the Dahod district of Gujarat. The total geographical area of the cluster is 3.65 Lakh Ha and gross cropped area is 3 Lakh Ha. As per the latest census the cluster has a population of 21.27 Lakh.

The cluster comprises 7 Mandals of Dahod district.

1. **Profile of Major Crops selected for the study**

The major crops grown in the cluster are Maize, Wheat, Soybean, Cucurbits and Brinjal.

**Maize:**
Maize is an important crop in the cluster and approximately 60,000 growers produce 1.23 Lakh MT of Maize in the cluster. The crop is largely cultivated for self-consumption and only minor proportion is marketable.

**Wheat:**
Wheat is also an important crop in the cluster and about 50,000 growers produce 1.11 Lakh MT of Wheat in the cluster. Compared to Maize crop marketable surplus is high for Wheat.

**Cucurbits:**
Cucurbits are also one of the important vegetables grown in the cluster. Around 15,000 growers produce about 30,940 MT of Cucurbits in the cluster.

**Brinjal:**
Around 15,000 growers produce about 28,000 MT of Brinjal in the cluster.

**Soybean:**
Soybean is another important crop in the cluster and 25,000 growers produce about 31,200 MT of the crop in the cluster.

2. **Profile of FPOs in the cluster**

There are 14 FPOs registered under the Companies Act in the cluster. 15 FPOs participated in the survey. 3 POPIs have promoted these 15 FPOs.

**Business activity details of the FPOs**
The total turnover in 2016-17 was INR 17 Lakh and in 2017-18, it was INR 5 Lakh. Limkheda Adirasi Khedut Vikash Producer Company Limited and Limkheda Adivasi Khedut Producer Company Limited registered maximum turnover in the cluster.

The main source of revenue for FPOs was fertilizer distribution. No FPO is engaged in commodity aggregation. 2 FPOs, Jalod Ekta Producer Company Ltd. and Limkheda Adirasi Khedut Vikash Producer Company Ltd., have GST registration and Mandi license.

**Member base and Farm Holding of the FPOs**
Majority of the farmers of the district are tribal. (74.3% of the district population is scheduled tribes). The total number of member farmers of the studied 15 FPOs is 6,085 and they own 4,668 Ha of land representing about 1.6% of the total cropped area of the Dahod cluster.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the studied FPOs represent 0.2% of the total production of Maize, 0.2% of the total production of Wheat, 1.4% of the total production of Cucurbits-Vegetables, 0.9% of the total production of Brinjal and 0.7% of the total production of Soybean.

In this cluster, the Sadguru Foundation supported by CINI (Central India Initiative of The Tata Trust) works with 32,000 farmers belonging to 2,474 SHGs. Supported by the Foundation, producers in this cluster undertake cultivation of high value off-season produce which provides them a better price. This training and guidance support help the cluster to produce minimum residue and safe agri-produce which requires intensive control from start to end.
3. Profile of the Market Players in the cluster

Traditional players, like traders and village agents, are the main market players in the cluster since the cluster is remotely located at a tribal belt.

**FPO sales to market players**
FPOs did not do any business with Market Players.

4. Identified gaps in the cluster

**Gaps in organisational capabilities**

**Wheat:**
Corporate buyers like ITC and Cargill procure Wheat from other areas of Gujarat. They are willing to procure from the Dahod, if they have guarantee of quantity and quality from the cluster.

At present producers have marketable surplus of Wheat but in absence of any corporate procurement, commodity is sold to the traditional channels.

The transaction with the corporates can improve revenues by 3% to 4%. Currently none of the FPOs are engaged in the aggregation of the produce.

There is also potential to sell the produce to local processors like Mishkat Agro Industries.

**Soybean:**
In the cluster, Soybean crop is cultivated with relatively lesser application of pesticides when compared to Soybean from Maharashtra. Suminter India is keen to procure Soybean from the FPOs, giving them a premium price. At present the FPOs are not involved in aggregation of Soybean.

**Marketing arrangement gap**

**Cucurbits and Brinjal**
Producer collectives of Sadguru foundation are engaged in vegetable cultivation. Member farmer are provided with quality seedling and training on package of practice. Hence there is a control in chemical interventions from the early stage of crop. This process results in production of residue safe vegetables. Unfortunately, the produce is being sold in the local Mandi along with all other commodities without any price differentiation. The producer does not receive any premium price for near-organic produce.

5. Alternative marketing channel possibilities in the cluster

1) For Wheat and Maize, corporates like ITC and Cargil are probable alternate market players.

2) For Vegetables, corporates like Big Basket, Reliance Fresh, Future Group, Godrej Fresh, Focus Prism and Mahindra Agro are probable alternate market players

4) Suminter India is a probable alternate market player for Soybean.

6. Required services/minimal infrastructures from the CEAD

**Administrative**
1) CEAD can support FPOs training on aggregation and quality parameter in case of Wheat and Soybean.

2) CEAD can facilitate interactions between the prospective market players and FPOs.

**Marketing**
CEAD can facilitate discussions between market players such as Mahindra Agri, Godrej and Focus Prism about differentiated marketing strategy for the vegetables produced in the cluster. CEAD can rent warehouses and help aggregate commodities which can be procured by the corporates.

7. Recommended POPIs in the cluster

N M Sadguru has promoted 15 FPOs. They also have the highest number of members and land holdings. They are recommended POPI in the cluster.
EAST ZONE CLUSTERS

DHALAI CLUSTER

Dhalai cluster covers the district Dhalai of Tripura. The total geographical area of the cluster is 2.31 Lakh Ha and the gross cropped area is 35,753 Ha. As per the latest census, the cluster has a population of 3.78 lakhs.

The cluster comprises of 5 Mandals of Dhalai district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Pineapple, Orange and Jackfruit.

Pineapple:
10,000 growers cultivate around 42,273 MT of Pineapple in the cluster. Majority of the variety is Kew (also known as Smooth Cayenne). This variety is sweet in taste, with minimum fibre content. This variety is suitable for canning with an average fruit weight of 2-3 kg.

Orange:
This is the other important horticultural crop in the cluster. 10,000 growers cultivate around 29,850 MT of Orange. The fruit is largely consumed in North East India.

A unique attribute of Dhalai Orange is the organic nature of the produce as farmers do not use chemicals for protection.

Jackfruit:
The next important crop in the cluster is Jackfruit. 30,000 farmers produce around 2.5 Lakh MT of Jackfruit.

2. Profile of FPOs in the cluster

There are 2 FPOs registered under the Companies Act in the cluster. Both FPOs participated in the survey.

Business activity details of the FPOs
The FPOs are at the initial stages of their business activities. The total turnover in 2016-17 was INR 1.45 Lakh and for 2017-18 was INR 4 Lakhs only. Pineapple Growers Society Farmer Producer Company Ltd. had maximum business turnover in the cluster. None of the FPOs have Mandi license or GST registration.

Member base and Farm Holding of the FPOs
The total number of member farmers in the studied FPOs is 373 and they own 298 Ha of land representing about 0.8% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 0.25% of the total production of Pineapple and 0.4% of the total production of Orange.

3. Profile of the Market Players in the cluster

The market player mix is dominated by traditional entities, Village Traders and Mandi Traders. There is hardly any role played by alternate channels in these commodities and the project team did not find any alternative marketing channel in the cluster.

FPO sales to market players
The FPOs are at the initial stages of their activities and the total turnover in 2016-17 was INR 1.45 Lakh and in 2017-18 was INR 4 Lakhs only.

4. Identified gaps in the cluster

Marketing arrangement gap
Pineapple, Orange and Jackfruit:
As per the value chain study done by SFAC, there is a loss of 5% while transporting fruit to the aggregator. Aggregator margins are 30%. If the FPOs aggregate produce and transport it directly to the Mandi, they can save up to 20%-25%.
Financial need gap

Pineapple and Orange:
Farmers cultivating Pineapple and Orange depend on the pre-harvest contractor for their credit requirements. Collectives do not have access to any formal funding sources for their finance requirements during production time.

Infrastructure transportation gaps

Pineapple:
Most of the Pineapple in cluster is Kew variety which is not suitable for long distance transportation. Even minor damages suffered during transportation results in rotting of this variety of Pineapple. During harvesting season, there is a price slump. Producers prefer not to harvest which leads to wastage of fruit. The variety is good for processing but there no processing units in Dhalai. If the fruit is processed into pulp, it can be transported across long distances.

Orange:
Orange from this cluster is good for processing as juice concentrates. Currently there are no large fruit processing facilities in the cluster, leading to low price.

5. Alternative marketing channel possibilities in the cluster

There are no alternate market players in the cluster.

6. Required services/minimal infrastructure from the CEAD

Administrative
CEAD can organize capacity building programs for the existing FPOs regarding aggregation of produce.

Financial
Formal funding is required for the FPOs to reduce their dependence on preharvest contractors.

Marketing
CEAD can facilitate interactive platform between the FPOs and the market players. This will help educate and train the producers regarding the parameters required for the market and help reduce rejections by market players.

Infrastructure
There is urgent need of fruit processing plants which can process Pineapple and Orange. With constant availability of a range of fruits, this cluster will be an ideal processing hub.

7. Recommended POPIs in the cluster

NGO Abhir and NGO Funjay are the POPIs recommended in the cluster.

EAST SINGHBHUM CLUSTER

East Singhbhum Cluster covers the East Singhbhum district of Jharkhand. The total geographical area of the district is 3.47 Lakh Ha and the gross cropped area is 2.64 Lakh Ha. As per the latest census, the cluster has a population of 22.93 Lakhs.

The cluster comprises of 11 Mandals of East Singhbhum district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Cauliflower, Cabbage, Tomato and Okra.

Cauliflower:
Cauliflower is an important vegetable in the cluster with production of 35,600 MT. It is cultivated by 33,000 producers.

Cabbage:
Cabbage is another important vegetable in the cluster with production of 32,300 MT, grown by 30,000 producers.

Tomato:
The total production of Tomato 28,400 MT produced by 25,000 growers.

Okra:
The total production for Okra is 16,000 MT produced by 20,000 growers.
2. Profile of FPOs in the cluster

There are 7 FPOs in East Singhbhum cluster. 2 FPOs participated in the study. 1 of them is promoted by NGO - Tagore Society for Rural Development and 1 is promoted by Indian Grameen Services (IGS).

Business activity details of the FPOs
None of the FPOs are currently engaged in any business activities in the cluster. None of these FPOs have GST registration or Mandi License.

Member base and Farm Holding of the FPOs
The total member farmers of the studied 2 FPOs are only 20 and they own only 8.1 Ha of land under them.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
Cauliflower, Cabbage, Tomato and Okra are the major crops in the cluster.

3. Profile of the Market Players in the cluster

The cluster is dominated with traditional players such as local village traders, large Mandi traders and local market sales agents.

Alternative Marketing Channels active in the cluster
There are no alternate marketing channels in the cluster.

FPO sales to market players
FPOs are not engaged in business activity with the market players. These FPOs are recently formed and membership is very low.

4. Identified gaps in the cluster

Gaps in Organisational capabilities & cultivation practices
The cluster has only 30 farmers in the collective movement. For any interventions to be initiated a minimum number of farmers is required.

Pesticides application is intensive in the cluster. The residue level will be prohibiting factor in marketing produce.

5. Alternative marketing channel possibilities in the cluster

At present there are no alternate marketing channels active in the cluster. The cluster is close to Jamshedpur, a high consumption base, which offers possibility to connect with better paying market players.

However, current agronomy practices of farmers and overall progress of the collectives pose a challenge in connecting to market players.

6. Required services/minimal infrastructures from the CEAD

As per the current status of the collectives in this cluster, there are no suggestions for market linkage interventions. The priority should be increasing production level and package of practices.

7. Recommended POPIs in the cluster

There are no recommended POPIs in the cluster.

GANJAM CLUSTER

Ganjam cluster covers the Ganjam district of Orissa with a total geographical area of 8.21 Lakh Ha and gross cropped area of 4.06 Lakh Ha. As per the latest census, the cluster has a population of 35.29 Lakh.

The cluster comprises of 22 Mandalas.

1. Profile of Major Crops selected for the study

The major crops selected for the project study are Maize, Green Gram, Blackgram and Tomato.
Green Gram:
Green Gram is an important crop in the cluster with production of 61,400 MT grown by 1 Lakh growers.

Maize:
Maize is another important crop in the cluster with production of 1.26 Lakh MT grown by 90,000.

Blackgram:
25,000 growers produce around 23,400 MT of Blackgram.

Tomato:
The total production for Tomato is 63,000 MT which is produced by 25,000 growers. Majority of the produce is local variety and not hybrid.

2. Profile of FPOs in the cluster

There are 16 FPOs in the cluster. All 16 participated in the survey. There are promoted by 3 POPIs. 13 FPOs are engaged in business activities.

Business activity details of the FPOs
The total turnover of these FPOs in 2016-17 was INR 13.35 Lakh and in 2017-18, it was INR 29.03 Lakh. Parkuti Bandu Farmer Producer Company Ltd. had maximum turnover in the cluster. 5 FPOs have GST license and 11 FPOs have Mandi license. 3 FPOs have both GST and Mandi license.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs are 14,988 and they own 3,795 Ha of land representing about 0.93% of the total cropped area of the Ganjam cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 2.7% of the total production of Blackgram, 3% of the total production of Green Gram, 14% of the total production of Tomato and 3% of Maize in this cluster.

3. Profile of the Market Players in the cluster

The cluster is dominated by traditional players such as village traders and commission agents. Commission agents provide farmers with credit in the pre-season itself thus locking the availability of produce for themselves.

Alternative Marketing Channels active in the cluster
NAFED procures 20% - 30% of the Blackgram and Green Gram produced in this cluster. There are no other alternate market players active in the cluster.

FPO sales to market players
FPOs did a business of INR 13.35 Lakh and INR 29.03 Lakh in 2016-17 and 2017-18 respectively with traders.

4. Identified gaps in the cluster

Gaps in cultivation practices and organisational capabilities
Maize:
Maize crop is cultivated by almost all the members of the FPOs in this cluster. The marketable surplus is sold to village traders and Mandi traders. There is no aggregation or processing in Maize. Small scale feed processing mills can be set up by FPOs and the output can be consumed by the member farmers.

Blackgram and Green Gram:
There is significant production of Green Gram and Blackgram. There are 8 FPOs engaged in Green Gram and 6 FPOs engaged in Blackgram. FPOs sell their output to village traders and Mandi traders at low revenues, since the prices are often depressed during the harvest season time.

By aggregating and grading, FPOs can improve their revenues by 4% to 5%. The special and standard grades are procured by alternate market players at premium prices. The damaged and rejected lower grades can be used to make cattle feed.

Tomato:
There are 3 FPOs producing Tomato. At present, FPOs are not aggregating. By aggregation, FPOs can sell the produce to better paying regional hubs like Vizag, thereby increasing their revenues by 3%-4%.

Marketing arrangement gap
Blackgram and Green Gram:
Alternate market channels such as Reliance Fresh, Aditya Birla Retail, and Big Basket etc. have significant requirements
for their eastern sector. At present FPOs are not able to sell to these corporates, since they do not grade their produce.

5. Alternative marketing channel possibilities in the cluster

Reliance Fresh and Future Group are willing to procure the produce from the FPOs provided quality parameters are met.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) CEAD can facilitate training programs on aggregation for the FPOs.
2) CEAD can facilitate an interaction platform between prospective buyers for Green Gram and Blackgram and the FPOs.

7. Recommended POPIs in the cluster

Access Development is doing commendable work in the cluster.

KAMRUP CLUSTER

Kamrup cluster covers the Kamrup district of Assam. The total geographical area of the cluster is 4.34 Lakh Ha and the gross cropped area is 2.11 Lakh Ha. As per the latest census, the cluster has a population of 15.17 lakhs.

The cluster comprises of 12 Mandals of the district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Pineapple, Banana and Orange. The produce from the cluster are sold in North-Eastern markets, and are also exported to Bangladesh and Myanmar through the Guwahati hub.

Pineapple:
10,000 growers cultivate around 34,193 MT of Pineapple in the cluster. Majority of the produce is Kew variety (also known as Smooth Cayenne) which is suitable for canning with an average fruit weight of 2-3 kg. This is a very sweet variety with very less fibre content.

Banana:
The next important crop in the cluster is Banana. 10,000 growers cultivate around 29,775 MT of Banana. Darangiri, a town located 115 km from Kamrup, is the largest Banana market in entire Northeast India. The market is also one of the largest Banana retail hubs in Asia

Orange:
Orange is also an important horticultural crop in the cluster. 10,000 growers cultivate around 25,691 MT of Orange. The fruit is largely consumed in the North East India itself.

The orange from this cluster is also processed, though this is largely consumed for table purpose. A unique attribute of Kamrup Orange is its organic nature, as farmers use little, or no chemicals for protection.

2. Profile of FPOs in the cluster

There are 6 FPOs registered under the Companies Act in the cluster. 4 FPOs participated in the survey.

Business activity details of the FPOs
All the FPOs are at the initial stages of formation and none of them have started any business activity. However, one FPO, named Boko Pineapple Producing Company Ltd., has started small-scale pulp making unit. 2 FPOs have Mandi license and GST registration.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs is 2,820 and they have 2,397 Ha of land under them representing about 1.1% of the total cropped area of the cluster. The FPOs promoted by the Directorate of Horticulture and Food Processing, Assam have maximum land holdings and maximum number of member farmers.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 1% of the total production of Pineapple, 2.9% of the total production of Banana, and 0.6% of the total production of Orange.
3. Profile of the Market Players in the cluster

The market player mix is dominated by traditional entities, traders and pre-harvest contractors. There is hardly any role played by alternate channels in these commodities.

Pre-harvest contractors play an important role in case of Banana, Orange and Pineapple as the producer is dependent on them for his working capital needs and in dealing with the logistical complexity of selling the produce.

FPO sales to market players
All the FPOs are at the initial stages of their activities and only few of them have started some business activity.

4. Identified gaps in the cluster

Pineapple, Orange and Banana:
As per the value chain study done by SFAC, there is a loss of 5% while transporting fruit to the aggregator. Aggregator margins are 30%. The FPOs can save 20%-25% if they aggregate and transport the produce directly to Guwahati.

Financial need gap
Pineapple, Orange and Banana:
In case of Pineapple, Orange and Banana farmers are excessively dependent on the pre-harvest contractor for credit requirements. Collectives do not have access to any formal funding sources for their finance requirements during production time.

Infrastructure & transportation gaps
Pineapple:
Most of the Pineapple in the cluster is Kew variety, which is not suitable for transportation to long distance. Even minor damages suffered during transportation results in rotting of this variety of Pineapple.

During harvesting period, there is a market glut and consequent price slump. Producers have no incentive to harvest their fruit which is left on the fields. All these losses can be avoided if the fruit is processed, stored and sold later.

This Kew variety is good for processing but there are no pulp making units in Kamrup. The fruit if processed into pulp, can be easily transported across long distances.

Banana:
Malbhog Banana from the cluster is exported to the GCC markets. To qualify for export, the fruit skin must be smooth and free from blemish. Centralized storage does not work for Banana since most of the damage occurs at the farm gate. To preserve the quality of Banana, it requires a hub and spoke procurement plan, where the spokes are located close to the farm gate. At present there is more than one layer of handling from the farm gate to the major trading hub of Guwahati which increases the damage to the fruit.

Orange:
Orange from this cluster is suited for processing as juice concentrate. Currently, there are no large fruit processing facilities in the cluster. Processing plants can help farmers tide over periods of market glut and low prices.

5. Alternative marketing channel possibilities in the cluster

Reliance Fresh and Future Group procure from the cluster through traders. At present the producers do not sell directly to alternate channels in the cluster

6. Required services/minimal infrastructures from the CEAD

Administrative
CEAD can organize training and capacity building programs for the existing FPOs for aggregation and grading of produce.

Financial
Formal funding arrangements are required for the FPOs to reduce their dependence on pre-harvest contractors.

Marketing
CEAD can facilitate an interactive platform between the FPOs and the market players. This will help better educate the producers regarding procurement parameters and help in reduction of produce that is rejected.
**Infrastructure**

There is urgent need of fruit processing plants which can process Orange, Banana and Pineapple. With availability of a range of fruits, this cluster can be an ideal processing hub.

7. Recommended POPIs in the cluster

Directorate of Horticulture and Food Processing is doing commendable work in the cluster. Directorate of Horticulture & Food Processing has promoted 4 FPO in the cluster.

**MAYURBHANJ CLUSTER**

Mayurbhanj cluster covers the Mayurbhanj district of Odisha. The total geographical area of the cluster is 10.5 Lakh Ha and the gross cropped area is 5.2 Lakh Ha. As per the latest census, the cluster has a population of 25.1 lakhs. The cluster comprises of 31 Mandals of Mayurbhanj district.

1. Profile of Major Crops selected for the study

The major crops selected for study are Paddy, Mango, Guava and Cashew.

**Paddy:**
Paddy is the major crop in the cluster. 8.09 Lakh MT Paddy is produced by 2.5 lakh growers. The entire produce is purchased by the Odisha State Civil Supplies Corporation and milled at processor for INR 20,000/ MT.

**Mango:**
The next important crop in the cluster is Mango. 20,000 growers cultivate around 41,000 MT of the fruit. Though majority of the produce is table variety, there is a region where variety more appropriate for processing is produced.

**Guava:**
22,000 growers cultivate around 21,000 MT of Guava in the cluster.

**Cashew:**
25,000 growers cultivate around 24,100 MT of Cashew in the cluster. There are 3 processors procuring about 50% of the produce from the cluster. At present, the by-product, Cashew apple, is not sold by the farmers as there is no facility for processing it.

2. Profile of FPOs in the cluster

There are 19 FPOs registered under the Companies Act in the cluster. The 17 FPOs participated in the survey. These 17 FPOs are promoted by 9 POPIs.

**Business activity details of the FPOs**
The total turnover of the FPOs in the cluster was INR 3.7 Cr in 2016-17 and INR 2.25 Cr in 2017-18. Mayurbhanj Fruits and Vegetables Farmers Producer Company Ltd. had maximum turnover of INR 3.5 Cr in the year 2016-17. It is also the only FPO that has GST registration and Mandi license.

**Member base and Farm Holding of the FPOs**
The total member farmers of the studied FPOs is 11,093 and they own 5,596 Ha of land representing about 1% of the total cropped area of the cluster. DULAL promoted FPOs have maximum land holdings while SAMBANDH promoted FPOs have aggregated a maximum number of farmers.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the FPOs studied represent 1.4% of the total production of Mango, 0.04% of the total production of Guava, 1.12% of the total production of Cashew.

3. Profile of the Market Players in the cluster

Safal operates in this cluster as a critical alternative market player. Safal procures Mango, Guava and Vegetables from FPOs in the cluster, and from individual farmers. The produce is then processed at Kharagpur district and sold in their Delhi outlets. At present, Safal has a collective strength of 17 F&V retail outlets in Odisha.
FPO sales to market players

FPOs did a business of INR 3.7 Cr and INR 2.25 Cr in 2016-17 and 2017-18 respectively with the market players with Safal being the key player. Mayurbhanj Fruits and Vegetables Farmers Producer Company Ltd. and Amrapali Producer Company Ltd. have their own retail shop. The rejection percentage for Mango and Guava is still very high sometimes and goes upto 50%. With training, there is potential to lower the rejection rate.

4. Identified gaps in the cluster

Marketing arrangement gap

Mango and Guava:
At present Safal is the sole buyer for the FPOs. But there are possibilities to sell produce to other clients such as Reliance, if FPOs are able to grade the produce.

Infrastructure and technology gap

Cashew:
The Cashew apple has the potential for an additional source of income if processed.

gaps in cultivation practices and organisational capability

Cashew:
At present farmers resort to selling of raw Cashew. By aggregating and processing Cashew FPOs can increase their income by 20%. FPOs require training about aggregation and processing. The three processing units in the cluster can be used for training FPO members. Once trained, the FPOs can decide to either set up the plant themselves or co-own processing facility with other FPOs.

Though there are 7 FPOs in Cashew, only the Mayurbhanj Fruits and Vegetables Farmers Producer Company Ltd., started a small unit for its processing. The initial experience has not been optimal for the FPO since the unit is not automated and has intensive manpower requirement.

5. Alternative marketing channel possibilities in the cluster

1) Safal is an alternate marketing player active in the cluster. The farmers are also happy with the price they receive from Safal.
2) Reliance Fresh is keen to procure from FPOs, provided they can sort and grade.

6. Required services/minimal infrastructures from the CEAD

1) Scientific grading centers and ripening and packing stations are required in the cluster.
2) CEAD can facilitate partnership with warehousing companies, to provide FPOs with access to storage structures for Cashew.
3) CEAD can facilitate partnerships with agencies like TechnoServe, TCTD IIT (M), to access latest Cashew processing technology for FPOs.
4) Partnership with Safal in developing a training program for FPOs in the catchment area of the new fruit processing plant will increase sales to the high return market player.

7. Recommended POPIs in the cluster

ORMAS is doing commendable work in the cluster. ORMAS has promoted the Mayurbhanj Fruits and Vegetables Farmers Producer Company Ltd., which has achieved a turnover of INR 3.5 Cr in the year 2016-17.
RANCHI CLUSTER

Ranchi cluster covers the district Ranchi of Jharkhand. The total geographical area of the district is 7.58 Lakh Ha and the gross cropped area is 2.72 Lakh Ha. As per the latest census, the cluster has a population of 29.14 Lakh.

The cluster comprises of 18 Mandal's of Ranchi district.

1. Profile of Major Crops selected for the study

Most of the FPOs are inactive in the cluster. The major crops cultivated by farmers in the cluster are Paddy, Cauliflower and Brinjal.

**Paddy:**
Paddy is an important crop in the cluster with production figures of 2.16 Lakh MT grown by 1.59 Lakh producers.

**Cauliflower:**
Cauliflower is another important crop in the cluster with production figures of 44,192 MT grown by 27,620 producers.

**Brinjal:**
The total production of Brinjal 54,660 MT produced by 27,330 Growers.

2. Profile of FPOs in the cluster

There are 23 FPOs in Ranchi cluster out of which 19 FPOs were found to be inactive. Out of remaining 4 FPOs, 3 were promoted by NABARD and 1 was promoted by Association for Social Advancement (ASA).

**Business activity details of the FPOs**
Overall business activity by FPOs in the cluster is at a nascent stage. The total turnover of these 4 FPOs in 2016-17 was INR 3.55 Lakhs and in 2017-18, it was INR 4 Lakhs.

Only 1 FPO has Mandi license. None of the FPOs have GST registration.

**Member base and Farm Holding of the FPOs**
The total member farmers of the studied FPOs are 1,840 and they own 916 Ha of land representing less than 0.33% of the total cropped area of the Ranchi cluster.

**Main crops being grown in cluster and volume of each vis-à-vis that of FPOs**
The member farmers of the studied FPOs represent 0.02% of the total production of Paddy. They are not cultivating cauliflower and brinjal at present.

3. Profile of the Market Players in the cluster

The cluster is dominated by traditional players like village traders and commission agents.

Commission agents provide farmers with credit during pre-season and lock the availability of produce for themselves. Farmers are also dependent on them due to the complex and costly logistics of transporting produce to the market.

**Alternative Marketing Channels active in the cluster**
There are no alternate marketing channel in the cluster.

4. Identified gaps in the cluster

Majority of the FPOs registered in the cluster are non-functional. Even the active FPOs have negligible sale due to ignorance amongst farmers about the FPOs concept and its advantages.

5. Alternative marketing channel possibilities in the cluster

There are no alternate market players in the cluster. The basic requirement at the cluster is to have functional FPOs and POPIs.
6. Required services/minimal infrastructures from the CEAD

Administrative
In this cluster majority of FPOs are not functional. Therefore, there are no services that CEAD center can adopt for this cluster. The cluster requires good FPOs to begin with.

7. Recommended POPIs in the cluster

NABARD and ASA are present in the cluster. These POPIs may be given more support/resources to reverse the current non-active situation of the FPOs.

SOUTH ZONE CLUSTERS

ANANTAPUR CLUSTER

Anantapur cluster covers district Anantapur of Andhra Pradesh. It has a geographical area of 19.1 Lakh Ha and gross cropped area of 11.80 Lakh Ha. As per the latest census, the cluster has a population of 40.83 Lakhs. The cluster comprises total 63 Mandals of Anantapur.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Groundnut, Redgram and Pomegranate.

Groundnut:
Groundnut is a major crop in the cluster with production of 4.78 Lakh MT. The crop is grown by 3 Lakh producers. 80% of Groundnut produced in the district is of Kadiri-6 variety.

Redgram:
Another major crop produced in the cluster is Redgram with approximately 30,000 growers producing around 13,000 MT.

Pomegranate:
Pomegranate is a major horticultural crop produced in the cluster with 94,489 MT produced by 10,000 growers.

2. Profile of FPOs in the cluster

There are 26 FPOs registered under the Companies Act in the cluster. All FPOs participated in the survey. 4 POPIs have promoted 25 FPOs and 1 FPO is independently promoted.

Business activity details of the FPOs
Out of 26 FPOs studied, 22 are engaged in business activities. Their total turnover in 2016-17 was INR 26 Lakhs and in 2017-18, it was INR 13.69 Cr. Sri Maruthi Vegetable Growers Cooperative Society is the FPO that had maximum business turnover in the cluster.

8 FPOs in the cluster have GST registration and 1 FPO has Mandi License. 1 FPO has both GST registration and Mandi license.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs are 17,474 and they have 24,242 Ha of land under them representing about 2% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 1.40% of the total production of Groundnut, 28% of the total production of Redgram, and 6.70% of the total production of Pomegranate.

The approximate quantities that can be aggregated represents the confidence of members in doing business activity in these commodities.
3. Profile of the Market Players in the cluster

The cluster is dominated by traditional players like pre-harvest contractors and traders. Pre-harvest contractors provide farmers with credit during the pre-season. Another reason for dependency of farmers on them, is due to the complexity and cost inefficiency of transporting produce to market.

4. Identified gaps in the cluster

Gaps in cultivation practices and organizational capabilities

Groundnut:
Groundnut is the major crop cultivated by 16 FPOs in the cluster. However, none of the FPOs are aggregating the produce. Most of the producers sell the produce immediately after harvesting. The price increases by 8% to 10% in 45 days after harvesting. Currently FPOs are not taking advantage of this opportunity.

Redgram:
Redgram is also a major crop cultivated by 10 FPOs. However, FPOs are not aggregating the produce.

Pomegranate:
Alternate marketing channel like Big Basket and Metro are active in Pomegranate procurement from the cluster, offering higher price than the traditional channels. FPOs are not selling to these players as they are unsure about their abilities to meet the procurement parameters.

5. Alternative marketing channel possibilities in the cluster

Big Basket and Metro are the alternate market players active in the cluster. Both corporates are willing to purchase produce from FPOs upon quality and quantity confirmations.

6. Required services/minimal infrastructures from the CEAD

Administrative
CEAD can facilitate training program for the FPOs in aggregation and storage to enable them to sell the produce to the market players.

Financial
Working capital arrangement is required for the Pomegranate FPOs to reduce their dependence on pre-harvest contractors.

Technology
CEAD can evaluate FPOs need for Cocoon, to store shelled Groundnut. Groundnuts can be stored in Cocoon without the risk of aflatoxin. This need to be evaluated and confirmed in field conditions.
7. Recommended POPIs in the cluster

VELUGU is the POPI doing commendable work in the cluster.

KOLAR CLUSTER

Kolar cluster comprises of the districts Kolar and Chikkaballapur of Karnataka. The total geographical area of the district is 7.79 Lakh Ha and the gross cropped area is 3.77 Lakh Ha. As per the latest census, the cluster has a population of 27.91 Lakhhs.

The cluster comprises total 12 Mandals, 6 from each of Kolar and Chikkaballapur districts.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Mango, Tomato, Maize and French Beans.

Mango:
Mango is an important crop in the cluster with production of 4.79 Lakh MT grown by 1 Lakh producers. 85% of Mango produced in the cluster is of Totapuri variety, which is mostly used for processing.

Tomato:
The total production of Tomato is 6.12 Lakh MT produced by 1.75 Lakh growers. The majority of variety produced is the table variety and not suitable for processing.

Maize:
Total production for Maize is 1.34 Lakh MT produced by 65,000 growers.

French Beans:
25,000 growers produce around 45,895 MT of Beans in this cluster.

Kolar is a major vegetable producing cluster. Everyday vegetables are transported from this cluster to the nearby hubs of Bangalore, Hyderabad, Tirupathi and other parts of the state.

2. Profile of FPOs in the cluster

There are 21 FPOs in the cluster. 14 FPOs participated in the survey.

Business activity details of the FPOs
Out of 14 FPOs, 12 are engaged in business activity. The total turnover in 2016-17 was INR 3 Cr and in 2017-18 was INR 1.5 Cr. Shri Vinayaka Farmer Producer Company had maximum business turnover in the cluster. 9 FPOs have GST registration and 4 FPOs have Mandi licenses, of these 4 FPOs have both GST registration and Mandi licenses.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs is 12,010 and they own 14,972 Ha of land representing about 4% of the total cropped area of the Kolar cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 20.2% of the total production of Mango, 7.15% of the total production of Tomato, 7.7% of the total production of Maize and 9.1% of the total production of French Beans.

The approximate quantities that can be aggregated represents the confidence of members in doing business activity in these commodities.

3. Profile of the Market Players in the cluster

The cluster is dominated by traditional players like pre-harvest contractors and traders. Pre-harvest contractors provide farmers with necessary credit in the pre-season itself and lock the availability of produce for themselves.

Another reason for the farmers’ dependency on them is due to the complex and costly logistics of transporting the produce to the market.

Alternative Marketing Channels active in the cluster
Big Basket, Metro, Mother Diary, Waycool Foods, Farm Link and Y-Cook India are the alternate marketing channels, which are active in the cluster.
Waycool Food and Products (P) Ltd., Hoskote, Bangalore has procured Mango, Tomato and other vegetables from 6 FPOs of the cluster. Though this cluster has made a significant beginning in doing business with alternate players, the volumes are still in the range of 2%-3% of the total produce.

**FPO sales to market players**

FPOs did a business of INR 3 Cr and INR 1.5 Cr in 2016-17 and 2017-18 respectively with the market players. The key market player were traders. At present direct sales from FPOs to processors and alternate market players is minimal. Only 2%-3% of the sales happen through alternate channels even though the price realization by alternate channels is higher than the traditional channel.

### Gaps in cultivation practices and organisational capabilities

**Mango:**

Though Mango is the most important commodity for 5 FPOs in the cluster, they are not involved in any value addition of the fruit. The FPO members produce 20% of the mangoes produced in the cluster. There is a good opportunity for aggregation.

Lack of awareness about proper picking results in poor quality of Mango pulp, thereby affecting competitiveness of processors in the global market. At present the Mango produce moves through several hands resulting in inferior quality.

Lack of awareness about the right use of pesticides for Mango results in Carbendazim residue issues which leads to rejection of material by exporter. The growers are not aware of these issues as there is no interaction platform between the growers and the processors.

**Tomato and French Beans:**

There are 12 FPOs active in Tomato but none of them are aggregating the crop. By aggregating, FPOs can transport Tomato to regional trading hubs such as Coimbatore and Salem. This would improve their returns by 4%-5%.

**Marketing arrangement gap**

**Tomato and French Beans:**

Big Basket and Metro have approached FPOs in the cluster for supply of produce. But the FPOs were unable to supply as per the parameter required by them.

**Maize:**

Y-Cook, a food processor based out of Bangalore, has expressed their interest in procuring the commodity from FPOs provided FPOs are able to supply as per the quality requirement of the company.

**Financial need gap**

**Mango:**

65% of the produce is sold to the pre-harvest contractor who offers the lowest return to the farmer. Farmers, as well as the processors, depend on pre-harvest contractors for credit since formal credit is not available to the them.

### Alternative marketing channel possibilities in the cluster

Big Basket, Metro, Mother Diary, Waycool Foods, Farm Link and Y-Cook India are alternate market players, which are active in the cluster. Waycool has procured from 3 FPOs of this cluster. Big Basket and METRO have also expressed their interest to procure from the FPOs.

### Required services/minimal infrastructures from the CEAD

**Administrative**

1) CEAD need to facilitate training program on aggregation for the FPOs.

2) CEAD can facilitate an interaction platform between the Mango processors and producers enabling an overall improvement of the ecosystem.

**Financial**

CEAD can facilitate for an electronic finance platform that will bring in formal banking and enable better connectivity between farmers and processors.
Marketing
CEAD can facilitate training on grading and aggregation to FPOs to meet the parameter requirements of alternate market players.

7. Recommended POPIs in the cluster

ESAF and Horticulture Department of the district are doing commendable work in the cluster.

KRISHNA CLUSTER

The Krishna cluster covers Krishna district of Andhra Pradesh. It has a total geographical area of 8.72 Lakh Ha and gross cropped area of 4.76 Lakh Ha. As per the latest census, the cluster has a population of 45.29 Lakh.

The cluster comprises of 50 Mandals.

1. Profile of Major Crops selected for the study

The major crops selected for study are Paddy, Mango, Turmeric and Banana.

Paddy:
Paddy is an important crop in the cluster with production of 7.45 Lakh MT grown by 3 Lakh producers. 60% of Paddy produced in the cluster is the Sonamasoori variety.

Mango:
Mango is another important horticultural crop in the cluster with production of 6.22 Lakh MT grown by 2 Lakh producers. 85% of Mango produced in the cluster is of Banginapalli which is preferred as a table variety.

Turmeric:
The total production of Turmeric is 72,000 MT produced by 50,000 growers. Most of the Turmeric produced in the cluster is not suitable for processing.

Banana:
The total production for Banana is 13.85 Lakh MT produced by 87,000 growers. The Banana produced is Karpoora variety which is consumed largely in Andhra Pradesh, Telangana and parts of Tamil Nadu.

2. Profile of FPOs in the cluster

There are 20 FPOs registered under the Companies Act in the cluster. All 20 FPOs participated in the survey. These 20 FPOs are promoted by 3 POPIs.

Business activity details of the FPOs
9 FPOs are engaged in business activity in the cluster. The total turnover for these FPOs in 2017-18 was INR 4.12 Cr. Visannapetta Rythu Upathi Darula Parasparsa Sahakara Sangam had maximum turnover in the cluster.

None of the FPOs have GST registration or Mandi license.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs are 8,127 and they own 7,076 Ha of land representing about 1.48% of the total cropped area of the Krishna cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the FPOs studied represent 0.97% of the total production of Paddy, 4.5% of the total production of Mango, 15% of the total production of Turmeric and less than 1% of the total production of Banana. These quantities indicate the confidence of FPO members, in engaging in business activity in these commodities.

3. Profile of the Market Players in the cluster

The cluster is dominated by traditional players like pre-harvest contractors and traders. Pre-harvest contractors provide farmers with necessary credit in the pre-season itself and lock the availability of produce for themselves. Another reason for the farmers dependency on them is due to the complex and costly logistics of transporting produce to the market.

Alternative Marketing Channels active in the cluster
Big Basket and Metro are the alternate marketing channels active in the cluster. Currently the trade volumes are low.
FPO sales to market players
FPOs conducted business of INR 4.12 Cr in 2017-18 with the market players. The key market players were traders. At present direct sales from FPOs to the processors and alternate market players is low. Only 1%-2% of the sales happen through alternate channels and processors even though the price realization by processors and alternate channels is higher than the traditional channel.

Gaps in cultivation practices and organisational capabilities
Paddy:
60% of the Paddy produced in the cluster is Sonamasoori variety which is consumed in most parts of Southern India. At present producers resort to selling to traditional channel players, immediately after harvesting. Their price realization is INR 1,200-1,500/Quintal. However, if the farmers are able to store the commodity for a period of 4 to 6 months, they can earn INR 1,800/quintal for the same commodity, an additional income of 6% to 7%, accounting for cost of storage and weight loss of 1%.
FPOs can also market Rice after milling the Paddy crop. Upon milling, 1 quintal of paddy yields a minimum of 70 kg of Rice. Considering minimum market rate of INR 40/kg for rice, the possible revenue generated is INR 2800/Quintal.
There are 5 FPOs in this cluster working on Paddy. None of them are involved in any value chain activities for the crop.
Mango:
The cluster produces abundant quantity of Banganapalli variety of Mango which is consumed as a table variety. Alternate channel players, such as Big Basket and Metro, procure Mango from the Mandi, since there is a lack of professional approach from the FPOs.
Turmeric:
Though Turmeric is another major crop produced in the cluster, the variety cultivated is not suitable for processing. ITC Ltd. and Priya Food Products are two major processors of Turmeric, present in the cluster. They have not been able to procure Turmeric from the FPOs.

Financial need gap
Banana:
Banana is another major horticultural crop grown in the cluster. The variety grown by the FPOs is Karpooora variety. This variety is consumed for table purpose in Andhra Pradesh and Telangana. 70% of the sales happen through the pre-harvest contract where the price realization is the lowest. The sale of produce in Mandi provides better price to the farmers, than the pre-harvest contractors. Producers are forced to sell produce at such low rates due to the excessive dependence on pre-harvest contractors for their credit needs. The 7 Banana FPOs produce around 10,000 MT crop. There is opportunity for these FPOs to explore formal funding sources for their credit requirements. At present producers do not take advantage of FPOs to seek formal credit sources.

Big Basket and Metro are alternate market players, which are active in the cluster, who have also expressed their interest to procure from the FPOs.

Administrative
1) CEAD can facilitate awareness and capacity building programs for Paddy FPOs for income maximization using FPO platform.
2) In case of Mango, CEAD can facilitate training on organization capability enhancement to ensure successful collaborations with market players.

Financial
Working capital requirement of the Banana FPOs need to be met through formal funding sources. CEAD can partner with credit guarantee programs to provide banks with a comfort of lending. Innovative digital platforms need to be explored involving FPOs, market players and banks.

VELUGU is a recommended POPI in this cluster.
MAHBUNAGAR CLUSTER

Mahbubnagar cluster covers Mahbubnagar district of Telangana. The total geographical area of the cluster is 18.47 Lakhs Ha and the gross cropped area is 7.37 Lakhs Ha. As per the latest census, the cluster has a population of 40.5 Lakhs.

The cluster comprises of 64 Mandals of the Mahbubnagar district.

1. Profile of Major Crops selected for the study

The three crops selected for the study are Red gram, Paddy and Cotton.

Redgram:
Redgram is the most important crop of the cluster and is cultivated by approximately 40,000 farmers producing the 2.01 Lakh MT.

Paddy:
Paddy is another major crop in the cluster. Approximately 2 Lakh growers producing 8.40 Lakh MT of Paddy in the cluster.

Cotton:
Cotton is the other important crop in the cluster. Approximately 2 Lakh growers produce 4.5 Lakh MT. This cluster is famous for seed production due to high germination percentage. In the cluster, few organizations have initiated cultivation of organic Cotton.

2. Profile of FPOs in the cluster

There are 22 FPOs registered as per Companies Act in the cluster. 16 FPOs participated in the survey. These 16 FPOs are promoted by 8 POPIs.

Business activity details of the FPOs
4 FPOs are engaged in business activities in the cluster. The total turnover of these 4 FPOs was INR 14.18 Cr in 2016-17 and INR 45 Lakh in 2017-18. Hasanabad Farmers Services Producer Company Ltd. and Angadiraichur Farmers Producer Services Company had maximum turnover in this cluster.

12 FPOs have GST registration in this cluster and 10 FPOs have Mandi licenses. 10 FPOs have both Mandi licenses and GST registration.

Member base and Farm Holding of the FPOs
The total number of member farmers of the studied 16 FPOs are 6,168 and they have 9,717 Ha of land under them representing about 1.3% of the total cropped area of the Mahbubnagar cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The FPO members contribute 1.55% to the total production of Paddy, 8.3% to the total production of Cotton, and 6.5% to the total production of Red gram.

3. Profile of the Market Players in the cluster

Traditional players like the Government Agencies and regulated market play a key role, procuring more than 80% of the volumes. 100% Red gram is procured by the MARKFED, while most of the produced Paddy and Cotton is routed through the regular market.

Alternative Marketing Channels active in the cluster
At present there is only one alternate channel present in this cluster. The Kovva India Cotton Mill procures organic Cotton directly from FPOs in this cluster. Reliance Fresh can be a potential market player in the cluster once the FPOs start cultivating vegetables.

FPO sales to market players
4 FPOs registered active business in this cluster. The total turnover of these 4 FPOs was INR 14.18 Cr in 2016-17 and INR 45 Lakh in 2017-18.

SFAC, MARKFED and Kovva India Cotton have procured varied quantities from FPOs.
4. Identified gaps in the cluster

Marketing Arrangement gap

Cotton:
Though 1 FPO is cultivating organic Cotton, they have not been able to obtain good remuneration for it. The organic Cotton from Palamuru Raithula Producer Company fetches INR 300 more than the other Cotton in the market. However, the yield for organic Cotton is much lower at 5 quintals per acre compared to 10-12 quintals per acre of non-organic Cotton.

Other companies, such as Chetha Organic, Spectrum International, Pratibha Syntex and Mahima Cotspin, also procure organic Cotton from the cluster, FPOs can increase their client base to obtain better rates for their organic Cotton, by getting the produce certified by the agent appointed by APEDA.

Infrastructure and technology gap
The cluster is drought prone and FPO members do not practice any modern irrigation management system like drip or sprinkler. In some areas like Damargiddha and Kollapur, farmers still use traditional tools like country plough.
Even basic machines, such as Tractors, are not available in some parts of the cluster.

Gaps in cultivation practices and organisational capability

Vegetables:
The cluster is close to Hyderabad which provides opportunities for better returns. However, vegetables are not a key crop in any one of the FPOs.

NABARD is keen to promote and support partnerships with the fruit and vegetable marketers. They also undertook some preliminary discussion with few market players in the presence of the district collector, but the FPOs have been unable to move ahead.

Cotton:
Mahbubnagar is famous for Cotton seed production. Close to 20% of the total seed, produced by major seed companies, is produced in this belt. Farmer can get 15%-20% more income by cultivating Cotton seed. However, at the current capability level, there is a gap which hinders FPOs from using this opportunity.

Paddy:
Farmers are unaware of the benefits of storage of the commodity. At present they sell the produce immediately after harvesting, earning INR 1800/Quintal during harvesting month of December-January. By selling the produce in the month of June and July, the farmer earns INR 2200/Quintal. By storing Paddy, farmers can get better revenues.

5. Alternative marketing channel possibilities in the cluster

1) The Kovva India Cotton Mill procured organic Cotton from Palamuru Raithula Producer Company Ltd. last year. Other Cotton FPOs can also sell their produce to the company.

2) FPOs can get certification of organic Cotton by an agency appointed by APEDA. This would allow them to sell organic cotton to other companies such as Chetha Organic, Spectrum International, Pratibha Syntex and Mahima Cotspin.

3) Reliance Fresh is also a possible alternate market player for vegetables once the FPOs start cultivating Vegetables.

6. Required services/minimal infrastructures from the CEAD

Administrative
1) CEAD can facilitate training of FPOs on package of practices for vegetable cultivation.

2) CEAD can facilitate FPOs linkages with the seed companies for undertaking the Cotton seed cultivation.

3) CEAD can partner with relevant agencies to impart training on aggregation and storage for Paddy FPOs.

Marketing
1) CEAD can partner with agencies such as IDH which are well connected with the sustainable agriculture market players. This will improve the client base for organic Cotton in the district.

2) CEAD can explore partnerships for setting up exclusive ginning and spinning facilities for Organic Cotton in the cluster.

Infrastructure and technology
Companies like EM3 are keen to partner with CEAD in expanding their agriculture implements lending business to the cluster. This will help improve technology application in agronomy practices.
7. Recommended POPIs in the cluster

ALC (Access Livelihood Consulting) is the POPI which is doing effective work with the FPOs in the cluster.

MEDAK CLUSTER

Medak cluster covers Medak district of Telangana. The total geographical area of the cluster is 10.82 Lakh Ha and the gross cropped area is 5.48 Lakh Ha. As per the latest census, the cluster has a population of 33.07 Lakh.

The cluster comprises of 68 Mandals of the Medak district.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Onion, Cotton and Redgram.

Onion:
In this cluster 20,000 farmers producer 72,870 MT of Onion.

Cotton:
Another major crop produced in the cluster is Cotton. Approximately 10,000 growers produce around 12,500 MT of Cotton.

Redgram:
24,000 growers produce 12,000 MT of Redgram.

2. Profile of FPOs in the cluster

11 FPOs participated in the survey, which are promoted by 4 POPIs.

Business activity details of the FPOs
Overall business activity by FPOs in the cluster is at a nascent stage. Only 2 FPOs are engaged in business activity. Their total turnover in 2016-17 was INR 35 Lakh and in 2017-18, it was INR 10 Lakh. Zaheerabad Farmer Producer Company had maximum turnover in the cluster.

11 FPOs are have GST registration and 10 FPOs are have Mandi License and GST.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs are 8,464 and they have 16,411 Ha of land under them representing about 3% of the total cropped area of the Medak cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 2.05% of the total production of Onion, 4% of the total production of Cotton and 10% of the total production of Redgram.

3. Profile of the Market Players in the cluster

Commission agents and village traders are prominent procurers from the producers in this cluster.

Alternative Marketing Channels active in the cluster
There are no alternate marketing channels in the cluster.

FPO sales to market players
FPOs did a business of INR 10 Lakh in 2017-18, mostly through traditional marketing channels.

4. Identified gaps in the cluster

Gaps in cultivation practices and organisational capabilities

Cotton:
Cotton is an important commodity in the cluster and there are 3 FPOs where Cotton is an important crop. However, none of the FPOs engage in the aggregation activity in Cotton. There is opportunity for FPOs to increase their income by stocking Cotton as Sales. This can increase their incomes by 10%.
Finance need gap

Cotton:
Cotton is sensitive to price volatility. At present there are no tools available to protect farmers from price fluctuation.

Gaps in cultivation practices and organizational capability

Tur:
Even in times of a price crash as during the 2016-17, the MSP declared was INR 50/kg, while farmers were selling their produce at INR 35/kg/INR 40/kg At the same time, consumers were buying the produce at INR 74/Kg.
Therefore, farmers had an opportunity to make additional benefit by simply packing and selling the produce to end consumers. This would entail a total cost of INR 1,420 for in aggregation, processing and marketing.
No FPO in the cluster is involved in processing of Tur and marketing of Dal.

5. Alternative marketing channel possibilities in the cluster

The cluster is in proximity to Hyderabad, which is a large consumption base. Almost all major retailers operate in Hyderabad. FPOs have tried to connect with these market players, but were unsuccessful.

6. Required services/minimal infrastructures from the CEAD

Administrative
CEAD can facilitate training program on capacity building for FPOs on aggregation and procurement of commodities.

Marketing
CEAD can arrange partnership with Dal processor to undertake processing.

7. Recommended POPIs in the cluster

Vrutti is recommended POPI in the cluster.

PERAMBALUR CLUSTER

Perambalur cluster covers the districts Perambalur and Ariyalur of Tamil Nadu. It has a total geographical area of 3.69 Lakh Ha and gross cropped area of 2.05 Lakh Ha. As per the latest census, the cluster has a population of 13.20 Lakh.
The cluster comprises of total 8 Mandals of Perambalur and Ariyalur districts.

1. Profile of Major Crops selected for the study

The major crops selected for the study are Maize, Cotton and small Onion.

Maize:
Maize is an important crop in the cluster with production figures of 1.11 Lakh MT grown by 750,000 producers. The cluster lies in proximity to large poultry farms, which consumes Maize in the poultry feed.

Cotton:
The total production of Cotton is 12,501MT produced by 24,200 growers. The state is home to large apparel producers and exporters. Tamil Nadu imports Cotton from other parts of the country, since Cotton produced in the state is insufficient for the industry.

Small Onion:
Total production for Small Onion is 60,622 MT produced by 7,500 growers. Small Onion from the cluster is sold Pan India. This is a major production hub of small Onion and the produce quality is considered better.

2. Profile of FPOs in the cluster

4 FPOs participated in the survey. Out of these 4 FPOs, 1 FPO is promoted by RGR Cell TATA Trust and the remaining 3 are independently promoted. All FPOs in this cluster are registered under the Companies Act.
All 4 FPOs are engaged in business activity.
Business activity details of the FPOs
The total turnover in 2016-17 was INR 31.75 Lakhs and in 2017-18, it was INR 12.5 Lakhs. WEFSA Farmers Producer Company Ltd. had maximum turnover in the cluster.

All 4 FPOs are have GST registration and Mandi License.

Member base and Farm Holding of the FPOs
The total member farmers of the studied 4 FPOs are 1,614 and they own 4,242 Ha of land representing about 2.06% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis a vis that of FPOs
The member farmers of the studied FPOs represent 0.23% of the total production of Maize, 0.01% of the total production of Cotton, and 1.48% of the total production of small Onion.

3. Profile of the Market Players in the cluster

The cluster is dominated with traditional players such as commission agents and local village traders.

Alternative Marketing Channels active in the cluster
There are no alternate marketing channels in the cluster. The major poultry players such as SKM and Suguna, have reduced their procurement of Maize from this cluster, due to deteriorating quality parameters of commodity.

FPO sales to market players
FPOs did a business of INR 31.75 Lakhs and INR 12.5 Lakhs in 2016-17 and 2017-18 respectively with the market players, predominantly with traders. At present, the direct sales from FPOs to the processors and alternate market players is minimal.

4. Identified gaps in the cluster

Gaps in cultivation practices and organisational capabilities

Maize:
The major poultry producers, like SKM and Suguna, have reduced procurement of Maize from the cluster. The commodity often fails on parameters due to heavy insect infestation. Maize stocked in hermetic conditions do not have risk of Aflatoxin contamination. Additionally, when high moisture Maize is stored in hermetic conditions, fermentation of produce results in increased protein content and high feed quality.

Small Onion:
Small Onion is sold at the rate of INR 2,500 per quintal in the local Mandi, but at INR 80 - INR 100 per kg in major metros. By transporting the produce to these cities, there is an opportunity to increase the revenue by 15%-20%.

5. Alternative marketing channel possibilities in the cluster

SKM and Suguna, the poultry majors in the cluster, are willing to procure maize from the cluster, provided the quality parameters is met by the FPOs.

6. Required services/minimal infrastructures from the CEAD

1) CEAD can facilitate storage of Maize in Cocoons and verification of favourable Aflatoxin levels in the crop.
2) CEAD can support FPOs in aggregation and transport of small Onion to the Regional trading hubs.

7. Recommended POPIs in the cluster

RGR cell of the Tata Trust in the cluster is the recommended POPI.

TUMKUR CLUSTER

Tumkur cluster covers Tumkur district of Karnataka. The total geographical area of the district is 10.24 Lakh Ha and the gross cropped area is 6.84 Lakh Ha. As per the latest census, the cluster has a population of 26.79 Lakhs.

The cluster comprises of 10 Mandals of Tumkur district.
1. Profile of Major Crops selected for the study

The major crops selected for the project study are Coconut, Betelnut, Banana, Tomato and Millet.

Coconut:
Coconut is the most important crop in the cluster grown in 1.52 Lakh Ha with a total production of 1.38 Lakh MT. 85,000 growers cultivate Coconut. 85% of Coconut produced in the district is of Tiptur variety which is known for its copra quality. Majority of the nuts are used for copra production.

Arecanut (Betelnut):
Arecanut is the next important crop in the cluster. 50,301 MT of Arecanut is produced by 60,000 growers. CAMPCO is a major processor which procures almost 80% of the produce in the cluster. CAMPCO is a multi-state co-operative and a success story of Coconut and Cocoa cooperative societies.

Banana:
Approximately 25,000 farmers produce around 1.29 Lakh MT of the produce. Majority of the Banana cultivated in the cluster is Yelaki variety which is a hard variety. Pre-harvest contractors account for 60% of the sales for Banana in the cluster.

Tomato:
25,000 growers produce around 1.14 Lakh MT of Tomato in the cluster. Majority of the Tomato cultivated in the cluster is table variety and not suitable for processing. The shelf life of this variety is very short (only 5 days) and is unsuitable for cold storage which brings in logistical complexity for the produce.

Millet (Ragi):
3.93 Lakh MT is produced by 1.3 Lakh growers. Majority of the commodity is used for self-consumption.

2. Profile of FPOs in the cluster

There are 20 FPOs in the cluster. 17 FPOs participated in the survey and these are promoted by 6 POPIs.

Business activity details of the FPOs
12 FPOs registered business activity in the Tumkur cluster. Their total turnover in 2016-17 was INR 2.37 Cr and in 2017-18, it was INR 3.68 Cr. Pavagada Horticulture Farmers Producers Company Ltd. had maximum turnover in the cluster.
16 FPOs have both GST registration and Mandi license.

Member base and Farm Holding of the FPOs
The total member farmers of the studied FPOs are 21,552 and they own 21,681 Ha of land representing about 3.16% of the total cropped area of the cluster.

Main crops being grown in cluster and volume of each vis-à-vis that of FPOs
The member farmers of the studied FPOs represent 28.96% of the total production of Coconut, 8.31% of the total production of Arecanut, 6.70% of Banana, 3.79% of the total production of Tomato and 1.03% of the total production of Millet.

3. Profile of the Market Players in the cluster

Pre-harvest contractors play major role in Coconut and Banana.
CAMPCO is the largest market player for Arecanut.
In case of Tomato and Banana, a few alternate market players are present.

Alternative Marketing Channels active in the cluster
CAMPCO Ltd. is an alternate market player active for Arecanut in the cluster. They procure directly from individual farmers and they do not envisage any role for FPOs in their business model.
Big basket and Metro are active in case of Mango, Banana and Tomato in the cluster.

FPO sales to market players
FPOs did a business of INR 2.37 Cr and INR 3.68 Cr in 2016-17 and 2017-18 respectively with the market players.
4. Identified gaps in the cluster

Gaps in cultivation practices and organizational capabilities

Coconut:
Farmers can earn 5% to 6% more by selling directly to the processors. Though there are 5 FPOs active in Coconut, only Kalpatharu Farmer Producer Company is involved in collection and trading of copra. This FPO also produces and markets Neera, commonly known as palm nectar. According to the FPO an additional income of INR 1500/month is possible by taking up this activity. FPOs can also make additional income of 30%, by selling Coconut husk and shell if they aggregate the produce.

Tomato:
There are 6 FPOs active in Tomato. However, no FPO is involved in aggregation and sales of Tomato. By aggregating and transporting Tomato to regional trading hubs, such as Coimbatore and Salem, FPOs can improve their returns by 4% to 5%.

Marketing arrangement gap

Banana:
In case of Banana, 60% of the sales is through the pre-harvest contractors and the returns from these market players are far lower than alternate channel players. FPOs can earn 20% more by selling to the alternate channels players or by transporting to the regional trading hubs. Apart from dealing with the right market players, FPOs also require training on parameter requirements of the market players.

Traders in Vashi (Mumbai) market have expressed interest to buy from the FPOs.

Coconut:
At present the 1 FPO is involved in making Neera, but in limited quantities, which is supplied through their outlets. The FPOs need support from market player with better outreach, in order to scale-up their operations.

Financial need gap

Banana:
A majority of farmers depend on pre-harvest contractors for their credit requirements during cultivation period. If FPOs have access to formal credit sources, their dependence of pre-harvest contractors would be reduced.

5. Alternative marketing channel possibilities in the cluster

Big Basket and Metro are probable alternate market players for Banana and Tomato in the cluster. Traders in regional hubs of Coimbatore and Salem pay better prices than the traditional markets for Tomato and Banana. Connecting to other high demand consumer market of Mumbai through traders in Vashi can help FPOs earn 8% to 10% higher returns.

6. Required services/minimal infrastructures from the CEAD

Administrative
CEAD can facilitate training program on aggregation and trading for Coconut, Tomato and Banana FPOs.

Infrastructure
CEAD can facilitate storage and transport of Neera.

Financial
CEAD can facilitate formal credit source for the Banana FPOs.

Marketing
CEAD can facilitate grading and aggregation training to FPOs to meet the parameter requirements of the alternate market players.

7. Recommended POPIs in the cluster

IDF is doing commendable work in the cluster.
6. MATCHING OF FPO OFFERING WITH CORPORATE BUYERS

In a particular Cluster, Key Value Chains have been linked with probable Market Players. This is explained with one example from the Non-Perishable value chain and one from Perishable value chain.

**Non-Perishables - Ex Soybean**

177 FPOs are engaged in Soybean cultivation. This is 24% of the total studied FPOs. Suminter India Organics, Cargill, Suguna Foods, ITC and Kirti Nutrients are the possible Market players identified for Soybean FPOs.

**Perishables - Ex Mango**

36 FPOs are engaged in Mango cultivation. This is 5% of the total studied FPOs. Big Basket, Metro, Safal, and Jain Irrigation are the possible Market players identified for Mango FPOs.

Exhibit No 2 is a pictorial illustration of the possible FPO and Market Player associations arrived at across the Clusters.
7. POTENTIAL CLUSTERS FOR CEAD LED INTERVENTIONS

The study established certain important factors which are pre-requisite for the success of CEAD in a Cluster. These factors are classified into two major heads. All clusters were evaluated based on these two select parameters which are explained below in detail.

a) Potential within cluster for identified parameters. b) Presence of certain critical success factors.

CEAD operations should be initiated at clusters where FPOs have passed certain critical stages in Organizational development and capabilities.

The activities of CEAD and the responsibilities of POPI are to be treated separately. Hence East Singhbhum where the FPOs are at very rudimentary stage or Clusters like Agra where FPOs are not active were not considered for CEAD. It was assessed that in these clusters effective POPI work should precede CEAD interventions.

Potential of a cluster is defined as:

Potential to transform an undifferentiated commodity into a product

Some clusters possess an advantage that have not been monetized yet. For example, the produce from Dahod has lower level of chemical residue, while produce from Tehri is naturally Organic. However, the produce from these clusters is not branded accordingly. There is a potential to differentiate these crops, and transform them from mere commodities to Products

Hence these clusters were recommended.

Potential for high impact on livelihoods

Clusters like Mayurbhanj have collectives with majority tribal farmers. Successful intervention in the cluster will have large impact on target population income and socio-economic development.

Potential for regional impact

At Kamrup cluster there is a need for a fruit processing center. Though there is raw material availability, absence of other conducive factors prevents Market Players from investing in processing facilities.

CEAD can lead activities that gives confidence to Market Players. This can have a positive impact on the lives of small holder farmers in the cluster and in the entire Eastern sector, where processing facilities are limited.
Apart from potential, it is the presence of certain critical success factors in the cluster that can help CEAD to tap the aforementioned potential. The factors considered by the team are listed below.

a) Short listed Clusters to have reasonable number of active FPOs. Disaggregation can prevent many successful interventions hence acritical mass of Producer Collectives is important.

b) The cluster should have the presence of at least one commodity where market led intervention is possible, for example Orange in Amravati or Mango in Chittoor.

c) Presence of strong anchor organizations to support interventions like CINI at Dahod and Himmothan at Tehri.

d) Proximity to a vibrant processing hub to drive linkages proposed by CEAD like that of Chittoor and Tumkur.

e) Availability of a large corporate buyer/buyers for the cluster will help the center achieve sustainability faster.

Zeroing on to ten clusters for CEAD establishment

Out of 49 Clusters, 8 Clusters (Annexure 2) were ruled out of consideration either due to lack of genuine FPOs or the overall FPO milieu being in a nascent stage for a CEAD led intervention.

Remaining clusters were evaluated for Potential and Presence as explained above. Based on the evaluation, 10 clusters exhibiting greatest potential for establishment of CEAD, as exhibited below, were selected (Annexure 2).
CONCLUSION AND WAY FORWARD

The study has established actionable Clusters of FPOs at the National level. Details of active FPOs and their Key Value Chains were identified at Cluster level. Apart from identifying possible associations with Market Players, the study also grouped Market Players into different categories. This categorization will help FPOs and their POPIs in strategizing Market Linkages. The study also established that FPO-Market Linkage is a requirement not only for FPOs but also for Market Players. This mutual need will keep increasing and which will further strengthen FPO-Market Player associations. The Study has enumerated various Gaps impeding the Market Linkages, though each of these Gaps require to be evaluated for viability and sustainability. Another learning from the study is that the interventions can have a force multiplier effect on the overall ecosystem. The study also lists the factors contributing to congenial conditions required in a Cluster for establishment of CEAD. A final deliverable of the study, is its listing of Clusters that can be immediately considered for setting up of CEAD. Considering future action, DPRs (Detailed Project Reports) are required to be undertaken in identified clusters to help setting up of CEAD.

GLOSSARY

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>ACPL</td>
<td>Arya Collateral and Warehousing Services Pvt Ltd</td>
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<tr>
<td>BCI</td>
<td>Better Cotton Initiative</td>
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<tr>
<td>CEAD</td>
<td>Centre of Excellence in Agricultural marketing and Development</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>DPR</td>
<td>Detailed Project Report</td>
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<tr>
<td>FPC</td>
<td>Farmer Producer Company</td>
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<tr>
<td>FPO</td>
<td>Farmer Producer Organisation</td>
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<tr>
<td>LD</td>
<td>Louis Dreyfus</td>
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<tr>
<td>MACS</td>
<td>Mutually Aided Cooperative Society</td>
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<tr>
<td>MNC</td>
<td>Multi National Corporation</td>
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<tr>
<td>MSME</td>
<td>Micro Small and Medium Enterprises</td>
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<td>NABARD</td>
<td>National Bank for Agriculture and Rural Development</td>
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<tr>
<td>POPI</td>
<td>Producer Organisation Promoting Institution</td>
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<tr>
<td>TT</td>
<td>The Tata Trusts</td>
</tr>
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<td>TOR</td>
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### Annexure 1: Clusters Selected for Study

<table>
<thead>
<tr>
<th>State</th>
<th>Name of Clusters</th>
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<tbody>
<tr>
<td>Maharashtra</td>
<td>Ahmednagar, Akola, Amravati, Aurangabad, Bhandara, Buldhana, Dhule, Jalna, Nagpur, Nanded, Nashik, Sangli, Satar, Solapur, Thane-Mumbai, Whardha, Washim, Yavatmal</td>
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<tr>
<td>Uttar Pradesh</td>
<td>Agra, Kanpur Dehat, Kanpur nagar, Lucknow</td>
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<td>Andhra Pradesh</td>
<td>Chittoor, Krishna, Medak</td>
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<td>Rajasthan</td>
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<td>Ganjam, Mayurbhanj</td>
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<td>Fazilka, Ludhiana</td>
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<td>East Singhbhum, Ranchi</td>
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<td>Kolar, Tumkur</td>
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<td>Ahmedabad, Dahod</td>
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<td>Mahbubnagar</td>
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<td>Tripura</td>
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<td>Uttarakhand</td>
<td>Tehri</td>
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## Annexure 2

<table>
<thead>
<tr>
<th>Clusters selected for CEAD</th>
<th>Clusters rejected for CEAD intervention</th>
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<tbody>
<tr>
<td>Amravati</td>
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<td>Kamrup</td>
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