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Farmer Producer Organization In Andhra Pradesh: A Scoping Study

Rythu Kosam Project

ICRISAT
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Farmer Producer Organization In Andhra Pradesh: A Scoping Study

Rythu Kosam Project

KV Raju, Ranjit Kumar, Surjit Vikraman, Moses Shyam,
Srikanth R, D Kumara Charyulu and Suhas P Wani

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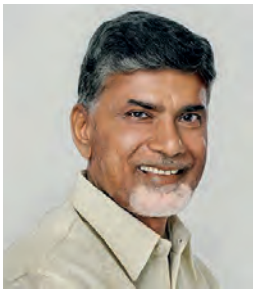


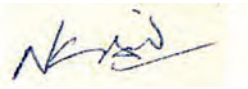
Sri N Chandrababu Naidu
Chief Minister, Andhra Pradesh

Message

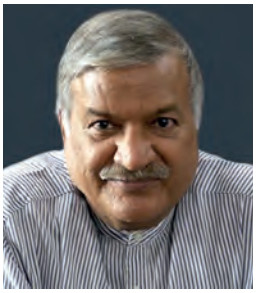
The Government of Andhra Pradesh has envisaged, “Sunrise Andhra Pradesh: Vision 2029 to promote a happy, inclusive and globally competitive society”. As part of this, the state has set up seven missions and the Primary Sector Mission is one of them. To begin with, the state in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has developed a strategy for Primary Sector development to enable double-digit growth in the Primary Sector across its 13 districts of the state.

In order to improve welfare and living standards of farmers, particularly small holders, the government wishes to create an appropriate ecosystem in the state. Certain commodities are identified for providing necessary support system for the entire products and creating value chain. In this entire process, one of the important elements is by promoting innovative institution for farmers to support this transformation. Considering this, the Government of Andhra Pradesh (GoAP) based on a series of consultations with public and private organizations, experts, NGOs and farmers, had brought out the Policy and Operational Guidelines to promote Farmer Producers Organizations (FPOs). Further, the GoAP requested the ICRISAT to carry out a comprehensive scoping study of the functional FPOs in the state. This study is an outcome of intensive discussions with several proposed and functional FPOs and other stakeholders across Andhra Pradesh.

I am sure, this study would provide valuable input to the Government of Andhra Pradesh and its various departments, besides, other state governments in India and other countries, who plan to promote FPOs. I am congratulating the ICRISAT team for bringing this timely publication for the benefit of farming community in the state.



(Nara Chandrababu Naidu)



Sri S P Tucker
Chief Secretary, Andhra Pradesh

Message

The new state of Andhra Pradesh, during the last two years have been relentlessly striving to achieve multidimensional growth. Enormous efforts have been directed to strengthen agriculture, horticulture, and fisheries, dairy, and meat/livestock sectors in terms of new technology, productivity improvement, infrastructure, knowledge, IT applications, market intelligence, linkages, and credit and finance arrangements and so on. But, majority of small and marginal farmer producers in the state are unorganized and fragmented. They are highly prone to underpricing at various stages of production, marketing and value addition. The lack of synergy among concerned government departments is further escalating this situation in the state. Even though the state has robust existing social capital and their productive relationships across commodities are absent. To overcome this situation and to generate more wealth for the farmers, there is an urgent need for creating of membership based institutions which are globally found to be backbone for primary sector growth. So, both Union and State governments are clearly putting considerable emphasis on promoting “Farmers Producers Organizations (FPOs)” as an important policy for creating an ecosystem for enhancing farmers’ profits in the state across sub-sectors.

This comprehensive report on ‘Farmer Producer Organization in Andhra Pradesh – A Scoping study’ under Rythu Kosam Project is a timely effort delivered by ICRISAT team to deeply understand the snapshot of FPOs in the state. I am quite confident this report will enhance the understanding of all concerned departments, academicians, researchers, scholars and NGOs.

(Satya Prakash Tucker)

CHIRANJIV CHOUDHARY, IFS
Commissioner of Horticulture & Sericulture,
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Message

The government of Andhra Pradesh aspires to bring together one million farmers through one thousand Farmer Producer Organizations (FPOs) in the state with an objective to maintain a leadership position in India across the primary sector. This requires transformational interventions with necessary participation of concerned government departments as well other stakeholders. The collectivization of producers, specifically marginal and small farm holders into producers' organization is emerging as the effective possible pathway to address improved access to investments, technologies, knowledge, support, inputs and markets.

The Government of Andhra Pradesh has identified Farmer Producer Organizations (FPOs) as an appropriate institutional form around which, farmers would be mobilized besides strengthening of their capacities. The formation and development of FPOs are actively encouraged and supported by the Government of Andhra Pradesh and their agencies, using resources from various centrally-sponsored and state-funded schemes along with resources mobilized from financial institutions. It would be interesting to know the current status of those FPOs which are already established or being planned to establish across sub-sectors in 13 districts of the state.

It is also important to understand the major constraints and challenges faced at different stages of establishment by different farmers' groups. This scientific report led by ICRISAT team has dealt these issues which would be highly beneficial to GoAP, concerned departments and other stakeholders. I am sure that the findings emanated from this study will guide the decision makers in better targeting of setting-up and functioning of FPOs in the state.

(CHIRANJIV CHOUDHARY)

Dated: 25.1.2017

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List of Abbreviations

ACDI	Agricultural Cooperative Development International
AH	Animal Husbandry
ALC	Access Livelihoods Consulting
AO/HO	Agricultural Officer/ Horticultural Officer
AP	Andhra Pradesh
APEDA	Agricultural and Processed Food Products Export Development Authority
APMARKFED	Andhra Pradesh Marketing Federation
APMC	Agricultural Produce Marketing Committee
APSAC	Andhra Pradesh Space Application Centre
ATMA	Agriculture Technology Management Agency
CBO	Community-based Organisation
CEO	Chief Executive Officer
CIAT	International Center for Tropical Agriculture
CRS	Catholic Relief Services
CSR	Corporate Social Responsibility
DAC	Department of Agriculture and Cooperation
DAO	District Agricultural Officer
DPIP	District Poverty Initiative Project
DPMU	District Project Management Unit
FAO	Food and Agricultural Organisation
FGD	Focus Group Discussion
FIG	Farmers Interest Group
FO	Farmers Organisation
FPC	Farmer Producer Companies
FPO	Farmer Producer Organisation
GCA	Gross Cropped Area
GDP	Gross Domestic Product
GIS	Geographical Information System
GoAP	Government of Andhra Pradesh
GoI	Government of India
GSDP	Gross State Domestic Product
HH	Household
ICAR	Indian Council of Agricultural Research
ICRISAT	International Crops Research Institute for Semi-Arid Tropics
ICT	Information & Communication Technology
IGS	Indian Grameen Services
IPM	Integrated Pest Management
IT	Information Technology
ITC	Indian Tobacco Company
JLG	Joint Liability Group
MACS	Mutually Adided Cooperative Society
MBT	Mutual Benefit Trust

MEDP	Micro Entrepreneur Development Project
MIS	Management Information System
MMT	Million Metric Ton
MoA	Ministry of Agriculture
MPEDA	Marine Products Exports Development Authority
MRP	Maximum Retail Price
MS	Microsoft
MSR	Marketed Surplus Ratio
NABARD	National Bank for Agriculture and Rural Development
NABCONS	NABARD Consultancy Services
NASFAM	National Smallholder Farmers'Association of Malawi
NCDEX	National Commodity and Derivative Exchange
NF	Natural Farming
NFSM	National Food Security Mission
NGC	New Generation Cooperatives
NGO	Non- Governmental Organisation
NPM	Non-Pesticidal Management
NSSO	National Sample Survey Organisation
OCFCU	Oromia Coffee Farmers Cooperation Union
PACS	Primary Agricultural Cooperative Society
PC	Producer Company
PDS	Public Distribution System
PMU	Project Management Unit
PO	Producers Organisation
PODF	Producers Organisation Development Fund
POPI	Producer Organisation Promoting Institution
PRODUCE	Producers Development and Upliftment Corpus
PSU	Project Support Unit
RCE	Rural Commuinity-based Enterprises
RI	Resource Institutions
RKVY	Rashtriya Krishi Vikas Yojana
RoC	Registrar of Company
roi	Return on Investment
RSA	Resource Supporting Agency
SADP	Smallholder Agribusiness Development Project
SAU	State Agricultural University
SERP	Society for Elimination of Rural Poverty
SFAC	Small Farmers Agribusiness Consortium
SHG	Self Help Group
SMF	Small and Marginal Farmers
USAID	United States Agency for International Development
VFA	Village Farmers' Association
WASSAN	Watershed Support Services and Activity Network
ZBNF	Zero Budget Natural Farming

Preface

The Government of Andhra Pradesh has envisaged, 'Sunrise Andhra Pradesh: Vision 2029 to promote a happy, inclusive and globally competitive society'. As part of this, the state has set up seven missions and the Primary Sector Mission is one of them. To begin with, the state in collaboration with the ICRISAT, has developed a strategy to enable higher and faster growth in the Primary Sector across 13 districts of the state.

In order to improve welfare and living standards of farmers, particularly small holders, the government wishes to create an appropriate ecosystem in the state. Certain commodities are identified for providing necessary support system for the entire products and creating value chain. In this entire process, one of the important elements is by promoting innovative institution for farmers to support this transformation. Considering this, the Government of Andhra Pradesh (GoAP) based on a series of consultations with public and private organizations, experts, NGOs and farmers, had brought out the Policy and Operational Guidelines to promote Farmer Producers Organizations (FPOs). Further, the GoAP requested ICRISAT to carry out a comprehensive scoping study of the functional FPOs in the state. This study is an outcome of intensive discussions with several proposed and functional FPOs and other stakeholders in 13 districts of Andhra Pradesh.

We are sure, this study would provide valuable input to the Government of Andhra Pradesh and its various departments, besides, other state governments in India and abroad, who plan to promote FPOs. It is also expected that it would help stakeholders such as NGOs, researchers, teachers and students, who may like to understand FPOs and its various dimensions.

We gratefully acknowledge the Government of Andhra Pradesh for providing us the opportunity to carry out this study, in particular, the support provided by the Honorable Chief Minister Sri N Chandrababu Naidu; Sri Prathipati Pulla Rao, Minister for Agriculture, Agri-Processing, Marketing and warehousing, Animal Husbandry, Dairy Development and Fisheries and Chief Secretary SP Tucker. We sincerely thank Principal Secretaries and Secretaries for their enormous support, mainly, T. Vijay Kumar, former Special Chief Secretary, Agriculture department; Dr Manmohan Singh, Principal Secretary, Animal Husbandry and Fisheries department; Chiranjeev Chaudhari, Commissioner, Horticulture & Sericulture; Ram Shankar Naik, Commissioner, Fisheries department; all the senior officers of Agri and Allied departments; NABARD, NGOs specifically Basix, Vrutti, ALC, NESTHAM, Nilagiris. We highly appreciate the support provided by the executive committee members of Functional FPOs who cooperated during our field visits, executive committee members of Proposed FPOs and district level officers. We are also very grateful to the distinguished reviewers of this report, namely Prof Sukhpal Singh, IIMA, Prof Gopal Naik, IIMB and Dr K Raja Reddy, ANGRAU, Guntur for their valuable inputs and suggestions. We sincerely thank Dr David Bergvinson, Director General, ICRISAT, who relentlessly inspired the team. We are thankful to Suchita Vithlani for meticulous secretarial assistance in completing this study and Arun Seshadri for good copy editing.

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Executive Summary

The declining profitability and rising risk associated with agriculture and allied its activities is being considered some of the major challenges in improving the livelihoods of the rural population in India. Mainly small and marginal farmers constitute the largest group of cultivators (about 85%) in Indian agriculture; having smaller than or about two hectares of operational holdings. The vulnerability to these households is largely attributed to lower scale of operation, lack of information, poor access to cheaper credit, weak participation in the consumers' markets and consequently, exploitation by intermediaries in procuring inputs and marketing of their produce.

A variety of approaches have emerged over the years to address these problems. Agricultural cooperatives, formed under the Co-operative Credit Societies Act, 1904, have long been the dominant form of farmer collectives; however, the experience with cooperatives point to many limitations, except few successful exceptions in the field of dair farming. In recent years, collectivization of producers, especially small and marginal farmers, into producer organizations has emerged as one of the most effective pathways to address the many challenges of agriculture. Hence, on the recommendations of a high-power committee, the Government of India introduced the Companies (Amendment) Act 2002, which paved the way to Producer Companies (PCs).

The Government of Andhra Pradesh (GoAP) has envisioned double digit growth in primary sector and in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has developed a strategy to enable higher and faster growth in the Primary Sector across its 13 districts of the state. To give further fillip to the mission, the GoAP had brought out the Policy and Operational Guidelines to promote Farmer Producers Organizations (FPOs) and requested ICRISAT to carry out a comprehensive scoping study of the FPOs in the state, which can provide a strong base for setting up of 1000 FPOs in the state spread across the 13 districts catering to all farm and off-farm needs. This study is an outcome of intensive discussions with several proposed and functional FPOs and other stakeholders in the state of Andhra Pradesh. Keeping in view, the need and wide canvas of this study, an elaborate literature review with experiences and lessons learnt over the years in India and across the globe were carried out. The study covered the mapping of various commodities produced in the state, their consumptions, extent of regulated market coverage and marketable surplus; and documented the functions and operations of selected FPOs- proposed and functional. The study also identified potential clusters of different commodities to set up FPOs and; in the end, the study distils out key issues and possible options to move forward.

As per secondary sources of information, there are 98 FPOs that are being registered formally and which are functioning in the state. They are formed based on two sources of funds: 1) SFAC and 2) PRODUCE fund under NABARD. The present study conducted an extensive survey of 45 FPOs Currently, five FPOs are registered with help of SFAC, while NABARD has set-up nearly 93 (30 proposed and 15 functional) in thirteen districts of Andhra Pradesh covering diverse commodities and mandals (smallest administrative unit) in the state.

Currently, five FPOs are registered with help of SFAC, while NABARD has set-up nearly 93 FPOs. Besides, various state departments and SERP are planning to set up 689 FPOs across different sub-sectors like agriculture, horticulture, animal husbandry, fisheries, etc. The Department of Agriculture has proposed to support 131 FPOs under natural farming/ non-pesticide management scheme, SFAC has proposed 56 FPOs, also 47 FPOs has been planned for revival of millets in the state. Similarly, the department of Horticulture has a target to set up 105 FPOs along with the support of NABARD's PRODUCE fund, out of which 26 are already registered, while Animal Husbandry department has target of 246 FPOs to register as dairy/sheep & goat/ poultry/fodder FPOs. Besides, fisheries department has proposed to set up about 65 FPOs for freshwater fish, shrimp/prawn, marine, seabass/mud-crab, etc. In this process, several independent organisations like NGOs, have been empanelled to act as POPI for these FPOs.

From the field survey of proposed and functional FPOs, interesting patterns emerged. These FPOs represent field crops, horticulture, animal husbandry and fisheries. They are at different stages of

formation, about half of them have just identified the priority commodities and are in the process of group formation. About 17% of them have registered as 'Producer Company', though membership number varied from less than 50 to 500. Initial financial support is the major hiccup for these FPOs. In the absence of any business plan for most of the FPOs, the members are reluctant in contributing the equity, as the expected benefits are obscure. However, many of the FPOs, where some financial support from external agencies has come, initiated the field visit and less capital intensive training program was initiated. The lack of experts for technical guidance and fuzzy business plan are creating major roadblocks in wider acceptability of the concept among rural households. These new institutions also need liberal financial support for creating basic infrastructure, particularly at the initial stage. In case of some of the functional FPOs, a group of large farmers have invested personally to initiate business aggregation services. Overall, the current efforts of setting up of FPOs require more systematic analysis of production base of different commodities, existing ecosystem to support the initiatives, market potentials, etc.

In order to address these concerns, the present study attempted to map the potential agricultural commodities and livestock in each district at mandal-levels to suggest the plausible clusters of mandals to join together to form producer company. The 13 districts in the state of Andhra Pradesh has as many as 657 mandals. Taking into account the area (production data not available at mandal level) under different crops in the year 2013-14, a cluster of 4-5 mandals were considered for an FPO with a minimum of 10,000 ha area under each crop/commodity. In special cases, this criteria has been relaxed for high value commodities and/or concentration of it in certain isolated mandal(s). Accordingly, around 174 potential clusters of different agricultural commodities appeared to be a good number to start with for setting up of FPOs in Andhra Pradesh state. These potential FPOs are spread across different districts with different driving commodity wherein other commodities can also be added for continuous operation of the FPO throughout the year. According to this, 55 FPOs are being suggested for rice-based, 25 FPOs for fruits, 15-20 FPOs each for cotton and groundnut, 10-13 FPOs each for bengal gram and maize. Besides, there are good scope for 12 FPOs for blackgram and greengram together, 2-3 FPOs for redgram and redgram with blackgram. Similarly, crops like chillies and coconut has the potential to be aggregated in 5-6 clusters. Further, there is some scope to set up a couple of FPOs for crops like jowar (sorghum), bajra, ragi (finger millet), sesamum, castor, etc. Moreover, it should also be kept in mind that rice-based FPOs may face serious challenge in upgrading the value chain due to its limited scope of value addition, and may have prevailing problems of any regular commodities. Above all, the data on market arrival in APMC mandi clearly revealed that transaction at regulated markets is very minimal (less than 2%). So, there is a need for strengthening the existing regulated markets and their functionaries.

In case of livestock sector, there is good potential for setting up of FPOs in the highly dense districts like, Chittoor for milk, milk products and fodder; Kurnool, Srikakulam, Vishakhapatnam and Vizianagaram districts for cow milk; while in East Godavari, Guntur, Kadapa, Krishna, Nellore, Prakasam and West Godavari for buffalo milk. Similarly, for small ruminants like sheep and goats, the efforts may be made in Chittoor, Kadapa, Kurnool, Nellore and Prakasam districts. Moreover, we also need information about existing dairy companies in operation in these districts and mandals, where they are having their own milk collection centres.

In fisheries, Krishna and West Godavari districts together constitute nearly 81% of the total fresh water fish production in the state; while East Godavari, Nellore, Srikakulam and Visakhapatnam are the top 4 producers of marine fish in the state. Also brackish water fish production is mainly concentrated in East Godavari, Krishna, Nellore and West Godavari districts. In total, East Godavari, Krishna, Nellore and West Godavari districts together are contributing to nearly 80% of the Andhra Pradesh fish production in all forms, thus present strong potential for setting up of FPOs in fisheries sector.

Thus, the present study highlights some key issues and suggest possible options to address the emerging challenges in translating the vision of setting up of large number of FPOs to act as vehicle for rural transformation and engine for future growth of state economy. The most important issue that emerged from this study is the lack of convergence of government agencies in delineating their jurisdiction for either going solo or hand-in-hand with other sister-agencies to set up the producer company in any

district. The state of AP has already built robust social capital through SHGs, JLGs, Co-operatives, MACS, Rythu Mithra groups etc. The effort of FPOs/ Producer Company should be essentially built upon these social institutions. Also the need for identifying right support agencies with appropriate technical experts on the ground with workable and scalable business plan and management team will be key for success of any producer company. Most importantly, the suitably identified/selected clusters to be scaled up in producer company needs to be financially supported right from the time of community mobilization.

Chapter 1. Introduction

1.1 Background

The Government of Andhra Pradesh has provided high priority to primary sector – agriculture and allied sectors. Considerable efforts have been made to strengthen agriculture, fisheries, horticulture, dairy, meat and livestock sectors in terms of new technology, productivity improvement, infrastructure, knowledge, IT applications, market intelligence , linkages, credit and finance arrangements (GoAP 2014; GoAP 2015). In order to improve the welfare and living standards of farmers, particularly small holders, there is a need to create appropriate ecosystem in the state. Certain commodities are also identified for providing necessary support systems for the entire production/ value chain. In this entire process, one of the important elements is innovative institutions to support farmers in this transformation.

Also, experiences in India and other parts of the world clearly indicate that farmers' institutions that are membership based, financially robust, adopt business model and well integrated (to technology, research, markets, banks and other infrastructure facilities) could provide enormous economic benefits to its members viz. farmers. Such collective action goes beyond coming together for merely aggregation of outputs, but goes to realms of business and markets through scale of operations. Such institutional arrangement/ membership-based institutions are found to be the backbone for primary sector. With this background, both central and state governments are stressing on promoting 'Farmer Producer Organization (FPO)' as an important strategy for creating an ecosystem for enhancing farmers' profits. Considering the importance of this agenda, the Department of Planning, Government of Andhra Pradesh (GoAP) had facilitated a series of discussions, brainstorming sessions with various departments, experts and civil society organizations for providing direction to this agenda. These efforts have led further to a series of discussions, which provided concrete shape to push the agenda forward with clear milestones, targets and deliverables. Further, all these combined energies has resulted in preparation of a draft document 'Strategies and Operational Guidelines for FPOs'. It was officially released by the Honorable Chief Minister, Government of Andhra Pradesh in a public meeting held at Ananthapur on 6th August 2016 (GoAP 2016).

1.2 FPOs in Andhra Pradesh

Collectivization of producers, especially small and marginal farmers, into producer organizations has emerged as one of the most effective pathways to address the many challenges of agriculture, most importantly, improved access to technology, inputs and markets. The Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India has identified farmer producer organizations to be registered under the special provisions of the Companies Act, 2013[1] as the most appropriate institutional form to mobilize farmers and build their capacity to collectively leverage their production and marketing strength. Some of the plausible reasons for developing a focused strategy for Farmers Producer Organizations/ Farmers Producer Companies (FPOs/FPCs)[2] promotion in Andhra Pradesh are given below (GoAP 2016):

a. Large number of farmers (agriculture, horticulture, vegetables, fisheries, dairy, meat, flowers and other commodities) are unorganized (Dev 2012). As a result, they are exploited at various stages of the value chain.

b. Several departments of the state government need considerable support in promoting the FPOs. It is important to avoid duplication of efforts and develop greater synergies among these departments, for promoting/ nurturing FPOs.

c. In the light of existing social capital in Andhra Pradesh (in the form of self-help groups and other project based institutions), there is a need for developing appropriate harmony/relationship among these new

1. This is in pursuant to sub-section (2) of Section 7 of the Companies Act, 2013, Ministry of Corporate Affairs, Government of India.
2. In true sense, these are 'Producer Companies', as per the provisions of Part IX A (section 581A to 581ZT) of the Companies Act, 1956. The details are given in Chapter 2.

FPOs. This process is challenging, given the complexity of experiences/ status of existing social capital in the state.

d. ICT tools/applications, financial inclusion processes, web based/ mobile based tools could offer new methods/ opportunities for creating collectives of farmers. This requires considerable experimentation, without compromising on fundamentals of FPOs.

e. This agenda requires stewardship and partnership at multiple levels. Various categories of agencies have to be orchestrated to function for a common cause.

It is expected that institutions of organized producers through FPOs would add value as well as adopt business model triggering higher level of growth and sustain the productivity and incomes of members.

1.3 Why this study?

The Planning Department of GoAP had organized a series of meetings and discussions with all the stakeholders for over a year since February 2015 to come out with a strategy and policy for FPOs in the state of Andhra Pradesh (AP). Further, an exclusive conference for CEOs of agriculture related companies was organized under the chairmanship of the Chief Minister to focus on Public Private Partnership (PPP) for promotion of FPOs, on 18th of March 2016. The Chief Minister and the Chief Secretary steered these deliberations to elicit suggestions from more than 55 agri-industry leaders. The World Economic Forum and ICRISAT had organized this conference to seek a long-term engagement with private companies in promoting FPOs across the commodities in AP state. At the end of the meeting, the Chief Secretary of Andhra Pradesh clearly stressed the need for a comprehensive scoping study with a baseline on the proposed FPOs (1000) to be taken up by ICRISAT. Hence, this study was implemented by ICRISAT after intensive consultations with respective departments in the state.

Though several studies have so far reviewed performances of FPOs in India, most of them evaluated the status of farmer based institutions like cooperatives, mutually aided cooperative credit societies, associations under NGOs etc. Indeed, there is a paucity of literature and studies on FPOs in AP. Also, different implementation models are being adopted by different FPOs operational in various states.

The **objectives of this scoping study** are to:

a. Understand the status, initiatives and strategies for setting up of FPOs in Andhra Pradesh.

b. Examine the organizations, functions and constraints of existing (functional and proposed) FPOs.

c. Mapping potentials for setting up of FPOs across the state.

d. Based on the above, identify key issues and strategic options to move forward.

1.4 Pre-study planning

The line departments including Agriculture, Horticulture, Animal Husbandry, Fisheries and SERP have proposed FPO targets for the year 2016-17. However, there needs to be an understanding on how these estimates were made, so a preliminary meeting was set up with the line departments on the 1st and 2nd of April, 2016 to understand the background work carried out for setting up of FPOs by the respective departments. This interaction and discussions with officials was considered to be important before a format could be prepared for conducting a comprehensive scoping study of FPOs in AP by ICRISAT.

Key areas for the initial round of discussion with the line-department officials were:

- What is the basis for proposing FPOs by the respective department?
- Whether commodity wise market information collected/ available?
- Whether any preliminary format/questionnaire was used to collect basic information?

- How much SFAC guidelines/NABARD guidelines were useful to the department in this process?
- Who is responsible for facilitation of FPOs at the district level and state level?
- Whether any Standard Operating Procedures are being planned?
- How is the department planning to implement FPO formation/ management?
- Potential risks that are perceived at this stage either in formation/management?

The outcome of these preliminary discussions guided the ICRISAT team in formulating the objectives and focus on relevant data collection through a format from districts of AP. Different methods and formats were used by different departments to arrive at their proposed FPOs in the state, which are explained in the next section.

1.5 Consultations with the government departments

The study team had a structured consultations with all the concerned departments of the government of AP, during the first week of April 2016. It includes Agriculture, Horticulture, Animal Husbandry and Fisheries. The following points emerged from the discussions (also see Table 1.1):

Table 1.1 Summary of consultations with state line departments

S. no	FPO Item	Agriculture	Animal Husbandry	Horticulture	Fisheries	SERP
1	Total no of FPOs proposed	234	246	105	65	39
2	Basis for proposing FPOs	Questionnaire used	Questionnaire used	Questionnaire used	Mapping of clusters	Based on value proposition
3	Commodity information availability	Yes	Yes	Yes	Yes	Evolving
4	Whether prelim format used	Separate formats for existing and new FPOs	Format used	Format used	Format used	Format used
5	SFAC/ NABARD guidelines followed?	Not followed	Not followed	NABARD for existing FPOs	Not followed	Not followed
7	Any official guidelines to implement FPOs?	No guidelines	No guidelines	No guidelines	Concept Note	No guidelines
8	Expectation from FPO policy	To utilize existing Rythumithra Groups (RMG)	Clarity on converting existing cooperative institutions	Promotional funds in forming of FPOs	Standard operational procedures	Coordination between other line departments
9	Potential risks perceived	Market linkages and capacity building of FPOs	Capacity building of FPOs due to very few resource organizations	Market linkages, storage, and stabilization of FPOs	Inclusion of small and marginal farms need funding for capacity building FPOs	Market prices, collection and procurement of inputs/ outputs

Note: AGMARKFED was also consulted, however it was informed by the official that the agency is not currently involved in setting up of FPO. However, it was informed that the agency would act as an apex organization to handhold FPOs for market linkage and capacity building.
Further, organizations like Basix, Vrutti, WASSAN, etc. are co-opted as Resource Institutions for promotion of FPOs in Andhra Pradesh state.

a. The Government of Andhra Pradesh is planning to allocate Rs 3526 million for setting up and supporting the 1000 FPOs for first 3 years (Appendix 2.2).

b. The total number of FPOs proposed by various departments combined stand at 689.

c. The list of FPOs existing appear to have some overlap with the activities of two departments, for example Horticulture FPOs were highlighted as vegetable and fruit FPOs by the Agriculture department. While it is expected that there will be convergence of activities of all the departments as farmers might have multiple activities spread over across all sub-sectors of the primary sector. It is also expected that the activity/ commodity specific FPOs can be handled by respective departments.

d. Fisheries department adopted a scientific process in clustering farmers using latest technologies like GIS, which could be adopted by other departments.

e. Processes followed by each department appears to be commodity based, but the existing staff's capability in handholding the formation and management of FPOs needs to be taken up on a priority basis right from the initial stage.

f. Funding clarity is expected by all the departments except agriculture, who expect the existing Rashtriya Krishi Vikas Yojana (RKVY) as a major source for FPO funding.

1.6 Report outline

This report is broadly divided into seven chapters. Chapter 1 sets the stage, while Chapter 2 provides a literature review with experiences and lessons learnt over the years. Chapter 3 describes the methodology adopted in the study i.e. sampling framework and statistical tools used for this study. Also, current strategy followed by the state department in setting up the FPOs are discussed in Chapter 4. The salient findings emanating from the field survey and stakeholders consultation covering both proposed and functional FPOs were presented in Chapter 5. A mix of brief case studies of functional FPOs were also highlighted in Chapter 5. The extent of various commodities produced in the state, their consumption, extent of regulated markets coverage and marketable surplus of different commodities are summarized in Chapter 6. Based on the above, key issues and thereby possible options are listed out in Chapter 7 as a way forward.

Chapter 2. Literature Review

Indian agriculture has come a long way since independence, with chronic food scarcity giving way to grain self-sufficiency. Currently, agriculture employs 48.9% of the workforce (NSSO 2011-12), while its share in the Gross Domestic Product (GDP) was 17.4% in 2014-15, at constant (2011-12) prices (Economic Survey 2016). Though, non-farm activities are becoming increasingly important, there is still a core truth in Theodore Schultz' Nobel Prize lecture in the year of 1979: "Most of the world's poor people earn their living from agriculture, so if we knew the economics of agriculture, we would know much of the economics of being poor". The future of the Indian farmer depends on re-engineering the whole process of agriculture and its allied activities from input purchase, production, value addition and marketing, upgrading quality of farm produce while continuing to maintain their cost competitiveness. There are several constraints that holds back a rapid transformation of agricultural sector in India, which is evident from several scholarly studies (Chand et al. 2011; Birthal et al. 2011; Dev 2012; Swaminathan and Rengalakshmi 2016). These are: a) highly unequal distribution of ownership and operational holdings of land, b) predominance of small and marginal holdings, c) rampant poverty among households dependent on agriculture, d) institutional weaknesses, e) high transaction cost due to small marketable surplus and f) poor connectivity and access to markets.

2.1 Need for setting up of FPOs

In order to significantly improve the terms of smallholder farmers' access to the market and strengthen their position in agri-value chains, it is gradually being realized that if federated; small farmers can easily bargain for better prices, both while buying inputs and selling their produce. This belief has led to the concept of establishing "Farmer Producer Organizations" (FPOs) in the country. Besides, in the backdrop of the previous experiences of the poor performance of traditional cooperatives in India, it was felt that there was a need to give more freedom to cooperatives to operate as business entities in a competitive market. This led to the amendment of Section 581 of the Companies Act, 1956 on the recommendations of Y K Alagh Committee. The Companies (Amendment) Act 2002 came into effect on 6th February 2003. With this, Producer Companies (PCs) can be registered under the provisions of part IX-A (section 581A to 581ZT)[3], chapter one of the Companies Act, 1956. The objective of the said company can be production, harvesting, procurement, grading, pooling, handling, marketing, selling and/or export of primary produce of the members or import of goods or services for their benefit. Its membership can be 10 or more individual producers, or two or more producer institutions or a combination of both. It is deemed to be a private limited company but there is no limit on membership, which is voluntary and open. It is a limited liability company by share and not a public limited company (Singh and Singh 2013). All the registered companies under this provision shall have name ending with the words 'Producer Company Limited'.

Also, small Farmers' Organizations such as FPOs are expected to overcome the constraints of farmers imposed by the small size of their individual farms by leveraging the collective strength and bargaining power to access financial and non-financial inputs, services and technologies (Braverman et al. 1991; SFAC 2014); enhance incomes, reduce costs of input purchases along with transaction costs, create opportunities for involvement in value-addition including processing, distribution and marketing (Welsh 1997; Agarwal 2010). Furthermore, there is a growing realization that the farmer's share in consumers' price is still substantially low, if we wish to bring a transformation in agricultural sector to improve the livelihoods of smallholders, new institutional arrangement has to be made for interventions in post-harvest handling and marketing the produce from the farm gate till it reaches the consumer (Shepherd 2007). As a result, the focus of development has shifted from enhancement of production to market connectivity, which also resonates with the overarching strategy of Inclusive Market-Oriented Development (IMOD). It emphasizes on harnessing markets for smallholder farmers combined with research for development (ICRISAT 2011).

3. Until the amendment, the Act recognised only three types of companies, namely: a) Companies limited by shares (subdivided into public limited and private limited); b) Companies limited by guarantees; and c) Unlimited Companies. The amendment to the Act now adds a 4th variant viz. 'Producer Companies'.

These institutional innovations should, a) create scale economies through horizontal co-ordination, aggregation and marketing of output and purchase of inputs, b) improve bargaining position, c) provide technical support in production, identifying potential buyers, prices, quantity and quality of commodities traded, d) reduce transaction costs in seeking information and organizing production and marketing, and; e) handle uncertainties and cushion risk in production and marketing (Trebbin 2014; Shah 2016).

2.2 Current status of FPOs

IFAD (2004) opined that in rural areas, farmers' organizations (FOs) are the nearest and often only institutions providing essential goods and services to the rural poor and helping them to break out from the poverty cycle. Also, FOs reduce the risk that individual farmers face during seasonal shocks. Globally, organization of primary production is diverse in terms of production systems, institutional arrangements, nature and levels of technologies adopted, extent of horizontal and vertical integration of various actors in the supply chain, levels of value addition and distribution of surplus generated. However, broadly there has been a transformation from co-operative forms of organization (which give much emphasis to distributional implication of benefits/surplus generated) to a combination of spirit of traditional co-operatives and competency and efficiency of companies (Trebbin 2014; Singh and Singh 2013).

2.2.1. Global experiences

Kachule et al. (2005) studied the performance of National Smallholder Farmers' Association of Malawi (NASFAM). Its 100,000 members are smallholder farmers with less than one hectare of land. NASFAM came into being in the year 1997 after a USAID-funded Smallholder Agribusiness Development Project (SADP) was implemented by Agricultural Cooperative Development International (ACDI/VOCA). NASFAM provides credit, extension and training, uses economies of scale to reduce transport costs and actively seeks external markets for export of produce. It works as a multi-functional, multi-sectoral organization. Its operations are divided between the commercial and development sectors, registered as a profit company and as an NGO. NASFAM is a complex evolution of the cooperative model and at grassroots level, the association has cooperative characteristics. Also, commercial and other entities have been created to handle functions that are typically circumscribed by the traditional cooperative structure, the commercial and business services functions.

Oromia Coffee Farmers Cooperation Union (OCFCU) in Ethiopia was founded in the year 1999 comprising 34 coffee cooperatives representing 22,503 smallholders. Besides substantial investment in physical infrastructure like storage and processing of coffee, the cooperative has utilized the premiums gained from fair trade and organic contracts to address social objectives such as setting up potable water projects and the building of schools and clinics (Poole and Frece 2010).

Citing an example of Rural Community-based Enterprises (RCE) based in Ghana, Donovan et al. (2008) argue that RCE act in a similar way to other forms of collective action to increase economic and social empowerment through scale by providing lower costs, increased bargaining power in the market, democratic decision making rights and access to political and legal arenas, and increased access to services. External players like donors or NGOs played significant role in promoting these enterprises. However, externally driven organizations have usually met with failure. At the same time, internally driven enterprises have suffered from lack of funds and inadequate capacity. A role exists for external actors in the development of RCEs, but the attention should be given to issues of dependence, governance and ownership for these partnerships to succeed in the long term.

From the year 2004-05, the International Center for Tropical Agriculture (CIAT), the Food and Agricultural Organization of the United Nations (FAO) and, the Agropyme project of Swisscontact and Catholic Relief Services (CRS) looked at strategies to facilitate the participation of smallholder producers in vegetable supply chains linked to local supermarkets. For this, three formal Producer Organizations (POs) in El Salvador and two in Honduras were investigated. COHORSIL is a farmer co-operative in Honduras that was founded in the year 1980 and traditionally focused on coffee production, processing and marketing. Faced with declining prices for coffee, the co-operative sought to diversify its activities. With Swiss funding, they

branched into the production and marketing of fresh vegetables. On fee basis, COHORSIL ensured that its members had access to seedlings produced in greenhouses, warehouse and packaging facilities, and marketing services. Hellin et al. (2007) found that despite significant investments of time and financial resources, existing producer organizations in both countries make up fewer than 5% of total horticultural producers in each country.

From cases of producers organizations in El Salvador and Honduras, Hellin et al. (2007) it was observed that the possible reasons for little progress of these organizations include limited business skills within existing producer organizations; organizational models which are too costly in terms of time and financial resources for linking smallholders to dynamic markets; and uncertainty about the benefits that smallholders can expect from the supermarket channel. In contrast, farmers in Mexico reported that there are no advantages to establish a farmer organization to sell maize grain. This is partly because the government fixes the grain price that farmers receive. In general, maize farmers have formed organizations for two reasons: to take advantage of subsidized extension advice together with an associated agriculture technical package; and to access and procure subsidized maize seed.

2.2.2 FPOs in India

In the year 1995, then Chief Minister of Andhra Pradesh state, Sri N T Ramarao (NTR) got the Mutually Aided Cooperative Societies Act passed following the recommendations of the Brahma Prakash Committee, to allow a liberal cooperative law (Shah 2016), but could not succeed. As on 31st March 2016, there are 783 FPOs in India, out of which 510 are registered and promoted by Small Farmers Agribusiness Consortium (SFAC 2016). Though, few literatures differ in the total number and claim about 2000 farmer Producer Companies (FPCs) (Singh 2015). There has been primarily two major institutional mechanisms by which FPO[4] formation is facilitated. The first one is through Small Farmers' Agribusiness Consortium (SFAC) and the second one is facilitated by NABARD. SFAC, a society under DAC, is the designated agency of DAC to act as a single-window for technical support, training needs, research and knowledge management and to create linkages to investments, technology and markets (GoI 2013).

Also, NABARD has taken an initiative for supporting producer organizations, adopting a flexible approach to meet the needs of producers. A "Producers Organization Development Fund" (PODF) has been set up with an initial corpus of Rs 50 crore for this purpose. Any registered Producers Organization viz, Producers Company (as defined under Sec 581 A in part IXA of Company's Act 1956), Producers Cooperatives, registered Farmer Federations, MACS (Mutually aided cooperative society), Industrial cooperative societies, other registered federations, PACS, etc. set up by producers are eligible under the fund. In fact, NABARD has set a target to set up about 2000 FPOs in India by the year 2015-16. Also, state-wise target is given in Appendix 2.3.

Singh and Singh (2013) has extensively reviewed the experiences of new generation co-operatives (NGCs) and Co-operative companies in selected developed and developing countries. The review based on experiences of Denmark, New Zealand, Australia, Sri Lanka, Philippines and India brings out important features of such institutional arrangements for organization of primary producers, viz. a) the major strategy in creating such institutional arrangements was to co-create value chains with joint stake companies supported with a well-developed business model and, b) they retain one member – one vote principle for major policy decisions. They link product delivery rights to producer member equity, raises capital through tradable equity shares among membership, enforces contractual delivery of produce by members, distributes returns based on patronage, goes for value addition through processing or marketing, and makes use of information efficiently throughout the vertical system.

4. Any group of farmers producers may be called as FPO, while this to be named as PCs, it should be registered under the above-mentioned Companies Act. However, for the convenience and easy understanding, these terms i.e. FPO, PC and PO have been used interchangeably to reflect upon the registered entities of farmers group.

The major differences between co-operatives and producer companies in India was reported as:

Trebbin and Hassler (2012), Singh and Singh (2013) and Trebbin (2014) has analyzed the socio-economic background behind the formation of FPOs and the specific constraints which FPOs are designed to address in the Indian context. They observed that-

- The framework of FPOs were designed as to be a hybrid organization with the qualities of collective actions of traditional co-operatives and competent, efficient and market driven private enterprises.
- It is a co-operative form of business enterprise democratically owned and controlled by active user members. It enjoys a liberalized regulatory environment as available to other business enterprises with the unique characteristics of co-operatives.
- They have to engage in market performance and create an entrepreneurial culture along with lowering transaction costs and improving bargaining power.
- In the light of the transformation in the evolving retail chain sector, it has to provide an alternative to the existing supply chain of large number of independent intermediaries (wholesaler, intermediary, aggregators and commission agents).

However, from review of 24 Farmers' Producer Companies (FPCs) done by Singh and Singh (2013) in selected Indian States of Madhya Pradesh, Maharashtra, Rajasthan and Gujarat, they found that:

a. Most FPCs were formed under some government programme or the other, which offered to cover the promotional cost incurred by the promoting NGO.

b. The spread of FPOs in India is skewed with majority of them concentrated in Western and Southern part of the country. The largest number of FPOs are in the States of Madhya Pradesh and Maharashtra.

c. In Madhya Pradesh, majority of the PCs were supported District Poverty Initiative Project (DPIP), which are into seed production business. It involved a small number of members and is a high cost business. Therefore, it does not create member centrality and large patronage needed for the PC to scale up. Hence many of them were performing badly and were in losses.

d. In Gujarat, PCs performance were of a mixed nature, with few PCs which had high value commodity business and scale were performing better. Those which were focusing on agricultural inputs marketing and related business were showing up a bad performance.

e. In Rajasthan, SFAC became a catalyst for the formation of large number of FPCs, most without a compelling business model. Most of them were dependent on grants and could not take off once the support was withdrawn.

f. A surprising result emerges out of Maharashtra where three of the genuine FPOs studied were on losses, despite handling high value commodities and having strong linkages with corporate retail business.

Trebbin (2014) has developed a typology of FPOs at different parts of the country based on a) promoter of the FPO, and b) whether they are inward or outward oriented in their business approach, and has categorized into four types. According to Trebbin, most of the FPOs that exist in India now falls in Type A and B (Figure 2.1).

In dairy sector, Dairy Cooperative Societies (DCS) played very important role in India. The cooperative milk unions covered about 0.16 million village DCS with a cumulative membership of 15.4 million milk producers. The sales of liquid milk reached 29.4 million liters per day in the year 2014-15 (NDDB 2014). With the aim of setting up Producer Companies in areas where cooperatives are not present or have low coverage and procurement, NDDB envisaged mobilization and institution building through promotion of new Milk Producers Institution/ New Generation Cooperatives, which are subsequently being registered as Producer Companies under the Companies Act. Also, Paayas in Rajasthan and Maahi in Gujarat- two milk producer companies was incorporated with facilitation from NDDB Dairy Services. These companies market milk and milk products under their own brand names.

Table 2.1 Major differences between co-operatives and FPOs/PCs

Feature	Co-operative	Producer Company
Registration under	Co-op societies Act	Companies Act
Membership	Open to any individual or co-operative	Only to producer members and their agencies
Professionals on Board	Not provided	Can be co-opted
Area of operation	Restricted	Throughout India
Relation with other entities	Only transaction based	Can form joint ventures and alliances
Shares	Not tradable	Tradable within membership only
Member stakes	No linkage with no. of shares held	Articles of association can provide for linking shares and delivery rights
Voting rights	One person one vote, but RoC and government have veto power	One member one vote
Reserves	Can be created if made profit	Mandatory to create reserves
Profit sharing	Limited dividend on capital	Based on patronage but reserves must and limit on dividend
Role of government	Significant	Minimal
Disclosure and audit requirements	Annual report to regulator	Very strict as per the Companies Act
Administrative control	Excessive	None
Borrowing power	Restricted	Many options
Dispute settlement	Through co-op system	Through arbitration

Source: Kumar et al. (2007); Mondal (2009); and NABCONS (2011). Cited in Singh and Singh (2013)

2.3 Reasons for success and failure of FPOs

The cooperative society in India was considered as an attractive mechanism for pooling the meager resources of the farmers for solving common problems relating to credit, supplies of inputs and marketing of agricultural produce. However, to a large extent, they have not been successful. In fact, across the developing world, it has been more of a failure than success (Ebrahim 2000). In fact, in India, the only exceptions to the failure have been sugar and milk co-operatives, and that too limited to a few states (Baviskar and Attwood 1991). Also, there are a few successful women's farming groups in Andhra Pradesh and a farming co-operative (Gambhira) in Gujarat and in other countries of South Asia (Kumar 1990; Agarwal 2010). Collective action through cooperatives or any form of associations is important not only to be able to buy and sell at a better price but also to help small farmers adapt to new patterns and much greater levels of competition (Farina 2002). In India, the alternative ways of collective action include societies and trusts, cooperatives, Mutually Aided Co-operative Societies (MACS) (or self-reliant co-ops), private limited companies, public limited companies, and PCs. There could also be Mutual Benefit Trust (MBT) under the Trust Act.

The factors for success of any FPO are idiosyncratic as there is no one model or set of key success factors, but success depends on 'organizational fit'. The ability of farmers to add value requires 'upgrading' skills, product development, business processes, and through investing in physical capital formation. In theory, the economic and social potential through the collectivisation of community-based organisations exists in several ways, like:

- Economies of scale in transformation (including production, distribution, innovation, finance);
- Economies of scale in transaction costs (aggregation and transportation);
- Access to physical capital and external services (infrastructure, finance, business development and technical);
- Mutual trust/sense of belonging/consensus; and
- Social development and capacity building.

NABCONS (2011) points out that poor skills of professionals of the PCs, lack of vision and direction from Board of Directors, operational problems like low equity base due to low share value (share capital ranged from Rs 0.1 to 0.5 million across PCs), inability to attract capital or credit from outside, though some promoting agencies had routed grants to the PCs or managed credit through joint ventures, and most of the studied PCs had managed to obtain loans (investment and working capital); poor marketing and value addition expertise; and no or poor business plans led to failure of many of the PCs.

Poole and Frece (2010) found that though there are theoretical explanations of the failures of collective organization, the potential for exploiting production and managerial economies of scale, overcoming market entry barriers, reducing transaction costs and cultivating supply chain relations give fundamental reasons for collaborating. The path to maturity is usually long, and needs supportive investment through a range of planned and sequenced business services, with an exit strategy emplaced to ensure progress towards sustainability. And there is no 'one size-fits all', and no guarantee that individual successes can be up scaled and replicated.

Korten (1980) suggested three stages in the learning process, during which organisations first learn to be **effective** (upgrading skill and knowledge); then **efficient** (reducing the inputs need in relation to outputs/ services delivered); and lastly to **expand** (growth to maturity). This he called the **'learning process'**

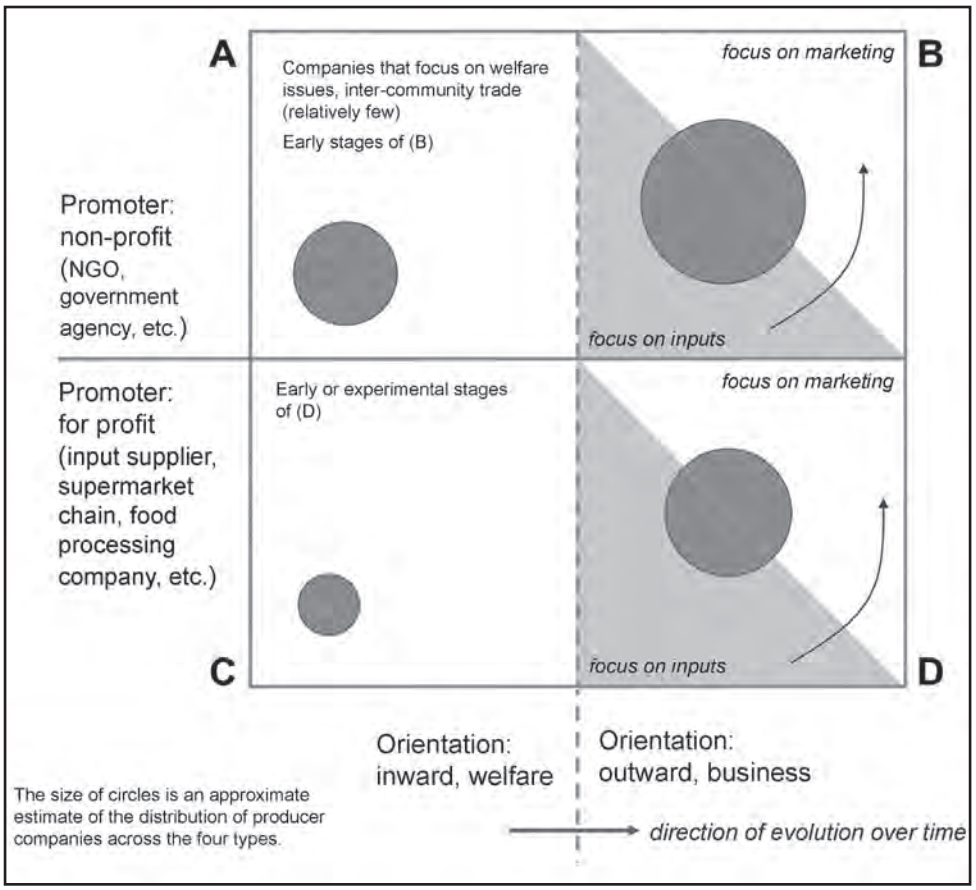


Figure 2.1. Typology of producer companies in India. Source: (Trebbin 2014).

approach. Regarding expansion, optimal organisation size for a particular context – of people, products, services, and environment – may vary, and the advantages and disadvantages of scale must be specifically considered. The ability to influence the value chain in a significant manner remains an elusive goal for the majority of FPOs.

In Mozambique, where 80% farmers are small holders and only 7.3% were members of any farmer organization in the year 2005, the membership in a farmers' organization led to 50% increase in profits for small farmers from the crops handled by the organization (Bachke 2010). While the success of NASFAM in Ghana lies in the ability 'to develop the commercial capacity of its members and to deliver programmes that enhance their productivity, strong and transparent institutional structure which keeps its commercial business separate from development and training programmes, consistent donor support from USAID (Prowse 2008).

From environment analysis for 10 Malawian smallholder association, Kachule et al. (2005) summarized different problems existing at different levels in such association as:

Singh and Singh (2013) citing the study by Esham and Usami (2007), argued that in Sri Lanka, most of the small farmer companies established to accelerate commercialization in non-plantation agriculture, failed to achieve expected objectives, due to various reasons like: (1) politicization of farmer companies; (2) lack of managerial and entrepreneurial skills due to poor recruitment of management staff; (3) lack of sound plans and poor management by incompetent board of directors without professional advice; (4) lack of proper mechanisms to monitor and evaluate; (5) mistrust between farmer company management and farmers, (6) farmer perception of the farmer company as a service provider; (7) awareness gap between the shareholders and the farmer company; and (8) restriction on share capital ownership.

Donovan et al. (2008) argues that in case of rural community-based enterprises (RCE) based in Ghana, external players like donors or NGOs play significant role in promoting these enterprises. However, externally driven organizations have usually met with failure. At the same time, internally driven enterprises have suffered from lack of funds and inadequate capacity. Therefore, the attention should be given to issues of dependence, governance and ownership for these partnerships to succeed in the long term.

Citing the success story of Oromia Coffee Farmers Cooperation Union (OCFCU) in Ethiopia, Poole and Frece (2010) explained that many structural and institutional transition helped the OCFCU to succeed. The managerial capacity with experienced and committed leadership and participatory dialogue between farmers and government officials greatly helped the union.

Nalini et al. (2015) conducted case study of Avirat Agro Business Producer Company Ltd, Amreli, one of the first FPOs in Gujarat. Although the promoting NGO was working in the region since 1980, after completion of watershed project, the watershed group was registered under the Producer Company Act in the year 2005, with 1600 farmers from 16 villages. The success in bargaining for lower input supply prices, the ability to pool produce to get higher price for outputs, and the innovative methods in training and information dissemination have resulted in significant benefits to the members in terms of enhancement of their incomes. The main challenge, however, appears to be the inability to access capital, which, to some extent, is undermining the advantages of collectivization. The case of Avirat points to a need for the FPOs to evolve a business model that can raise enough capital to maximize the benefits of collectivization. The partial success of Avirat indicates that aggregating smaller existing grassroots agricultural institutions like watershed committees into producer organizations might be beneficial for effective collective action.

Organizations that emerged as a result of federating from existing smaller groups offer ways to combine small base collectives with economies of scale (Bebbington 1996; Markelova et al. 2009; Agarwal 2010; Shelar 2012). The training need assessment and dissemination of required information are the other key ingredients for success of the FPOs. Periodic field visits and regular meetings create and nurture continuous flow of communication, thereby institutionalizes a participatory decision making process.

Moreover, Shah (2016) believes that neither the ultra-liberal Mutually Aided Cooperative Societies Act nor the Multi-State Cooperative Societies Act nor the Producer Company provision in the Companies

Act 1956 has over the past 10 years given birth to a single farmer producer organization of the quality and size of Amul or Bardoli Sugar Cooperative. He emphasize that many FPCs formed under the new law do not have the organizing logic like the value-addition model. Most were started to do what traders were doing anyways, but with greater presumed efficiency and transparency. These were formed under some government programme or the other, which offered to cover the promotional cost incurred by the promoting NGOs. He suggested at least four stages for success of FPCs: First, creating and communicating a compelling vision of a potentially successful enterprise with significant rewards to farmer-members; second, by creating (and registering) the member organization best designed to actualize the vision; third, by utilizing early success to institute rules/norms that reinforce patronage cohesiveness, governance effectiveness, and operating performance; and finally, at maturity, utilize the strength from enterprise growth to enhance member, patronage and domain centrality.

2.4 Review of national policy and process guidelines on FPOs

In the year 2002, the Government of India amended the Companies Act, 1956 by incorporating part IX A, based on the recommendations of the Y.K. Alagh Committee (Mondal 2010), to provide for producer companies controlled by primary producers which would function along the lines of corporate entities (Bhattacharjee 2010). According to the act, Producer Companies are to be registered with the Registrar of Companies as limited companies formed with the equity contribution by the members. The day-to-day operations are to be managed by hired professionals under the instructions of the Board of Directors elected by the General Body over a specified tenure (Mondal 2010). Also, promotion of member-based Farmer Producer Organizations (FPOs) was initially launched as a pilot programme during the year 2011-12, by the Department of Agriculture and Cooperation (DAC), Ministry of Agriculture, Government of India, in partnership with state governments. The Ministry began implementing this project through the Small Farmers Agribusiness Commission (SFAC).

Table 2.2 Problems at different levels of farmers' association

Level	Problems
Level 1. Internal management environment	· Weaknesses in grassroots group management and finances · A low level of management skills among organization executives
Level 2. Immediate membership environment	· Ineffective democracy and organization · Lack of membership commitment · Poor farming production systems · Low product quality · Insufficient physical assets and infrastructure
Level 3. Proximate market chain environment	· Poor logistical infrastructure and communications · Inefficiencies in supporting organisations - Lack of timeliness in service, - Poor quality of technical service & inexpert advice - Failure of services
Level 4. Surrounding macro environment	· Low and variable prices for products due to unfavourable demand (competition/ substitute products) · High cost of capital (roi) · Uncertainties in legal or political environment

Source: adapted from Kachule, Poole and Dorward (2005)

To give further fillip to the initiatives, the Government of India declared the year 2014 as the 'Year of Farmer Producer Organization'. The Department of Agriculture and Cooperation, Government of India (GoI) has issued a set of guidelines to state governments, who in turn will spearhead the formation of FPOs (MoA 2013). Supply of inputs such as seed, fertilizer and machinery, market linkages, training & networking and financial and technical advice are also among the major activities of FPO. As such, the Centre wishes to homogenize methods of promotion for FPOs across states to provide 'indicative costs' and a 'monitoring framework'. Thus, states have three options: they can either empanel Resource Institutions to help organize farmers, call upon the SFAC to empanel the latter or directly request the SFAC to promote FPOs in the state. In summary, states must take the initiative to advance the FPO project. According to SFAC, currently, there are 783 FPOs listed in India, many of them are not yet registered. As many as 156 FPOs are in Madhya Pradesh and at present records the highest, followed by Uttar Pradesh (104). The State of Andhra Pradesh has 5 FPOs.

NABARD has also created 'Producers Organization Development Fund' to comprehensively support the POs in different forms across the country. Any registered POs i.e. Producer Company, Producer Cooperatives, registered Farmers Federations, PACS, etc. are eligible to get assistance. NABARD provides financial support for both working capital and term loan requirements, capacity building and creating market linkages.

2.5 An overview of the current policy and operational guidelines for FPOs of Andhra Pradesh state

Considering the plight of farmers in the state on account of declining farm profitability and rising risks in agriculture and allied sectors, the Government of Andhra Pradesh (GoAP) felt an urgent need to create appropriate ecosystem in the state to strengthen agriculture, fisheries, horticulture, dairy, and meat / livestock sectors. Finally, after several rounds of discussions with various stakeholders, the government with the help of ICRISAT developed the strategy document to facilitate the setting up of producer organizations in the state and brought out 'Rythu Kosam: Andhra Pradesh Farmers Producers Organizations' Promotion Policy- 2016, Operational Guidelines' (GoAP 2016).

The Operational Guidelines discuss in details about the formation as well as operation of FPOs in the state of Andhra Pradesh. It is covered in 14 chapters explaining the guiding principle, guidelines for sustaining FPOs, institutional arrangements, role of government departments, FPO promoting NGOs, project support unit, synergies with existing institutions of producers, budgetary and financial aspects and organogram. The government through the policy guidelines sets an ambitious target of bringing together 1 million farmers through 1000 FPOs in the state across the primary sector (details given in appendix II).

The salient features of the guidelines are:

- It will be applicable for all the FPOs/ farmer producer companies (FPCs) either registered earlier under the Mutually Aided Cooperatives Societies (MACS) Act 1995 or Companies Act 2013 or any other, under central and state cooperative society laws.
- Typical FPOs/FPCs may have 500 to 1000 members, with exceptions for tribal regions
- Guiding principles envisage to establish FPOs/FPCS based on existing and emerging market opportunities, backed with robust business plan, scope of enhancing income through technology and knowledge infusion.
- FPOs will be producer-membership based, with single voting right to each family.
- Outside experts will comprise the advisory body.
- Various state departments will facilitate in formation and development of FPO/FPC.
- The state department will have Project Management Unit (PMU) who with the support of ICRISAT-led consortium of organizations will act as project incubation unit and develop specific strategies, action plan and targets for promoting FPOs in the state.

- Monitoring and evaluation of FPOs with quarterly reporting structure to PMU.
- At district level, Agriculture Technology Management Agency (ATMA) will provide all technical support and coordinate the capacity building of FPOs, while District Project Monitoring Unit (DPMU) chaired by Joint Collector will have monthly review of all the activities promoting FPOs/FPCs.
- DPMU will function as a "Single Window" for processing of all issues related to FPOs/FPCs.
- PMU and DPMU will identify the NGOs who can bring necessary professional expertise to promote FPOs (for community mobilization, capacity building, documentation, business plan development, developing market linkages, establishing MIS/ governance system, etc.).
- FPOs/FPCs will develop their micro-plan for its operation, estimate the demand of the products and have market assessment.
- Project Support Unit (PSU) led by ICRISAT and assisted by a network of group of technical institutions will provide strategic inputs to the PMU at state level in strengthening FPO agenda (technical guidance, ICT-application, business development, project management, selection criteria for NGOs and RIs, etc.). PSU will also organize workshop of FPOs and provide platform to exchange the experiences for cross-learning.
- Financial support to set up various infrastructures for FPOs will be given according to the guidelines of Ministry of Agriculture, Govt of India. Every FPO will get support for business activity, promotional activity, productivity enhancement purposes, etc. through pooled resources from different government programmes/ schemes
- Administrative cost of planning, monitoring and evaluation (Advisory board, PMU and DPMU) will be borne by the state government.

The operational guidelines for FPO promotion in Andhra Pradesh state is quite comprehensive and has touched upon most of the issues. It also entails the budgetary support to be given to each FPO for different kind of activities as well as related infrastructure development. However, there are some gaps in the current strategy, which are broadly discussed below:

- Such ambitious initiatives requires convergence of all the sectors- public/private/NGOs. But, the document doesn't spell out clearly about bringing together the state line-department, NABARD, SERP, etc. to delineate the efforts to set up viable and sustainable FPO in each district. There is a great chance of duplicity of efforts in the same district and for same commodity groups.
- The current policy guidelines suggest top-heavy structure of FPOs and its monitoring system. There are several agencies like DPMU, ATMA, PSU, etc. entrusted to monthly/quarterly monitor the progress and operations of FPOs, which would ultimately bring unnecessary compliance burden on the FPOs. Rather the government department should attempt to bring transparent enabling environment, which may help communicate with the FPOs about the process and timeline to access the support benefits provided by the government.
- Roles of the NGOs or any other resource institutions promoting FPOs/FPCs are critical in this endeavor in providing hand-holding support in day-to-day operations. However, these FPOs/FPCs should be managed by a management professionals, who can steer the FPO to reach a scale and efficiency. After certain period, the promoting agency (NGO/RI) should exit from the system and FPO should aspire to be self-sustainable.
- Though, several producer companies and FPOs are functional in different states, but equally good number has failed to take off. Lack of technical and managerial capabilities with Resource institutions (POPIs) has been identified as one of the main reasons. This should also find place in the strategy document to develop capacity of the resource persons.

2.6 Critical lessons learnt and gaps

This section lists out the major issues that emanate from the review of literature of FPOs in India focusing on a) the purpose for which FPOs were formed, b) the process of FPO formation in different sectors and regions (details in Appendix 2.1), and c) the performance indicators of FPOs.

Success factors:

- A compelling vision of a potentially successful business model with significant rewards to farmer-members,Early success to institute rules/norms that reinforce patronage cohesiveness, governance effectiveness, and operating performance,Strong transparent institutional structure, which keeps its commercial and social objectives separate,External agency is must for initial hand holding in business development through capacity building, physical investments and creation of supply chain linkages;Harness local available human resources, train and empower them to reduce the costs of management as well as attrition,Complementary investments in public goods and physical infrastructure is essential to reduce costs and product losses,Agricultural production and rural marketing 'thinking' must be supported by 'business thinking' in respect of managerial capacities and organizational structures and development.

Weaknesses:

Internally,

- The poorest smallholders tend to be excluded from participation in and/or management of commercially oriented collective organizations,
- There are often mixed and sometimes conflicting objectives,
- Often there is a lack of startup finance, weak internal management capabilities, opaque governance and accountability,
- Lack of transparent policies and ICT tools and applications,
- Inefficient organizational capacity

External challenges include,

- High barriers to entry and asset threshold requirements in markets (demand pattern, preferences, standard, etc.)
- Inadequate transport and communications infrastructure,
- Unsupportive public policies and/or implementation and lack of government or political support, (eg, FPO can't get license for fertilizers)

> No one can tell what the price of a particular crop would be even with a gap of one day. Price uncertainty is a feature of the markets that farmers have to live day in and day out. When representatives of NCDEX told us about the possibility of taking a position to sell in September itself, we thought we will give this an experimental shot and we tool a position at Rs 3300. Today the prices are well below Rs 3000 and we were able avoid a loss of Rs 30,000 per 100 kg. This amount, which is a profit on the books of the company, which is owned by the farmers, can get benefited directly as a better price for soy or as lower rates for inputs in the next season – like wheat or chana.
>
> Mr Souvik Dhar, CEO, Samruddhi Mahila Crop Producer Company Ltd – Bundi, Rajasthan.

In nutshell, from the preceding discussion, it may be concluded that the collectivization of farmers in the form of 'Producer Company' or FPOs has potential to boost the income and livelihood opportunities in myriad ways, provided that all the dots are understood and joined properly. There are several living examples, one such is given below, where a producer company led by women could be able to access new age marketing platform like NCDEX and were able to optimize the market risk for their produce (NCDEX 2016).

Table 2.3 Issues that emanate from the review of literature of FPOs

Purpose of FPO formation	Process of FPO formation	Performance indicators of FPOs
• reaping the benefits of economies of scale through aggregation inputs, output and various processes • reduce the transaction costs in a significant way, improving profit margins and incomes of rural households • effectively address the capital and credit constraints faced by small holders • help small holders to manage risk and uncertainties through collective efforts in production, marketing and post-harvest value addition • contributes to the provision of public goods in the society	**Pre-Formation Stage** • Identification of uniform cluster • Organization of Farmer Interest Groups and educate them about the activity and intended benefits • Collection of share money **Formation Stage** • Membership drive and formalizing the management structure, • FPO Incorporation- documentation and registration • Capacity building of FPOs functionaries **Implementation of Business Plans** • Actual operation of production, value addition, marketing, etc. • Regulatory approval for the activities (if needed), eg, selling of fertilisers or agro-chemicals	• Development of performance and impact indicators • increased employment opportunities • improved income levels • enhancement of social status • linkage effects of agriculture and non-agriculture sectors • improvement in the performance of various institutions bringing more transparency and accountability • development of social capital in the region • improvement in health, education and overall well-being

Chapter 3. Methodology

3.1 Research design

To understand the scope of FPOs in Andhra Pradesh, the objectives outlined in the previous chapter were the basis to put in place a well-tailored research design. The methods to be followed in determining the scope of work involved extensive deliberations with the various departments of Andhra Pradesh government. We have followed a three step process for the entire study, as which is described below:

1. With the overall guidance from the Planning Department, the team conducted several rounds of discussions with various government departments involved in the primary sector and are planning to set up FPOs based on activities under their domain. We also had detailed discussions with the NABARD officials in the respective districts about the activities related to the FPOs. The data and information gathered from the discussions were used to devise a sampling framework for the study.

2. The second step was to gather information about the different categories (based on discussions with government departments and NABARD) of FPOs in the districts and to select the FPOs belonging to these categories for a detailed study. After the selection, the team visited the selected FPOs in different districts and conducted detailed interviews, field visits, formal and informal meetings and focus group discussions (FGDs) with individuals and groups of farmers, officials of the concerned departments, key functionaries of NABARD for the district, local body representatives and NGO functionaries to collect data and information based on a semi-structured questionnaire for collection of detailed data and information.

3. The third step was to collate the data and information gathered from the FPOs spread across the state in different districts, and analyse the data and information using qualitative and quantitative techniques along with geo-spatial analysis to draw meaningful conclusions about the objectives outlined for the study. The results of the analysis is then presented in the study report organized into six chapters.

In this study, both quantitative and qualitative methods were used to understand the scope of FPOs in Andhra Pradesh. Also, quantitative methods included analysis of data collected from secondary sources of the government departments, research institutes, reports and articles. Primary data collection was adopted through a formal scheduled survey from targeted stakeholders (FPOs). Also, collation and analysis of data was conducted with formal quantitative techniques and qualitative methods. Attempts were made to integrate the information collected and analysed by both the techniques to complement our understanding in this study. Unstructured interviews are involved in almost all case studies in which the subjects would be allowed to express themselves in their own words, hence generalizations would be difficult to make (Ritchie et al. 2003). The qualitative techniques included appreciative inquiry with FGDs with government functionaries. The outcomes of these discussions were useful in finalizing formats discussed later in this chapter.

3.2 Methods

- Series of interactions with line departments paved the way for designing the suitable sampling framework for the study. The step-by-step procedures used across sub-sectors actually brought out the commodity-based approach/stratification approach for this study.
- Primary data was collected from FPOs through survey schedule developed based on discussions with the line departments and on objectives envisaged.
- The present study used simple tabular analysis with appropriate measure of central tendencies for summarizing the scoping survey responses. Both quantitative and qualitative responses are used for summarizing the results by providing appropriate weights/scales as per the need.

- Diverse secondary sources of information regarding the cropped area, production, livestock population, storage facilities and rural market networks, etc. were used for deeper understanding and assessing the possibilities of setting up of FPOs across potential mandals in the state.
- Geographical Information Systems (GIS) tools were also applied for identifying the potential mandals across a range of commodities in a given district.
- Cropping area was the key indicator in determination of production estimates of commodities (mandal wise) in a district. Delineating pockets of production into a cluster encompassing different mandals in a district was attempted after analysing spatial data on acreage under different crops. Both primary and secondary commodities were suggested for FPO potentials. This enabled coverage of at least 70% of crop production from clusters in every district.
- Case study method is being used especially for highlighting the functional FPOs across sub-sectors.
- Recommendations and way forward was based on analysis of results and interpretation involved a thorough post ante analytical discussions by a panel of experts.
- Limitations for conducting the scoping study have been placed at the end of this chapter.

3.3 FPOs categorization

Categorization of FPOs was done before sampling of FPOs for the study. Also, the defining of sampling units was carefully undertaken keeping the study objectives in mind and involved a thorough scrutiny of data from both primary and secondary sources.

So far based on the available information in the state, the proposed number of FPOs in the state are falling short by 311 than the envisioned target of setting up 1000. The initial analysis also indicates that the proposed list of FPOs also may have some merger/convergence of activities or commodities across sub-sectors at selected locations. Most of the line departments have used 'commodity-based approach' while proposing the FPOs in the state. However, department's capacity in handling the formation and management of FPOs needs to be taken-up on priority basis from the initial stage. This kind of effort brings harmony among the proposed FPOs in different sub-sectors. Enough ground work needs to be done on identification of sources of funds from initial set-up of FPOs till they reach maturity.

With this background, the proposed study was planned to cover both functional (currently registered and functioning) and proposed (not registered and yet to start functioning) FPOs for their deeper understanding about current status, capacity needs, constraints faced by them and ultimately identification of suitable policies for their strengthening and implementation in the state. It is worthy to study and cover both these categories of FPOs in the state for generating all-inclusive understanding of data and arrive at meaningful and practical recommendations in the present study. Therefore, a comprehensive study design has been adopted to cover both these categories and summarized in Figure 3.1.

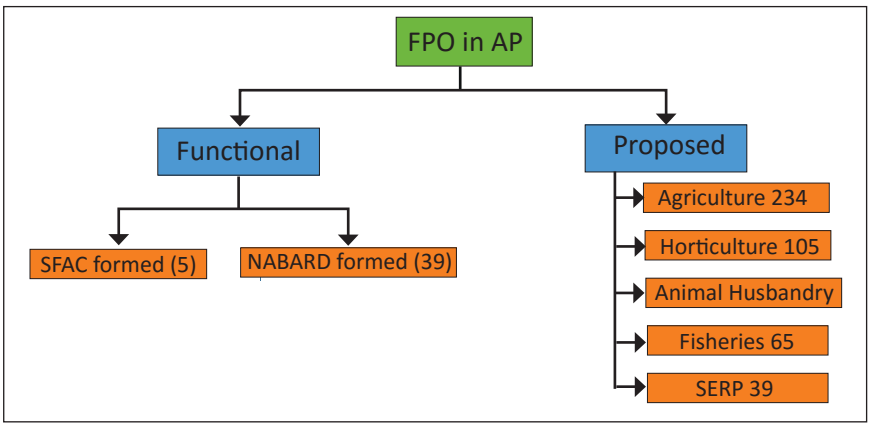


Figure 3.1. Categorization of FPOs based on functionality and source.

As per secondary sources of information, there has been around 98 FPOs that are being registered formally and functioning in the state. They are formed based on two sources of funds: 1) SFAC and 2) PRODUCE fund under NABARD. A purposive random sampling method has been adopted to cover at least 1 to 2 functional FPOs (either most successful or failed ones) from each district in the state. A separate case study format has been prepared (Appendix 3.1) exclusively to cover this category. This format was pre-tested and standardized across cases to bring harmony among them for further comparison. It will be useful to comprehend the drivers behind the success/failure of each studied FPO in the state. This entire process will enlighten us to broadly understand the current situation as well as understand financial viability of these formal institutions in the state.

Similarly in case of proposed FPOs, the scoping baseline survey was planned to cover by sub-sector wise. The sub-sector wise sampling framework has been prepared for better representation of sample and coverage of survey sample units across all thirteen districts of the state. A separate five page baseline survey format (Appendix 3.2) has been designed to capture the information from proposed FPOs across commodities. The well-structured and pre-tested questionnaire was used to collect the information from the selected FPOs in each district. As highlighted in the previous sections, it would be herculean task to study all 689 proposed FPOs across commodities and districts. For bringing the cost and time efficiency, a sub-sample of sampling units covering all sub-sectors are planned. Therefore, a total of 10 proposed FPOs was surveyed in the present study to minimize the survey travel time and costs. The entire population has been divided in to three strata based on specialization of each sub-sector.

Strata 1: Agriculture, Horticulture and SERP commodities (grains, fruits, vegetables etc.)

Strata 2: Animal Husbandry commodities (dairy, sheep & goat, poultry and fodder etc.)

Strata 3: Fisheries commodities (fresh water, shrimp, marine, sea bass, mud crabs etc.)

3.4 Sampling framework

Under each strata, a simple random procedure was followed to cover at least a ten percent of the total population. For strata 1, a district-mandal-crop-matrix was prepared to converge the proposed FPOs under each study district, mandal and selected crop/crops etc. based on source of funds (ie, NF/SAFC/ NFSM/Horticulture/SERP). This summarized data matrix has been used for selecting the sub-sample for undertaking the baseline survey in case of both agriculture, horticulture and SERP proposed FPOs. For further details, the summary of data matrix has been furnished in Appendix 3.3.

A randomized sampling framework was prepared to cover strata 1 commodities using Appendix 3.4 information. Also, flexibility has been given to the survey team to alter the coverage of the FPOs based on the availability & cooperation from district officials. Enough care has also been taken in providing equal importance to all proposed FPOs under different funding sources. On the whole, about 49 proposed FPOs are planned to help cover under strata-1 in the scoping study. In majority of the situations, the survey responses were elicited from respective district agricultural officials (DAO) or NABARD team members or respective NGOs engaged in setting up or from CSR sponsoring agency. As anticipated earlier, in a given location of the mandal, the coverage/proposal of multiple crops are treated under only one FPO for better reporting purposes. The identified Strata-1 sampling framework is furnished in Table 3.1.

In case of Strata-2, similar procedure was followed and a sub-sample of units have been identified randomly under Animal Husbandry sub-sector. At least one proposed dairy FPO was targeted for all districts in the state. Based on the importance, the other types of FPOs were also covered in the respective districts. Overall, a total of 23 proposed FPOs were identified to cover 13 districts under the planned study. The details of sampling strategy are summarized in Table 3.2.

Similar sampling strategy also followed in case of strata-3 where the proposed FPOs under fisheries sub-sector was covered randomly. Also, care was taken to equally represent all types of proposed FPOs in this sub-sector. The sampling framework for coverage of fisheries sub-sector are furnished in Table 3.3.

Table 3.1 Sampling frame for coverage of proposed FPOs in strata-1

		AGRICULTURE sector					HORTICULTURE sector		
			SFAC						
District	Mandal		IGS	VRUTTI	ALC	NFSM-Millets	Horticulture crops covered	SERP	Total Coverage
Anantapur	Garladine		**	**		Millets		Red gram, Groundnut	2
	Rapthadu	Groundnut, Red gram, Korra				Millets			2
Chittoor	Ramakuppam	Rice, Groundnut				Millets		Vegetables	3
	Srikalahasthi						Mango		1
East Godavari	Eleswaram	Rice, Pulse, Maize, Sesame					Cashew, Mango, Coconut, Banana		2
	Rampachodavaram	Rice, Pulse, Maize, Sesame						Cashew	2
Guntur	Mangalagiri	Pulse, Cotton, Jowar (sorghum), Maize					Turmeric, Chilies		2
	Edlapadu	Pulse, Cotton, Jowar (sorghum), Maize					Chilies		2
Kadapa	Vempalli	Rice, Pulse, Groundnut					Banana		2
	Mydukur	Rice, Pulse, Groundnut							1
Krishna	Musunuru	Rice, Black gram					Banana,Palmoil,Vegetables		2
	Mylavaram						Jasmine, Vegetables		1
Kurnool	Dhone	Rice, Cotton, Maize, Bengal gram, Groundnut, Red gram, Black gram	**	**		Millets			2
	Peapalli/Peapully	Rice, Cotton, Maize, Bengal gram, Groundnut, Red gram, Black gram					Onion, Chili		2
Nellore	Ozilli	Rice, Groundnut, Black gram, Green gram, Vegetable, Lime					Mango, Sapota		2
	Naidupeta	Rice, Groundnut, Black gram, Green gram, Vegetable, Lime							1
Prakasam	Yerragondapalem	Bengal gram, Rice, Chilies, Vegetables					Mango,Sapota,Guava		2
	Nagulapapadu	Bengal gram, Rice, Chilies, Vegetables							1
Srikakulam	Seethampeta	Rice, Sugarcane, Maize, Green gram, Black gram, Fingermillet			**	Millets	Amla, Coconut, Tamarind, Cashew, Coconut	Cashew	3
	Ranasthalam	Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)							1
Visakhapatnam	Paderu	Rajma (Red Kidney Beans), Millets, Maize				Millets	Medicinal Plants		3
	G. Madugula						Medicinal Plants, Turmeric	Turmeric , coffee	2
Vizianagaram	Gumma Laxmipuram					Millets	Mango, Sapota	Cashew	3
	Parvathipuram	Millets, Rice, Maize						Cashew	2
West Godavari	Yelamanchili	Rice, Maize, Oil palm, Black gram				Coconut			2
	Kovurru	Rice, Maize, Oil palm, Black gram							1
Total targeted									49

** Indicates the dominance of Resource Institutions (RI) in those respective districts

Table 3.2 Sampling frame for coverage of proposed FPOs under strata-2

S. No	District	Dairy FPOs	Sheep & goat FPOs	Poultry FPOs	Fodder FPOs	Total
1	Anantapur	1	1		1	3
2	Chittoor	1		1	1	3
3	East Godavari	1		1		2
4	Guntur	1	1			2
5	Kadapa	1	1			2
6	Krishna	1	1			2
7	Kurnool	1	1			2
8	Nellore	1				1
9	Prakasam	1				1
10	Srikakulam	1				1
11	Visakhapatnam	1				1
12	Vizianagaram	1				1
13	West Godavari	1		1		2
	Grand total	13	5	3	2	23

Table 3.3 Sampling frame for coverage of proposed FPOs under strata-3

Sl. No	District	Fresh water fish	Shrimp/Prawns	Marine	Mud-crab	Total
1	East Godavari		1			1
2	Guntur		1			1
3	Krishna	1	1		1	3
4	Nellore					
5	Prakasam			1		1
6	Srikakulam					
7	Visakhapatnam					
8	Vizianagaram					
9	West Godavari		1			1
	Total	1	4	1	1	7

Overall, the present study has initially targeted to cover at least 13 functional FPOs and 79 (49 under strata-1 + 23 under strata-2 + 7 under strata-3) proposed FPOs covering diversified commodities and mandals in the state. However, due to time and resource constraints, the primary survey was conducted for 45 FPOs (30 proposed and 15 functional) in twelve districts of Andhra Pradesh (details given in Chapter 5). The survey team members have extensively interacted and collected a lot of qualitative information from farmers, various government officials, traders and NGOs about feasibility of setting up of proposed FPOs in the identified locations. The feedback provided by FPO board members, POPIs and RIs will also enrich the content of this study report. This comprehensive coverage of crops and locations generated significant information and policy recommendations.

3.5 Data analysis

Spatial analysis of production areas of commodity data was analyzed using GIS software. Analysis of secondary data sources by basic statistics for different commodity parameters were performed using MS Office Excel. Primary data obtained from survey questionnaires was subjected to quantitative analysis where ever possible, while qualitative data was presented during discussion of the results as specific examples. Also, case studies have been included to highlight the role played by FPOs in either identifying potential technological or management processes that can inspire all stakeholders.

3.6 Limitations of the study

- The results generated from this study are based on representative random sample across various sub-sectors. The findings can be scaled-up to the targeted mandals and districts only. They may be suitably modified when applied for the entire state.
- Time was a major factor that limited the survey time to revisit the FPOs during the deliberations, it is possible that this could have an influence on the responses recorded in the formats. For example, information relates to financial parameters and processes could be partial for analysing further.
- There were continuous drought years recently and information gathered on areas and production during a normal year could be different from the one collected during the drought period.
- Great care has been taken to minimize type 2 errors, which is failing to detect an effect that is present, however it is possible that there could be interesting learnings and even case studies from those FPOs that do not find a place in our research sample.
- It has been assumed that the secondary data sources available in public domain and those shared by the departments have been gathered with due diligence and scientific procedures.
- Some reference databases existing when accessed over internet might change due to technical or uncertainties over web protocols which are beyond the control of research team.

Chapter 4. Strategy of Andhra Pradesh State for FPOs

As highlighted in the Chapter 1, one of the major objectives of the present study was deeper understanding about current status of Farmers Producers Organizations (FPOs) in the state of Andhra Pradesh under different sub-sectors of primary sector. Specifically, to achieve 'double digit growth' in agriculture in the state, the government has initiated the 'Primary Sector Mission' (Rythu Kosam Mission) with massive outlay of investments over the next five years period (2015-2020) under consortium approach by bringing state, national and international partners on board. Also, interventions from both the supply and demand side are aimed at improving the livelihoods of the small and marginal farmers in the state. In order to provide better bargaining power and bring significant economic benefits to farmers in the state, there is an urgent need for setting up of farmer-membership-based institutions, which are well connected (to the technology, markets, credit and other infrastructure facilities), financially viable and can quickly adopt diverse business strategies. Both central and state governments are taking-up lot of initiatives to promote and strengthen 'Farmers Producers Organizations (FPOs)' as a strategy to enhance farmers' welfare in the country. This structure not only provides technical know-how to farmers but also connects both input and outputs markets by completely negating the role of intermediaries. The formal networking of farmers also improves their capacity and empower them significantly. As per the recent 'state FPO policy guidelines', the government has envisioned to set-up 1000 FPOs to benefit at least one million farmers during the initial stages. With a series of deliberations with department of planning, most of the line departments have completed their meticulous planning in setting up of proposed FPOs across commodities in different districts. This initial secondary information was systematically collected from line departments, which was used as basis for this comprehensive scoping study in the state of Andhra Pradesh.

4.1 Functional FPO structure in Andhra Pradesh

As discussed earlier, the functional FPOs were basically established by either Small Farmers Agribusiness Consortium (SFAC) or National Bank for Agricultural & Rural Development (NABARD) across different states in the country. The SFAC has implemented this project since the year 2011 in close collaborations with state governments, civil society and technical organizations as well as private sector companies. Also, by working across 25 states, the project has helped to mobilize approximately 0.695 million farmers in over 694 FPOs (428 registered and 266 under the process of registration), the majority of which have been incorporated as producer companies under the Companies Act, 1956. As many as five of them are registered in Andhra Pradesh as on 31-03-2016. The brief details of these FPOs are summarized in Table 4.1. All of them are registered as cooperatives and have identified the commercial crops as their coverage.

Table 4.1 List of FPOs set up by SFAC in Andhra Pradesh, 2016

FPO name	Legal form of FPO	FPO location	Major crops covered
Sri Ramajanaya Agri-business centre	Cooperative	Darsi, Prakasam	Redgram, Cotton and Tobacco
Chinthala Cheruvu Neeti Viniyogadarula Sangam	Cooperative	Polavaram, West Godavari	Tobacco, Rice and Cotton
Thungabhadra Cooperative	Cooperative	Kodumur, Kurnool	Rice, Groundnut and Carrot
Sri Seeta Ramanjaneya Rythu Vuapara Kendram	Cooperative	Darsi, Prakasam	Tur, Rice and Tobacco
Sri Srinivasa Agri-Business Centre	Cooperative	Darsi, Prakasam	Tur, Cotton and Chilli dry

Source: http://sfacindia.com/PDFs/List-of-FPOidentified-by-SFAC/ListofFPOsintheStateofAndhraPradesh.pdf

Similarly, NABARD has been promoting institutional mechanism through collectivizing the farmers into Producer Organizations (POs) and build their capacities to manage input resources, access better technology and ensure better bargaining power through market aggregation. The Government of India has also set up a dedicated fund called 'Producers' Organization Development and Upliftment Corpus (PRODUCE) Fund' in NABARD with a corpus of Rs 200 crores to be utilized for building and promotion of 2000 FPOs across the country in two years ie, by December 2016. Around 105 FPOs has been targeted to be set-up in Andhra Pradesh state over this two years period. But, as of now, NABARD has set-up nearly 93 FPOs (as on July, 2016) and provided required technical and financial support. The summary of those details are summarized in Table 4.2.

Table 4.2 District-wise sanctioned FPOs by NABARD in Andhra Pradesh

District	No. of FPOs sanctioned as of July, 2016	*POPI details
Anantapur	5	COO, ABI, ICRISAT
Chittoor	6	Dhan foundation, MASS, Pragathi, RSS and Origo Commodities India Ltd.
East Godavari	3	SASS
Guntur	10	CARE, Nilgiri foundation, SEARCH, EFFORT and SERVICE
Kadapa	7	DBGF, HERDS, CDD and RHGBMMS
Krishna	16	AES, CCT, GUIDE, NESTHAM, SNEHA, VMMACTCS and VMM
Kurnool	9	APARD, RAMKY foundation, SPES, Vrutti
Nellore	9	CDP, CDD, SARDS, CJWS, Navajeevan Organization, RRDS and Sannihita
Prakasam	7	EFFORT, SARDS, CRDO, Prerna, Sreekaram, SSES
Srikakulam	3	ARTS and Youth Club of Bejjipuram
Visakhapatnam	9	GSS, GVSSS, Kovel foundation, ORRC, SVDS and VIKASA
Vizianagaram	5	AASRA, DWMS, Jattu Trust and Sabala
West Godavari	4	RSSS and SEVA
Total	93	

*POPI: Producer Organization Promoting Institutions

The table clearly reveals that diverse Producer Organisations Promoting Institutions (POPIs) played a significant role in mobilizing the farmers across the districts in the state. However, Indian Grameen Services (IGS) acted as a Resource Supporting Agency (RSA) for all the 93 established FPOs in the state. Approximately one-quarter of them were formed under horticultural sub-sector crops. Also, cereals and millets and fisheries were the other major sub-sectors under which the registered FPOs were formed.

4.2 Proposed FPO structure in Andhra Pradesh

As the state envisioned to set-up FPOs across different commodities, the government of Andhra Pradesh has requested the concerned line departments to provide an action plan for setting up of feasible FPOs across the state based on commodity. Based on the information provided by Department of Agriculture, Horticulture, Animal Husbandry, Fisheries and SERP, a total of 689 FPOs are tentatively proposed across commodities and locations during the year 2016-17. The summary of their break-up is provided in Table 4.3. Further, the complete break-up of 689 proposed FPOs across district-wise is furnished in Appendix 4.1.

Table 4.3 Break-up of proposed FPOs across sub-sectors

Sub-sector	Number of proposed FPOs
Agriculture	234
Horticulture	105
Animal Husbandry	246
Fisheries	65
SERP	39
Total	689

4.2.1 Agriculture

Overall, the Department of Agriculture proposes to undertake 234 FPOs in the state during the current financial year ie, 2016-17. This number has been attained after collecting basic information through structured questionnaires and repeated discussions held within the department. This entire exercise covered both the existing and newly proposed FPOs in the state. Also, existing fruits and vegetable FPOs are also taken into consideration. The proposed FPOs in case of agriculture sub-sector are going to be formulated and supported under three broad programs: 1) Natural Farming (NF/NPM); 2) Small-Farmers Agri-Business Consortium (SFAC); and 3) Millets revival program under National Food Security Mission (NFSM). The RKVY funds allocated to state and SFAC have been planned to be used for establishing and managing the FPOs during current financial year.

a. **Natural Farming (NF/NPM)**: The Government of Andhra Pradesh is committed to create viable and sustainable farm livelihoods by promoting natural farming in 130 clusters covering 116 mandals in 80 divisions of 13 districts. Nearly 725 villages covering about 1,25,000 ha are initially targeted through creating awareness among Rythu Mitra groups, women self-help groups, NGOs etc. In the second phase, about 566 clusters covering nearly 0.5 million ha are being targeted for promoting non-pesticide crops cultivation. Overall, in the coming three years period, around 1 million farmers are going to be covered under this massive program[5]. The funds allocated under RKVY to the state has been earmarked to be utilized efficiently to cut-down the costs of cultivations and enrich the soil health status in the state. Under the first 130 clusters, about 131 Natural Farming FPOs are being proposed under different agricultural commodities covering 13 districts. The comprehensive details about NF/NPM FPOs by district are summarized in Table 4.4.

b. **SFAC proposed FPOs:** The Small-farmers Agri-Business Consortium (SFAC) in the state are planning to set-up about 56 FPOs covering both agricultural (4) and horticultural (8) crops in seven districts. The funds received through RKVY have been planned and committed to establish these FPOs in the state under Primary Sector Mission. The SFAC has identified three NGOs (IGS, Vrutti and ALC) as Resource Institutes (RIs) to establish these proposed FPOs in different districts. Most of these FPOs are in the formation stage (refer Table 4.5).

Millets revival program: Under comprehensive millets revival program supported by the National Food Security Mission (NFSM), about 41 millets cultivating (tribal (15) and rainfed (26)) mandals have been identified for setting up of about 47 FPOs in those locations. To strengthen millets production and increase the nutritional security in the tribal and rainfed mandals of the state, NFSM is encouraging to set-up these FPOs in the state. The district-wise coverage of these mandals are summarized in Table 4.6.

Overall, the entire approach seems to be a top-down approach rather than participatory planning from all the stake holders (bottoms-up approach). So, an element of inherent risk is involved in mobilizing large number of farmers for establishing FPOs in the selected locations and commodities. Also, strengthening of input and output market linkages as well as building capacities of FPOs in the planned time period is a cumbersome process especially as FPOs are envisioned to be profit making business entities.

5. Refer 'Organic and In-organic Agricultural Methods' report prepared by Department of Agriculture, Government of Andhra Pradesh for more details.

Table 4.4 Break-up of NF/NPM proposed FPOs in the state by the department of agriculture

S. no	District	No. of divisions	No. of mandals	No. of clusters	No. of villages	No. of FPOs	Commodities coverage
1	Anantapur	6	8	10	53	10	Groundnut, red gram, foxtail millet (korra)
2	Chittoor	7	10	10	48	10	Rice, groundnut
3	East Godavari	5	10	10	67	10	Rice, pulse, maize, sesamum
4	Guntur	8	9	10	50	10	Pulses, cotton, jowar (sorghum), maize
5	Krishna	4	8	10	51	10	Rice, black gram
6	Kurnool	4	6	10	53	11	Rice, cotton, maize, Bengal gram, groundnut, red gram, black gram
7	Prakasam	5	10	10	50	10	Bengal gram, rice, chillies, vegetables
8	SPSR Nellore	6	8	10	54	10	Rice, groundnut, black gram, green gram, vegetables, lime
9	Srikakulam	6	9	10	77	10	Rice, sugarcane, maize, green gram, black gram and ragi (finger millet)
10	Visakhapatnam	9	10	10	71	10	Rajma (Red Kidney Beans), millets and maize
11	Vizianagaram	6	9	10	50	10	Millets, rice and maize
12	West Godavari	6	10	10	51	10	Rice, maize, oil palm, black gram
13	Kadapa	8	9	10	50	10	Rice, pulses, groundnut
	Total	80	116	130	725	131	

Source: Commissioner of Agricultural Office, Andhra Pradesh

Table 4.5 Proposed FPOs by SFAC under primary sector mission

Commodity	Proposed no of FPOs	IGS proposed districts (No. of FPOs)	Vrutti proposed districts (No. of FPOs)	ALC proposed districts (No. of FPOs)	No. of farmers to be covered
Tomato	6	Chittoor (3)	Chittoor (3)		6000
Onion	6	Kurnool (3)	Kurnool (3)		6000
Chilly	5	Guntur(3), Kurnool (2)			5000
Banana	8	Kurnool (2)	Kadapa(3), Anantapur (3)		8000
Rice	7	Kurnool (3)	Kurnool (3)	Srikakulam (1)	7000
Maize	5	Kurnool (2), Vizianagaram (3)			5000
Cotton	9	Kurnool (3), Guntur (3)	Kurnool (3)		9000
Groundnut	6	Anantapur (3)	Anantapur (3)		6000
Cashew	1			Srikakulam (1)	1000
Pineapple	1			Srikakulam (1)	1000
Turmeric	1			Srikakulam (1)	1000
Tamarind	1			Srikakulam (1)	1000
Total	56	4 districts (30)	4 districts (21)	1 district (5)	56000

IGS: Indian Grameen Service
VLRC: Vrutti Livelihood Resource Centre
ALC: Access Livelihoods Consulting India Pvt Ltd.

Table 4.6 Selected mandals and proposed FPOs under millets revival program

District	Type	No. of mandals/ FPOs proposed
Anantapur	Rainfed	20
Chittoor	Rainfed	6
East Godavari	Tribal	2
Kurnool	Rainfed	6
Srikakulam	Tribal	3
Visakhapatnam	Tribal	8
Vizianagaram	Tribal	2
	Total	47

4.2.2 Horticulture

The Department of Horticulture is quite active in setting up of FPOs since the year 2014. Between 2014-15 and 2015-16, nearly 39 FPOs have been proposed and registered with the support from NABARD's PRODUCE fund. It is envisaged to promote and nurture about 105 FPOs over two year period under this grant. Also, as many as 66 FPOs are proposed to be set-up and registered during this financial year (2016-17). The Department of Horticulture also administered separate questionnaires to collate the existing FPOs as well as for proposed FPOs information from respective mandal horticultural officers. The department has also provided financial assistance in identifying appropriate clusters and training them with exposure visits through the RKVY funds. The summary of the registered FPOs across the state under the NABARD's PRODUCE fund are tabulated in Table 4.7. However, the Department of Horticulture also provided the list of registered/proposed FPOs during the years 2014-15 and 2015-16 in terms of district and commodity wise and which have been supported by NABARD, these details are provided in Table 4.8.

Table 4.7 District-wise status of FPOs under PRODUCE fund

S. No	District	No. of FPOs sanctioned	FPOs registered	Registration applied for
1	Anantapur	5	Nil	-
2	Chittoor	3	1	-
3	East Godavari	3	Nil	3
4	Guntur	10	8	2
5	Kadapa	5	Nil	-
6	Krishna	14	10	5
7	Kurnool	8	3	-
8	Nellore	7	Nil	2
9	Prakasam	5	Nil	-
10	Srikakulam	2	Nil	-
11	Visakhapatnam	8	Nil	1
12	Vizianagaram	5	Nil	-
13	West Godavari	4	4	-
	Total	79*	26*	13*

* status as on 31-12-2015
Source: NABARD

Table 4.8 District and commodity-wise FPOs registered/proposed with NABARD during the years 2014-15 and 2015-16

S. No	Name of the District	Name of POPI	No of FPO	Name of FPO	Mandal	No of farmers	Commodities
1	East Godavari	SASS	2	Under Registration	Yeleswaram	8688	Cashew, Mango, Coconut & Banana
2	Guntur	Nilagiri Foundation	1	Mangaladhri Agri Producers Company	Kollipara, Managalgiri & Tadepalli	500	Turmeric
		Service	1	Red Chili farmers producers company	Machavaram	60	Chili
		Effort	1	Spoorthi Chilly Producers Company	Eddlapadu	500	Chili
		Nilagiri Foundation	1	Schametha Producers Company Ltd	Mangalagiri	85	Chili and turmeric
		SEARCH	1	To be registered	Bapatalla	65	Floriculture
3	Krishna	Nestham	1	Sri Vigneswara farmers Producers Organization	Thotalavalluru	250	Banana
			1	Ankammathalli farmers Producers Organization	Mopidevi	175	Vegetables
			1	Surya Sai Farmers Producers Organization	Musunuru	275	Banana & Oil palm
			1	Baji Baba farmers Producers Organization	Nadigama	250	Chili
			1	Kodur farmers Producers Organization	G. Kondur	225	Mango
		CCT	1	N.G.Ranga Farmers Producers Organization	G. Kondur	200	Vegetables
			1	Sri Veeranjaneya Farmers Producer Organization	Mylavaram	175	Jasmine
			1	China Ogirala farmers Producers Company	Vuyyuru	200	Vegetables
			1		Musunuru	52	vegetables
4	Kurnool	APARD	1		Ponnakkal	60	Vegetables
		Vrutti	1		Peapalli	101	Onion, Chili
		SPES	1		Aspari	82	Onion
5	Nellore	Navajeevan Organization	1		Venkatagiri, Dakkili, Balayapalli, Guduru & Chillikur	49	Vegetables
		CDP	1		Doravarisatram	45	Mango / Sapota
		Sannihita	1		Ozilli	51	Mango / Sapota
		KPL MACTS	1		Kovuru	52	Jasmine
		RRDS	1		Sidhapur	60	Acid lime
		KPL MACTS	1		Indukurpeta & Thota palli gudur	58	Vegetables

Continued.

Table 4.8 *Continued.*

S. No	Name of the District	Name of POPI	No of FPO	Name of FPO	Mandal	No of farmers	Commodities
6	Prakasam	SSES	1		Pullalacheruvu, Dornala and Yerragondapalem	52	Mango/Sapota/Guava
		Sreekaram	1		Tarlupadu, Konakana Mittala & Donakonda	54	Chili
		Prerna	1		Cumbum	52	Chili
7	Visakhapatnam		1	D.Gonduru Girijana Rythu Seva Farmer Producer Company Ltd.	Paderu	500	Medicinal Plants
		Kovel Foundation	1	Hukumpeta Girijana Mahila Rythu Seva Farmer Producer Company Ltd	Hukumpeta	600	Medicinal Plants
			1	M.Nittaputtu Girijana Rythu Girijana Rythu Seva Farmer Producer Company Ltd.	G. Madugula	500	Medicinal Plants
		VIKASA	1		Dumbriguda	1000	Mango
		GSS	1	Varaha Coconut farmers Producer Organization(VCFPO)	S. Rayavaram	500	Coconut
		Organisation for Rural Re-construction (ORRC)	1		Gmadugula	150	Turmeric
8	Vizianagaram	Jattu Trust	1	Desathalli Arati Uttapathi Darula Seva Sangam	Garugubilli Mandal	59	Banana
			1		Gummalaxmipuram	63	Mango and Sapota
		AASRA	1		Pachipenta	58	Mango
		DMWS	1		Badangi	59	Vegetables
			1	Vizianagaram Coconut Producers Federation	Pusapatirega	57	Coconut
			1	Sri Rama Rythu Mitra Sangam	Nellimarla	56	Vegetables
			1	Sree Mitra Rythu Sahakara Sangam	Saluru	57	Banana
			1	Giri Jyothi Kuragayala Uttapathi Darula Seva Sangam	Kurupam	58	Vegetables
			1	Sri Chinnammathalli Kuragayala Uttapathi Darula Society Rambadrapuram	Rambadrapuram	62	Vegetables
			1	Rythu Nestam Mamidi Uttapathi Darula Society Akulakatta	Badangi	53	Mango

Continued.

Table 4.8 *Continued.*

S. No	Name of the District	Name of POPI	No of FPO	Name of FPO	Mandal	No of farmers	Commodities
			1	Rythu Mitra Kuragayala Uttapathi Darula Society Kallikota	Komarada	53	Vegetables
			1	Pragathi Vegetable Producers Mutually Aided Cooperative Thrift & Credit Society Ltd.	Rambadrapuram	57	Vegetables
			1	Swami Ayyappa Rythu Mitra Sangam	Vepada	55	Vegetables
		Rahul Social Service Society	1		Yelamanchalli	48	Coconut
9	West Godavari	SEVA	1	Venkateswara vegetable growers mutually aided cooperative society ltd. Dwaraka	Dawarakatirumala	15	Vegetables
			1		Jeelumilli	26	Cashew
10	Kadapa	RHGBMMS	1	Sai Sangameswara Horticulture farmer produces Mutually aided cooperative society	Vempalli	100	Banana
		Pragathi	1		KVB Puram, Yerpedu and Srikalahasthi	42	Mango
			1	Gudipala Mandala Vayalaga Rythula Samakhya	Gudipala	397	Vegetables
11	Chittoor		1	Palamaner Mandala Vayalaga Rythula Samakhya	Palamaner	385	Vegetables
			1		Y V Palem	47	Mango
			1		Vayalpadu	48	Vegetables
			1	Punganur Mandala Vayalaga Rythula Samakhya	Punganur	750	Vegetables
12	Srikakulam	ARTS	3		Seethampet and Veeraghattam	5056	Amla, Coconut Tamarind and Cashew
	Total		60			23327	

Source: Department of Horticulture, 2016.

4.2.3 Animal husbandry

The Department of Animal Husbandry has followed a strategic approach for identifying potential FPOs across the state under different thrust areas like dairy, sheep and goat rearing, poultry and fodder sources. To uplift the socio-economic status of the rural farming communities, the department has initially identified the Farmer Interest Groups (FIG) and has been providing the technical inputs, infrastructure facilities and also providing market linkages. They have conducted village-wise census to collect information on different aspects like total livestock population, types of breeds, existing cropping patterns, extent of availability of crop residues/agro-industrial by-products and ultimately on local consumption demand of animals products etc. By keeping in view the ongoing broad range of interventions across state, the department has proposed around 246 FPOs in this sub-sector. As many as 176 FPOs are proposed under dairy sector, 55 FPOs under sheep and goat sector, about 10 FPOs in poultry sector, and 5 FPOs in case of feed and fodder sector. More than 0.12 million farmers are planned to be directly linked with these 176 proposed FPOs under dairy sector in the state. The sector-wise break-up of FPOs and coverage of farmers details are tabulated in Table 4.9.

Table 4.9 District-wise proposed FPOs in livestock sector

District	Dairy FPO	No. Farmers	Sheep & Goat FPO	No. Farmers	Poultry FPO	No. of Farmers	Fodder FPO	No. of Farmers	Total Farmers
Anantapur	13	6425	11	5963	0	0	2	214	12602
Chittoor	12	6258	2	1025	2	981	2	261	8525
Kadapa	15	7462	6	3002	0	0	0	0	10464
East Godavari	38	18950	0	0	3	1475	0	0	20425
Guntur	9	4462	6	2958	1	402	0	0	7822
Krishna	19	9462	7	3468	1	458	1	52	13440
Kurnool	18	9682	11	5896	0	0	0	0	15578
Nellore	5	2486	2	963	0	0	0	0	3449
Prakasam	12	5998	2	965	0	0	0	0	6963
Srikakulam	8	4025	2	952	0	0	0	0	4977
Visakhapatnam	6	3010	2	905	1	425	0	0	4340
Vizianagaram	6	3120	2	920	0	0	0	0	4040
West Godavari	15	7230	2	948	2	918	0	0	9096
Total	176	88570	55	27965	10	4659	5	527	121721

Source: Department of Animal Husbandry

The Animal Husbandry department has a plan to convert existing cooperative societies into FPOs, specifically in case of dairy sector. However, the milk cooperatives are successful in the districts of Vishakhapatnam, Krishna and Chittoor. Therefore, the department is anticipating ample space and potential to further strengthen, replicate these models in the remaining ten districts of the state. At this stage, the department strongly believes in activities like fresh milk aggregation from small and marginal producers, bulk cooling and its re-distribution to local consumers. They are not attempting any value addition processes/diversification of products through FPOs at this juncture. Also, capacity building of FPOs is identified as a herculean task as very few resource organizations are available or have existed in this area. Overall, the department is planning to adapt the demand-driven approach to set-up the proposed FPOs in selected locations of the state.

4.2.4 Fisheries

The Department of Fisheries is in advanced stage of preparation of 'concept note on proposed FPOs' in the state when compared with other sub-sectors. The marine and inland capture fisheries is a traditional occupation practiced by a particular section of people in the society. Both the production and productivity of these cultures are highly subjected to natural conditions. The forward linkage of marketing and export is very critical in case of fisheries because of its highly perishable nature and consumer-centric nature. Overall, the department aims to minimize/reduce these gaps through setting up of proposed FPOs across state. Recently, the department also introduced the concept of 'zonation of aquaculture' ie, cluster approach to aqua farming (identified nearly 69 clusters) and disease surveillance mechanisms (11 teams are constituted) in shrimp culture for adopting best management practices in aquaculture. Selection of quality seed for stocking and effective disease management are two prime aquaculture activities to be undertaken collectively under cluster approach among farmers. The department also perceives that the concept of FPOs has not yet percolated down to field functionaries i.e., up to farmers and among other stakeholders level. There is a need to give clarity on the roles to be performed by various stakeholders in establishment and monitoring of the proposed FPOs. After repeated deliberations among district officials and meticulous planning, the department has proposed to set-up about 65 FPOs in the state among different areas. The break-up of the total proposed FPOs in case of fisheries department are summarized in Table 4.10.

Table 4.10 Proposed FPOs under fisheries department

S. No	District	Fresh water Fish	Shrimp / prawn	Marine	Marketing	Seabass	Mud crab	Total
1	East Godavari	1	11	1	0	0	0	13
2	Guntur	2	4	1	0	0	1	8
3	Krishna	4	10	3	0	1	2	20
4	Nellore	0	3	0	0	0	0	3
5	Prakasam	1	3	3	0	0	0	7
6	Srikakulam	0	1	0	0	0	0	1
7	Visakhapatnam	0	1	2	0	0	0	3
8	Vizianagaram	0	0	0	1	0	0	1
9	West Godavari	3	6	0	0	0	0	9
	Total	11	39	10	1	1	3	65

Source: Department of Fisheries

Overall, the total number of fishers/aqua farmers to be organized in the state are 90,853 belonging to 578 villages in 9 coastal districts. Thus, each FPO will be having approximately 1,000 to 1,500 members. Tentatively, about 32% of total fish/prawn/shrimp production in the state is to be handled by these proposed FPOs. On the whole, the department has given good thought on how to strengthen both forward and backward linkages as well as identification of major constraints in case of proposed FPOs. A scientific approach has been undertaken by department in mapping various clusters, catchment areas of inland fisheries and identification of coastal marine village lands using APSAC (Andhra Pradesh Space Application Centre) maps. The Fisheries department is already an evolved industry and has established a network of large farmers in the state. However, bringing small and marginal farmers appears to have been held behind , wherein huge potential exists to organize them under proposed FPOs. A total financial outlay of Rs 94.7 million is also estimated to set-up these proposed 65 FPOs in the state. The expected outcomes through setting up these FPOs are discussed in their concept note.

4.2.5 Society for Elimination of Rural Poverty (SERP)

SERP is also planning to set-up FPOs in the state for enhancing the livelihood of small and marginal farmers. SERP has a target of setting up about 79 FPOs broadly covering different sectors. However, around 39 FPOs from the list are being planned to be formed under agriculture and allied activities. The society also has plans to form FPOs based on their value propositions and the three fold agenda in formation of FPOs are: a) increase incomes, b) reduce costs, and c) enhance productivity gains. A preliminary information regarding crop production, value of output, farm income etc. were collected and analyzed to arrive at the sizable number of proposed FPOs in the state. They are initially identifying the Farmers' Interested Groups (FIGs) and expanding them to constitute the FPOs across various locations. SERP emphasize on the 'value proposition' and it needs to be clearly communicated to farmers through field demonstrations and technology interventions. The society has a clear objective of 'increasing the farm income by 50%' during the span of next five years' time period in the targeted locations. The society has received funds from the World Bank to achieve this objective in the state. SERP also perceives that lack of coordination among stakeholders and line departments are the biggest concern in achieving this common goal. Also, duplication of activities, commodities and interventions are its limitations. The details about proposed no. of FPOs by district and commodity in the state are furnished in Table 4.11. Thus, a total of nearly 86,000 farmers are being directly targeted through SERP interventions in the state.

Table 4.11 SERP proposed FPOs in Andhra Pradesh

FPOs Proposed	Commodity/Value chain	Name of the district	Mandal	No of farmers
1	Red gram + Groundnut	Anantapur	Tanakal	2000
	Red gram + Groundnut	Anantapur	Nallacheruvu	1200
1	Red gram + Groundnut	Anantapur	Singanamala	2000
	Red gram + Groundnut	Anantapur	Garladinee	1200
1	Rice + Vegetables	East Godavari	Rowthulapudi	1200
	Rice + Vegetables	East Godavari	Kotananduru	1000
1	Cashew	East Godavari	Y Ramavaram	1200
	Cashew	East Godavari	Gangavaram	1200
	Cashew	East Godavari	Maradumilli	1400
1	Cashew	East Godavari	Addateegala	2000
1	Cashew	East Godavari	Rampachodavaram	3200
1	Cashew	East Godavari	Rajavommangi	2000
1	Cashew	East Godavari	Devipatnam	800
1	Chilies	Guntur	Amaravathi	1000
	Chilies	Guntur	Krosuru	1000
1	Chilies	Guntur	Kakamanu	600
	Chilies	Guntur	Pedanandipadu	600
1	Bengal gram + Chilies	Kadapa	Mylavaram	800
	Bengal gram + Chilies	Kadapa	Jammalamadugu	800
1	Red gram + Groundnut	Kadapa	Galiveedu	800
	Red gram + Groundnut	Kadapa	Chakrayapet	800
1	Rice+ Black gram	Krishna	A Konduru	600
	Rice+ Black gram	Krishna	Gampalagudem	1000
1	Chilies + Vegetables	Krishna	Veerullapadu	1000
	Chilies + Vegetables	Krishna	G. Konduru	800
1	Red gram	Kurnool	Veldurthi	1800
	Red gram	Kurnool	Bethamcherla	1400

Continued.

Table 4.11 *Continued.*

FPOs Proposed	Commodity/Value chain	Name of the district	Mandal	No of farmers
1	Red gram	Kurnool	Athmakur	1000
	Red gram	Kurnool	Kothapalle	1000
1	Rice + Black gram	Nellore	Sydapuram	1400
	Rice + Black gram	Nellore	Balayapalle	1600
1	Rice + Black gram	Nellore	Kaluvoya	1000
	Rice + Black gram	Nellore	Podalakuru	1400
1	Red gram + Black gram	Prakasam	Kanigiri	1400
	Red gram + Black gram	Prakasam	Hanumanthunipadu	1000
1	Rice + Red gram	Prakasam	Addanki	1000
	Rice + Red gram	Prakasam	Maddipadu	1000
1	Cashew	Srikakulam	Seethampeta	2600
1	Cashew	Srikakulam	Bhamini	1000
	Cashew	Srikakulam	Kothuru	1400
1	Cashew	Srikakulam	Meliaputti	1200
	Cashew	Srikakulam	Mandasa	2400
1	Cashew	Srikakulam	Hiramandalam	800
	Cashew	Srikakulam	Pathapatnam	1000
1	Cashew	Srikakulam	Vajrapakothur	1200
1	Cashew	Visakhapatnam	Golugonda	2000
	Cashew	Visakhapatnam	Narsipatnam	800
1	Turmeric + coffee	Visakhapatnam	Gangaraju Madugula	1800
1	Vegetables	Visakhapatnam	Dumbriguda	1000
	Vegetables	Visakhapatnam	Araku Valley	1000
1	Turmeric + coffee	Visakhapatnam	Chinthapalli	1400
1	Cashew	Vizianagaram	Merakamudidam	1400
1	Vegetables	Vizianagaram	Ramabhadrapuram	1200
1	Cashew	Vizianagaram	Gummalakshmipuram	2200
1	Cashew	Vizianagaram	Kurupam	2400
1	Cashew	Vizianagaram	Salur	2200
1	Cashew	Vizianagaram	Parvathipuram	1800
	Cashew	Vizianagaram	Makkuva	1200
1	Rice + Black gram	West Godavari	Dwaraka Tirumala	1000
	Rice + Black gram	West Godavari	Nallajerla	1000
1	Vegetables + rice	West Godavari	Gopalapuram	1000
	Vegetables + rice	West Godavari	Thallapudi	800
1	Vegetables	Chittoor	Kuppam	1600
	Vegetables	Chittoor	Gudipalli	1200
1	Vegetables	Chittoor	Ramakuppam	1200
	Vegetables	Chittoor	Santhipuram	1600
39		Total		86600

Chapter 5. Status of Existing FPOs in Andhra Pradesh State

As highlighted in Chapter 4, the present scoping study covers both proposed and functional FPOs. These have been visited and interviewed by the ICRISAT team during May-August, 2016 across the state. The primary survey covered 45 FPOs (30 proposed and 15 functional) in twelve districts of Andhra Pradesh. As highlighted in the earlier sections, both case study approach and administration of questionnaires were used to collect the primary data for the selected FPOs. Both secondary sources of information and primary data collected at FPO level were used for summarizing the results in this Chapter. The brief details about the coverage of whole baseline survey was summarized in Table 5.1.

Table 5.1 Coverage of primary survey in the study

S. no	District	No. of mandals covered	No. of FPOs interviewed			FPO belongs to sub-sector			
			Proposed	Functional	Total	Agriculture	Horticulture	AH	Fisheries
1	Krishna	5	1	4	5	1	2	0	2
2	Guntur	3	5	1	6	4	0	1	1
3	Kadapa	4	3	1	4	1	1	1	1
4	Kurnool	3	2	1	3	2	0	1	0
5	Prakasam	2	1	1	2	1	0	1	0
6	East Godavari	5	5	1	6	0	3	0	3
7	West Godavari	3	4	1	5	5	0	0	0
8	Visakhapatnam	5	5	0	5	0	3	1	1
9	Chittoor	3	3	0	3	0	2	1	0
10	Nellore	3	0	3	3	0	3	0	0
11	Vizianagaram	2	0	2	2	2	0	0	0
12	Srikakulam	1	1	0	1	0	1	0	0
	Total	39	30	15	45	16	15	6	8

For the quick study, 39 mandals have been covered randomly across twelve districts of the state. Among the total (45) FPOs covered in the study, agriculture occupied the highest number (16), followed by horticulture (15), fisheries (8) and animal husbandry (6) sub-sectors. About two-third of the total sample consisted of proposed FPOs, while the remaining were functional FPOs to help extract required information from diverse sub-sectors. The collected information from the survey was tabulated systematically and treated with tabular analysis. The findings emanating from the survey were discussed in two separate sub-headings (proposed and functional FPOs) for better brevity of the results and deeper understanding about FPOs functionalities.

5.1 Insights from scoping study of existing FPOs (proposed)

The insights generated from 30 proposed FPOs are summarized and discussed in detail in the following sub-sections:

5.1.1 Nature and organizational structure

The nature and organizational structure of proposed FPOs are summarized briefly in Table 5.2. Nearly one-third of proposed FPOs covered under the study belonged to agriculture sub-sector. It was followed by horticulture (30%), fisheries (20%) and animal husbandry sub-sectors (17%). Almost half of the total sample FPOs proposed (some are even at very nascent stage, i.e. planning stage) are facilitated by Government organizations, mostly department of agriculture/ horticulture/ animal husbandry/ fisheries. Another 43% are supported by Non-Governmental Organizations (NGOs)/ charity foundations existing in various mandals/villages. About 6.7% of the total FPOs are also encouraged by Multi-Aided Cooperative Societies (MACS).

Table 5.2 Nature and organizational structure of proposed FPOs

Sub-sector	No. of sampled FPOs	Facilitating agency	Aware of role of POPI (Yes/No)	Aware of role of RSA (Yes/No)
Agriculture (field crops)	10	Govt. - 5 NGO - 5	Yes	Yes - 1 No - 9
Horticulture	9	Govt. - 4 MACS - 2 NGOs - 3	Yes	Yes - 4 No - 5
Animal Husbandry	5	Govt. - 2 NGOs - 3	Yes	Yes - 5
Fisheries	6	Govt. - 4 NGOs - 2	Yes	Yes - 4 No - 2

POPI: Producer Organization Promoting Institutions
RSA: Resource Support Agency (Indian Grameen Service is the nodal agency for NABARD promoted FPOs in AP)

Almost all of the focal persons from the proposed FPOs in the sample expressed that they are aware about the roles of Producer Organization Promoting Institutions (POPIs). But, nearly half of them are only aware of the roles of Resource Support Agency (RSA) in setting up of the FPOs. The results clearly indicated that the concept of FPO and roles of various stakeholders has not yet percolated to the gross-root level i.e., up to small and marginal farmers in these villages. There is a clear need of creation of more awareness and sensitization of both stakeholders and farmers.

5.1.2 Roles of producer organization promoting institutions (POPI) and resource support agency (RSA)

the roles and initiatives of POPIs and RSAs are very critical in early stages of setting up of an FPO in any district/state. A checklist of activities for both POPIs and RSAs were administered separately during personal interviews to obtain the necessary information from sample proposed FPOs. The summary of data collected is analyzed and presented in Table 5.3.

Table 5.3 Classification of FPOs based on activities initiated by POPI and RSA*

No. of POPI activities completed (Cumulative scale of 1 to 8)	No. of FPOs (N=30)	No. of RSA activities completed (Cumulative scale of 1 to 4)	No. of FPOs (N=30)
1	8	0	12
2	2	1	1
3	2	2	6
4	8	3	6
5	2	4	5
6	2		
7	1		
8	5		

* Refer check list of activities for POPI/RSA separately in the Questionnaires (Appendix 3.2)

Based on no. of activities initiated, a simple cumulative scale was developed across POPI and RSA listed activities and correspondingly proposed FPOs were classified against them. Only five each of the proposed FPOs have initiated both the check listed POPI and RSA activities elicited in the questionnaire out of the total sample (N=30) interviewed. About 26.7% of total FPOs are still in the initial stages (Cumulative of scale -1) of POPI activities due to various reasons. Nearly 40% of sample FPOs are not even initiated (Cumulative scale - 0) the RSA activities in the respective FPOs. These findings clearly reveal that many of proposed FPOs are in very nascent stage.

5.1.3 Stage of FPO formation

The sample FPOs were categorized based on 'stage of FPO formation' across study districts. The surall, nearly half (46.7%) of the sample proposed FPOs have just initiated the process of setting up and rmmarized information provided in Table 5.4 visualizes their stages of formation across sub-sectors. Oveegistration formalities. Another 33.3% of sample proposed FPOs have 'just identified' the sectors or crop groups to move forward. About 16.7% of those have 'just completed the registration process but not functioning'. Only one out of the 30 proposed sample FPOs is existing but not yet registered. The categorization slightly varies from sub-sector to sub-sector. However, majority of them either have just identified the area to form the FPO or 'initiated the process' category. It is a long way to move forward and complete the registration formalities and kick-start. Many of the focal persons expressed that the 'registration of FPO' takes a minimum of six-twelve months time. It costs a minimum of Rs 50,000 towards registration of each FPO. Many of them have also opined that they do not have sufficient funds to move further.

Table 5.4 Stages of FPO formation

Sub-sector	Stages of formation	No. of FPOs (n=30)
Agriculture (10)	Registered but not functional	1
	Exist but not registered	1
	Initiated process of group formation	2
	Just identified	6
Horticulture (9)	Registered but not functional	2
	Exist but not registered	0
	Initiated process of group formation	4
	Just identified	3
Animal Husbandry (5)	Registered but not functional	0
	Exist but not registered	0
	Initiated process of group formation	4
	Just identified	1
Fisheries (6)	Registered but not functional	2
	Exist but not registered	0
	Initiated process of group formation	4
	Just identified	0

5.1.4 Membership pattern and share contribution

It would be interesting to elicit and understand the target membership pattern and decisions about unit share values from proposed FPOs across sub-sectors. The details are summarized and furnished in Table 5.5.

A majority (50%) of FPOs are having the proposed membership range between 51 and 500 across sub-sectors. Only 13.3% of proposed FPOs also indicated that they targeted membership range beyond 500 per FPO. Around 30% of the sample FPOs also expressed that their target membership range will be less than 50. Most of these FPOs proposed under Natural Farming (NF/NPM) belongs to agricultural sub-sector. The unit share values varied from sub-sector to sub-sector and from proposed FPO to FPO. Majority of them started with Rs 10 or multiples of it. Few of those also started with Rs 100 or multiples of it.

Table 5.5 Target membership pattern and unit share values

Sub-sector	Average membership range	No. of FPOs (n=30)	Unit share value range (Rs)
Agriculture (10)	< 50	5	100
	51-500	4	10-2500
	>500	1	1000
Horticulture (9)	< 50	1	NA
	51-500	3	100
	>500	3	50-1000
	NA	2	NA
Animal Husbandry (5)	< 50	0	-
	51-500	5	10-1500
	>500	0	-
Fisheries (6)	< 50	3	1500
	51-500	3	10-1000
	>500	0	-

NA: Not yet decided

5.1.5 Composition of FPO members

Composition of FPO members is the key for taking appropriate decisions to move forward and also for long-term sustainability of operations. The basic characteristic of each FPO are elicited and the information is furnished in Table 5.6.

Table 5.6 Nature and composition of FPO members

Share of small & marginal farmers in total membership of the FPO	No. of sample FPOs (n=30)
100%	15
Between 80-99%	3
Between 50-79%	6
Less than 50%	4
Other type	2

Most (50%) of the proposed FPOs have planned to include 'small and marginal farmers' as their 100% members. Another sample of nine proposed FPOs have targeted to include small and marginal farmers in the proportion of '50% to 99%' in their respective total membership coverage. The remaining proposed FPOs planned to include less than 50% of members as small and marginal farmers. In general, the existing fisheries groups/proposed FPOs in the state were dominated by medium to large farmers' category. Overall, there is a clear focus and emphasis to include 'small and marginal farmers' in the proposed FPOs.

5.1.6 Geographical and commodity coverage

The extent of geographical and commodity coverage by each sub-sector were elicited in the primary survey. The details are analyzed and presented in Table 5.7.

Table 5.7 Geographical and commodity coverage

Sub-sector	Geographic coverage range (ha/ no. of animals)	No. of FPOs	Commodity coverage
Agriculture (10)	Less than 100 ha	3	Cereals, commercial cash crops, vegetables, etc.
	101-500 ha	2	
	> 500 ha	5	
Horticulture (9)	Less than 100 ha	2	Mango, banana, coconut, Medicinal plants, cashew, flowers, amla and turmeric, etc.
	101-500 ha	3	
	> 500 ha	4	
Animal Husbandry (5)	Less than 1000 animals	3	Milk and other dairy products etc.
	> 1000 animals	2	
Fisheries (6)	Less than 100 ha	6	Marine fish, prawns, inland fish etc.

In general, the indicated geographic coverage of proposed FPOs in case of majority of agriculture and horticulture sub-sectors were less than 500 ha. This clearly visualizes the poor output-aggregation plans of the proposed FPOs and their sustainability, as such small FPOs may not be viable economically. In case of livestock sector, the targeted number of animals per proposed FPO were reasonable in a cluster of villages. All fisheries proposed FPOs have the target geographic coverage of less than 100 ha. This leads to questions around economies of scale as well as future economic viability and sustainability of the proposed FPOs. Another big question also comes on the extent of 'capacity utilization' of proposed infrastructure in the FPOs. All the sub-sectors have identified the potential commodities across sub-sectors to be produced and marketed through proposed FPOs. But, majority (> 90%) of them did not have any back-up calculations on proposed volume of transactions and extent of benefit to be derived by FPO in bulk trading etc. The most glaring need is to prepare the business plans in advance before registering the planned FPOs.

5.1.7 Functionality of proposed FPOs

Majority (90%) of the sample proposed FPOs in case of agriculture sub-sector are located around or near to existing regulated markets. This leads to a big question on 'how the proposed FPOs are going to outperform than existing regulated markets in terms of function and infrastructure'? How these proposed FPOs are going to offer better incentives/facilities than existing regulated markets? The proposed sample FPO locations in case of horticulture are away from existed regulated markets. There is a good scope or incentives to offer to horticultural farmers by setting up of these proposed FPOs in terms of better market linkages and storage facilities. In case of dairy and fisheries sub-sectors, the proposed FPO locations are having good potential to be set-up as there were very few regulated or formal markets in these sub-sectors. Most (>95%) of the production was traded under informal markets.

5.1.8 Sources and flow of finance

In general, setting up of or nurturing of FPO is a capital intensive process. Awareness regarding the mobilization of needed capital is an important step in formation of an FPO. Utilization of sufficient financial resources through various on-going government schemes is critical in early stages of FPO. About 60% of total sample FPOs focal persons do not have awareness about these opportunities. Only the remaining (40%) of them opined that they have reasonable awareness about these financial opportunities. To overcome these issues, the state government has highlighted in session 12 of its guidelines about various financial provisions created for FPOs. In general, the cost of registration is hovering around 50,000 per FPO. It become a huge burden on the farmer groups. If the FPO is engaged in selling raw produce, it will not attract any taxes. However, if the produce is processed and branded, it will attract commercial taxes between 5 to 14%.

5.1.9 Creation of infrastructure facilities

Creation of basic infrastructure facilities like storage space, grading facilities, scientific post-harvest handling, transportation vehicles etc. are, in general, major attractions for mobilizing the new members in the FPO. But, creation of these facilities required sufficient capital and strong business model to move forward. Only 30 % of the total proposed sample FPOs have started at least some of these services to offer to their members. The most interesting issue is, majority of these FPOs belong to either horticulture or fisheries sub-sectors. The remaining 70% of FPOs did not even create any of these facilities. These findings clearly indicate that majority of the sample FPOs are in their nascent stage and there is a long way to go. To overcome these issues, the state government has highlighted in session 12 of its guidelines about various financial provisions created to FPOs.

5.1.10 Farmers' training and awareness creation

Conduct of farmers' training and awareness creation programs are critical in the initial stages of FPO set-up to mobilize large number of farmers as its member. Necessary field trips for exposure to new technology, value addition opportunities and visit to functional FPOs are mandatory to instill confidence among farmers about scope of FPOs and its formation. About 90% of the proposed FPOs under study have initiated such activities. The remaining 10% of FPOs are yet to organize for their members.

5.1.11 Estimation of anticipated costs and revenues

Estimation of anticipated costs and revenues is an important step in preparation of a business proposal for any proposed FPO. The step clearly visualizes the anticipated investments to be made in setting up of an FPO and corresponding streams of revenue to be generated by various activities. Both backward and forward linkages also need to be identified while preparing the business plan. Similarly, various strategies for value addition opportunities and marketing needs to be sorted out. Ultimately, the volume of products to be handled and respective economies of scale also need to be worked out. This entire exercise will bring out the anticipated costs and revenues of a proposed FPO. It also identifies future evolution of strategies over a period of time. Only 36.6% of the total proposed FPOs have carried out this important and critical exercise. Nearly two-thirds of the sample are yet to develop their business plans. The state guidelines have provided the detailed item-wise anticipated costs for establishing a FPO in its guidelines (section 12). However, the anticipated benefit estimations vary from FPO to FPO.

5.1.12 Major constraints and limitations

There are several constraints and limitations expressed by focal persons and POPIs in setting up of FPO across four sub-sectors. They are summarized and presented in Table 5.8.

Table 5.8 Major constraints in setting up of the FPO

Sub-sector	Major constraints
Agriculture	· Need of financial support for establishment of FPO due to high costs of registration
	· Lack of vision with respect to value proposition for the households
	· Low awareness and limited interest of farmers about FPOs
	· Inevitable role of middlemen still in many marketing functions in case of various products/ crops
	· Paucity of experts for technical guidance especially in case of Natural Farming (NF/NPM)
	· Problems around certification of organic products, market linkages, market premium and organic brand creation etc.
	· Lack of credible proof of concepts for addressing the problems of low yields, and pests and disease management
	· Lack of hands-on experience and provision of infrastructure in case of value-addition opportunities
Horticulture	· Lack of infrastructure facilities and working capital support
	· High incidence of tenancy, low formal credit facility and low investment capacity – especially in case of East Godavari, Vizianagaram and Srikakulam districts
	· Lack of storage, packaging and grading facilities and value addition opportunities
	· High price fluctuations and lack of control over them
	· Most of the un-regulated markets are dominated by middlemen
	· FPO registration is a time taking process and expensive
Animal Husbandry	· Lack of sufficient fodder and medical facilities for animals
	· Better infrastructure facilities like cold storages and milk processing units are needed
	· Low milk yields and shorter lactation periods
	· Lack of interest towards FPOs
	· Poor credit facilities and water scarcity issues
Fisheries	· Dominant role of middlemen in post-harvest handling and marketing
	· Lack of cold storage facilities
	· Non-availability of quality seedlings
	· No formal credit and insurance facilities
	· High price fluctuations and lack of regulation measures
	· Poor backward market linkages and spurious inputs dominate the market

5.1.13 Sustainability and risk mitigation plans

Development of risk mitigation plans is inevitable for long-term sustainability of FPO in any sub-sector. Also, anticipation of major risks and corresponding mitigation plans always insulate the FPO from both external and internal shocks. Being well prepared to diverse risks will always minimize the income fluctuations and provide some cushion to an FPO and its members. Only 26.6% of total sample proposed FPOs has given some thought about these issues and the remaining are not even aware of these measures.

The above sections highlighted the realities about various dimensions of proposed FPOs across the sub-sectors in the state. A strategic plan and thinking is required before identification of an FPO in a given location/mandal/district. Enough home work is required for identification of potential commodities in a given location. It is always ambitious to start an FPO for a single commodity. However, we need to keep in mind the issues like volume of commodity aggregation, its seasonality, perishability, economies of scale, extent of capacity utilization of facilities created at FPO, marketing infrastructure and revenue flow round the year on sustainable basis etc. Additionally, sufficient planning should be done about both backward and forward linkages, risk mitigation plans and long-term sustainability issues, etc. SFAC[6] has prepared a detailed manual highlighting the guidelines to set-up an FPO, assessment of capital requirements and how to assess the financial viability of the business of producer companies etc. In this gamut, NABARD has to play a critical role to foresee all these aspects before the four sub-sectors identify the potential FPOs.

5.2 Insights from functional FPOs

On the other dimension, it would be always interesting to understand how the functional FPOs are working across sub-sectors and the lessons learnt over the time and across districts. As indicated earlier, the primary survey was conducted under which 15 functional FPOs located in 15 mandals and nine districts of the state were personally interviewed and various information were collected about its operation, structure, coverage, governance, etc. Also, majority (8) of them were from horticulture sub-sector followed by agriculture (4), fisheries (2) and animal husbandry (1) sub-sector. The brief insights from 5-6 functional FPOs are summarized below and given in Table 5.9 to 5.14. Other functional/registered FPOs couldn't provide the detailed information due to their fragmented or initial stages of operations. (Due to asymmetry in information from rest of the FPOs, only 6 FPOs are covered here in details, while remaining are covered in case study.) Also, brief snapshots of some of these FPOs are given in the later part of the section in the form of case study.

- All the sample functional FPOs in the sample are facilitated either by NGOs/multi-aided cooperative societies/charity foundation etc. (Table 5.9).
- Non-Governmental Organizations (NGOs) acted as the Producers' Organization Promoting Institution (POPI) for almost all the functional FPOs under study (Table 5.9). In few cases, NABARD itself acted as a POPI (under PRODUCE Fund) and promoted them.
- NABARD and Indian Grameen Service (IGS) acted as a Resource Support Agencies (RSA) in majority of them. However, few FPOs are still not aware about the role of RSA.
- Majority (73.3%) of them were registered in the year 2015 under Companies Act. The remaining were registered between the year 2013 and 2014 (Table 5.9).
- The minimum membership size observed was 58 and the maximum identified as 1,671. But, majority of FPOs were having membership ranging between 200 and 500. The minimum membership fee paid was Rs 10, while the maximum reported were Rs 2000 (Table 5.10).
- The extent of mobilization of capital ranged between Rs 1 to 4 millions for two-third of sample functional FPOs. Approximately, one-third of sample FPOs are still waiting for financial assistance from NABARD (see Table 5.10).
- Only four FPOs out of fifteen were able to show the business plans for the financial year 2015-16. The remaining FPOs have not kept their financial records up to date (Table 5.10).
- These functional FPOs were able to create some/minimum infrastructure facilities for the benefit of their members. The remaining FPOs are yet to establish the facilities for their members (see Table 5.11).
- None of the sample functional FPOs are currently using any ICT applications to communicate with their members regarding farm inputs, technologies and market linkages information, etc.

6. Refer at http://www.sfacindia.com/PDFs/FPOPolicyProcessGuidelinesApril2013.pdf

Table 5.9 Basic profile of selected operational FPOs in Andhra Pradesh

S. No	Name of FPO	Target commodity	Village location	Mandal/ District	NGO as POPI	Evolution	Registration as FPO	Chief Executive Officer (CEO)
1	Sambasiva Jasmine PC Ltd*	Jasmine	Sentrai-gudem	Mylavaram/ Krishna	Nestham Foundation	Nestham supported society of Jasmine farmers till 2012, later with the support of NABARD evolved it into FPO	September 2015 (under Company Act, 1950)	Mr Kiran (9866137124)
2	Sri. Vegneswara Banana Farmer PC Ltd	Banana	Chaganti-padu	Thotlavallur/ Krishna	Nestham Foundation	A MACS society was formed in the year 2013 which later evolved into FPO	June 2015 (Under sub-Section (2) of 7 of the Companies Act, 2013)	Mr Chandra Mohan (9491585202)
3	Samyuktha Marine Fisheries PC Ltd	Marine Fish, Prawn and Crab	Etimandi-pallepallu	Kruttivenu/ Krishna	Sneha Foundation	NA	September 2015 (under Company Act, 1950)	Mr Nageswara Rao (9908260010)
4	Snehanjali Inland Fisheries PC Ltd	Freshwater Fish and Prawn	Gummala-padu	Kaikaluru/ Krishna	Sneha Foundation	NA	September 2015 (under Company Act, 1950)	Mr D Moses (9989848613)
5	Mangaladri Agri PC Ltd	Turmeric	Nutathi	Mangalgiri/ Guntur	Nilgiri Foundation	NA	July 2015	Mr V Gautam Reddy (9491011113)
6	Noveeal Coconut PC Ltd	Coconut	Konkapalli	Amalapuram/ East Godavari		Facilitated by Coconut Development Board	May 2015 (under Companies Act, 2013)	Mr Ramachandra Raju Dantuluri (9866644179)

*PC Ltd: Producers Company Limited

Table 5.10 Operational and financial status of the selected FPOs

S. No	Name of FPO	No. of villages and mandals	No. of members	Percentage of SMF*	Average output	Unit share value (Rs)	Share capital (Rs)	Other sources of capital (Rs)	Capital mobilization plan
1	Sambasiva Jasmine PC Ltd	20 villages/ 2 panchayats	600	100%	3 ton per day	100		25,00,000/- (Personal contribution by the Directors)	Entry fee, share capital not decided
2	Sri. Vegneswara Banana Farmer PC Ltd	30 villages/ 5 mandals	190	95%	1.5 ton per day (Feb to Aug)	100	0.1 million		Entry fee not yet decided; Rs 10/- per share proposed in future
3	Samyuktha Marine Fisheries PC Ltd	30 villages/ 5 mandals	190	100%		100	0.168 million	3 million (Bank loans)	Entry fee not yet decided; Rs 10/- per share proposed; sold about 16,500 shares so far to 425 farmers
4	Snehanjali Inland Fisheries PC Ltd	10 villages/ 1 mandal	110	65%	2000 ton per year fish	100	33,000/-	45,000/- (for registration)	Entry fee not yet decided; Rs 10/- per share; sold about 3,300 shares so far
5	Mangaladri Agri PC Ltd	21 villages/ 4 mandals	350	100%	950 ton per year	10	0.35 million	2.70 million (Bank loan for processing facilities)	100 shares (Rs 1000 per farmer) treated as entry fee; Rs 200/- service charge while joining
6	Noveeal Coconut PC Ltd						0.59 million		

*SMF: Small and Marginal Farmers

Table 5.11 Productivity enhancing/ promotional strategies of the selected FPOs

S. No	Name of FPO	Input mobilization plan	Output aggregation plan	Promotional strategy	Infrastructures & manpower
1	Sambasiva Jasmine PC Ltd	Only extension service are initiated. No activity regarding inputs marketing initiated.	Bulking and aggregating of 3 ton per day; only bagging and watering services are provided.	Flower production enhancement sprays with the help from experienced farmers	Office space, Grading facilities, Transport vehicle (1), Supporting staffs & labours (30)
2	Sri. Vegneswara Banana Farmer PC Ltd	Bulk fertilizer purchase is done through MACS, earlier formed. No tissue culture varieties available.	Market yard temporarily available, new one is being created with support of 1.2 million grant from NABARD and Department of horticulture. Planning to construct ripening chambers to get into retail markets.	Encouraging farmers due to the good price paid for bunches	Office space, Transport vehicle (1), Supporting staffs & labours (10)
3	Samyuktha Marine Fisheries PC Ltd	Loaning developed to help the members through Banks, providing trays, cool boxes, Nets, Want to establish Net Banks (nets business)	Aggregation of all fishes, grading at collection centre, using ice and cold storage. Planning a Fish platform which would help in aggregating all the fish from collection centres (3 presently existing, 5 planned)	Encouraging farmers to take up schemes of fisheries; Training programmes through NABARDs; Micro Entrepreneur Development Project (MEDPs)	Office space, Collection centre, Supporting staff (2)
4	Snehanjali Inland Fisheries PC Ltd	Seed and feed material procurement of 3500 ton; Godown needed	Wholesale to markets at Akuveedu or Eluru; Retail shops in Vijayawada, Hyderabad	Feed quality testing centre at Kaikaluru; Market survey for retail marketing at Vijayawada	Office space, Supporting staff (1)
5	Mangaladri Agri PC Ltd	Low yielding curcumin varieties have been replaced with new seed variety from Erode. Compost, organic inputs about 0.5 million rupees of organic fertilizers through licensed fertilizer, seed were taken by FPO	Originally it took 20 days for processing involved for turmeric and this was reduced to 10 to 12 days through processing by boilers and polishing. Duggirala is the biggest market that can take any amounts of produce. Marketing license taken already	Funding to be sought from NABARD, Chaitanya Grameen bank; Supply to exporter like ITC Ltd.	Office space, Grading facilities, Processing facilities (3 boilers, 1 polishing machine), Godowns (20 ton), Vehicles (5), Supporting staffs (20)

- Many of the sample FPOs faced lot of challenges over time. Some of the major issues expressed are (see Table 5.12)
  a. Traders/middle men are still dominating markets and are stifling the farmers from entering the markets,
  b. Many of the FPOs are facing challenges when they want to scale-up business from one commodity to many,
  c. No formal credit and insurance facilities for FPO members,
  d. No formal working capital support and high interest rates on FPO loans,
  e. Diseases and fodder scarcity are the biggest challenges in Animal husbandry FPOs,
  f. Quality seed supply and output price regulation are the major issues in Fisheries FPOs

Table 5.12 Challenges and risks faced by the selected FPOs

S. No	Name of FPO	Challenges and Risks
1	Sambasiva Jasmine PC Ltd	• Hyderabad traders buy at Rs 60-70/kg from farmers and sell @ Rs 150-180/kg. When farmers protest they stop buying the entire lot worth Rs 0.5 million from the farmer. • Joining of new farmers and expansion is rare. • No market in nearby Vijayawada and no international destinations
2	Snehanjali Inland Fisheries PC Ltd	• Needs credit for fish tank repair Rs 50,000 per 0.4 ha once in 7 years • Fish insurance is not done as the insurance is not available. • There is no help so far from Fisheries Department, GoAP. • NABARD helps for Rs 0.9 million for 3 years, this is 1st year of implementation • Water problem – Fresh water o Big tanks dried up small tanks are used for culture preparation. o Borewell 160 ft. depth but expensive o 50 % area reduced in the last few years • Bank account yet to open, however auditors are appointed. • Power rate subsidy for ice- factory – fish is needed
3	Samyuktha Marine Fisheries PC Ltd	• Fishermen houses were provided under Tsunami floods in the year 2006 through Care India project, there are 170 such houses in the village. Bank linkage is needed for other members who have not received loans
4	Mangaladri Agri PC Ltd	• Government license for market, input sales has crossed Rs 40,000. • Funds (getting loan for working capital) took 6 months. And so collateral security provided by board member on own land and building. • Bank interest is up to 13 % for FPOs for agri processing. Need policy to provide subsidized loan interest for inputs, processing market and security for loan.
5	Noveeal Coconut PC Ltd	The major challenge is defining the geographical coverage of the organization as this is linked with logistics and field level realities. Coverage of all communities while farming a federation. Political pressure from society level to FPO

- Creating more awareness and convincing all community of farmers was still challenging in many cases.
- All the selected functional FPOs' focal persons were asked to provide the major lessons learnt in establishing an FPO across sub-sectors. The major lessons learnt are summarized below:

  a. Registration of FPOs is costly and a cumbersome process.

  b. Provision of quality inputs, creation of cold storage facilities, value addition opportunities, transportation vehicles and post-harvest handling facilities etc. were difficult without much working capital investment and support from Government.

  c. Diversification of business opportunities and creation of membership incentives is critical for long-term sustainability of FPO.

  d. Provision of formal credit access and insurance was mandatory to all FPO members.

  e. Efficient capacity utilization of facilities created throughout the year is compulsory to bring economic-viability of the FPO.

  f. Insulation of FPOs from market and price risks is necessary to protect the livelihoods of farmers.

Moreover, when the members of the functional FPOs were enquired about the benefits derived from the setting up of the FPOs, they narrated the tangible benefits as given in Table 5.13.

Table 5.13 Effectiveness of FPO on small and marginal producers

Name of FPO	Issues resolved with help of FPO
Sri. Vegneswara Banana Farmer PC Ltd	Farmer Opinion: Initially Rate of Banana Bunch 100/- now with the help of FPO it increased to 325/-
Mangaladri Agri PC Ltd	• Price of turmeric in Duggirala went low due to poor variety of seed and were changed and price increased to Rs 1500/ton). • Better technology adoption for boiler and polishing • Drying time reduced to 12 hours from 24 hours. • Due to new technology, boiling time reduced to 10-12 days from 20 days
Noveeal Coconut PC Ltd	• The per capita income of the farmer for this year is Rs 37050/ha from coconut cultivation • Majority of the farmers were convinced to join in the form of fertilizer subsidy • 20-30% rise in the coconut price was observed during this year. • The producer share in consumer price has improved to 40-50% from earlier 25-30%. This year, with proper linkages and organization, is planning to improve the share. • Formation of FPO has created an additional 200 workdays of employment to the members

5.3 Case studies on some functional FPOs

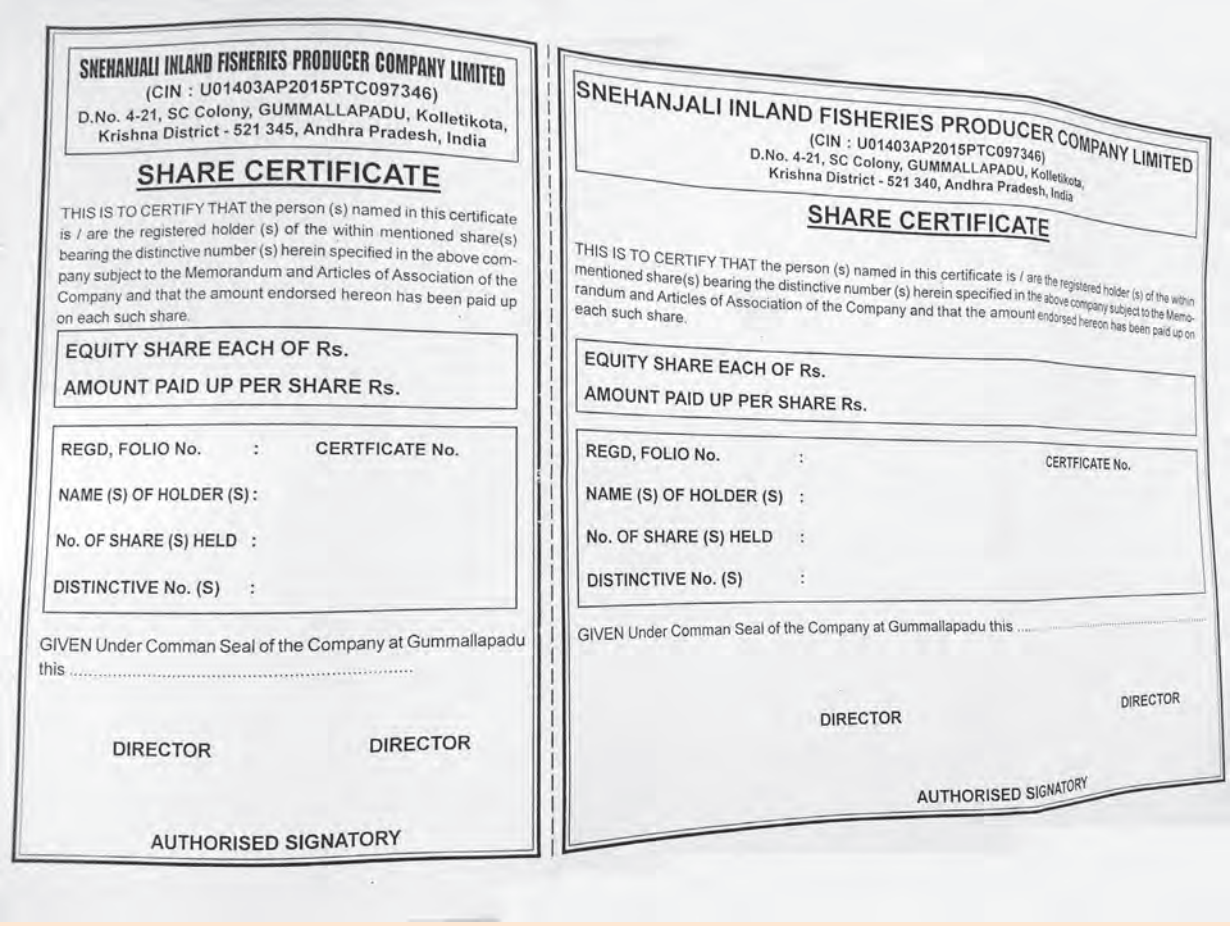
Brief case studies were prepared and reported based on successful functional FPOs for better understanding about their functionality to researchers, academicians and policy makers etc. Eight cases across different sub-sectors are summarized below:

A detailed analysis of selected FPOs which are functional in different parts of Andhra Pradesh revealed the following:

Case study 1

Freshwater Fish – FPO (Krishna district)

Snehanjali Inland fish producer Co ltd, is located at Gummalapadu village, Kaikaluru *mandal*, Krishna District. The FPO is promoted by SNEHA (NGO) through NABARD's support, and established in September, 2015. There are 110 farmers who hail from 10 surrounding villages. The FPO is based adjacent to Kolleru lake in a rented office. Most of the farmers are small farmers (80%) whose farm ponds range from 1 to 2 ha. The prawns are sold at an average rate of Rs 400 and fish for Rs 120 per kg. They collectively sell around 2000 T of fish and 50 T of prawn produced by member farmers every year. As feed is the major input cost in aquaculture, the FPO is collectively procuring fish feed which reduces their input costs by up to 20%. There is paucity of funds as only 33,000 rupees have been raised by selling shares to the farmers, hence the FPO is trying to expand its membership base by sensitizing other farmers in the region to become their members. The FPO has a collectively prepared business action plan for the year 2016 for Rs 6.5 crores and seeking funds from NABARD and the Department of Fisheries. The FPO envisages to take up refurbishing water tanks of all aqua farms of its members in a phased manner and construct cold storage godowns to do primary fish processing. The FPO is also interested to open retail fish stores in Vijayawada and Hyderabad. It will be interesting to see how the FPO members implement their action plan in the near future.



SNEHANJALI INLAND FISHERIES PRODUCER COMPANY LIMITED
(CIN : U01403AP2015PTC097346)
D.No. 4-21, SC Colony, GUMMALLAPADU, Kolletikota,
Krishna District - 521 345, Andhra Pradesh, India

SHARE CERTIFICATE

THIS IS TO CERTIFY THAT the person (s) named in this certificate is / are the registered holder (s) of the within mentioned share(s) bearing the distinctive number (s) herein specified in the above company subject to the Memorandum and Articles of Association of the Company and that the amount endorsed hereon has been paid up on each such share.

EQUITY SHARE EACH OF Rs.
AMOUNT PAID UP PER SHARE Rs.

REGD, FOLIO No. : CERTFICATE No.
NAME (S) OF HOLDER (S) :
No. OF SHARE (S) HELD :
DISTINCTIVE No. (S) :

GIVEN Under Comman Seal of the Company at Gummallapadu this .....

DIRECTOR DIRECTOR

AUTHORISED SIGNATORY

SNEHANJALI INLAND FISHERIES PRODUCER COMPANY LIMITED
(CIN : U01403AP2015PTC097346)
D.No. 4-21, SC Colony, GUMMALLAPADU, Kolletikota,
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No. OF SHARE (S) HELD :
DISTINCTIVE No. (S) :

GIVEN Under Comman Seal of the Company at Gummallapadu this .....

DIRECTOR DIRECTOR

AUTHORISED SIGNATORY

Figure 5.1. Snehanjali Inland fisheries share certificate.

Case study 2

Banana FPO (Krishna district)

Sri Vigneshwara Banana FPO is located at Chagantipadu village, Thotlavallurumandal, Krishna district. This FPO was functioning as a mutually aided credit society for the last 3 years and formally registered as a company in July 2015 with 190 active members. Also, Nestham (NGO) has been hand holding the FPO with an initial share capital of Rs 0.1 million. Farmers from 30 surrounding villages encompassing 5 *mandal*s converge to sell their banana fruit bunches on every Monday and Thursday during the week. The turnover of the FPO was 9.6 million last year earning a profit of Rs 0.55 million by charging 6% levy on banana sales. Farmers get the services of uniform costs of servicing of harvesting banana through engagement of labourers by the FPO at a predetermined rate and at right time. One major service rendered through this collective aggregation model is the cutting down of the transport cost of bringing the harvested banana to the market. This is being done by the FPO owned Mahindra van which is a unique strategy by the FPO that benefited the member farmers. The cost of labor charges and transport directly benefits FPO members in addition to the higher price secured from the traders who now come to this new market for buying bananas. A member farmer, Shri S Nagireddy says, "If I sell banana bunch to local trader at the farm gate, I used to get Rs 150 per bunch, here in FPO, I get Rs 325 per bunch and is more than double the previous amount. Also, being a part of the FPO fetched me 100% more". The abuse of intermediaries in differential pricing has dramatically reduced for farmers participating in this FPO where grading and pricing was held with transparency. This is attracting new banana farmers from other places. The FPO started constructing a market yard and a building (3600 sft) in the village through support from Horticulture department and NABARD (Rs 1.2 million). The FPO looks to diversify its portfolio of working on other days of the week (presently market auctions are held 2 days per week). There are plans to introduce auctioning of vegetables on commission basis in the new market yard. It will be interesting to review the progress of this FPO in the coming months after the start of the new market yard.

Figure 5.2. Interviewing the banana growers at Changantipadu FPO.

Case study 3

Marine Fisheries FPO (Krishna district)

Samyuktha fisheries producer company, Etimandipallepallu village, Kruttivennu *mandal*, Krishna district has 425 member farmers, which was registered in September, 2015, through NABARD's support and SNEHA, local NGO as facilitator. The farmer's come from 30 villages on the coastline of Krishna district. The NGO organized awareness and exposure visits to most of the member farmer's to fish markets at Narsapur, Chennai and Bhimavaram. This has enabled farmers to realize the advantages of coming together collectively to bargain higher prices in the markets as they were cheated by the intermediaries in their villages who gave only 40-50% of prices that they in turn earned in these markets. The FPO established 3 collection centres, an ice factory and also placed cooling boxes with a weighing machine in each of the collection centre. They deal with a wide range of marine products like fish, prawn and crabs. The FPO managed bank linkages in facilitating their member farmer's to credit facility of Rs 3 million through Indian Bank and Saptagiri cooperative bank. There is huge need for working capital by farmers, which is informally met through money lenders, who happen to be members of the FPO. Also, loans are provided to farmers ranging from Rs 5000 to Rs 0.1 million without interest. However, the farmer had to sell their marine catch to the money lender at a lower price, about Rs 5 below the prevailing market price per kg. A detailed participatory action planning exercise was conducted by the FPO, and proposals have been submitted to Fisheries department for one crore rupees. The action plans include fish drying platforms, nets, ice boxes, tool kits, plastic trays, life jackets, salaries for at least 2 staff. The FPO is interested to take up cultivation of casurina trees in the sandy soils to generate additional income to farmer members.

Figure 5.3. ICRISAT staff with Samyuktha Fisheries Producer Company.

Case study 4

Jasmine FPO (Krishna district)

Sambasiva Jasmine Producer Company Ltd, formerly Vigneswara MACS society is located at Sentraigudem, Mylavaram *mandal*, Krishna district, AP. The FPO was registered in September 2015 with over 600 member farmers from two revenue panchayat's and encompassing 20 hamlets. A share capital of Rs 2.5 million is invested by the 5 directors of the FPO personally. The FPO is active during the jasmine season from February to August every year. Jasmine crop is perennial (up to 7 years) but grown only in small pockets of <0.4 ha by each member as most of them have other sources of income like mango orchards. The market opens every day early in the morning at the village temple premises, where weighing, bagging, labeling is done by hired staff by the FPO. Also, watering of the packaged flowers is a critical activity to keep the flowers fresh during their transport to Hyderabad's Guddimalkapur market through their own vans (4). Due to high perishability of flowers, the farmers are vulnerable to price fluctuations in Hyderabad. The Directors are concerned about the growing apathy in Hyderabad market towards them as they are farmers based out of Andhra Pradesh. Moreover, the commission agents do not follow a set standard while determining flower prices. This makes them ponder if it was possible to have a market at nearby city like Vijayawada. Presently there are plans to build a shed to undertake operations during rains. At present the remuneration to the member farmers is higher than that of the outside traders. However, it will be challenging to see how this FPO runs in the long run with investments controlled by few directors.

Figure 5.4 Jasmine Producers Organization in Krishna district.

Case study 5

Chethana Groundnut Producer Company Ltd (Prakasam district)

Chethana groundnut Producer Company Ltd is located at Kothapatnam village (under Kothapatnam *mandal*), about 17 km from Ongole, Prakasam district. The company has been registered in February 2016 under Companies Act, 2013, with the financial support of NABARD. An NGO named Effort Foundation is providing technical support to the producer members. Currently, the company has 65 members who have contributed share capital of Rs 500 each. Groundnut is the main crop in the *mandal* and many farmers grow two groundnut crops in a year. Currently it is operating in only one village, but plans to expand to 500 groundnut growers in 6 surrounding villages. The NGO has given demonstration on IPM in the village and has collected and sent across 250 soil samples for soil testing to the state department. Though, the company has its own rented office and also rented in some space for input and output marketing, the actual operation has not yet started. Moreover, the supporting agency is also not very clear about the scaling up strategies and future plan of value added services for the company. Therefore, producer-members are reluctant in participating in any meetings or discussion.

Figure 5.5. Mechanical threshing of groundnut by the farmers of groundnut FPO in Prakasam.

Case study 6

Noveeal Coconut Producer Company Limited (East Godavari)

Noveeal coconut Producer Company was registered under companies act during the year 2013. The mission of the company aims to support farmers by extending assistance for planting, production, marketing and export of coconut and its products and their vision is to encourage the coconut industry and to bring confidence among coconut farmers by producing value added products. So far 247 societies were registered under society act with 11671 farmers as members. The average land holding size per member is 0.97 ha and number of trees per member is 144. The company in consortium with other developing agencies is planning to develop and produce few value added products which are having good potential and demand in both national and international markets. The major benefits derived by small and marginal farmers' are: increase in per capita income in coconut cultivation, increase the producer's share in consumer rupee, better price stabilization, better utilization of input subsidies provided by the Government and creation of increased employment opportunities etc.

Figure 5.6. Display of coconut based products at Noveeal FPO.

Case study 7

Paddy Farmers Seed Cooperative Society (West Godavari)

Sri. Seetharamanjaneya Farmers Seed Cooperative Society Ltd, established in the year 2014 (Registration No: WR 564) with the assistance from AP state government and technical support from Rice Research Station, Marteru, West Godavari. After state bifurcation, farmers of the district anticipated the shortfall of rice seed and set-up this FPO with support from ATMA. Also, seeds of major varieties of rice like MTU 1010 and MTU 1064 are multiplied and supplied to farmers at a competitive price and quality. Inorder to market the seed, word of mouth, display boards have been established at many villages and germination guarantee etc. were created and has increased interest among rice growers in the district. But, the society is currently looking for financial support to further strengthen seed production facilities in the society.

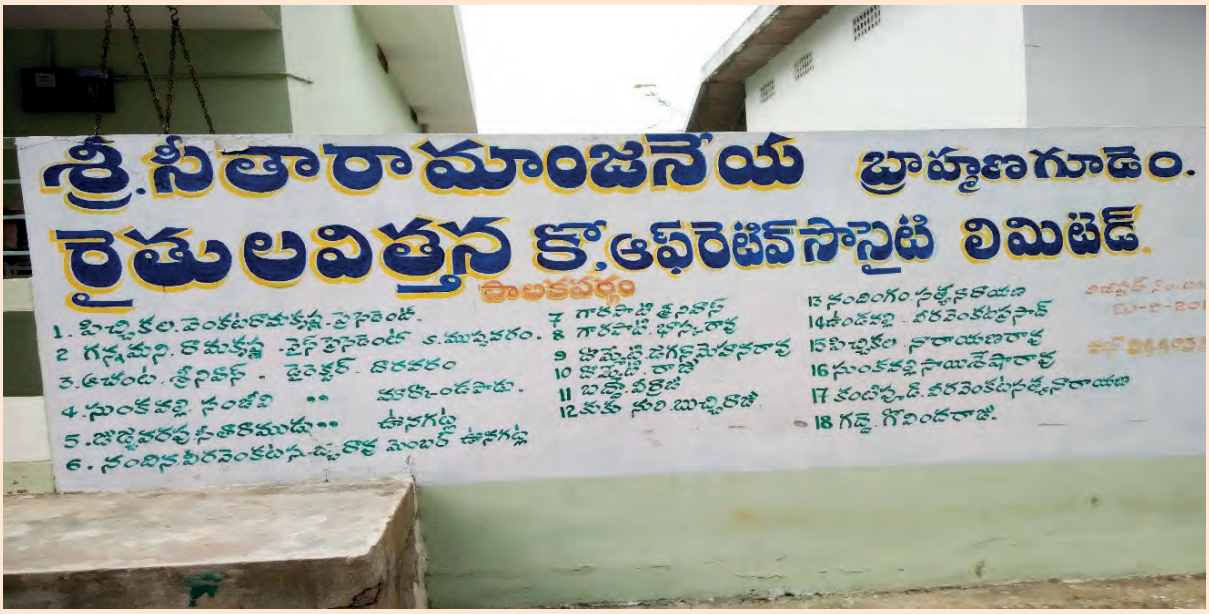


Figure 5.7. Details of board members in seed FPO in West Godavari.

Case study 8

Dairy FPO (Kurnool district) (proposed & supported by AH department)

The Animal Husbandry department is promoting one dairy FPO (proposed) in Nandyal *mandal* (around Ryatunagaram village). The Assistant Veterinary surgeon is leading the process and there is a plan to group 20 milk producer-farmers in each of 20 surrounding villages. Every expected member household have 5-6 graded Murrah buffalo, who are currently selling their milk in the Nandyal market @Rs 38/liter. The discussions with villagers revealed the potential for formation of FPO focusing on dairy and the benefits to farmers through enhanced income levels. However, they had lot of apprehensions about the size of the organization and the sustainability of group cohesion. The FPO formation is still at very nascent stage, as group formation has not yet taken place. The villagers are also not clear about the potential benefits coming through the FPO. Although, potential areas of intervention existing are- bulk purchase of feed and fodders, collective silage making, manufacturing of livestock feed at small scale, value addition in milk and milk products, etc. Therefore, lot of background work on creating awareness, bringing clarity on the process of formation of organization and clear guidelines on formation of FPOs are required to address initial glitches. The department also needs to identify the local resource organization who can continuously work with the milk producers.

Figure 5.8. Interactions with milk producers at dairy FPO in Kurnool.

Case study 9

Pulses & Millets FPO (Kurnool district)

Since the year 2013, the Reliance Foundation is working in this *mandal*, and improving livelihood of the rural population by intervention in the area of land development, soil fertility management, water harvesting and health and nutrition. The foundation has formed Village Farmers' Association (VFA) in 16 villages spread in 3 mandals of the district. The foundation is in advanced stage of registering an FPO based on pulses and millets, by bringing together 13 VFAs falling under the Gajiwanga watershed, on a single platform. The region faces problem of salinity, water shortage and non-availability of clean and safe drinking water. The primary source of livelihood is agriculture coupled with rearing small ruminants like goats and sheep. The interventions started with organizing farmers to create awareness and give training about soil and water conservation measures. The major crop grown during *kharif* season is mainly cotton (80%) and groundnut (20%). During *rabi* season, red gram, bengal gram, ajwain and jowar (sorghum) is grown. They also grow fox tail millet for personal consumption. The collective action started with interventions in soil and water conservation, organic farming, and nutrition gardens to improve the nutritional status by promoting dietary diversity. Currently, there are 1330 members in 13 VFAs and together, mobilized an initial seed capital of ₹ 2.6 million by equal contribution (Rs 2000 each) from the members. Each VFA has its own office space in the village. After registration of FPO, the group is planning to purchase agricultural inputs in bulk and market the produce collectively.

Figure 5.9. Pulses and millets FPO supported by Reliance Foundation.

Case study 10

Bethamacherala Progressive Farmers Producer Company Ltd (Kurnool district)

With the technical support of Vrutti Livelihood Resource Centre, legume-based FPO is in the process of formation in Bethamcherla *mandal*, about 53 km from district headquarter Kurnool in Andhra Pradesh. The mobilization of farmers and group formation for the Bethamcherla Progressive Farmers' Producer Company Ltd. (BPFPC) started in March 2015, with the support of NABARD and Vrutti as POPI. The company has 700 group members from five surrounding villages in the radius of 12-15 km and only 70 members have contributed Rs 1000/- each as share capital. In the *mandal*, most of the farmers are growing pigeon pea as main crop, and some farmers are also growing foxtail crop, mixed with pigeonpea. Therefore, the group targets to handle only pigeonpea. Although, till now, the group formation and mobilization of households to join and contribute in the company has taken place, actual activities related to collective production, procurement, marketing or capacity building for different operations has not taken place. The company is expected to be registered in a couple of months.

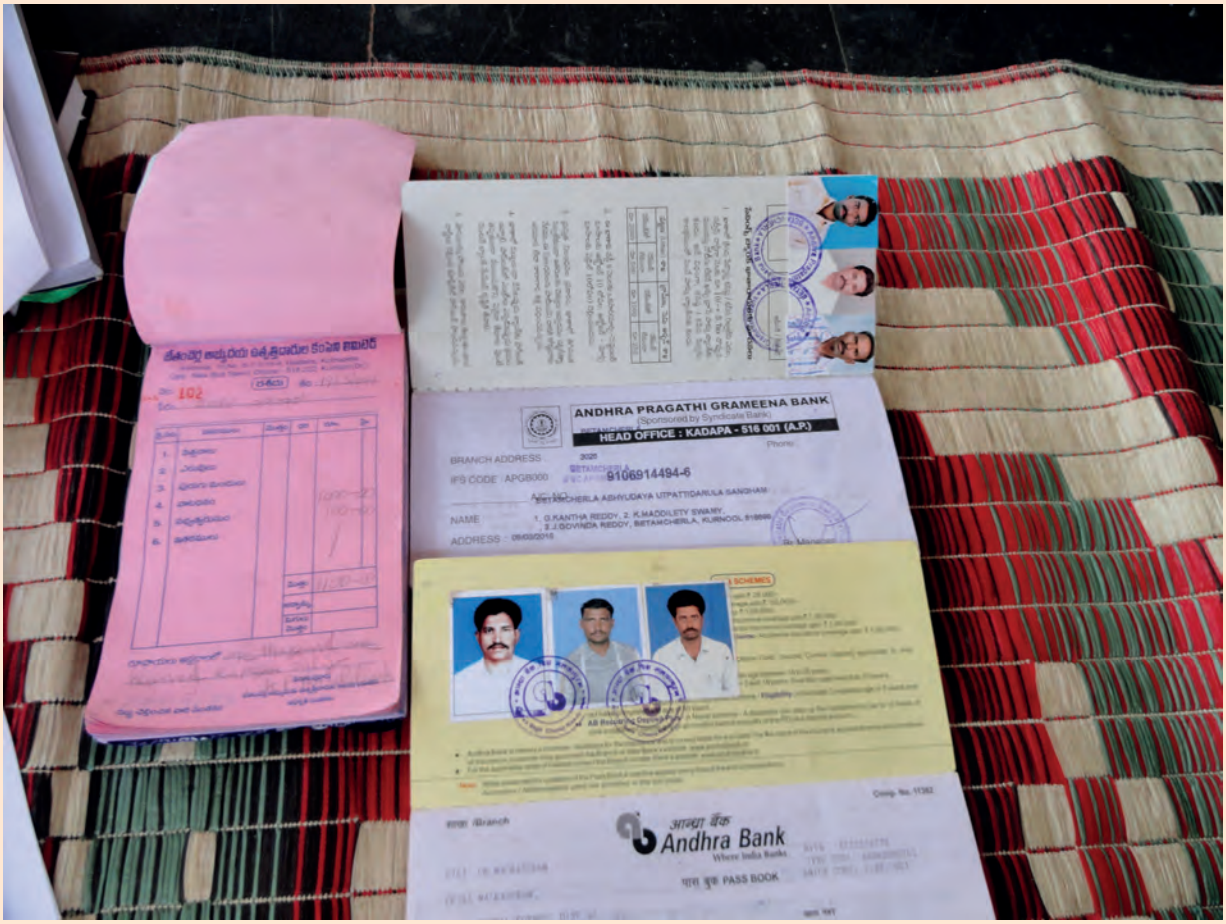


Figure 5.10. Bank account details of BPFPC.

Case study 11

Turmeric FPO (Guntur district)

Mangalagiri Agricultural Producers' Company Limited, located at Mangalagiri, Guntur district is promoted by Nilgiri Foundation, NGO. This FPO was registered in July, 2015 with 350 turmeric producing small farmers from 21 villages. These farmers collectively hold about 380 ha of land and are producing 950 tons of turmeric annually. Under normal conditions, it takes around 20 days to process turmeric after harvesting. Shri Raghuram Reddy, chairman of Nilgiri foundation introduced a novel turmeric processing system, which brings down the processing time from 20 days to 10 days. So he introduced this technology to the farmers' groups and convinced them through awareness and sensitization programmes. Also, Nilgiri foundation organized exposure visits to Erode, Tamil nadu to witness latest turmeric processing systems for some farmers. When the farmers were convinced about the enhanced quality of curcumin in processed turmeric, they were willing to adopt the technology as they believed it fetched higher price. The FPO purchased three boilers and one polishing machine that were run by employing contract laborers during the harvest season. Inputs like seed material, organic fertilizers required for crop production are procured by the FPO for their members through a retail outlet in Nutathi village. The operations have been professionally run by its CEO, Mr. Gautam Reddy. Marketing of turmeric at Duggirala market is done exclusively by FPO. The FPO has taken all the required licenses as a retail supplier of inputs and marketing agent in Duggirala market. Turmeric is a commercial crop with high input costs to the tune of Rs 123,500 to 148,200 per ha and FPO farmers benefit directly by reducing their seed and fertilizer costs by up to 15%. Further farmers benefit to the extent of 10% by their collective marketing in Duggirala market. The FPOs initiative to reduce input costs, processing times and market linkage appears to impact the livelihoods of small farmers' with increased profit from turmeric cultivation. Now the FPO is planning to do commercial production of turmeric powder with high curcumin as present markets are not using grading systems which contains turmeric of high curcumin content but following traditional ways like size of the rhizome. However, the directors of the FPO pooled up their personal collateral to purchase boilers and polishing machine's for the FPO and are looking for credit support from the local banks, with low-interest rates.

Figure 5.11. Usage of modern technology in turmeric processing in Guntur.

a. Most of the well-functioning FPOs are built around activities based on handling of (including production/harvesting, processing and marketing) perishable commodities. These range from fish, marine products, milk to banana and jasmine. There is a necessity for the members of these FPOs to come together and collectivize operations to address some of the technical constraints which arise out of the perishable nature of commodities.

b. A large share of these FPOs are relatively new in terms of age of collectivization. Most of them were formed during the year 2015 and are not more than 2 to 3 years old. An improvement in the process of formation and institutional arrangements in recent times, mainly facilitated by efforts from the State are helpful in entire efforts of setting up of FPOs.

c. One of the significant features of the operational FPOs is that they give greater focus on interventions and facilitation in the marketing functions of the focus commodities. This emphasizes the widespread inadequacy existing in the marketing functions, in which innovations are required in improving the incentives to producers. It would also serve as a boarding point towards collectivization to reduce transaction costs and taking advantage of economies of scale.

d. In addition to marketing functions or related activities, they also focus on arrangements to regulate and facilitate availability and access to inputs at reasonable prices and convenience to the members. This is a major intervention which transfers the benefits of economies of scale to the members which acts as a major incentive and bonding factor for their participation in formation of FPOs.

e. These FPOs have a wider geographical coverage, with most of them having members belonging to more than 10 villages. This ensures that there is sufficient scope for interventions focusing on FPOs to utilize the opportunities to reap the benefits from economies of scale in production, post-harvest handling and marketing of the primary sector commodities.

However, almost all the FPOs visited by staff are still at initial stage of action, and have not yet reached the maturity level to introduce value addition in the commodities of their interests. Therefore, functionally, it appears that their priorities has not moved upwards beyond displacing middlemen in output marketing. Unless the level of intervention moves further, the FPOs would offer limited incentives to their members.

Chapter 6. Mapping Potentials for FPOs in Andhra Pradesh

One of the most important tasks in understanding the feasibility of setting up a FPO is determining the size of the market. As there is considerable cost involved in the establishment of FPOs, initial returns should be enough to meet at least the startup costs and working capital expenses. The first step in determining the 'market size' of an agricultural product is to measure the production, consumption pattern and marketed surplus in the region where business is planned for establishment. These parameters help in identifying the region as surplus or deficit sites. Moreover, surplus/deficit regions will help identify opportunities for intra or interstate/country export-import and trade. This chapter systematically maps out appropriate locations and commodities, based on secondary sources of information at mandal/district and state level; it also emphasizes on current market aggregation patterns across different commodities, quantum of marketable surplus of different commodities across regions and finally identifying enabling environments (such as cold storage facilities, grading/sorting facilities etc.) across commodities.

6.1 Mapping of potential commodities and regions

With increasing market opportunities, there is a need to identify the appropriate location of production zones and the market size of a commodity. The state of Andhra Pradesh has 13 districts of different geographical spread and populations (Figure 6.1). These districts are also divided into two distinct agro-climatic regions- Rayalaseema region and Coastal region, which makes a very interesting combinations for production of cereals, pulses, fruits and vegetables, livestock, poultry and fisheries. Accordingly, in the study, an attempt has been made to identify the right potential location with reasonable crop area combinations. Also, GIS (Geographic Information Systems) presents a system of acquiring and generating high resolution images of crop area combination maps which enables to gauge the market potential under a given situation. This chapter presents mandal level maps of major agricultural commodities with an intention to strategize potential crop area combinations which are necessary for locating FPOs.

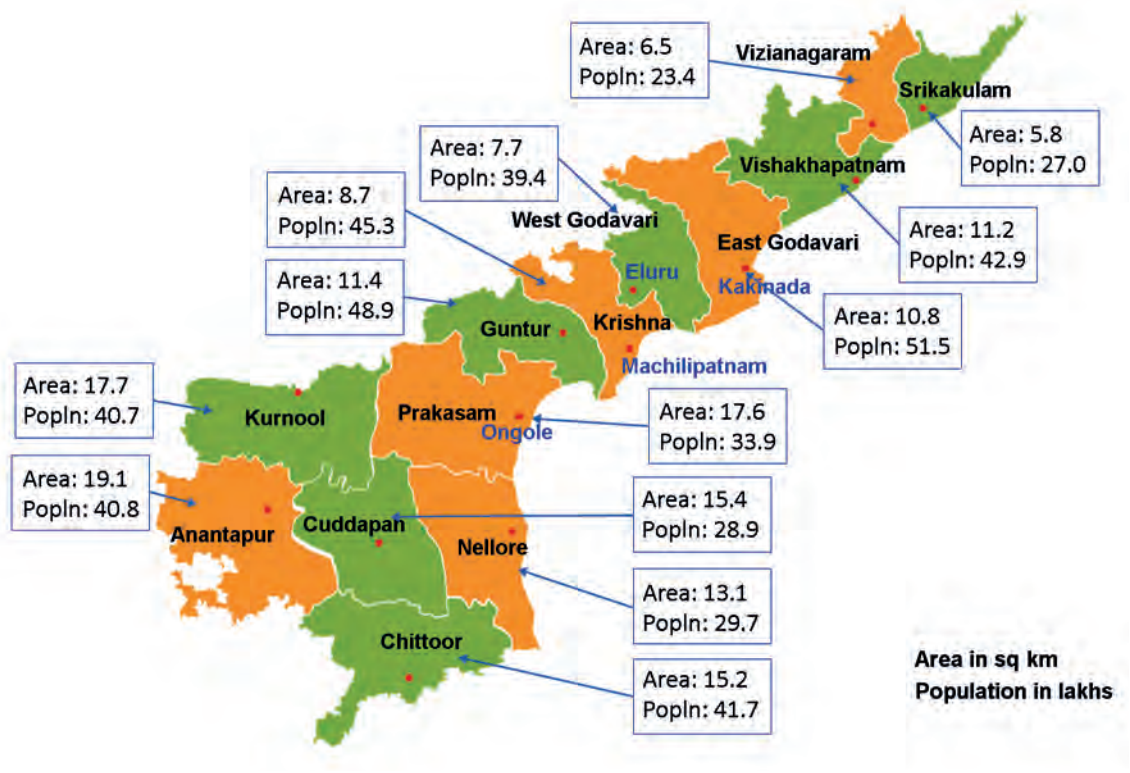


Figure 6.1. Geographical area and population of all the districts in Andhra Pradesh state. (Source: http://www.ap.gov.in/about-ap/districts/)

Apart from cropped area statistics, which gives a rapid appraisal of market potential, few other parameters like marketed surplus, per capita consumption of major produce, export market, etc. was also considered for better elicitation of market opportunities. The marketed surplus refers to the part which is actually made available to the market. This chapter makes an attempt to identify the export potential of major commodities.

Considering the importance of the region and its influence on marketed surplus, thirty major crops across 657 mandals (7 mandals that are included after bifurcation were not included in the study as the data is not available for the period 2013-14) were mapped using geospatial tools to visually understand the key potential crop area mix within the each district and across the state.

6.2 Identifying crop and crop combinations for FPOs

The top-down approach was followed for determining the right combination of crop area combinations in a given district and finally at the state level. As a first step, district level information was analyzed to identify potential commodities in the state. The second step is to identify the potential mandals under each commodity. This mapping process could pave the way for identifying the potential mandals by each commodity/group of commodities in a given district. For every district, all the crops have been categorized in two groups- major crops having cropped area more than 5000 ha, and minor crops having acreage between 3000 to 5000 ha (Table 6.1).

Further, clusters of mandals, to qualify for an FPO, are identified on the following criteria:

a. Since the production and productivity information for the crops at mandal levels are not available, crop area for the year 2013-14 (latest available) was considered.

b. Minimum area under single crop in any mandal considered as 3000 hectares for major (cereal) crops and 1000 hectares for high value/ commercial/pulse crops.

c. Geographical proximity of the mandals in a single cluster was given priority so as to keep lower transaction cost for aggregation.

Table 6.1 District-wise importance of different crops in Andhra Pradesh state

District	Major crops with coverage > 5000 ha	Minor crops with coverage between 3000-5000 ha
Anantapur	Groundnut, Bengal gram, Cotton, Rice, Fresh and dry fruits	Jowar (sorghum), maize, fresh and dry fruits
Chittoor	Groundnut, Rice	Fresh and dry fruits
East Godavari	Rice, Fresh and dry fruits	Maize, green gram, vegetables
Guntur	Rice, Maize, Blackgram, Cotton	Red gram, Chilies
Kadapa	Fresh and dry fruits, groundnut, Bengal gram	Vegetables
Krishna	Rice, blackgram, cotton	Maize, Fresh and dry fruits
Kurnool	Rice, Jowar (sorghum), maize, red gram, groundnut, bengal gram, cotton	
Nellore	Rice	Fresh and dry fruits
Prakasam	Rice, red gram, bengal gram, cotton	Fresh and dry fruits, groundnut
Srikakulam	Rice	Maize, Fresh and dry fruits
Visakhapatnam	Rice	Fresh and dry fruits, bengal gram
Vizianagaram	Rice, Fresh and dry fruits	Maize, Fresh and dry fruits, cotton
West Godavari	Rice, Maize, Fresh and dry fruits	Green gram, Fresh and dry fruits, cotton

d. A cluster of 4-5 mandals should have crop area of minimum 10,000 ha (in case of high value, cash crops or pulses) and maximum of about 100,000 ha (in case of major cereal crops).

e. The individual cluster of mandals may have one major driving commodity, on top of which other commodities may be added, as the FPOs mature over time or as demands arise.

6.2.1 Anantapur district

The Anantapur district has 63 mandals. The major crops grown in the district are groundnut (65.84%), bengal gram (7.76%), red gram (4.51%), rice (3.65%) and fresh and dry fruits (3.53%). All together they are occupying nearly 80.78% of the total gross cropped area. The top three mandals under groundnut cultivation in the district are Kalyanadurg, Kanaganapalli and Kambadur. The major mandals under red gram cultivation in the district were Roddam, Madkasir and Atmakur. Other pulses (predominantly bengal gram) were grown under mandals of Vidanapanakal, Kanekal and Vajrakarur. The potential mandals for 'fresh and dry fruits' were Putluru, Yelannuru, Peddapaparru, Garladine and Tadipatri. Also, rice is the major irrigated crop grown, except in Kanekal mandal (6496 ha), the area under rice in all other mandals is less than 1000 ha. Total minor millets occupies very insignificant cropped area (0.08%) and was grown in Anantapur division (77%) and remaining (23%) in Kalyanadurgam division. The dominant mandals under the crop are Yadiki, Tadapatri, Putlur and Beluguppa constituting 68% of total cropped area. Table 6.2 and Figure 6.2 summarizes potential crop area combination for the Anantapur district. The table highlights dominant mandals for forming a crop specific cluster in the district. Also, clusters are identified purely based on close geographical proximity between the mandals. Table 6.2 shows that a total of 12 clusters can be formed in the district with groundnut, bengal gram and fruits as major commodities.

Table 6.2 Potential clusters for crop-based FPOs in Anantapur district

Crop	Number of Clusters	Mandals (12 crops-based clusters)	Area (ha)
Groundnut	9	1. Brahmasamudram, Settur, Kundurpi, Gummagatta, Kalyandurg, Belugappa	112685
		2. Rayadurg, Uravakonda, Kanekal, D.Hirchal, Bommanahal, Vidapanakal	68255
		3. Kudair, Atmakur, Anantapur, Garladinne, Raptadu	71126
		4. Vajrakarur, Pamidi, Guntakal, Gooty, Peddapappur, Yadiki,	81191
		5. Singanamala, Putlur, Bukkarayasamudram, Narpala, Tadimarri, Bathalapalle	58431
		6. Kanaganapalle, Ramagiri, Dharmavaram, Chenne Kothapalle	79529
		7. Mudigubba, Talupula, Gandlapenta, Nambulapulikunta, Kadiri, Bukkapatnam	61127
		8. Amadagur, Tanakal, Nallacheruvu, Obuladevaracheruvu, Nallamada, Gorantla	63328
		9. Agali, Gudibanda, Rolla, Madakasira, Roddam, Puttaparthi, Penukonda	68747
Bengal gram	2	10. Belguppa, Vidanapanakal, Kanekal, Vajrakarur, Uravakonda, Bommanahal	54385
		11. Yellanur, Putlur, Peddapappur, Tadipatri	21806
Fresh and dry fruits	1	12. Narpal, Putlur, Yelannuru, Peddapaparru, Tadipatri	16343

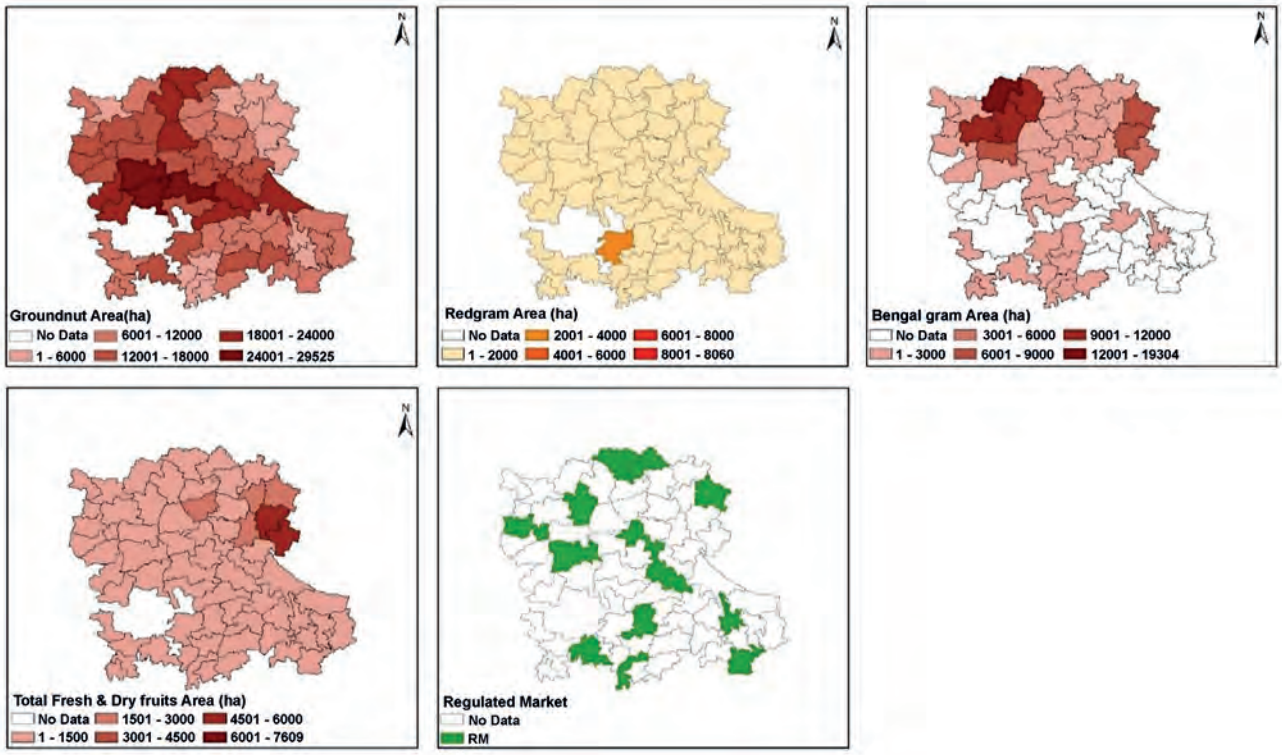


Figure 6.2. Area under major crops, Anantapur district.

6.2.2 Chittoor district

There are 66 mandals in Chittoor district.In Chitoor, groundnut is the major crop grown in the district and is covering 37.18% of the gross cropped area (GCA). The potential mandals for groundnut cultivation are Thamballapalle, Pedda Thippasamudram and Mulakalacheruvu. Rice occupies nearly 11.95% of gross cropped area in the district. The top three mandals under rice cultivation in the district were Srikalahasthi, Thotambedu and Yerpedu. In the district, fresh and dry fruits are having a share of 18.12% in GCA. Mango ranks first and covers 88.12% of the total cropped area under fruits. The major mandals identified for mango cultivation are Bangarupalem, Pulicherla and Irala. The total vegetables together have a share of 5.25% in total cropped area (tomato alone occupies 62.1% of total vegetable cropped area). Pedda Thippasamudram, Mulakalacheruvu and Ramakuppam are major mandals for vegetables cultivation in the district. The Table 6.3 and Figure 6.3 summarizes that a total of 8 clusters can be formed in the district with groundnut as a major crop. Larger clusters can be further divided based upon the geographical and socio-economic condition prevailing. Even though groundnut is a major crop spread across the mandal, more scope exists for fresh and dry fruits followed by groundnut. The mandals bordering Nellore have high potential for rice markets/FPOs (north-west and south-west) in the district. To be precise, the central part of the district and mandals bordering Karnataka have very high potential for establishing an FPO.

6.2.3 East Godavari district

There are 64 mandals in the district and the major crops grown are rice, green gram, black gram, fresh fruits, coconut and vegetables which occupy nearly 85.11% of the total cropped area and, rice alone occupies 57.63 % of total cropped area in the district. The top three mandals under rice cultivation in the district are Samalakota, Kajuluru and Ramachandrapuram. Green gram and black gram have a combined share of 5.52% in GCA. The potential mandals identified for these crops are Thotangi, Korukonda, Prathipadu and Kotananduru. Apart from the above, fresh and dry fruits occupy 11.43% of gross cropped

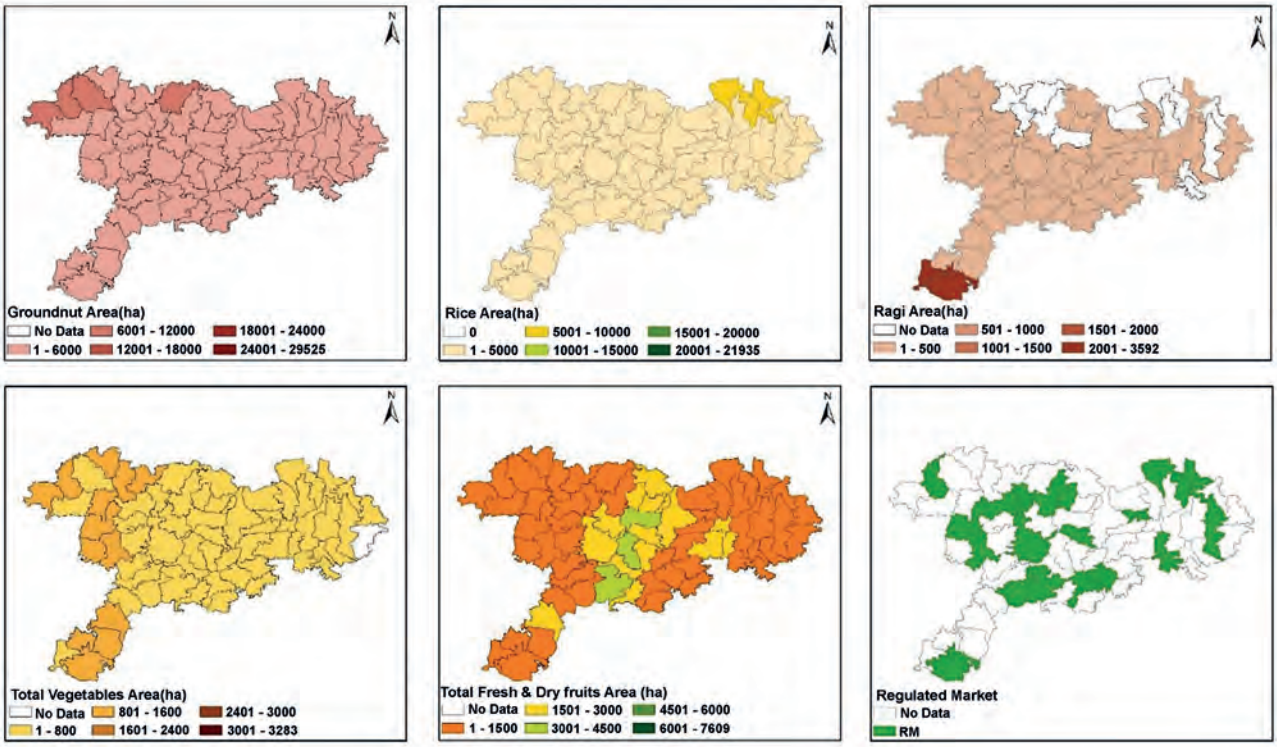


Figure 6.3. Area under major corps, Chittoor district.

Table 6.3 Potential clusters for crop-based FPOs in Chittoor district

Crop	Number of Clusters	Mandals (8 crops-based clusters)	Area (ha)
Groundnut	4	1. Pedda Thippasamudram, Mulakalacheruvu, Thamballapalle, Peddamandyam, B.Kothakota, Kurabalakota	40861
		2. Kambhamvaripalle, Pileru, Kalakada, Kalikiri, Rompicherla, Yerravaripalem	19928
		3. Baireddipalle, Venkatagiri Kota, Santhipuram, Ramakuppam, Kuppam	15731
		4. Peddapanjani, Gangavaram, Palamaner, Bangarupalem, Thavanampalle	14787
Rice	1	5. Srikalahasti, Yerpedu, Thottambedu, Buchinaidukandriga, Varadaiahpalem	25578
Fresh and dry fruits	2	6. Bangarupalem, Yadamari, Thavanampalle, Palamaner, Gangavaram	10801
		7. Irla, Putalapattu, Pakala, Sodam, Somala, Thavanampalle, Chandragiri	18015
Ragi (Finger millet)	1	8. Gudipalle and Kuppam	6133

area. Mango occupies nearly 24% of the total cropped area under fruits followed by banana (19%). The major mandals under the fruits are Rajanagaram, Atreyapuram and Thondangi. The total vegetables occupy 3.16% of the gross cropped area (tapioca occupies 19.68% under vegetables area). Peddapuram, Jaggampeta, Rangampeta and Gangavaram are major mandals for vegetables cultivation and coconut is grown predominantly in Mamidikudurru, Ainavilli, I.Polavaram, P.Ganavaram, Malkipuram and Ambajipeta. It has a share of 7.36% in the total GCA of the district. Table 6.4 and Figure 6.4 summarizes that a total of 10 clusters can be formed in the district with rice as a major crop. There is a huge scope of forming FPOs on fresh and dry fruits along with coconut. There is a large scope for black gram crop to be promoted in two mandals. The central part of the district along with mandals towards West Godavari and sea coast have high market potential. The mandals like Gangavaram, Rampachodavaram and Addategala under tribal region has potential for cashew, mango and tapioca markets.

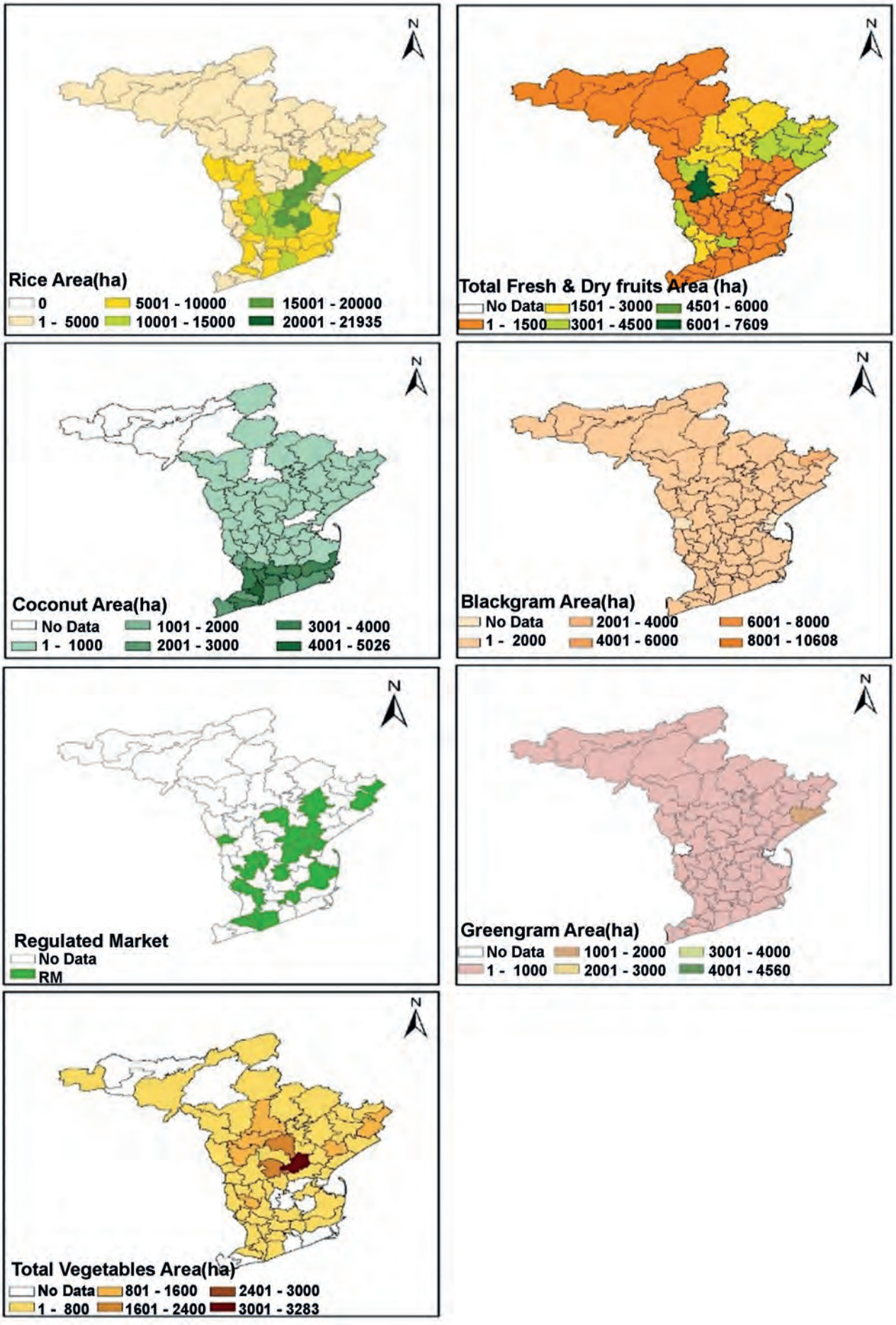


Figure 6.4. Area under major crops, East Godavari district.

Table 6.4 Potential clusters for crop-based FPOs in East Godavari district

Crop	Number of Clusters	Mandals (10 crops-based clusters)	Area (ha)
Rice	5	1. Bicavolu, Samalakota, Pedapudi, Peddapuram, Rajanagaram, Pithapuram	76143
		2. Mandapeta, Alamuru, Ravulapalem, Kapileswarapuram, Kothapeta	47055
		3. Kajuluru, Pamarru, Karapa, Thallarevu, Ramachandrapuram	69832
		4. Kothapalli, Pithapuram, Gollaprolu, Thondangi, Kakinada (Rural)	43525
		5. Allavaram, Amalapuram, Uppalaguptam, Mamidikuduru, P_Gannavaram, Razole	38408
Fresh and dry fruits	3	6. Rajanagaram, Korukonda, Rangampeta, Gandepalle	15610
		7. Thodangi, Tuni, Kotananduru, Rowthulapudi, Sankhavaram	15803
		8. Ainevelli, Kothapeta, P.Gannavaram, Ambhajipeta	10442
Coconut	2	9. Mamidikuduru, Razole, Malikipuram, Allavaram, Sakhinetipalle	15567
		10. Ainavilli, P.Gannavaram, Malikipuram, Ambajipeta, Amalapuram	16669

6.2.4 Guntur district

Guntur district has 57 mandals. The major crops grown in the district are rice (38.03%), cotton (22.39%), maize (10.09%), green gram (3.48%), black gram (4.28%), chilies (7.51%), fresh fruits (1.60%) and vegetables (1.51%). All major crops together occupy 88.90% of the total gross cropped area in the district. Major mandals under rice cultivation in the district are Bapatla, Nekarikallu, Rompicherla and Ponnur. Maize is predominantly grown in Duggirala, Vemuru, Kolluru, Bhattiprolu and Ponnuru mandals. Peddakakani, Amruthaluru Bapatla and Chebrolu mandals are potential mandals for green gram cultivation. Other mandals including Repalle, Ponnuru, Nagaram and Amruthalur mandals are also well known for black gram cultivation in the district. The presence of fruit cultivation is higher in case of Kollipara, Kolluru, Thulluru and Duggirala mandals. Mangalagiri, Tadepalli, Chebrolu and Kolluru are major mandals for vegetable cultivation. The jowar (sorghum) crop (post-rainy) occupies 1.57% of the total gross cropped area and is predominantly grown in Tenali division (Tenali, Kollipara, Dugirrala and Tsunduru) of the district. Chilies are grown largely in Sattanepalli, Veldurthi, Medikonduru and Machavaram mandals. For cotton crop, Veldurthi, Amaravathi, Durgi and Tadikonda are traditional growing areas in the district. The Table 6.5 and Figure 6.5 summarizes that a total of 18 clusters can be formed in the district with different crops as driving commodities in combination with other crops being grown in the clusters. The mandals falling under eastern part of the district have more potential for establishment of FPOs under irrigated crops while western part of the district which is predominantly rainfed area for cotton and chilly cultivation. The North-eastern part of the district is known for condiments like turmeric.

6.2.5 Kadapa district

Kadapa district has 51 mandals. The major crops grown in the district are bengal gram (26.40%), groundnut (15.19%), sunflower (11.68%), rice (7.23%), jowar (sorghum) (3.75%), red gram (2.44%), fresh fruits (13.59%), and vegetables (3.37%), occupying 83.80% of the total gross cropped area. The major mandals under rice cultivation in the district are Brahmamgarimatam, Chapad, Sidhout and Pendlimarri. Jowar (sorghum) is predominantly grown in Chapad Muddanur, Rajupalem and Kondapur. Ramapuram, Galiveedu, Sambepalli are potential red gram cultivating mandals in the district. Pedamudium, Rajupalem, Simhadripuram and Veerapunayunipalem mandals are major mandals for Bengal gram cultivation. Lingala, Kodur, Simhadripuram and Obuluvaripalle mandals are dominated with fruits cultivation. Veerapunayunipalle, Galiveedu, Chakrayapet, Sambepalle are major mandals for groundnut cultivation. Table 6.6 and Figure 6.6 summarizes that a total of 8 clusters can be formed in the district with Bengal gram as a major crop followed by groundnut and fresh fruits.

Table 6.5 Potential clusters for crop-based FPOs in Guntur district

Crop	Number of Clusters	Mandals (18 crop-based clusters)	Area (ha)
Rice	6	1. Kollipara, Tenali, Chebrolu, Pedakakani, Duggirala	35262
		2. Amruthalur, Ponnur, Bapatla, Karlapalem, Kakumanu, Tsundur	69989
		3. Nizampatnam, Nagaram, Pittalavanipalem, Cherukupalle, Repalle, Bhattiprolu	46871
		4. Narasaraopeta, Muppalla, Sattenapalle, Rajupalem, Nakarikallu	44733
		5. Nuzendla, Vinukonda, Ipuru, Bollapalle, Rompicherla	36877
		6. Rentachintala, Gurazala, Karempudi, Piduguralla	36748
Maize	2	7. Dugiralla, Tenali, Vemuru, Kollur, Bhattiprolu	30780
		8. Ponnur, Kakumanu, Vatticherukuru	14079
Pulses (Green gram, Black gram)	2	9. Amruthalur, Ponnur, Cherukupalle, Pittalavanipalem, Tsundur, Chebrolu, Kakumanu	29084
		10. Baptla, Karlapalem, Nagaram, Rapalle, Nizampatnam	20706
Chilies	3	11. Sattenapalle, Medikonduru, Pedakurapadu, Tadikonda, Krosuru	14315
		12. Veladurthi, Macherla, Durgi, Rentachintala, Gurazala	14627
		13. Machavaram, Piduguralla, Karempudi	8394
Cotton	5	14. Chilakaluripet, Nadendla, Edlapadu, Prathipadu, Pedanandipadu, Narasaraopeta	40713
		15. Veladurthi, Durgi, Macherla, Rentachintala, Gurazala	38499
		16. Achampeta, Amaravathi, Tadikonda, Thullur, Pedakurapadu, Krosuru	45599
		17. Sattenapalle, Medikonduru, Prathipadu, Phirangipuram, Edlapadu	32847
		18. Dachepalle, Machavaram, Bellamkonda, Rajupalem, Piduguralla	23574

Table 6.6 Potential clusters for crop-based FPOs in Kadapa district

Crop	Number of Clusters	Mandals (8 crops-based clusters)	Area (ha)
Pulses (mainly Bengal gram)	3	1. Lingala , Simhadripuram, Thandur, Pulivendula, Vemula, Vempalle	34945
		2. Veerapunayunipalle, Kamalapuram, Yerraguntla, Muddanur, Proddutur	30387
		3. Kondapuram, Jammalamadugu, Mylavaram, Peddamudium, Rajupalem	45440
Cotton	1	4. Vemula, Vempalle, Veerapunayunipalle	12214
Groundnut	2	5. Vemula, Vempalle, Veerapunayunipalle, Thandur, Lingala	16169
		6. Chakrayapet, Galiveedu, Chinnamandem, Rayachoti, Lakkireddipalle, Sambepalle	23855
Fresh Fruits	2	7. Lingala , Simhadripuram, Thandur, Pulivendula, Vemula	17752
		8. Kodur, Obulavaripalle, Chitvel, Pullampeta	14038

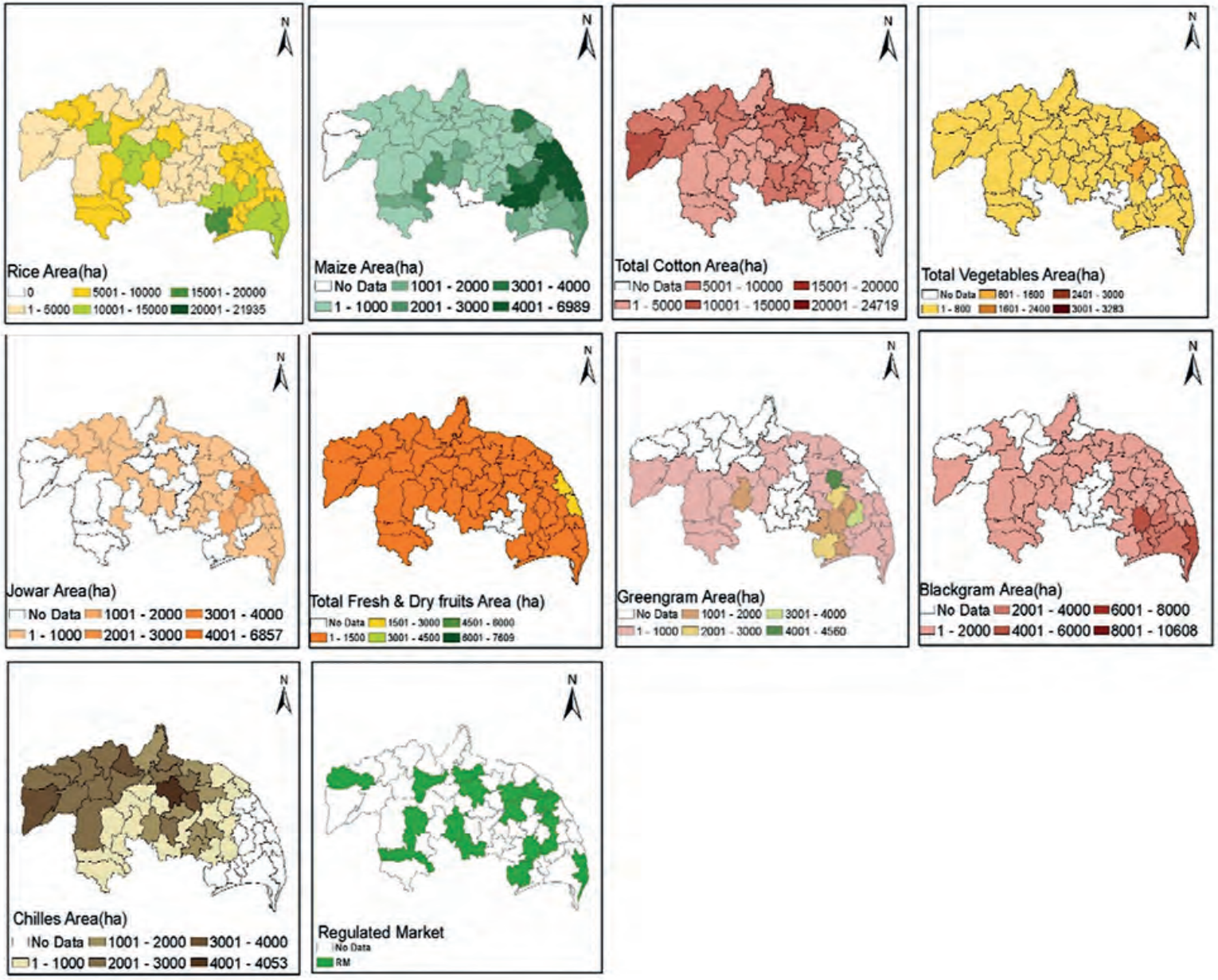


Figure 6.5. Area under major crops, Guntur district.

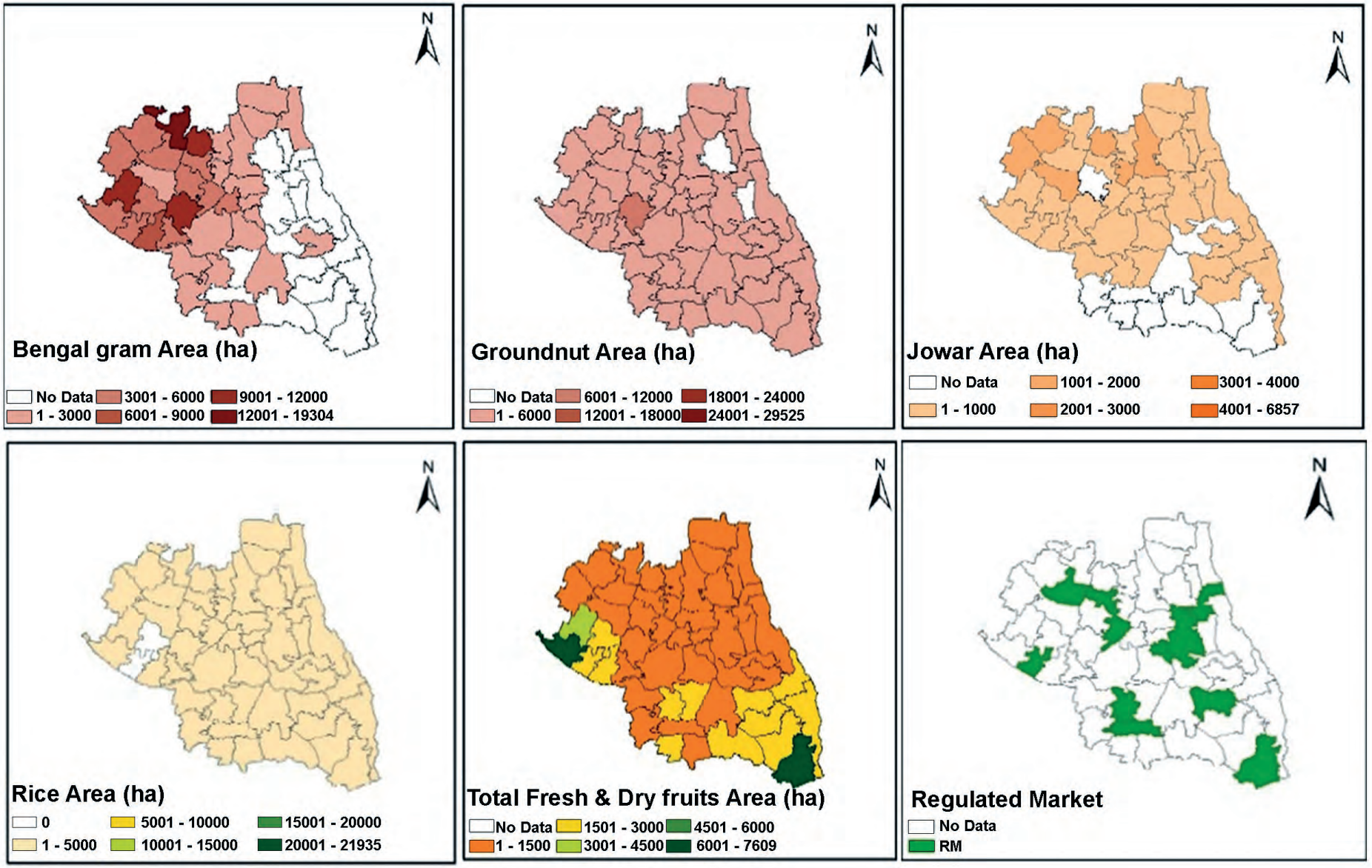


Figure 6.6. Area under major crops, Kadapa district.

6.2.6 Krishna district

The district consists of 50 mandals and the major crops grown in the district are rice (49.87%), black gram (13.10%), cotton (8.14%), maize (4.51%), chilies (1.47%), fresh fruits (9.66%), and aromatic flowers (0.05%). All these crops together occupy nearly about 86.81% of the total gross cropped area of the district. Major mandals under rice cultivation in the district are Mudinepalle, Pedana, Guduru, and Machilipatnam. Maize is predominantly grown in Musunuru, Nuzvid, Chatrai and Veerullpadu. The mandals Movva, Pamarru, Gudlavalleru and Peddaparupudi are potential mandals for black gram cultivation. Chilies are dominant in Vatsavai, Gampalagudem, Penuganchipolu and Chandarlapadu mandals. Fresh fruits are majorly grown in Agiripalle, Vissanapeta, Nuzivid and Reddygudem mandals. Mango occupies almost 82% of cropped area under fresh fruits. Aromatic flowers are specifically grown in Mylavaram mandal and jasmine is the predominant produce occupying almost 83% of aromatic flowers area. Cotton is majorly grown in Chandarlapadu, Veerulapadu, Vatsavi and Kanchikacherla mandals. The crop-wise potential areas are summarized in Table 6.7 and Figure 6.7. Just like Kadapa district, Krishna district also has ample opportunities for setting up of single or multi-commodity FPOs in the district. Table 6.7 summarizes that a total of 17 clusters can be formed in the district based on dominant crops in different clusters. Large scope exists for multi-commodity FPOs, which can be established with strong intra/inter linkages between the villages in a mandal.

6.2.7 Kurnool district

There are 54 mandals in this district and the major crops grown in the district are cotton (20.37%), groundnut (16.75%), rice (12.46%), jowar (sorghum) (6.01%), maize (5.18%), red gram (4.32%), other pulses predominantly bengal gram (20.10%), chilies (1.55%), vegetables (2.61%) and onions (1.71%).

Table 6.7 Potential clusters for crop-based FPOs in Krishna district

Crop	Number of Clusters	Mandals (17 crops-based clusters)	Area (ha)
Rice	8	1. Bantumilli, Kruthivennu, Kalidindi, Pedana, Mudinepalli	70650
		2. Nagayalanka, Koduru, Avanigadda, Mopidevi, Challapalli	42290
		3. Machilipatnam, Guduru, Ghantasala, Challapalli	52794
		4. Movva, Pamidimukkala, Pamarru, Gudlavalleru, Gudivada, Pedaparupudi, Nandivada	66081
		5. Thotlavalluru, Vuyyuru, Kankipadu, Penamaluru, Unguturu, Bapulapadu	40395
		6. Gannavaram, Vijayawada (Rural), G.Konduru, Mylavaram	23086
		7. Reddigudem, A.Konduru, Chatrai, Vissannapet, Tiruvuru, Gampalagudem	30767
		8. Jaggayyapeta, Penuganchiprolu, Nandigama, Chandralapadu, Vatsavai	19152
Maize	1	9. Chatrai, Musunuru, Nuzvid	10785
Black gram and Green gram	3	10. Nagayalanka, Koduru, Mopidevi, Challapalli, Ghantasala	19926
		11. Pedaparupudi, Gudivada, Nandivada, Unguturu, Bapulapadu	30274
		12. Movva, Pamarru, Gudlavalleru, Pamidimukkala, Thotlavalluru, Vuyyuru	41679
Chilies	1*	13. Vatsavai, Penuganchiprolu, Nandigama	4922
Fresh Fruits	1*	14. Reddigudem, Nuzvid, Musunuru	4894
Cotton	3	15. Jaggayyapeta, Vatsavai, Penuganchiprolu, Nandigama	14696
		16. Chandralapadu, Kanchikacherla, Veerullapadu, G.Konduru	24779
		17. Mylavaram, A.Konduru, Gampalagudem, Tiruvuru	15130

* Chilies and fruits being high value crops, FPO may be set up even with smaller area, as other nearby mandals don't grow the same crops.

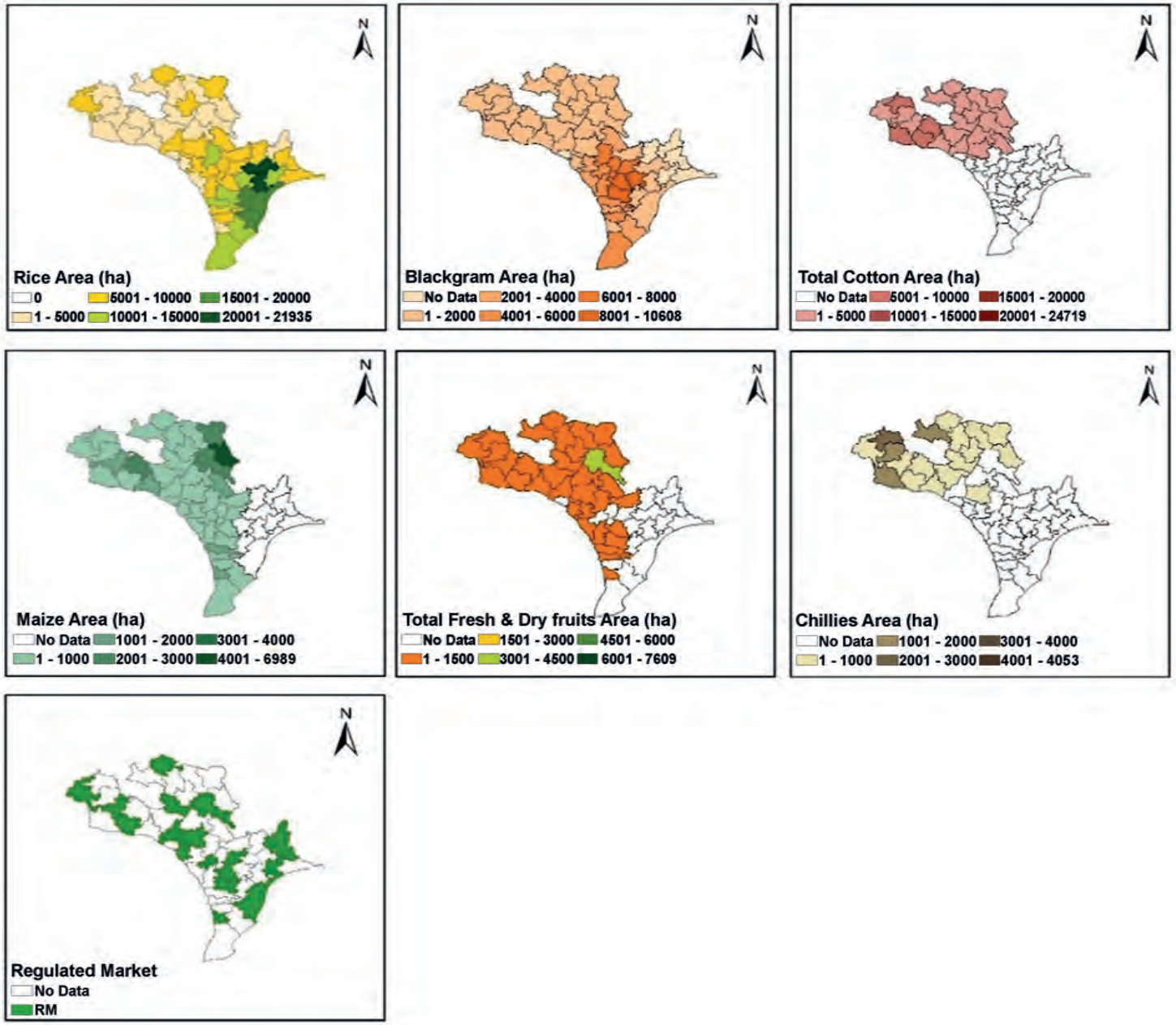


Figure 6.7. Area under major crops, Krishna district.

All these crops together occupy about 91.09% of the total gross cropped area in the district. The major mandals for rice cultivation in the district are Bandi Atmakuru, Sirvel, Nandyal, and Velgode. Jowar (sorghum) is predominantly grown in Banaganapalle, Panyam, Nandyal and Chagalamarri mandals and maize has intensive cultivation in Pamulapadu, Nandikotkuru, Atmakur and Jupadu Bungalow mandals. Also, red gram is also preferred in Bethamcherla, Veldhurthi, Peapally and Dhone mandals. The mandals Uyyalawada, Chippagiri, Sanjamala and Koilkuntla are traditional bengal gram cultivating mandals. Chilies have high potential in case of Halaharvi, Peda Kadabur, Chippagiri and Kowthalam mandals and onion is majorly grown in Kurnool, C.Belegal, Gonegandla and Pattikonda mandals. Mainly, vegetables cultivation has been adopted in case of Kurnool, C.Belegal, Aspari and Kodumur mandals. Groundnut is the preferred rainfed crop grown in Devanakonda, Krishnagiri, Dhone and Tugalli mandal. Table 6.8 and Figure 6.8 summarizes that a total of 19 clusters can be formed in the district with Bengal gram as a major crop followed by groundnut and rice. In Kurnool district, there is a good spread of crops across the mandals and potential scope exists for setting up of multi-commodity FPOs in the district. The eastern part of Kurnool exhibits very high potential for setting up of FPOs when compared with other regions.

6.2.8 Nellore district

There are 47 mandals in the district and mostly dominated by rice crop. The major crops grown in the district are rice (60.1%), black gram (3.05%), fresh fruits and dry fruits (9.07%) and groundnut (4.02%). All major crops together occupy about 76.24% of the total gross cropped area in the district. The potential mandals for rice cultivation in the district are Chittamur, Allur, Vidavallur and Venkatachalam. Black gram is a predominantly grown crop in Vinjamur, Kondapuram, Kaligiri and Podalakur mandals and green gram also preferred in case of Kaligiri, Podalakur, Vinjamur and Indkurpet mandals. Fresh and dry fruits are intensively cultivated in Podalakur, Sydapuram, Gudur and Rapur mandals. The mandals Vidavalur, Dakili, Kavali and Muthukur are predominant groundnut cultivating mandals. Table 6.9 and Figure 6.9 summarize that a total of 8 clusters can be formed in the district with rice as a major followed by fresh and dry fruits.

6.2.9 Prakasam district

It is geographically a large district, consisting of 56 mandals. The major crops grown in the district are rice (20.11%), bajra (pearlmillet) (3.76%), maize (3.35%), red gram (7.78%), bengal gram (10.08%), chili (4.08%), fresh and dry Fruits (3.98%) and cotton (12.24%). All these major crops together occupy nearly about 65.42% of the total gross cropped area in the district. The major mandals for rice cultivation in the district are Darsi, Tripuranthakam, Mundlamuru, Karamchedu and Thallur. Bajra is predominantly grown in Komarollu, Bestavaripeta, Konakanimitla, Velligandla and Kanigiri mandals and maize is intensively cultivated in Martur, Bestavaripeta, Chirala and Ardhaveedu mandals. Redgram is preferred crop in Podili, Kanigiri, Donakonda, Konakanimitla, Kurichedu and Veligandla mandals. The mandals Dornala, Yerragondapalem, Markapur and Inkollu are potential mandals for chilies cultivation in the district. Bengal gram is the traditional post-rainy season crop grown in Nagullupalapadu, Gidalluru, Komarollu, Ongole and Parchur mandals. Ulavapadu, Yerragondapalem, Gudluru and Peddacherlo Palle known for cultivation of fresh and dry fruit crops. The details about crop-wise potential mandals are summarized in Table 6.10 and Figure 6.10. Table shows that a total of 19 clusters can be formed in the district with rice as a major followed by bengal gram and cotton. The highest number of clusters can be formed with cotton and other major crops like rice, bengal gram, chilies and fresh and dry fruits have equal opportunities and bajra can be formed in two clusters. The central part of the district is having high potential for establishment of multi-commodity FPOs in the district.

6.2.10 Srikakulam district

The district has 37 mandals and the major crops grown in the district are rice (49.09%), black gram (10.34%), fresh and dry fruits (8.93%), green gram (7.93%), groundnut (3.87%), maize (2.6%) and coconut

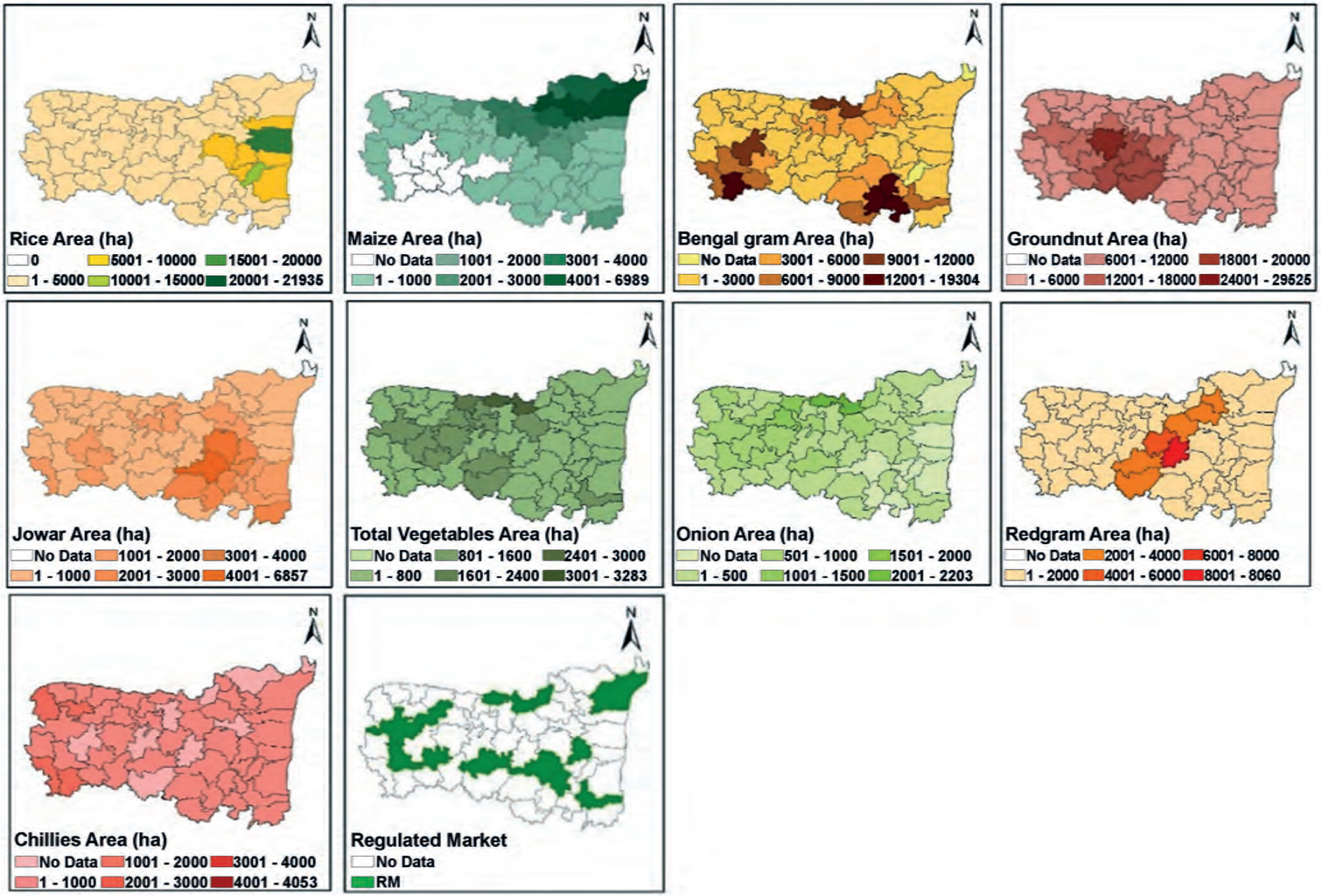


Figure 6.8. Area under major crops, Kurnool district.

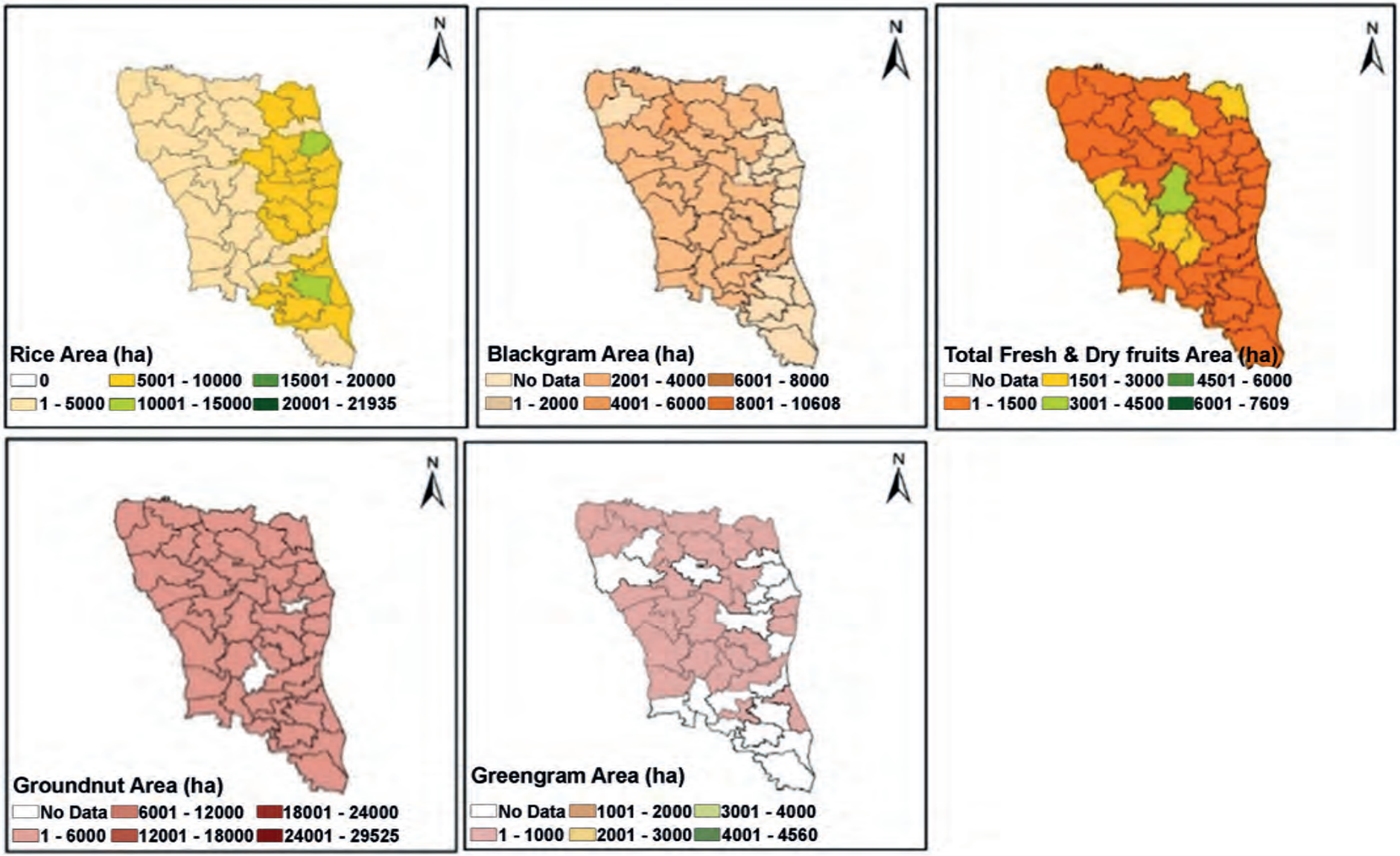


Figure 6.9. Area under major crops, Nellore district.

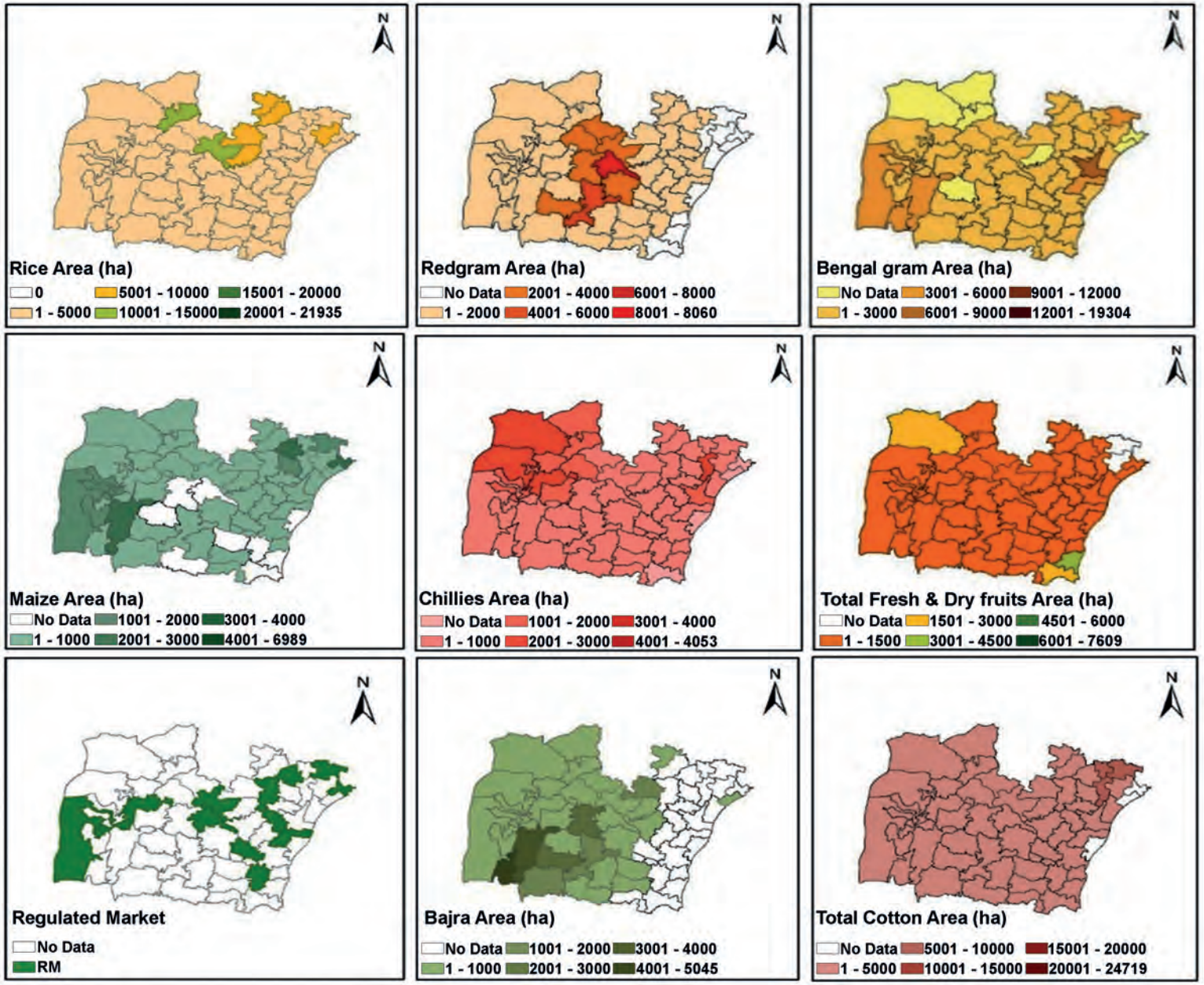


Figure 6.10. Area under major crops, Prakasam district.

Table 6.8 Potential clusters for crop-based FPOs in Kurnool district

Crop	No. of Clusters	Mandals (19 crops-based clusters)	Area (ha)
Rice	3	1. Atmakur, Bandi Atmakur, Velgodu, Pamulapadu	30310
		2. Rudravaram, Sirvel, Gospadu, Mahanandi, Allagadda, Chagalamarri	35950
		3. Nandyala, Banaganapalle, Panyam, Gadivemula	22230
Jowar (sorghum)	2	4. Banaganapalle, Panyam, Nandyala, Gospadu, Sirvel	18240
		5. Owk, Sanjamala, Koilkuntla, Dornipadu, Allagadda	10726
Maize	2	6. Pamulapadu, Atmakur, Kothapalle, Jupadu Bungalow, Pagidyala	21079
		7. Nandikotkur, Midthur, Orvakal, Kallur, Kurnool	16508
Red gram	2	8. Bethamcherla, Veldurthi, Peapally, Dhone	18664
		9. Jupadu Bungalow, Midthur, Orvakal	7420
Bengal gram	5	10. Uyyalawada, Koilkuntla, Dornipadu, Allagadda, Chagalamarri	43716
		11. Sanjamala, Kolimigundla, Owk, Banaganapalle	30469
		12. Orvakal, Midthur, Jupadu Bungalow, Panyam, Nandikotkur	22178
		13. Kurnool, Kallur, Gudur, Kodumur	20440
		14. Maddikera East, Chippagiri, Pattikonda, Aspari, Alur, Halaharvi	54884
Groundnut	4	15. Adoni, Kowthalam, Kosigi, Peddakadubur, Yemmiganur	24410
		16. Aspari, Pattikonda, Tuggali, Devanakonda, Maddikera East	58217
		17. Nandavaram, C.Belagal, Gonegandla, Kodumur, Gudur	15794
		18. Dhone, Krishnagiri, Peapally, Veldurthi	52639
Castor	1	19. Devanakonda, Dhone, Gonegandla, Krishnagiri, Veldurthi	12129

Table 6.9 Potential clusters for crop-based FPOs in Nellore district

Crop	Number of Clusters	Mandals (8 crops-based clusters)	Area (ha)
Rice	6	1. Allur, Dagadarthi, Bogole, Jaladanki, Kavali	36551
		2. Vidavalur, Kodavalur, Butchireddypalem, Kovur, Indukurpet, Thotapalligudur	46238
		3. Venkatachalam, Muthukur, Manubolu, Chillakur, Kota	34672
		4. Vakadu, Chittamur, Sullurpeta, Tada, Doravarisatram	37883
		5. Pellakur, Naidupeta, Ojili	14941
		6. Nellore, Podalakur, Chejerla, Atmakur, Sangam	24871
Pulses (Blackgram, greengram, Bengal gram)	1	7. Kondapuram, Kaligiri, Duttalur, Vinjamur, Atmakur	13753
Fresh and Dry Fruits	1	8. Podalakur, Sydapuram, Rapur, Kaluvoya, Chejerla	11115

(3.5%). All these major crops together occupy nearly 86.25% of the total gross cropped area in the district. The potential mandals for each identified crop are summarized. The summary of those detail furnished in Table 6.11 and Figure 6.11. Table shows that a total of 16 clusters can be formed in the district with rice as a major followed by pulses like black gram and green gram. There is potential for fresh and dry fruits as well.

Table 6.10 Potential clusters for crop-based FPOs in Prakasam district

Crop	Number of Clusters	Mandals (19 crops-based clusters)	Area (ha)
Rice	4	1. Kurichedu, Tripuranthakam	13941
		2. Karamchedu, Chirala, Parchur, Chinaganjam,	21897
		3. Santhamaguluru, Ballikuruva, Addanki, Martur, Janakavarampanguluru	25211
		4. Darsi, Mundlamuru, Thallur	27747
Bajra	1	5. Bestavaripeta, Komarolu, Chadrasekarapuram, Veligandla	12063
Red gram+ Black gram	3	6. Chadrasekarapuram, Veligandla, Hanumanthunipadu, Bestavaripeta	10035
		7. Kanigiri, Pamur, Pedacherlopalle	11838
		8. Darsi, Kurichedu, Donakonda, Konakanamitla	13851
Chilies	2	9. Yerragondapalem, Tripuranthakam, Peda Araveedu, Pullalacheruvu, Donakonda	7260
		10. Dornala, Ardhaveedu, Markapur	5831
Bengal gram	3	11. Bestavaripeta, Racherla, Komarolu, Cumbum, Giddaluru	15675
		12. Naguluppalapadu, Ongole, Kothapatnam, Maddipadu, Korisapadu	18615
		13. Parchur, Karamchedu, Chinaganjam, Inkollu, Janakavarampanguluru	12073
Fresh & Dry Fruits	1	14. Ulavapadu, Gudluru	5317
Cotton	5	15. Ardhaveedu, Dornala, Markapur	8327
		16. Gudluru, Racherla, Komarolu, Bestavaripeta,	9359
		17. Donakonda, Konakanamitla, Darsi, Kurichedu	11461
		18. Mundlamuru, Addanki	6171
		19. Yeddanapudi, Inkollu	11169

Table 6.11 Potential clusters for crop-based FPOs in Srikakulam district

Crop	Number of Clusters	Mandals (16 crops-based clusters)	Area (ha)
Rice	7	1. Ganguvarisigadam, Rajam, Ponduru, Santhakaviti, Amudalavalasa, Burja	27308
		2. Gara, Srikakulam, Polaki, Narsannapeta, Jalumuru, Sarbujjili	42520
		3. Regidiamudalavalasa, Vangara, Veeraghattam, Palakonda	23250
		4. Bhamini, Kotturu, Hiramandalam, Pathapatnam	20731
		5. Kotabommali, Santhabommali, Tekkali, Saravakota, Meliaputti	36138
		6. Nandigam, Vajrapukotturu, Palasa, Mandasa	23600
		7. Sompeta, Kanchili, Ichchapuram	15394
Maize	1*	8. Ganguvarisigadam, Laveru, Rajam	8540
Blackgram+ Green gram	5	9. Ganguvarisigadam, Ponduru, Rajam, Santhakaviti	10471
		10. Amudalavalasa, Burja, Srikakulam, Gara, Sarbujjili	12847
		11. Regidiamudalavalasa, Vangara, Veeraghattam, Palakonda	12054
		12. Narsannapeta, Polaki, Kotabommali, Jalumuru, Saravakota	15570
		13. Santhabommali, Tekkali, Meliaputti, Nandigam, Vajrapukotturu	10606
Fresh and Dry Fruits	2*	14. Mandasa, Palasa, Vajrapukotturu	8870
		15. Ranastalam, Laveru	5686
Groundnut	1*	16. Ganguvarisigadam, Ponduru, Rajam, Santhakaviti	7997

*Though these clusters have less area under respective crops, but being this an important crop for the clusters may be promoted as FPO.

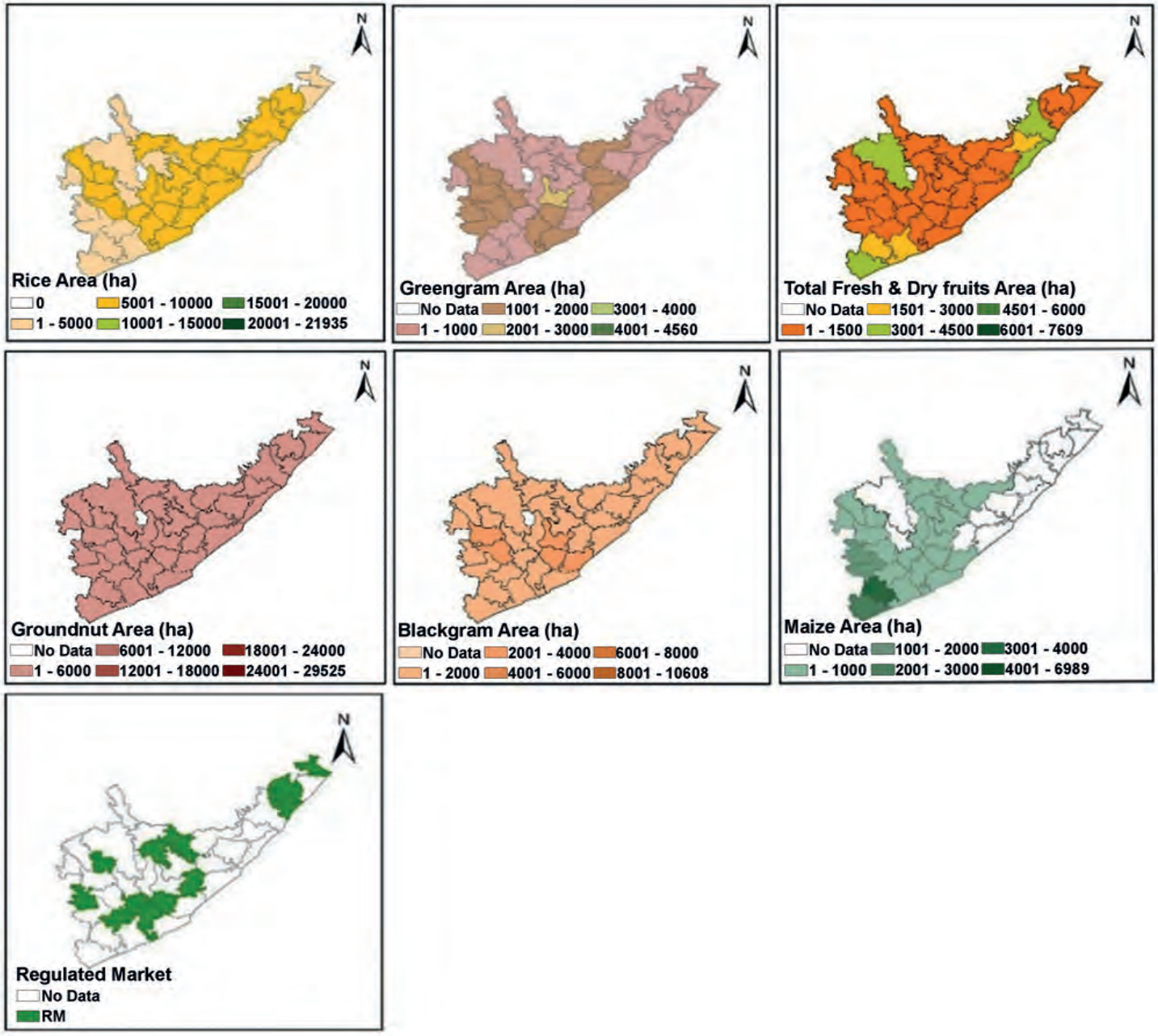


Figure 6.11. Area under major crops, Srikakulam.

6.2.11 Vizianagaram district

The district has 34 mandals and the major crops grown in the district are rice (33.42%), maize (8.31%), green gram (3.97%), black gram (4.9%), fresh and dry fruits (19.28%), cotton (4.2%) and sesemum (6.12%). All these major crops together occupy nearly 80.29% of the total gross cropped area in the district. The crop specific potential mandals are identified for setting up of single or multi-commodity FPOs in the district. The corresponding promising crops also highlighted against the potential mandals in the district. The summary of these details are presented in Table 6.12 and Figure 6.12. Table shows that a total of 16 clusters can be formed in the district with rice as a major followed by fresh and dry fruits and maize. The highest number of clusters can be formed with fresh and dry fruits and northern part of the district has good potential.

Table 6.12 Potential clusters for crop-based FPOs in Vizianagaram district

Crop	Number of Clusters	Mandals (16 crops-based clusters)	Area (ha)
Rice	4	1. Garugubilli, Jiyyamma Valasa, Komarada, Kurupam, Parvathipuram	28039
		2. Makkuva, Seethanagaram, Balajipeta, Bobbili, Therlam	28099
		3. Mentada, Dattirajeru, Gajapathinagaram, Bondapalle	15234
		4. Lakkavarapukota, Vepada, Srungavarapukota, Jami, Gantyada	22546
Maize	2	5. Cheepurupalle, Pusapatirega, Gurla, Nellimarla, Denkada, Garividi	16577
		*6. Salur, Pachipenta, Makkuva	7016
Black gram+ Green gram	2	7. Srungavarapukota, Gantyada, Vepada, Jami, Lakkavarapukota, Bondapalle	11125
		*8. Balajipeta, Seethanagaram, Parvathipuram, Garugubilli	6974
Fresh and Dry Fruits	6	*9. Bhoghapuram, Denkada, Pusapatirega, Vizianagaram, Nellimarla	8784
		*10. Garugubilli, Jiyyamma Valasa, Komarada, Kurupam, Gummalakshmipuram	9082
		*11. Parvathipuram, Bobbili, Badangi, Makkuva, Ramabhadrapuram	8522
		12. Gurla, Cheepurupalle, Garividi, Gajapathinagaram, Dattirajeru	11651
		13. Kothavalasa, Lakkavarapukota, Vepada, Srungavarapukota, Jami, Gantyada	14705
		*14. Merakamudidam, Therlam,	8626
Cotton	1	*15. Salur, Ramabhadrapuram, Pachipenta	7741
Sesame	1	*16. Jiyyamma Valasa, Garugubilli, Parvathipuram,	6347

*Though these clusters have less area under respective crops, but being this an important crop for the clusters may be promoted as FPO.

6.2.12 Visakhapatnam district

The district has 43 mandals and the major crops grown in the district are rice (29.05%), ragi (finger millet) (5.82%) and fresh and dry fruits (13.67%). All these major crops together contribute about 48.54% of the total gross cropped area in the district. The crop-wise potential mandals are identified and summarized in Table 6.13 and Figure 6.13. shows that a total of 9 clusters can be formed in the district with rice as a major followed by fresh and dry fruits. North-West part of the district is having potential for rice and ragi (finger millet) while south-west part is for fresh fruits.

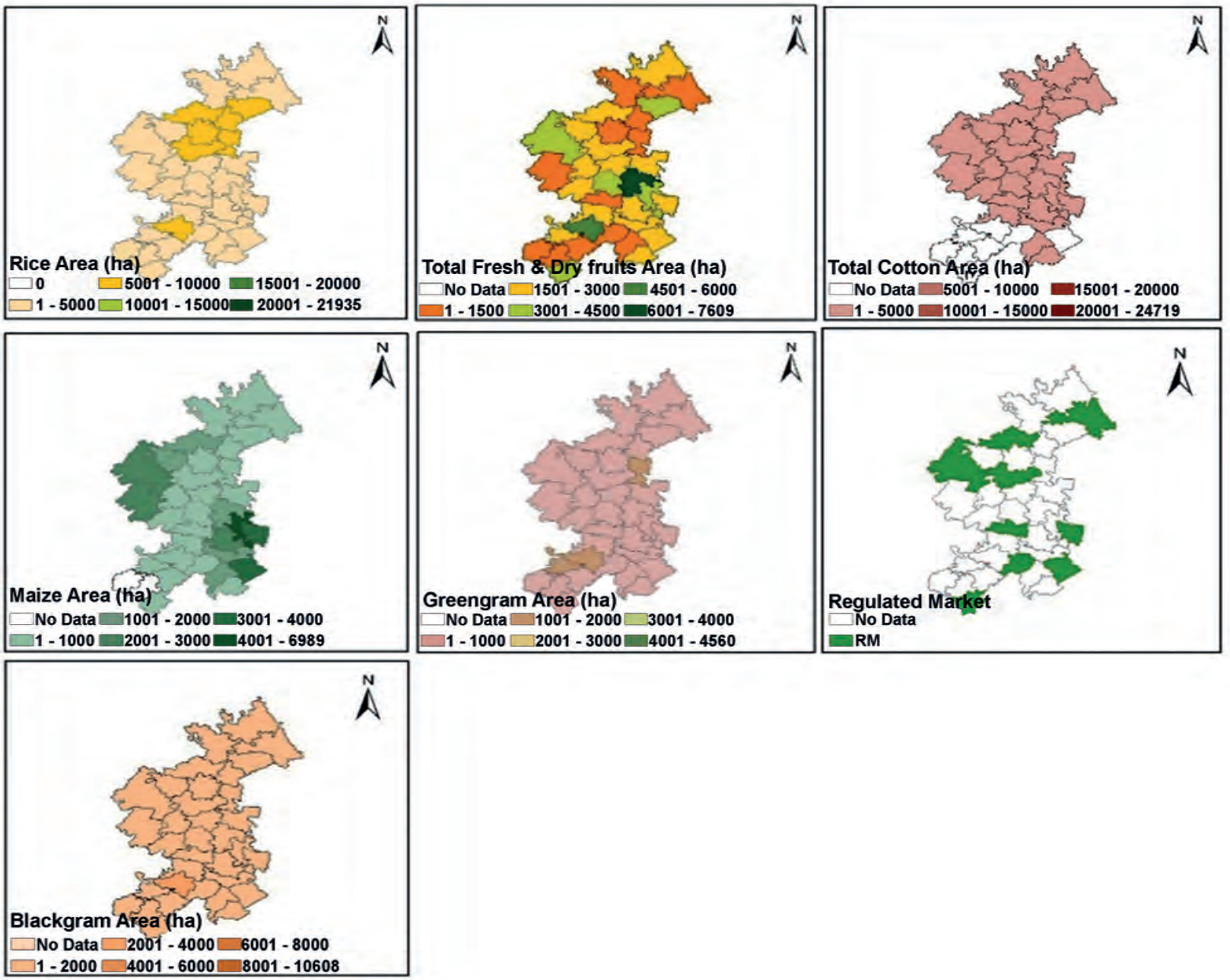


Figure 6.12. Area under major crops, Vizianagaram district.

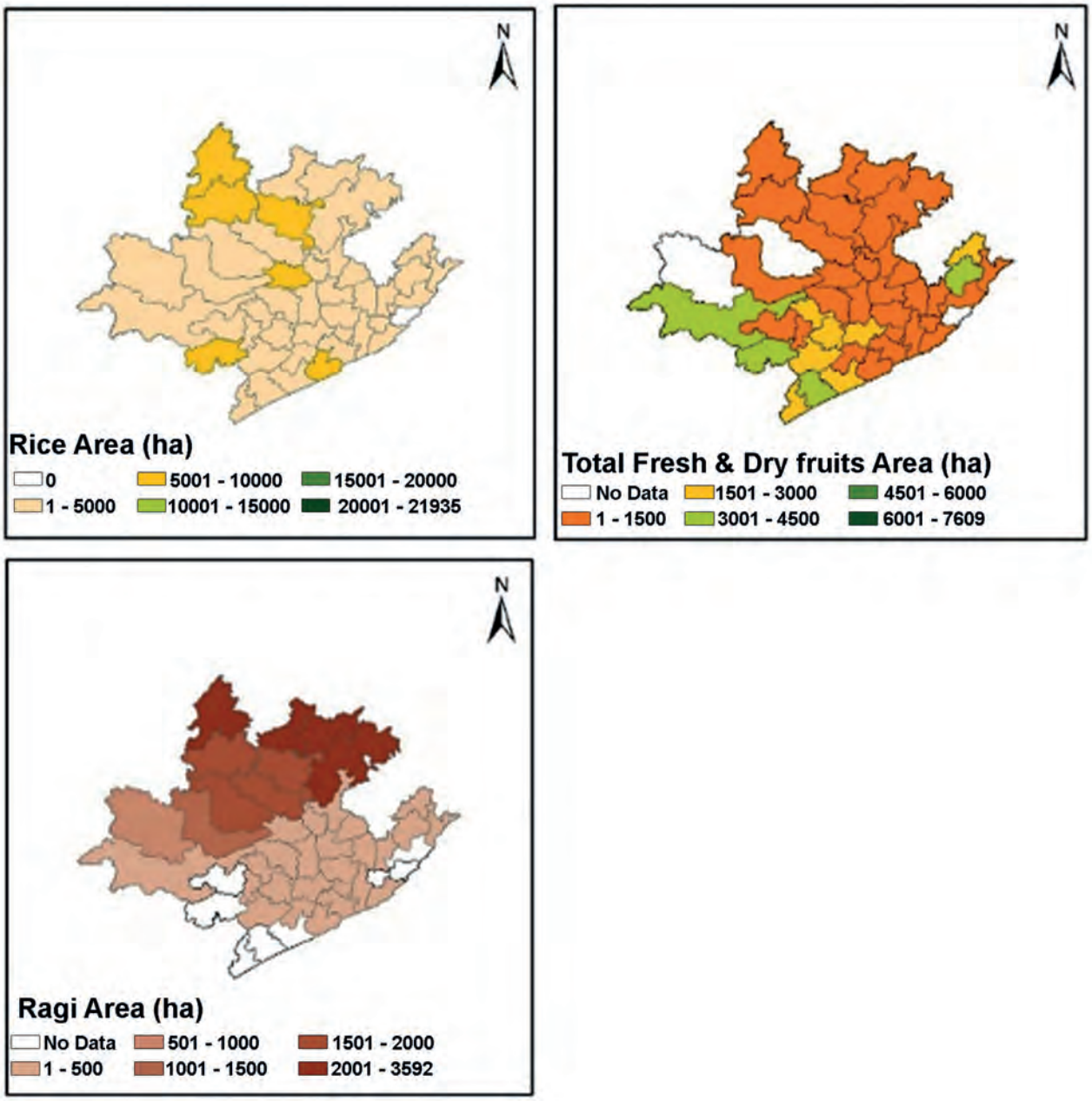


Figure 6.13. Area under major crops, Vishakhapatnam.

Table 6.13 Potential clusters for crop-based FPOs in Visakhapatnam district

Crop	Number of Clusters	Mandals (9 crops-based clusters)	Area (ha)
Rice	5	1. Aruku Valley, Dumbriguda, Hukumpeta, Paderu	18283
		2. Munchingiputtu, Pedabayalu	10569
		*3. Nathavaram, Narsipatnam	9356
		4. Payakaraopeta, Nakkapalli, S.Rayavaram, Rambilli	15008
		5. Devarapalle, Cheedikada, Butchayyapeta, Chodavaram, Anakapalli,	13243
Fresh and Dry Fruits	3	6. Payakaraopeta, Nakkapalli, Kotauratla, Nathavaram	11826
		*7. Golugonda, Narsipatnam, Makavarapalem, Rolugunta, Butchayyapeta	8989
		*8. Koyyuru	4332
Ragi (Finger millet)	1	9. Aruku Valley, Ananthagiri, Dumbriguda, Hukumpeta, Paderu	12118

*Though these clusters have less area under respective crops, but this is an important crop for the clusters and may be promoted as FPO.

6.2.13 West Godavari districts

The district has 48 mandals and the major crops grown in the district are rice (59.22%), maize (7.99%), coconut (3.21%) and fresh and dry fruits (7.01%). All these crops together contribute about 77.44% of the total gross cropped area in the district. The crop-wise potential mandals are summarized and furnished in Table 6.14 and Figure 6.14. Table shows that a total of 14 clusters can be formed in the district with rice as a major crop followed by maize and fresh and dry fruits.

Table 6.14 Potential clusters for crop-based FPOs in West Godavari district

Crop	Number of Clusters	Mandals (14 crops-based clusters)	Area (ha)
Rice	6	1. Pedapadu, Eluru, Denduluru, Pedavegi, Bhimadole	40869
		2. Unguturu, Undi, Akividu, Ganapavaram, Pentapadu	80276
		3. Kovvuru, Nidadavole, Devarapalle, Gopalapuram, Tadepalligudem	48425
		4. Poduru, Achanta, Penugonda, Iragavaram, Attili, Penumantra	69421
		5. Narasapuram, Mogalthur, Bhimavaram, Veeravasaram, Palakol	53092
		6. Peravali, Tanuku, Undrajavaram, Nidadavole, Chagallu	45553
Maize	2	7. Chintalapudi, Pedavegi	12613
		*8. Dwaraka Tirumala, Nallajerla, Unguturu, Tadepalligudem	8318
Fresh and Dry Fruits	3	9. Jangareddigudem, Dwaraka Tirumala, Nallajerla	11856
		*10. Chintalapudi	5678
		*11. Peravali, Undrajavaram,	6355
Coconut	3	*12. Pedavegi, Dwaraka Tirumala, Denduluru	6142
		*13. Elamanchili, Achanta	3760
		*14. Chagallu, Devarapalle, Nidadavole	3117

*Though these clusters have less area under respective crops, but being this an important crop for the clusters may be promoted as FPO.

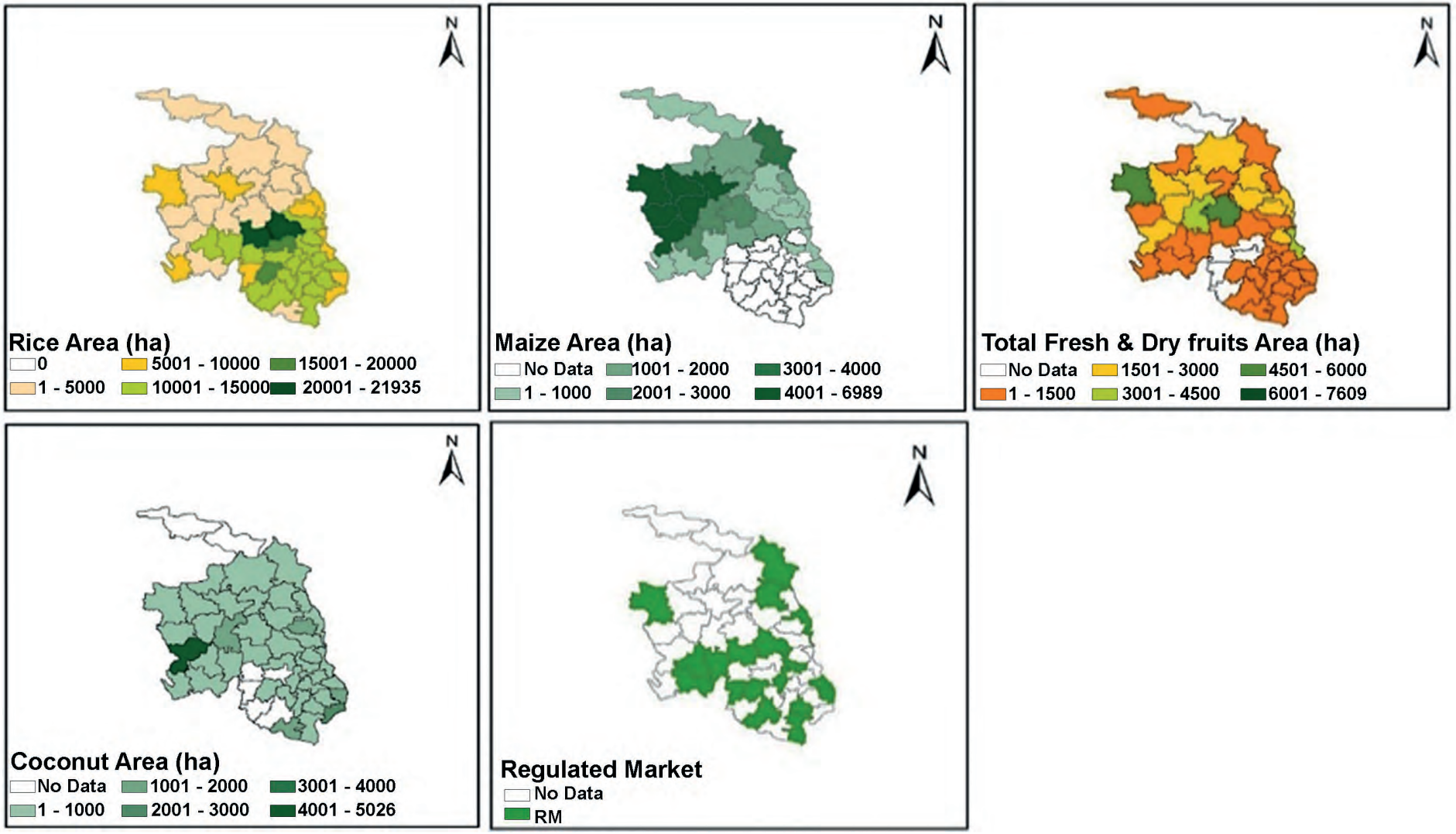


Figure 6.14. Area under major crops, West Godavari district

From the preceding discussions, around 174 potential clusters of different agricultural commodities appear to be a good number to start with for setting up of FPOs in Andhra Pradesh state. It must be kept in mind that to convert the clusters into successful and sustainable business case, there should be sufficient marketable surplus and basic minimum infrastructure should be in the place to connect to the buyers of the produce. In a nutshell, these potential FPOs are spread across different districts with driving commodity given in Table 6.15. According to this, rice and fruits- fresh and dry are emerging as the most powerful engines for FPOs to be driven in the state. Being a large area under these crops, 55 FPOs are being suggested for rice-based, 25 FPOs for fruits, 15-20 FPOs each for cotton and groundnut, 10-13 FPOs each for bengal gram and maize. Besides, there are good scope for 12 FPOs for black gram and greengram together, 2-3 FPOs for red gram and red gram with black gram. Similarly, crops like chilies and coconut has potential to be aggregated in 5-6 clusters. Further, there is some scope to set up a couple of FPOs for crops like jowar (sorghum), bajra, ragi (finger millet), sesame, castor, etc. Moreover, in the medium to long term, full year operations of these FPOs may be required for providing gainful employment to all the members. This may need to intervene in the cropping pattern with high value crops under protected condition and/ or application of more innovative modern technologies and practices. It should also be kept in mind that rice-based FPOs may face serious challenge in upgrading the value chain due to its limited scope of value addition, and may have prevailing problems of any regular commodities.

Table 6.15 Distribution of possible FPOs based on agricultural commodities across districts of AP state

	13 districts of Andhra Pradesh state													
Main Crops	ATP	CHT	EG	GNT	KDP	KSN	KRL	NLR	PKM	SKL	VST	VZN	WG	Total
Rice		1	5	6		8	3	6	4	7	5	4	6	55
Fruits- Fresh & Dry	1	2	3		2	1		1	1	2	3	6	3	25
Groundnut	9	4			2		4			1				20
Cotton				5	1	3			5			1		15
Bengal gram	2				3		5		3					13
Pulses (GG+ BlG)				2		3				5		2		12
Maize				2		1	2			1		2	2	10
Chilies				3		1			2					6
Coconut			2										3	5
Pulses (RG+ BlG)									3					3
Red gram							2							2
Jowar (sorghum)							2							2
Ragi		1									1			2
Pulses (BlG+ BnG)								1						1
Bajra									1					1
Castor							1							1
Sesemum												1		1
District Total	12	8	10	18	8	17	19	8	19	16	9	16	14	174

ATP: Anantapur; CHT: Chittoor; EGD: East Godavari; GNT: Guntur; KDP: Kadapa; KSN: Krishna; KRL: Kurnool; NLR: Nellore; PKM: Prakasam; SKL: Srikakulam; VST: Vishakhapatnam; VZN: Vizianagaram; WGD: West Godavari
BlG: Black gram; GG: Green gram; RG; Red gram; BnG: Bengal gram; *including Green gram.

6.3 Potentials of livestock sector in AP State

Similar exercise was also carried out in case of different sub-sectors of livestock with available secondary sources of information for identification of potential clusters across different districts in the state. Mandal-level livestock population was considered for mapping the spread of livestock. The non-availability of production data at mandal level is again a major limitation of the study. The top three districts for each livestock population type was highlighted and presented in Table 6.16. The spatial distribution of different types of livestock exhibits good potential in setting up FPOs for cow milk and milk products in Chittoor, Kurnool, Srikakulam, Vishakhapatnam and Vizianagaram districts. In East Godavari, Guntur, Kadapa, Krishna, Nellore, Prakasam and West Godavari districts FPOs for buffalo milk can be established. Similarly, for small ruminants like sheep and goat, the efforts may be made in Chittoor, Kadapa, Kurnool, Nellore and Prakasam districts. For setting up of dairy FPOs, the presence of existing system needs to be properly evaluated to better understand the value proposition to be offered to the milk producers in the region. For example, Visakha Dairy is having procurement operations covering Costal Andhra districts of Visakhapatnam, Vizianagaram, Srikakulam, East and West Godavari Districts and procuring about 0.7 million liters of milk per day from 2,60,699 milk producers thru 3734 collection centers. Similarly, several dairy companies are procuring milk through dairy co-operatives in these districts.

Table 6.16 Percentage distribution of different livestock across the districts in AP state

District	Cattle	Buffalo	Sheep	Goat
Anantapur	2.33	0.89	4.94	2.62
Chittoor	21.60	1.22	10.56	10.05
East Godavari	7.36	11.56	2.63	5.27
Guntur	2.49	14.42	5.07	4.95
Kadapa	6.78	14.32	24.83	22.55
Krishna	1.84	10.33	4.35	3.57
Kurnool	9.53	6.00	12.74	11.88
Nellore	2.68	9.20	8.88	8.35
Prakasam	1.78	14.61	11.96	9.72
Srikakulam	18.28	1.81	4.66	4.89
Visakhapatnam	12.01	4.60	2.15	7.75
Vizianagaram	9.00	1.88	3.50	3.96
West Godavari	4.34	9.17	3.73	4.46
Andhra Pradesh	100.00 (41,98,718)	100.00 (66,41,092)	100.00 (1,17,57,415)	100.00 (41,81,200)

Figures within parentheses are the total numbers of livestock heads in the state under respective category
Source: Census-Department of Animal Husbandry- AP

6.3.1 Potential clusters for cattle-based FPOs

Figure 6.15 shows that there was a very good spread of cattle population across the mandals of Vishakhapatnam and Srikakulam districts. The spread of cattle is also good in case of Chittoor and it is localized with a few cluster of mandals in Kurnool district.

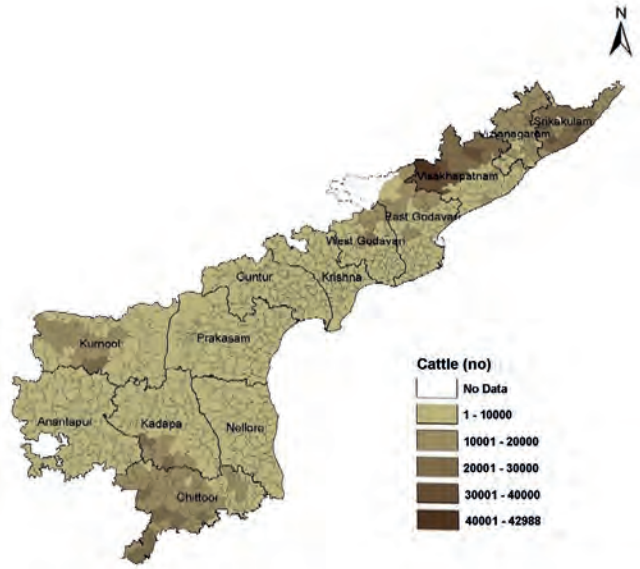


Figure 6.15. Geospatial spread of cattle population in the state.

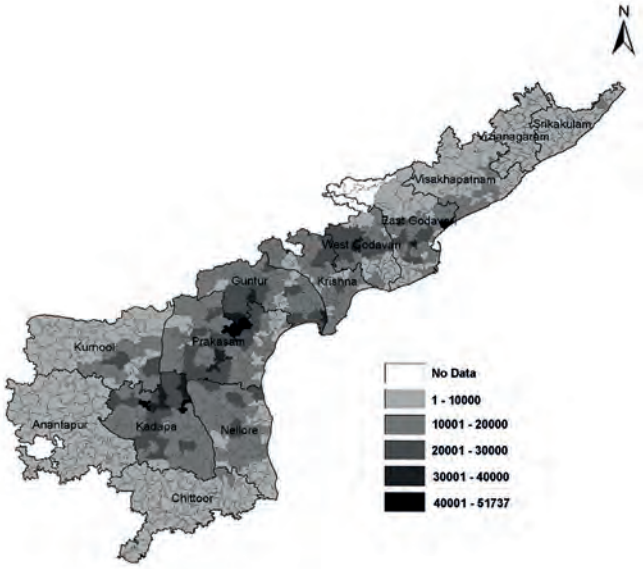


Figure 6.16. Geospatial spread of buffalo population in the state.

6.3.2 Potential clusters for buffaloes-based FPOs

Buffalo is more widely distributed among several mandals across many districts. The figure 6.16 shows that Kadapa, Prakasam and parts of Guntur, West Godavari and East Godavari are having higher number of buffalo population. However, the spread of buffalo population is more evident in Kadapa district. This offers ample opportunity to bring all the milk producers together and facilitate them in aggregating their produce and add value at their doorsteps.

6.3.3 Potential clusters for sheep and goats-based FPOs

Also, Figure 6.17 and 6.18 show that Kadapa district is having highest population of sheep in the state. The spread of sheep population also observed intensively in case of Kurnool and Prakasam districts. These three districts are indicating good potential for setting up of meat based FPOs in the state. Moreover, goat is widely distributed across several districts in coastal region also.

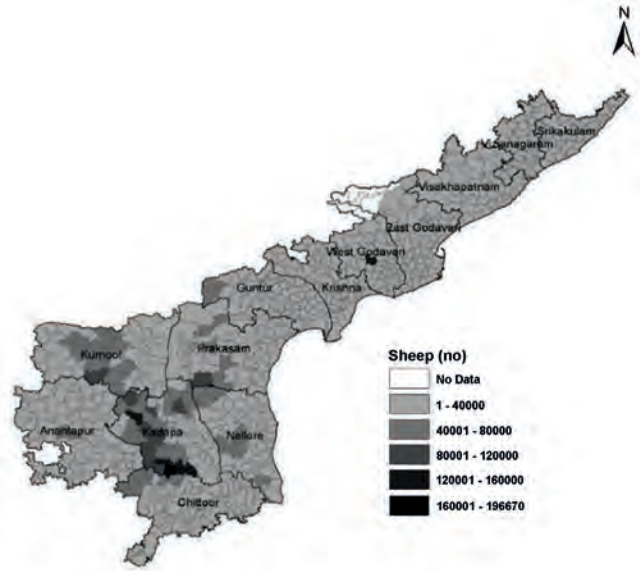


Figure 6.17. Spread of sheep population in A.P.

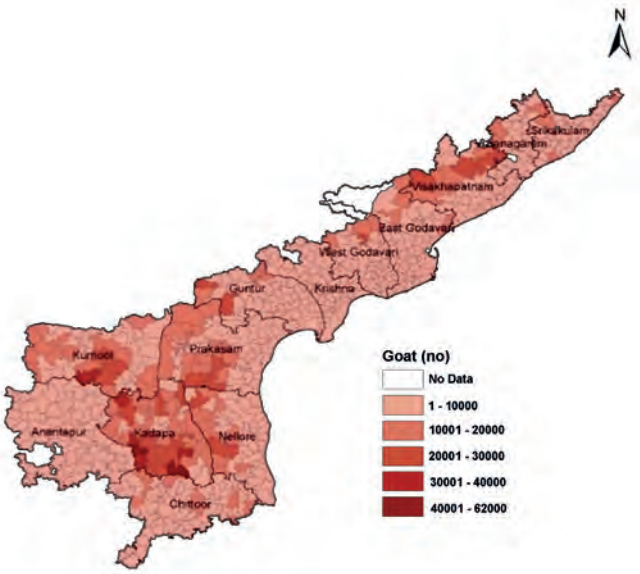


Figure 6.18. Spread of goat population in A.P.

Table 6.17 Summary of district-wise potential mandals by livestock type

District	Cattle	Buffalo	Sheep	Goat
Anantapur	Brahmasamadrum	Bukkarayasamudram	Bukkarayasamudram	Kanaganipalli
	Gorantla	Gorantla	Kanaganipalli	Madakasir
	Madakasir	Peddapappuru	Puttaparthi	Nallalacheruvu
	Parigi	Tadipatri	Settur	Puttaparthi
	Puttaparthi	Yellanur	Tadimarri	Tanakal
Chittoor	Bangarupalem	Buchinaidu kandriga	B.kothakota	Chandragiri
	Gangadharanellore	K.v.b.puram	Kambhamvaripalle	Kambhamvaripalle
	Kuppam	Satyavedu	Pedda thippasamudram	Peddamandyam
	Madanapalle	Srikalahasti	Peddamandyam	Satyavedu
	Venkatagirikota	Varadaiahpalem	Thamballapalle	Vedurukuppam
East Godavari	Addateegala	Biccavolu	Addateegala	Devipatnam
	Rajavommangi	Kapileswarapuram	Rajavommangi	Rampachodavaram
	Rampachodavaram	Pithapuram	Rampachodavaram	Thondangi
	Thondangi	Rajanagaram	Thondangi	Tuni
	Y. Ramavaram	Thondangi	Y. Ramavaram	Y. Ramavaram
Guntur	Bellamkonda	Nagaram	Atchampet	Atchampet
	Bollapalle	Nekarikallu	Bollapalle	Bellamkonda
	Machavaram	Nuzendla	Macherla	Bollapalle
	Macherla	Repalle	Nuzendla	Macherla
	Veldurthi	Rompicherla	Veldurthi	Veldurthi
Kadapa	Chakrayapet	Badvel	Muddanur	Chakrayapet
	Galiveedu	Chapad	Mylavaram	Galiveedu
	Lakkireddipalle	Porumamilla	Rayachoti	Rajampet
	Sambepalle	Proddatur	Sambepalle	T sundupalle
	T sundupalle	S.mydukur	T sundupalle	Vempalle
Krishna	Chatrai	Agiripalli	Agiripalli	A konduru
	Gampalagudem	Chatrai	Jaggaiahpet	Agiripalli
	Jaggaiahpet	Gudlavalleru	Machilipatnam	Chatrai
	Musunuru	Musunuru	Musunuru	Musunuru
	Vatsavai	Nuzvid	Nuzvid	Nuzvid
Kurnool	Adoni	Allagadda	Kolimigundla	Banaganapalle
	Devanakonda	Banaganapalle	Krishnagiri	Bethamcherla
	Dhone	Owk	Peapally	Owk
	Kowthalam	Peapally	Veldurthi	Peapally
	Peapally	Rudravaram	Yemmiganur	Veldurthi
Nellore	Chillakur	Kaligiri	Doravarisatram	Podalakur
	Dakkili	Kavali	Podalakur	Rapur
	Doravarisatram	Marripadu	Rapur	Sydapuram
	Rapur	Podalakur	Seetharamapuram	Udayagiri
	Vakadu	Varikuntapadu	Varikuntapadu	Varikuntapadu

Continued.

Table 6.17 *Continued.*

District	Cattle	Buffalo	Sheep	Goat
Prakasam	Chandrasekhara puram	Addanki	Chandrasekhara puram	Chandrasekhara puram
	Dornala	Darsi	Kanigiri	Giddalur
	Peda araveedu	Kanigiri	Pamur	Kanigiri
	Pullalacheruvu	Mundlamuru	Peda araveedu	Pamur
	Yerragondapalem	Santhamaguluru	Tarlupadu	Pullalacheruvu
Srikakulam	Hiramandalam	Bhamini	Kotabommali	Etcherlalam
	Jalumuru	Kaviti	Nandigam	Kaviti
	Kotabommali	Mandasa	Ponduru	Laveru
	Ponduru	R.amadalavalasa	Ranasthalam	Melliputti
	R.amadalavalasa	Srikakulam	Santhabommali	Seethampeta
Visakhapatnam	Chintapalle	K.kotapadu	Ananthagiri	Ananthagiri
	Gudem kothaveedhi	Kotauratla	Araku valley	Chintapalle
	Hukumpeta	Nakkapalle	Hukumpeta	Gudem kothaveedhi
	Koyyuru	Nathavaram	Nakkapalle	Hukumpeta
	Paderu	Payakaraopeta	Paderu	Paderu
Vizianagaram	Balijipeta	Jami	Balijipeta	Gummalakshmipuram
	Gurla	Kothavalasa	Bobbili	Kurupam
	Jiyyammavalasa	Lakkavarapukota	Dattirajeru	Pachipenta
	Pachipenta	Srungavarapukota	Gantyada	Salur
	Salur	Vepada	Jami	Vepada
West Godavari	Buttayagudem	Chintalapudi	Denduluru	Buttayagudem
	Dwaraka tirumala	Dwaraka tirumala	Dwaraka tirumala	Chintalapudi
	Koyyalagudem	Lingapalem	Koyyalagudem	Gopalapuram
	Nallajerla	Nallajerla	Pedavegi	Koyyalagudem
	Polavaram	Pedavegi	Ungutur	Polavaram

The following Table 6.17 summarizes district-wise top five mandals with high density of livestock population, which can help in identifying the potential mandals for establishing the livestock based/multi-commodity based FPOs in the state. This kind of synthesized information provide better strategic evidence for setting up of future FPOs in the state.

6.4 Potential clusters for fisheries, prawns and shrimp

Andhra Pradesh stands first in total fish and prawn/shrimp production in India since the year 2013-14 both in terms of production and value. The contribution of fisheries sector is 6.01 % in A.P state GSDP. The overall fish production in the state has more than doubled in the past one decade from 0.82 million tons in the year 2005-06 to 1.95 million tones in 2014-15. It is quite clear that marine fisheries, inland fisheries and aquaculture constitute the main components of fisheries sector. Aquaculture is practiced in both fresh and brackish waters and as highlighted previously, potential districts in the state were identified using secondary sources of India. Based on the available secondary sources of information, the highest potential mandals can also be identified. Detailed breakdown of fish production by type is presented in Table 6.18.

- Fresh water fisheries constitutes nearly 71% of the Andhra Pradesh fish production. The districts of Krishna and West Godavari together constitute nearly 81% of the total fresh water fish production in the state.

Table 6.18 District wise fish production in Andhra Pradesh, 2014-15 (in '000 tones)

	Fresh Water		Marine		Brackish Water		Total	
District	Production	%	Production	%	Production	%	Production	%
Anantapur	6.6	0.48					6.6	0.34
Chittoor	4.1	0.3					4.1	0.21
East Godavari	46.3	3.31	101.7	21.4	11.4	10.81	159.4	8.06
Guntur	33.7	2.41	38.9	8.19	7.6	7.22	80.2	4.05
Kadapa	3.3	0.23					3.3	0.17
Krishna	560.1	40.07	39.9	8.4	13.8	13.12	613.9	31.03
Kurnool	24.3	1.73					24.3	1.23
Nellore	86.3	6.18	82.6	17.38	26.3	25.03	195.3	9.87
Prakasam	25	1.79	29.6	6.23	10.3	9.8	64.9	3.28
Srikakulam	11.9	0.85	57	11.98	0.8	0.78	69.7	3.52
Visakhapatnam	15.6	1.12	97.3	20.47	3.3	3.1	116.2	5.87
Vizianagaram	11.5	0.82	16.5	3.47	0.1	0.13	28.2	1.42
West Godavari	569.3	40.72	11.8	2.48	31.6	30	612.6	30.96
Andhra Pradesh	1398.0	100.00	475.4	100.00	105.2	100.00	1978.6	100.00
% Contribution	71%		24%		5%			100%

Source: Commissioner of Fisheries, Andhra Pradesh, Hyderabad.

- Marine fishery contributes to about 24% of the production; East Godavari, Nellore, Srikakulam and Visakhapatnam are the top 4 producers in the state.
- Brackish water fish production contributes to about 5% of the total production; East Godavari, Krishna, Nellore and West Godavari are top 4 producers in the state.
- In total, East Godavari, Krishna, Nellore and West Godavari districts together are contributing to nearly 80% of the Andhra Pradesh fish production in all forms, thus present strong potential for setting up of FPOs in fish sector.

6.5 Coverage of APMC regulated markets in AP state

There are 80 functional agricultural markets managed by the Agricultural Produce Marketing Committee (APMC) in the state. The breakup particulars of eighty markets are: fruits - 19, vegetables - 22, cattle - 29 and grains and other commodities - 10. From the available information regarding arrival of commodities in the market, it was observed that less than 2-3% of total produce in the state is directly transacted at these markets. The remaining transactions happen outside in rural areas (see Table 6.19). This again highlights the importance of new institutions like FPOs to provide appropriate marketing framework to realise the actual and transparent price discovery for the agricultural produce, produced by the rural households.

6.5.1 Assessment of marketable surplus by crops and region

A precise idea about the production, consumption, marketed surplus and disposal pattern is very important for planning and policy purposes, particularly when we plan to disrupt the existing equilibrium positively. To achieve this objective, we attempted to estimate the total consumption and agricultural produce at household level and marketable surplus in all the districts (we didn't consider the feed demand for these commodities in this estimation). The tables 6.20 to 6.25 shows the total produce marketed for the major agricultural commodities like rice, maize, jowar (sorghum), ragi (finger millet), red gram and black gram. The total quantity sold in the market was arrived at by multiplying the total production with

Table 6.19 Transaction of major agricultural produce at regulated markets in AP state in 2014 (values in '000 Tons)

District	Mango	Coconut*	Rice	Cotton	Groundnut	Bengal gram	Banana	Tomato	Lemon
Anantapur					0.002	0.017			
Chittoor	0.98		0.13					1.608	
Kadapa			0.003	0.007	0.016	0.023	0.000		
East Godavari	41.33	15,424	5.33				9.898		
Guntur			0.022	0.042		0.001			
Krishna	0.33		1.00	0.021			0.008	0.039	
Kurnool			0.14	0.71	0.72	0.14	0.034	0.021	
SP.S Nellore	0.04		0.84	0.01	0.03	0.010	0.009		0.267
Prakasam			0.001			0.002			
Srikakulam	0.01	1,575	7.08	0.03			0.032		
Visakhapatnam			0.001		0.011	0.016	0.28		
Vizianagaram	0.09	8,000	0.20	0.24	0.008	0.008	0.90	0.003	
West Godavari		2,797	0.20	0.30			0.88	0.005	
Grand total	43	27,796	15	1	1	0	12	2	0.27
AP total production	2018	16,10,007	7993	2188	881	648	1888	889	191
% share of regulated market to total production	2.12	1.73	0.19	0.06	0.09	0.03	0.64	0.19	0.14
Average price (Rs per kg)	9.8	5.3	14.48	40.1	37.52	31.66	13.55	8.22	12.48

Source: http://market.ap.nic.in/repyearly.jsp;
*values in '000 number

average marketed surplus ratio. As the district wise information for marketed surplus ratio (MSR) was not available, state averages published by MoAC, India were taken as proxy for these crops. Considering the average per capita consumption (from NSSO 68th round), total consumption at household was estimated. Finally, it gave the surplus produce to be available for marketing.

From Table 6.20, it can be observed that in all the districts in the year 2013-14, the marketed surplus of rice was much higher than household need. In some cases, although the total production of rice fell short, farmers sold significant quantity of rice in the market. This reflects the concerns of deciding the number of FPOs merely on the basis of acreage or total production may not be factually correct. We should also take into account the household consumption requirement. In case of maize, which is mainly cultivated for market, difference between estimated marketable surplus and marketed surplus was insignificant (Table 6.21). With the poultry industry booming and emerging with an annual growth rate of 12-15% every year, there exists a huge scope for maize market vis-à-vis functional FPOs. Even though, maize is a major source of dietary energy in poultry nutrition, sorghum is frequently substituted for corn in poultry rations. With egg production highest in East and West Godavari and poultry meat production highest in Krishna and Chittoor districts, sorghum area like Kurnool, Anantapur and Guntur can cater the needs of these districts with their surplus production (Table 6.22). For ragi (finger millet), Vishakhapatnam and Chittoor districts show some promise, as these districts are producing good quantity of marketed surplus (Table 6.23). In case of red gram (arhar/tur), situation is grim. The total production in all these districts are not sufficient to meet their household consumption demand, but due to higher market price, farmers resort to bring the produce to the market (Table 6.24). In case of black gram, the data shows that in most of the districts production is meeting the requirement of consumption (Table 6.25). As per the consumption only, surplus districts are Visakhapatnam, Vizianagaram and Prakasam. The surplus districts can effectively identify their markets and establish functional FPOs.

Table 6.20 District-wise marketed and marketable surplus of rice in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population 2011 census	Per capita HH Consumption of Rice in all forms with PDS Rice (kg/month)	Per capita HH Consumption of Rice without PDS Rice (kg/month)	Total Consumption without PDS rice ('000 tons/ annum)	Marketed Surplus Ratio* (%)	Market Potential	
									Surplus Produce after HH consumption –without PDS Rice ('000 tons/annum)	Estimated Marketed Surplus ('000 tons/annum)
Srikakulam	203.14	355.27	1.75	2703114	10.59	7.21	233.87	87.86	121.63	312.14
Vizianagaram	116.78	290.33	2.49	2344474	11.27	7.64	214.94	87.86	75.84	255.08
Visakhapatnam	105.40	184.66	1.75	4290589	9.71	7.18	369.68	87.86	-185.23	162.24
East Godavari	404.68	1244.71	3.08	5285824	9.55	6.9	437.67	87.86	808.75	1093.60
West Godavari	420.62	1342.34	3.19	3995742	10.39	7.63	365.85	87.86	975.92	1179.38
Krishna	363.32	1175.52	3.24	4517398	9.73	7.33	397.35	87.86	779.81	1032.81
Guntur	328.17	1096.00	3.34	4887813	9.80	7.13	418.20	87.86	677.88	962.95
Prakasam	138.60	532.27	3.84	3397448	11.26	8.2	334.31	87.86	197.83	467.65
Nellore	224.89	911.11	4.05	2963557	11.01	8.06	286.64	87.86	624.18	800.50
Kadapa	62.71	178.29	2.84	2882469	11.58	8.34	288.48	87.86	-110.38	156.64
Kurnool	124.89	458.40	3.67	4053463	8.82	5.94	288.93	87.86	169.43	402.75
Anantapur	40.40	87.94	2.18	4081148	8.64	5.51	269.85	87.86	-181.78	77.26
Chittoor	49.86	169.02	3.39	4174064	9.8	6.62	331.59	87.86	-162.56	148.50

* State Average; Source: Agricultural Statistics at a Glance 2014

Table 6.21 District-wise marketed and marketable surplus of maize in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population	Total Consumption @ 9% of production ('000 tons/annum)	Marketed Surplus Ratio* (%)	Market Potential	
							Surplus Produce after HH consumption ('000 tons / annum)	Marketed Surplus ('000 tons /annum)
Anantapur	34.86	111.20	3.19	4081148	10.01	90.71	101.19	100.87
Chittoor	3.21	17.40	5.42	4174064	1.57	90.71	15.83	15.78
East Godavari	11.20	93.77	8.37	5285824	8.44	90.71	85.33	85.06
Guntur	87.07	648.24	7.45	4887813	58.34	90.71	589.90	588.02
Kadapa	5.49	370.66	6.75	2882469	3.34	90.71	33.73	33.62
Krishna	32.88	227.52	6.92	4517398	20.48	90.71	207.04	206.38
Kurnool	51.88	310.13	5.98	4053463	27.91	90.71	282.22	281.32
Nellore	1.92	13.06	6.81	2963557	1.18	90.71	11.89	11.85
Prakasam	23.11	174.36	7.54	3397448	15.69	90.71	158.67	158.16
Srikakulam	10.74	55.39	5.16	2703114	4.99	90.71	50.41	50.25
Visakhapatnam	7.24	17.12	2.37	4290589	1.54	90.71	15.58	15.53
Vizianagaram	28.67	126.55	4.41	2344474	11.39	90.71	115.16	114.79
West Godavari	53.87	381.73	7.09	3995742	34.36	90.71	347.38	346.27

Source: Agricultural Statistics at a Glance 2014

Consumption break-up for 2015-16* (figures in MMT)		
Item	Consumption	Percent
Poultry & Cattle feed	11.33	62%
Startch and Brewery	4.63	25%
Human Consumption	1.66	9%
Seed	0.23	1%
Shortage and Wasteage	0.5	3%
Total	18.35	100%

* Source: Maize Monthly Research Report 2015, AGRIWATCH

Total maize production in India could be around 20.53 MMT in the year 2015-16 against our yearly total demand of 19.36 MMT.

Table 6.22 District-wise marketed and marketable surplus of jowar (sorghum) in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population	Per capita HH consumption of Jowar (sorghum) (kg/month)	Total Consumption ('000 tons/ annum)	Marketed Surplus Ratio* (%)	Market Potential	
								Surplus Produce after HH consumption ('000 tons/ annum)	Marketed Surplus ('000 tons/ annum)
Anantapur	21.09	12.89	0.61	4081148	0.39	19.10	51.88	-6.21	6.685
Chittoor	0.01	0.01	0.83	4174064	0.01	0.50	51.88	-0.49	0.005
East Godavari	2.09	1.62	0.78	5285824	0	0.00	51.88	1.62	0.841
Guntur	13.76	82.39	5.99	4887813	0	0.00	51.88	82.39	42.741
Kadapa	0.13	0.34	2.65	2882469	0.23	7.96	51.88	-7.61	0.177
Krishna	0.15	0.90	5.88	4517398	0	0	51.88	0.90	0.467
Kurnool	60.26	123.53	2.05	4053463	1.6	77.83	51.88	45.70	64.087
Nellore	1.21	5.54	4.59	2963557	0	0	51.88	5.54	2.873
Prakasam	8.32	17.48	2.10	3397448	0.01	0.41	51.88	17.07	9.07
Srikakulam	0.06	0.17	2.75	2703114	0	0	51.88	0.17	0.086
Visakhapatnam	0.40	0.61	1.53	4290589	0	0	51.88	0.61	0.316
Vizianagaram	0.13	0.21	1.61	2344474	0	0	51.88	0.21	0.108
West Godavari	0.18	0.64	3.57	3995742	0	0	51.88	0.64	0.332

* State Average; Source: Agricultural Statistics at a Glance 2014

Table 6.23 District-wise marketed and marketable surplus of ragi (finger millet) in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population	Per capita Consumption of ragi (finger millet) (kg/month)	Total Consumption ('000 tons/annum)	Marketed Surplus Ratio* (%)	Market Potential	
								Surplus Produce after HH consumption ('000 tons/ annum)	Marketed Surplus ('000 tons/ annum)
Anantapur	2.88	4.63	1.61	4081148	0.76	37.22	67.39	-32.60	4.255
Chittoor	8.65	11.65	1.35	4174064	0.66	33.06	67.39	-21.41	10.719
East Godavari	0.41	0.40	0.96	5285824	0.03	1.90	67.39	-1.51	0.364
Guntur	0.33	0.47	1.43	4887813	0.03	1.76	67.39	-1.30	0.428
Kadapa	1.24	1.53	1.23	2882469	0.37	12.80	67.39	-11.27	1.404
Krishna	0	0	0	4517398	0.01	0.54	67.39	-0.54	0
Kurnool	0	0	0	4053463	0.01	0.49	67.39	-0.49	0
Nellore	0.09	96.00	1.02	2963557	0.1	3.56	67.39	-3.46	0.088
Prakasam	1.11	1.76	1.59	3397448	0.02	0.82	67.39	0.95	1.619
Srikakulam	1.04	1.32	1.26	2703114	0.39	12.65	67.39	-11.33	0.835
Visakhapatnam	21.12	20.34	0.96	4290589	0.1	5.15	67.39	15.19	18.712
Vizianagaram	2.21	2.56	1.16	2344474	0.05	1.41	67.39	1.16	2.357
West Godavari	0	0	0	3995742	0	0.00	67.39	0.00	0

* State Average; Source: Agricultural Statistics at a Glance 2014

Table 6.24 District-wise marketed and marketable surplus of red gram in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population	Per capita Consumption of red gram (kg/ month)	Total Consumption ('000 tons/annum)	Marketed Surplus Ratio* (%)	Market Potential	
								Surplus Produce after HH consumption ('000 tons/annum)	Marketed Surplus ('000 tons/ annum)
Srikakulam	0.66	0.55	0.834	2703114	0.4	12.98	96.34	-12.426	0.53
Anantapur	37.56	4.85	0.129	4081148	0.41	20.08	96.34	-15.234	4.67
Chittoor	6.84	1.67	0.244	4174064	0.47	23.54	96.34	-21.873	1.61
East Godavari	2.22	1.85	0.835	5285824	0.31	19.66	96.34	-17.809	1.79
Guntur	9.05	14.11	1.558	4887813	0.44	25.81	96.34	-11.702	13.59
Kadapa	2.39	0.36	0.152	2882469	0.6	20.75	96.34	-20.39	0.35
Krishna	0.61	0.40	0.664	4517398	0.43	23.31	96.34	-22.907	0.39
Kurnool	43.73	18.67	0.427	4053463	0.59	28.70	96.34	-10.027	17.99
Nellore	0.56	0.47	0.835	2963557	0.51	18.14	96.34	-17.67	0.45
Prakasam	43.13	30.97	0.718	3397448	0.56	22.83	96.34	8.138	29.84
Visakhapatnam	1.97	0.37	0.185	4290589	0.37	19.05	96.34	-18.685	0.35
Vizianagaram	1.09	0.91	0.834	2344474	0.3	8.44	96.34	-7.528	0.88
West Godavari	0.73	0.61	0.835	3995742	0.48	23.02	96.34	-22.406	0.59

* State Average; Source: Agricultural Statistics at a Glance 2014

Table 6.25 District-wise marketed and marketable surplus of black gram in AP State

District	Area ('000 ha)	Production ('000 tons)	Yield (t/ha)	Population	Per capita Consumption of black gram (kg/month)	Total Consumption ('000 tons/ annum)	Marketed Surplus Ratio* (%)	Market Potential	
								Surplus Produce after HH consumption ('000 tons/ annum)	Marketed Surplus ('000 tons/annum)
Anantapur	0.23	0.31	1.348	4081148	0.1	4.90	92.91	-4.59	0.29
Chittoor	2.13	3.03	1.42	4174064	0.09	4.51	92.91	-1.48	2.81
East Godavari	21.11	10.31	0.489	5285824	0.26	16.49	92.91	-6.18	9.58
Guntur	31.46	33.32	1.059	4887813	0.19	11.14	92.91	22.17	30.95
Kadapa	6.38	4.66	0.731	2882469	0.11	3.80	92.91	0.86	4.33
Krishna	125.69	146.48	1.165	4517398	0.25	13.55	92.91	132.93	136.09
Kurnool	11.17	20.29	1.817	4053463	0.08	3.89	92.91	16.40	18.85
Nellore	20.73	17.44	0.841	2963557	0.34	12.09	92.91	5.35	16.20
Prakasam	19.85	17.88	0.901	3397448	0.27	11.01	92.91	6.87	16.61
Srikakulam	43.10	22.56	0.523	2703114	0.21	6.81	92.91	15.75	20.96
Visakhapatnam	7.22	3.96	0.549	4290589	0.19	9.78	92.91	-5.83	3.68
Vizianagaram	18.27	10.41	0.57	2344474	0.12	3.38	92.91	7.04	9.67
West Godavari	8.51	8.01	0.94	3995742	0.33	15.82	92.91	-7.82	7.44

6.6 Summary and way forward

From the preceding discussion, it is quite clear that there should be evidence based strategic approach to identify the potential clusters for setting up commodity based FPOs. Following points emerged from the discussion:

- The crop area combination analysis suggests that there are a lot of options for convergence of multiple commodity FPOs rather than a single commodity FPO.
- In some mandals, there is huge area under single crop, but no production in any of the nearby mandals. Such mandals should be encouraged for that commodity and there is a need to develop some niche market for the product through setting up FPOs.
- Rice is the dominant crop across several mandals in the state. However, being staple commodity, care must be taken to critically examine the marketable surplus being generated in the clusters. Rice seed FPOs/societies can be promoted with strong convergence with state and central research institutes.
- It also appeared that few clusters of mandals have unique combination of different agricultural commodities. In such cases, zoning at district levels should be done and then the strength of each zone should see on granular level to identify the potentials.
- Cattle-sheep-goat combination in livestock sector can provide a financially viable mechanism among selected mandals rather than laying focus on a single commodity.
- The FPOs can also be used as a technology transferring/capacity building hubs across line departments with effective engagement of all stakeholders such as line functionaries, SAUs, KVKs and ICAR institutes.
- The data analysis clearly conclude that transaction at regulated markets is very minimal (less than 2%). So, there is a need for strengthening the existing regulated markets and their functionaries.
- Even though Andhra Pradesh tops in production of many agri and livestock products, the export share from Andhra Pradesh is very minimal when compared to other states. The Government should take appropriate policy measures to promote export share on priority basis.
- Though, Andhra Pradesh state has improved the rural infrastructure in a big way in terms of storage and warehousing facilities (details given in Appendix), however specific enabling environment suiting to the region needs to be created especially for promotion of export orient/value added FPOs.
- Spatial-temporal market linkages needs to be established between the districts and at the state level to take price advantage and enhance goods movement from surplus to deficit areas.
- E-marketing platform along with e-Mapping across the mandals for similar commodity market is required for building confidence among the producers and buyers.

Chapter 7. Issues and Options

This chapter distills out key issues from earlier chapters, based on elaborated literature review on FPOs, identifying the current area and production level, consumption and marketed/ marketable surplus across the state, analysis of functional FPOs and recent guidelines issued by the government of Andhra Pradesh. It also identifies the need for transformation in the rural economy of the Andhra Pradesh to meet the new challenges and improve the rural livelihoods; specifically for farmer producers. Although, it needs a paradigm shift in whole gamut of activities from input marketing, production, post-production handling, and value addition through economic access to inputs and services delivery system, easy access to output markets, better price discovery and efficient link to consumer markets. For this scoping study on FPOs in Andhra Pradesh state, the ICRISAT team focused on selected 15 functional and proposed FPOs. Interestingly, the number of FPOs targeted in the first quarter of the financial year (2016-17) were 27 and against it, already 34 were established by June 2016 (GoAP 2016). Based on consultations with various stakeholders, analyzing secondary data sources, and our own primary data from the field, the following issues have been identified and possible options are proposed.

7.1 Key issues and options

7.1.1 Lack of convergence of government agencies

Such ambitious initiatives require convergence of all the sectors- public/private/NGOs. However, there is undirected zeal and exuberance among line-department, NABARD, SERP, SFAC, private groups, etc. to create and set up FPOs in each district. This may mar the long-term sustainability or whole effort of creating value for the rural population. There is high probability of duplicity of efforts in the same district and for same commodity groups. It is possible that each agency is not completely aware of the efforts by other agencies in the same geographical region. Consequent upon this, there are chances of several FPOs with small groups forming, which may find difficult to get the economy of scale or provide significant and expected return to the members.

Options: There is need to create one regulatory platform where the area of operations can be delineated on the basis of potentiality of the commodities/ services, and core competency of the agencies. The agency can bring the information in the public domain so that everyone can have full knowledge about the risks and opportunity to initiate similar process. The agency may also plan to have next wave of FPO formation, once first wave gets some success in any region. A Project Support Unit (PSU) can perform this role of regulating FPOs in AP at state level to strategize innovations, while having Project Management Units (PMUs) at state and district level through all line department staff (Operational Guidelines, GoAP section 6 and 10). Practically this can be achieved at the district level management units to involve resource organizations specific to commodity to work rather in consultation with all departments.

7.1.2 Untapped social capital/community resources

During the study, it was evident that many proposed FPOs are toiling to bring rural households together to make a cohesive group. In the process, lot of apprehensions and skepticism among the participants can be a major hindrance for the sustainability of FPOs. Although, the state of Andhra Pradesh has very good natural strength of community level associations, like SHGs, JLGs, Co-operatives, MACS, Rythu Mithra groups etc., it has been observed that streamlining the existing social capital and leveraging existing networks is largely neglected.

Options: The promoting agencies should first attempt to bring these groups together to form the FPO. It would be easier to communicate with them due to their past experiences of working together as a network. Also, local NGOs can play a critical role for the social mobilization activities and need to be empaneled at both state and district levels by the PMU/ line departments/SERP (Operational Guidelines, GoAP, section 8). However, while dealing with formation of FPOs, the NGOs should be selective in re-grouping the existing community resources by identifying the local produce and mobilize only those interested in participating as producer members through a business model.

7.1.3 Lack of business planning

FPOs is considered to be a business entity, in which energy for growth should come from within. For this, every FPO needs to have business plan. Though, several FPOs are functional and many more are in pipeline to get registered, but most of them lack robust business plan. Currently, most of the functional FPOs are merely tapping the space of traders/ middlemen. In the long run, this can have its own limitation if there is no value addition to the aggregation model. Even though SFAC suggests to submit detailed draft report after 24 months of establishment of FPO, it is proposed to conduct a detailed draft prior to establishment. This minimizes the risk of formation of non-functional FPO. A stock of resources and their interaction with humans has to be well understood and documented before registering an FPO for saving valuable time and money.

Options: The business plan entails identifying the opportunity, which can have long-term growth prospects and create value to its participants. Therefore, the resource organization should provide such expertise (with skills, abilities and knowledge) who can visualize the opportunities with the given local resources available. The business plan should include the details about products (or services) and strategy, marketing plan, operating plan, financial plan and the management team. This will guide the activities of FPOs in right direction (Operational Guidelines, GoAP, section 8). This is vital for the success of FPOs as it can form the basis for taking up activities to increase income. Also, an expert team has to be created to understand the 'inventory of resources' and identify the marketable options in each district for major commodities with in the district and across the state. A detailed process map for end-to-end business (production to consumption) has to be drawn with focus on man, machine, material, methods and environment and mapped with inventory of resources for effective business plan and risk mitigation strategies.

7.1.4 Limited knowledge base of resource institutions

To a large extent, the functional FPOs are promoted by a local NGO, as resource organization, with the support of agencies like state department(s)/ SFAC/ NABARD/ on its own. In many cases, these NGOs were executing different kinds of projects in the region, which helped them in winning the confidence of the rural populace. This is right pre-requisite for setting up new institutions like FPOs. However, in its new role, many NGOs' personnel lack the in-depth knowledge of the products to be handled or the strategies to be followed. Going forward, FPO activities require linking the farmers to consumers, while those resource institutions (RIs) erstwhile were providing different kinds of services earlier.

Options: The limitations of knowledge and skills of the resource institutions is one of the biggest roadblocks in the success of FPOs. However, this can be overcome by proper skilling of the RIs' staffs according to their needs with respect to particular FPOs. While this is critical for implementation of FPO policy, the RIs capacities have to be built for the NGOs to perform better in hand holding FPOs.

7.1.5. What next dilemma

Majority of the newly formed FPOs are struggling with the dilemma of 'what next'. Even though, SFAC has prepared and published 36 months plan and guidelines, this has not yet reached to the local implementation authorities (mandal level AOs/HOs). Local authorities with their best approach were able to form small group with 10-20 farmers but still looking for a way forward.

Options: An external agency may be engaged for providing necessary training and logistics and closely monitor functional growth of FPO with real time dashboard. Also, proper escalating mechanism needs to be established for addressing the shortfall/issues.

7.1.6 Traders become FPOs key functionaries

Large number of functional FPOs have been initiated by primary level trader or a commission agent. These persons are primarily a farmer also cultivating the same commodity. Though, they have better understanding of the commodity as well as market, but the whole purpose of FPOs is getting defeated, as they have more power in managing the FPOs functions without contributing equally to the volume of transactions. They also have their vested interests and therefore, become prone to financial and managerial manipulations.

Options: For creating member-organization design for FPO, there should be rules/norms that reinforce patronage cohesiveness. For example, compulsory contribution (products/ services) by each member on regular basis, retaining 5% of transacted volume from each member for creating capital base, etc. The operational guidelines for FPO needs to address and bring more transparency. Also, PMU at state and district level to monitor and evaluate regularly though performance indicators.

7.1.7 Few executive members handle all responsibilities

In several functional FPOs, the trader turned FPO executive committee member or secretary, handles the responsibilities of aggregating, registering farmers, writing books of accounts, contacting the buyers, arranging transportation, negotiating prices. These activities have to be handled in a professional manner, but this can impact the functioning of the FPO and its performance. Being new and first time handlers, the executive committee members fall short in their capacities to manage books maintenance, establishing proper system in place, hiring or operating specific location for a commodity handling.

Options: This can become a major impediment when functioning of FPO is not in a professional manner. The role played by skill development and management institutes can enhance governance of FPO. Also, capacity building of farmer members is pivotal for engaging business activities of FPOs. The role played by PMU and the support provided by PSU will be useful when implementing the policy guidelines. There should be hand holding to identify competent staff and train them for managing FPO. The FPO requirements of infrastructure facilities for value addition of commodities, skill improvement in handling of new technology, methods and process are dependent upon a formal system of financial linkage with loan providers like NABARD, local banks, etc.

7.1.8 Market identification and price discovery

The functional FPOs are yet to find a formal or contract arrangements for regular marketing for their commodities. None of the perishable commodity-based FPOs have proper storage facilities. Owing to aggregation of a commodity, its bulk size and then managing to get a dedicated transport vans, functional FPOs are able to avoid local middle man and directly negotiate with the bulk purchaser in a nearby major city. But this has reduced only at two levels: (1) middle man at farm gate price and (2) middle man at the local market. The local farmer producers have surely felt that these FPOs have enabled them to earn 15-25% more in the price discovery. Hence, local farmer producers willingly participate. On the other hand, the bulk traders based in major cities (Hyderabad, Vijayawada, and Vishakhapatnam) will not disclose the price unless the commodity arrives at their door step. Their negotiations are always 30-40% lower than the market sale price. Many a times, these big traders also act on cartel, which traps the FPOs and are forced to sell at the big trader quoted price. While the big traders make money and they don't share this with the FPOs. This is true, in case of fish, both marine and fresh water.

Options: Also, FPOs should be linked through modern electronic markets/ commodity exchange platforms. An enabling atmosphere to utilize digital tools of ICT integrated (weather, markets, insurance) systems. Active role should be played by APMARKFED, marketing department along with the PMU. Also, organizations like ICRISAT/ ICAR/ State Agricultural Universities (SAUs) technical back stopping might be critical in better price discovery of commodities and market identification for FPOs.

7.1.9 Missing primary level processing

Very few FPOs have realized the importance of doing primary level processing of the commodity. Although, this is realized over time that the processed commodity fetches better price in the market. There is disconnect in the transfer of technology and up gradation in taking up processing at FPO level due to failure of extension activities by the line departments. Moreover, it is expected that after certain maturity and consolidation among many FPOs (as happens in most of the industry in an economy), the successful FPOs might move upward in the value chain and adopt the value addition before marketing the commodities. This would be differentiating factors for all the FPOs in the long run to produce finished products and bring closer to ultimate consumers.

Options: Enabling technological innovations through primary processing will give the FPOs the leading edge and the unique selling point for their produce. This requires transfer of technology from established institutions and resource organizations. Also, knowledge and infrastructure plays an important role and hence it is critical for both knowledge institutions and financial institutions to come together under PSU/ PMU with commodity based processing plans.

7.1.10 Lack of forward and backward integration

Most of the FPOs are in the infant stages of formation and have not realized the benefits from aggregation of agricultural inputs like seeds, agro-chemicals, farm machinery, etc. The same is the case of output markets for their products. There is a lacuna in identifying honest brokership through forward and backward linkages as NGOs do not have adequate awareness and logistics to undertake such an important function.

Options: Part of the issues of integration would get resolved if the FPO has systematic estimate of the opportunity and develop the business plan. It is critical to have forward and backward linkages to be established by facilitating institutes.

7.1.11 Export potential

The State of AP tops in the production of many agricultural produce but the per se exported quantity is very minimal. There is an untapped potential for export for many of the products which can be harnessed through 'natural farming'. But the current scenario is, majority of the farmer groups formed under natural farming/ZBNF (Zero Budget Natural Farming) group are testing the practice in a small pockets of their total cropped area. The fear of loss of yield and lack of market are the major constraints, what the farmers perceive. Again the concept of ZBNF was promoted as to meet the demand from AP urban market.

Options: An expert panel needs to be formed to understand the constraints in export marketing and translate the same to export oriented production. Later necessary awareness and promotions activities has to be planned through agencies like APEDA and MPEDA etc., for building export oriented production environment.

7.1.12 Trade deficit and surplus markets

Consumption and marketed surplus ratio analysis showed that many of the districts are either trade surplus or trade deficit. There is clear opportunity to capture the price advantage if the spatial and temporal variation was integrated. Example, the tomato price in West Godavari market yards is three times of Mulakalacheru market (in Chittoor district) yard price on same day.

Options: Especially for fresh fruits and vegetables where the prices show seasonal fluctuations, FPOs' need to be integrated with existing market yards for timely update on prices.

7.1.13 Limited access to credit

Many FPOs have experienced in their early stages lack of access to low interest credit. This has constrained them in building minimal infrastructure like ware house, cold storage or even purchasing own goods transport vehicle. The local banks are charging 13% interest for the loans. This has become a huge burden on the FPOs funds. The basic concept of FPO, among farmers, is known as a 'substitute for middlemen' and this wrong notion especially among small and marginal farmers and makes them fear about their financial needs (both production and personal needs). As the agriculture production marketing and farmer livelihood was built on 'credit market' this needs to be addressed and all misconceptions regarding FPOs needs to be cleared

Options: This is probably the most important issue which surpasses and caters to most of the needs for sustaining FPO in the long-term. While organizations that build capacities of FPOs to prepare business plans are important, it is vital that bank linkages are handled professionally without bias at district and mandal levels. Also, local groups like SHGs can be strengthened to cater the financial needs of the farmers.

Even agricultural input transactions between the dealers and companies are credit-based and interest levied will be transferred to the farmers. Also, SHGs can be strengthened with the revenue obtained through percentage on MRP and credit free days can be transferred to the farmers.

7.1.14 Risk management fund

Since, FPOs are in infant stage in AP state and its multiple functions and financial handling may also lead to some difficulties to its farmer-members. Either owing to FPO executive members poor management or market fluctuations. This may affect a large number of farmer's livelihoods. They need to be insulated from such risks.

Option: There should be a mandatory requirement for every FPO to set aside a small percentage of money from its annual funds as risk management fund. Such fund should be aggregated both at the district level and at state level. So that such fund is accessible by any FPO in the state in the event of any crisis. A set of guidelines needs to be prepared in this regard.

7.1.15 Need better growth models

Over the years the success rate of viable FPOs is very small and the main reason being the unsuccessful revenue/business model. Stagnant growth in production, price fluctuations and increased cost of production led to failure of FPO. One can identify the potential for a FPO when there is scope to consistently increase the crop productivity by at least 30-40% or reduce the cost by at least 20-30% or increase per unit out prices by 20-30%. These minimum small gains which are likely induce farmers to

Table 7.1 Summary of issues, options and enabling institutions

Issues	Options	Suggestive institutions
Lack of convergence of govt schemes	Support establishing state and district level agency for convergence	PSU/ PMU/ Agril. Dept./ ICRISAT
Untapped social capital/ community resources	Utilize existing CBOs like SHGs, Rythu Mithra groups, JLGs, Cooperatives, MACS etc.	PSU/ PMU/ Agril. Dept./ SERP
Inadequate business planning	Prepare business plans through professional help and facilitation	Management Schools/ ICRISAT/ Consultants
Inadequate knowledge base of resource institutions	Identify Resource organizations for skill improvement	ICRISAT/ SAUs
Traders have become key functionaries of FPOs	Create farmer member organizations	PSU/ PMU to identify institutions for facilitating
Few executive members handle all responsibilities	Governance and function of FPOs should be transparent	PSU/ PMU to identify institutions for facilitating
Improper market identification and price discovery	Use digital platforms and link FPOs to transparent trading facilities	PSU/ PMU/ APMARKFED/ Exporters
Primary level processing is inadequate	Transfer technological innovations on commodities to FPOs	ICRISAT/ State Agricultural Universities/ Others
Absence of forward and backward integration	Facilitate forward and backward linkages	PSU/PMU to identify Resource Organizations
Access to credit is limited	Provide bank credit linkages at district and mandal level	PSU/ PMU/ Banks/ NABARD
Better growth models	Obtain institutional support and building strong linkages with the institutions to achieve better growth models	PSU/ PMU/ Agril. Dept./ ICRISAT/ APMARKFED/ Exporters

come together even though there is a cost to collective action for each farmer. Any combination of these benefits will increase the attractiveness of small and marginal farmers to come forward. All these issues will determine the success of a FPO in a given location and its sustainability in long-run.

Option: To date most of the FPO concentrated on aggregation of products and less on institutional support. At every stage and at each process, business/revenue model requires an institutional support that too in a continuous and sustainable manner. Convergence between various public private and NGO's and help to achieve at least a growth of 10-20% and also long run sustainability. It is expected that institutional support from research agencies, financial institutions , tie-ups with market agencies etc, can help the FPO a desired growth rate of 10-20% and only if supported with enabling environment and policy support.

References

Agarwal B. 2010. Rethinking agricultural production collectivities. Economic and Political Weekly, 45(9):64-78.

Bachke ME. 2010. Are farmers' organizations a good tool to improve small-scale farmers' welfare? Unpublished report. Department of Economics and Resource Management, University of Life Sciences, Norway.

Bhattacharjee S. 2010. Experience of producer organizations: A case of five producer companies. Financing Agriculture, 42(7):12-21.

Birthal PS, Joshi PK, and **Narayanan AV.** 2011. Agricultural diversification in India: Trends, contribution to growth and small farmer participation, ICRISAT, mimeo.

Braverman A, Guasch JL, Huppi M and **Pohlmeier L**. 1991. Promoting rural cooperatives in developing countries: the case of sub-Saharan Africa. World Bank discussion papers (USA). Washington, D.C., World Bank.

Chamala S. 1990. Establishing a group: A participative action model. Brisbane: Australian Academic Press. P 13-38.

Chand R, Prasanna PAL and **Aruna S**. 2011. Farm size and productivity: Understanding the strengths of smallholders and improving their livelihoods. Economic and Political Weekly, 46(26,27): 5-11.

Commons JR. 1934. Institutional economics: Its place in political economy. New York, Macmillan.

Dev MS. 2012. Small farmers in India: challenges and opportunities, Indira Gandhi Institute of Development Research, Mumbai. Available at http://www.igidr.ac.in/pdf/publication/WP-2012-014.pdf

Donovan J and **Poole ND.** 2008. Linking smallholders to markets for non-traditional agricultural exports: a review of experiences in the Caribbean Basin. Inputs for strategy formulation by 'EU-ACP All Agricultural Commodities Programme'. AAACP Paper Series. No. 2. Rome.

Government of Andhra Pradesh. 2014. A strategy paper for mission on primary sector. Agricultural transformation in Andhra Pradesh: Equitable, scientific, prosperous and climate smart. Part of Swarnandhra Vision 2029. Hyderabad. Document released by the Chief Minister on 06 October 2014 in a farmers rally held at Ananthapur.

Government of Andhra Pradesh. 2015. Achieving double digit inclusive growth - A rolling plan 2015-16. Accessed at http://apvision.ap.gov.in/pdf/Double%20Digit%20Growth%20Ready%20Reckoner%202015-16.pdf

Government of Andhra Pradesh. 2016. Rythu kosam: Andhra Pradesh farmers producers organizations' promotion policy - 2016 Operational guidelines, Hyderabad.

Government of Andhra Pradesh. 2016. Andhra Pradesh farmers producers organisation promotion policy –2016: Operational guidelines. Vijayawada. Document released by the Chief Minister on 06th August 2016 in a farmers rally held at Ananthapur.

Government of India. 2013. Policy and process guidelines for farmer producer organizations. Department of Agriculture and Co-operation, Ministry of Agriculture.

Government of India. 2016. Economic Survey 2015-16.

Government of India. 2016. Agricultural statistics at a glance. Directorate of Economics and Statistics, Ministry of Agriculture and Cooperation.

Government of India. 2015. Raising agricultural productivity and making farming remunerative for farmers: An occasional paper, NITI Aayog, 16 December 2015 available at http://niti.gov.in/writereaddata/files/Raising%20Agricultural%20Productivity%20and%20Making%20Farming%20Remunerative%20for%20Farmers_0.pdf as on 03/06/2016

Guarte JM, and **Barrios EB**. 2006. Estimation under purposive sampling. Communications in Statistics-Simulation and Computation, 35(2):277-284.

Hellin J, Lundy M and **Meijer M**. 2007. Farmer organisation and market access. LEISA Magazine, 23 (1):2.

International Crops Research Institute for the Semi-Arid Tropics. 2011. Inclusive market oriented development (IMOD). ICRISAT, Patancheru, India.

International Fund for Agricultural Development. 2004. IFAD Recommendations for eliminating rural poverty and achieving food security, 36th World Farmers' Congress, 29th May- 4th June 2004, Washington DC.

Kachule R, Poole ND and **Dorward A.** 2005. Farmer organizations in Malawi: the organisation study. Final report for 'Farmer organizations for market access', DFID crop post harvest research programme (R2875).

Korten DC. 1980. Community organisation and rural development: a learning process approach. Public Administration Review 40(5): 480-511.

Marsland N, Wilson I, Abeyasekera S, and **Kleih U.** 2001. Combining quantitative and qualitative survey methods, socio economic methodologies for Natural Resource Research. Best practice guidelines, Chatham, UK: Natural Resource Institute.

Ministry of Agriculture. 2013. Policy and process guidelines for farmer producer organizations. Department of Agriculture and Cooperation, Government of India.

Mondal A. 2010. Farmers' producer company (FPC) concept, practices and learning: A case from action for social advancement. Financing Agriculture, 42(7):29-33.

National Bank for Agriculture and Rural Development. 2015. NABARD Scheme for FPO formation. New Delhi.

Nalini B, Turaga RMR and **Bhamoriya V**. 2015. Farmer producer organizations as farmer collectives: A case study from India. Unpublished report, Indian Institute of Management, Ahmedabad. Visited on 15 June 2016 at http://www.iimahd.ernet.in/assets/snippets/workingpaperpdf/10539809132015-01-05.pdf

National Commodity and Derivatives Exchange. 2016. Connecting farmers to markets, NCDEX- FPO Update, November.

National Commission for Enterprises in the Unorganized Sector. 2008. A special programme for marginal and small farmers. Accessed at http://nceuis.nic.in/Special_Programme_for_Marginal_and_Small_Farmers.pdf

National Dairy Development Board. 2014. Annual report 2013-2014. Visited on 26 November 2016 at http://www.nddb.org/sites/ default/files/pdfs/nddb-annual-report-2013-2014.pdf

Poole N and **Frece A.** 2010. A review of existing organizational forms of smallholder farmers' associations and their contractual relationships with other market participants in the East and Southern African ACP region. AAACP Paper Series No. 11, Food and Agricultural Organization.

Prowse M. 2008. Making contract farming work with cooperatives: Producer organizations and poverty reduction. Capacity.org.

Ritchie J, Spencer L, and **O'Connor W.** 2003. Carrying out qualitative analysis. Qualitative research practice: A guide for social science students and researchers: 219-262.

Schultz TW and **Lewis A.** 1979. The Economics of Being Poor. The Prize Lecture to the memory of Alfred Nobel, December 8. Accessed on 12 June 2016 from http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1979/schultz-lecture.html#not

Small Farmers Agribusiness Consortium. 2014. Krishi sutra 2: Success stories of farmer producer organisations. Small farmers agribusiness consortium, New Delhi. Accessed at http://sfacindia.com/PDFs/Krishi-Sutra(Version2).pdf

Shah T. 2016. Farmer producer companies fermenting new wine for new bottles. Economic and Political Weekly, 51(8):15-20.

Sharma AK. 2015. Transformation in Indian agriculture, allied sectors, and rural India: Is there less krishi in bharat?, NCAER, New Delhi.

Shepherd A. 2007. Approaches to linking producers to markets: A review of experiences to date, Accessed on 12 June 2016 from ftp://ftp.fao.org/docrep/fao/010/a1123e/a1123e00.pdf

Singh S. 2015. Promotion of milk producer companies: Experience of NDS, presentation in workshop on producer companies organized by National Dairy Development Board, Anand, Gujarat, 8 October

Singh S and **Singh T**. 2013. Producer companies in India: A study of organization and performance, Publication No. 246, Centre for Management in Agriculture, Indian Institute Management, Ahmedabad.

Swaminathan MS and **Rengalakshmi R**. 2016. Impact of extreme weather events in Indian agriculture: Enhancing the coping capacity of farm families. Mausam, 67(1).

Trebbin A. 2014. Linking small farmers to modern retail through producer organizations – Experiences with producer companies in India. Food Policy, 45:35-44.

Trebbin A and **Hassler M**. 2012. Farmers' producer companies in India: a new concept for collective action?. Environment and Planning A,44(2):411-427.

UNDP. 2014. Financing for FPOs, Policy paper. UNDP and Access Development Services.

Welsh R. 1997. Vertical coordination, producer response, and the locus of control over agricultural production decisions. Rural Sociology, 62(4):491-507.

Appendixes

Appendix 2.1 Process involved in establishing FPOs

The entire process of formation for an FPO may take two to three years, and comprises the pre-formation stage, the FPO formation stage and the implementation and phase-out stage. A brief overview of each stage, adapted from the Ministry of Agriculture Policy and Process Guidelines for FPOs, is detailed below:

1. Pre-Formation Stage: The Pre-Formation Stage itself comprises three distinct sub-stages and takes a total of 18 months to complete.

a. **Identification:** After the project cluster is identified, the Resource Institution analyses how feasible an FPO would be in that area. This includes perusing databases of farmers in the region and conducting a hypothetical break-even analysis for the FPO that is to be formed.

b. **Organization of Farmer Interest Groups (FIGs):** Farmers in the region are organized into FIGs, each consisting of 15-20 farmers. The Resource Institution educates these groups in scientific farming techniques and practices.

c. **Collection of share money*:*** Resource Institutions help draft a business plan for the FPO and share it with members of FIGs. They also compile a database of participants in the FPO. Finally, they collect money for the purchase of shares of the FPO from the farmers.

2. FPO Formation Stage: This stage comprises two distinct sub-stages as well.

a. **FPO Formation:** It is at this stage that members of FIGs decide whether they want to be part of the FPO or not. Other procedures that must be completed during this stage include obtaining a Permanent Account Number (PAN) for the FPO, electing the Board of Directors (BoD) and further training for the future members.

b. **FPO Incorporation:** The FPO is formally established during this stage; official outlets are opened, farmers are awarded share certificates, and the General Body Meeting is conducted along with due diligence by a registered Chartered Accountant.

3. Implementation of Business Plans and Phase-out:

a. **Implementation of Business Plan:** The Ministry of Agriculture calls for 25% of the activities detailed in the Business Plan (drafted previously) to be implemented during this stage. Regulatory approval for the activities performed by the FPO must also be sought and received during this stage.

b. **Phase-out*:*** After an agreement of long term cooperation is executed between the FPO and the Resource Institution, the latter finally exits the project, provided that auditors certify that the finances of the former are satisfactory.

Appendix 2.2 Budget estimate for setting up 1000 FPOs in AP state

S. No	Sectors	FPOs	Farmers	Commodities	Budget Requirement for formation and nurturing for 3 years @ ₹3.53 million / FPO as per national policy
1	Agriculture	314	3,73,039	Maize, Millets, Oil Seeds and Pulses	₹ 1107.17million
2	Horticulture	345	2,74,153	Fruits, Vegetables, Spices and Flowers	₹ 1216.47 million
3	Animal Husbandry	238	2,45,000	Milk, Meat, Egg, Backyard Poultry and Fodder	₹ 839.19 million
4	Fisheries	103	1,07,808	Fish, Prawn, Crab and Shrimp	₹ 363.18 million
	Total	1,000	10,00,000		₹ 3526 million

Source: GoAP (2016)

Appendix 2.3 Target of setting up of 2000 FPOs by NABARD

S. No	Name of the State	2014-15	2015-16	Total
1	Andhra Pradesh	40	65	105
2	Assam	10	20	30
3	Bihar	40	60	100
4	Chhattisgarh	25	35	60
5	Gujarat	50	70	120
6	Haryana	20	30	50
7	Himachal Pradesh	20	30	50
8	Jharkhand	25	40	65
9	Jammu-Kashmir	7	8	15
10	Karnataka	75	105	180
11	Kerala	40	60	100
12	Maharashtra	50	80	130
13	Madhya Pradesh	65	95	160
14	Odisha	40	60	100
15	Punjab	20	30	50
16	Rajasthan	50	85	135
17	Tamil Nadu	60	90	150
18	Telangana	35	40	75
19	Uttar Pradesh	50	80	130
20	Uttarakhand	20	30	50
21	West Bengal	45	70	115
22	Andaman-Nicobar	2	3	5
23	Arunachal Pradesh	2	3	5
24	Goa	1	1	2
25	Manipur	1	2	3
26	Meghalaya	2	2	4
27	Mizoram	1	1	2
28	Nagaland	1	1	2
29	Sikkim	1	1	2
30	Tripura	2	3	5
	Total	800	1200	2000

Appendix 3.1 Functional FPO – Case study questionnaire

1. Brief history and organizational structure
2. Broad Business profiles/products dimension
3. Basic profile of FPO
4. Date of registration initiated: Date completed:

Total expenditure incurred from initiation to completion of registration:

1. Sources of capital availed
2. Authorized capital/share capital – over time from initiation to till now
3. No. of members and geographical coverage (no. of villages etc.) – evolution over time
4. Nature and composition of board – process to be highlighted
5. Promoted/facilitated by whom
6. Socio-economic/education profile of FPO members
7. Infrastructure created and utilization pattern - over time
8. Details of other professional/manager members engaged
9. No. of other employees engaged
10. Dimensions of value addition followed
11. Challenges and risks faced over time
12. Risk mitigation and sustainable strategies adopted over time
13. Farmers' awareness /promotional strategies followed
14. Technology promotional strategies adopted – who provided – how you scaled-up
15. Backward and forward linkages established – over time
16. Business performance – Parameters/indicators
17. Financial parameters / indicators - over time
18. Effectiveness of FPO on small and marginal producers
19. Suggestions for further promotion of FPOs/lessons learnt
20. Extent of adoption and use of ICT for FPO activities (mobiles etc.)
21. Other issues if any

Appendix 3.2 Proposed FPO – Baseline questionnaire

Name of interviewing person: ..... Date:.....

Proposed FPO location: Villages ..... Mandal ..... District .....

Proposed FPO belongs to ..... (Agril/ Horti/ Fisheries/ AH/SERP) sub-group

Main focal persons for the proposed FPO:

Name	Designation	Mobile no.

Details about major stakeholders in the proposed FPO: *(include even if under planning)*

Stakeholder	**Particulars**
POPIs	
RSA	
POPI: Producer Organization Promoting Institutions *RSA: Resource Support Agency (Indian Grameen Service is the nodal agency for NABARD promoted FPOs in AP)*	

Proposed FPO is organized/facilitated by:

Facilitated by	**Tick**	**Particulars**
Private sector		
NGOs		
Government		
Farmers' organization		
SHGs		
Cooperatives		
Corporate under CSR		
Beneficiaries of Tribal Development fund		
Beneficiaries of Watershed Development Fund		

Activities initiated by POPI: *(as of now)*

Activities	**(Y/N)**	**Reasons if not undertaken**
Awareness creation		
Training need assessment (TNA)		
Infrastructure identified		
Market intervention assessment		
Capacity building/exposure visits		
Linking with relevant officials		
Preparation of business plan		
Facilitation of credit		
Others		

Activities initiated by RSA: *(as of now)*

Activities	(Y/N)	Reasons if not undertaken
Capacity building of POPI/FPO level		
Facilitate value addition/marketing at FPO level		
Monitoring the FPO implementation process		
Guiding from time to time		
Others		

Current stage of FPO:

Stage	Tick	Reasons/details
Registered but not functional		
Exist but not registered		
Initiated process		
Just identified		
None of the above		

If Registered, then under companies act/cooperative act and year: ……

Why under companies act/cooperative act: ……

Target membership plan & strategy *(for next three years)*

Year	Target	Unit share value (Rs)	Mobilization strategy/plan
2016			
2017			
2018			

Proposed pattern/category of membership *(based on operational land holding)***:**

Farmers' category	Proposed % share in the total
Small and marginal farmers'	
Medium farmers	
Large farmers	
If not defined, pl. write 'NA' to all categories	

Existing production systems and markets (*only major* commodities *to be included)*

Agril. sub-sector	Horti sub-sector	A&H sub-sector	Fisheries sub-sector	Others if any

Coverage of area and no. of beneficiaries

Commodity	No. of villages	No. of beneficiaries	Total coverage (ha/no. of animals)	Aggregation targeted (tons/liters)

Major regulated/un-regulated markets exists

Major regulated markets	Major un-regulated markets
1.	1.
2.	2.
3.	3.

Sources/mobilization plan of capital

Source	Aware/NA	If availed, amount *(Rs lakhs)*	Reasons if not availed
Initial seed capital			
Share capital			
Working capital			
Equity grant			
Credit Guarantee Fund			
Awareness creation fund			
Capacity building fund			
Technical support fund			
Others if any			

Available infrastructure

Facility	**Y/N**	**Details (approximate units)**
Office space		
Grading facilities		
Processing facilities		
Drying plat forms		
Storage structures		
Cold storage facilities /cooling chambers		
Vehicles /transportation		
Supporting staff		
Others		

Productivity enhancing/technology promotional activities/strategies

Type of technology	Promotional strategy	Stakeholders involved

Backward and forward linkages planned *(describe crisply)*

Inputs mobilization plan (like seeds, fertilizers, credit, insurance, extension service etc.)	Output aggregation plan (Bulking of small marketable surplus, grading, processing, storage and linking to buyers etc.)

Commodity-wise value addition opportunities/plan

Commodity	Opportunities	Initiatives

Farmers' awareness/promotional strategies/trainings & capacity building

Item	No.	Item	No.
No. of awareness programs organized so far		No. of training/capacity building activities organized so far	
Awareness programs planning to organize during rest of 2016		Capacity building activities planning to organize during rest of 2016	

Anticipated cost & revenues *(at least for two years in Rs lakhs)*

Item/sources	2016		2017	
	Costs	Revenues	Costs	Revenues

Problems/constraints faced

Problems/constraints faced	Overcome mechanism

Anticipated risks and mitigation/sustainable strategies

Anticipated risks	Mitigation/sustainable strategies

Appendix 3.3 District-mandal commodity matrix for strata-1*

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Anantapur	Amadagur	Millets	Groundnut, Red gram, Korra		
Anantapur	Atmakur	Millets			
Anantapur	Bukkapatnam	Millets			
Anantapur	Dharmavaram	Millets			
Anantapur	Gandlapenta	Millets			
Anantapur	Garladine	Millets			Red gram + Groundnut
Anantapur	Gooty	Millets			
Anantapur	Gudibanda	Millets			
Anantapur	Kadiri	Millets			
Anantapur	Kambadur	Millets			
Anantapur	Nallacheruvu	Millets			Red gram + Groundnut
Anantapur	Nallamada	Millets			
Anantapur	NP Kunta	Millets			
Anantapur	ODC	Millets			
Anantapur	Penukonda	Millets			
Anantapur	Ramagiri	Millets			
Anantapur	Rapthadu	Millets	Groundnut, Redgram, Korra		
Anantapur	CK Palli	Millets			
Anantapur	Rolla	Millets			
Anantapur	Tanakallu	Millets			Red gram + Groundnut
Anantapur	Singanamala				Red gram + Groundnut
Anantapur	Kuderu		Groundnut, Red gram, Korra		
Anantapur	Kalyanadurgam		Groundnut, Red gram, Korra		
Anantapur	Kundurpi		Groundnut, Red gram, Korra		
Anantapur	Madakasira		Groundnut, Red gram, Korra		
Anantapur	Somandepalli		Groundnut, Red gram, Korra		
Anantapur	Vajrakakru		Groundnut, Red gram, Korra		
Chittoor	Peddamandyam	Millets			
Chittoor	Ramakuppam	Millets	Rice, groundnut		Vegetables
Chittoor	Rompichela	Millets			
Chittoor	Valmikipuram	Millets			
Chittoor	Thanballapalle	Millets			
Chittoor	B.Kathakata	Millets			
Chittoor	KVB Puram			Mango	
Chittoor	Yerpedu			Mango	

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Chittoor	Srikalahasthi			Mango	
Chittoor	Gudipala		Rice, groundnut	Vegetables	Vegetables
Chittoor	Palamaner			Vegetables	
Chittoor	YV Palem			Mango	
Chittoor	Vayalpadu		Rice, groundnut	Vegetables	
Chittoor	Punganu			Vegetables	
Chittoor	Kuppam				Vegetables
Chittoor	Santhipuram				
Chittoor	Madanapalli		Rice, groundnut		
Chittoor	Nagari		Rice, groundnut		
Chittoor	Baireddipalli		Rice, groundnut		
Chittoor	Narayanavanam		Rice, groundnut		
Chittoor	RC Puram		Rice, groundnut		
Chittoor	Nagalapuram		Rice, groundnut		
Chittoor	Thotambedu		Rice, groundnut		
Chittoor	Vayalapadu		Rice, groundnut		
Kurnool	Banaganapalli	Millets			
Kurnool	Bethamcherla	Millets			Red gram
Kurnool	Dhone	Millets	Rice, cotton, maize, bengal gram, Groundnut, red gram, black gram		
Kurnool	Gonegandla	Millets			
Kurnool	Adoni	Millets			
Kurnool	Pathikonda	Millets			
Kurnool	Punnakkal			Vegetables	
Kurnool	Peapalli/Peapully		Rice, Cotton, Maize, Bengal gram, groundnut, Red gram, Black gram	Onion, Chili	
Kurnool	Aspari			Onion	
Kurnool	Veldurthi				Red gram
Kurnool	Athmakur				Red gram
Kurnool	Kothapalle				Red gram
Kurnool	Guduru		Rice, cotton, maize, bengal gram, groundnut, red gram, black gram		
Kurnool	Kalluru		Rice, cotton, maize, bengal gram, groundnut, red gram, black gram		
Kurnool	Midthuru		Rice, cotton, maize, bengal gram, groundnut, red gram, black gram		
Kurnool	Panyam		Rice, cotton, maize, bengal gram, groundnut, red gram, black gram		

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Visakhapatnam	Paderu	Millets	Red kidney beans, millets, maize	Medicinal Plants	
Visakhapatnam	Ananthagiri	Millets			
Visakhapatnam	Dumriguda	Millets		Mango	Vegetables
Visakhapatnam	Hukumpeta	Millets	Rajma (Red Kidney Beans), millets, maize	Medicinal Plants	
Visakhapatnam	Pedabayalu	Millets			
Visakhapatnam	Araku	Millets			Vegetables
Visakhapatnam	Koyyur	Millets			
Visakhapatnam	Chinthapalli	Millets	Rajma (Red Kidney Beans), Millets, maize		Turmeric + coffee
Visakhapatnam	G. Madugula			Medicinal Plants, Turmeric	Turmeric + coffee
Visakhapatnam	S. Rayavaram			Coconut	
Visakhapatnam	Golugonda				Cashew
Visakhapatnam	Narsipatnam				Cashew
Visakhapatnam	Anakapalle		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Padmanabham		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Cheedikada		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Chodavaram		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Madgula		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Makavarapalem		Rajma (Red Kidney Beans), Millets, Maize		
Visakhapatnam	Yalamanchili		Rajma (Red Kidney Beans), Millets, Maize		
Vizianagaram	Gumma Laxmipuram	Millets		Mango, Sapota	Cashew
Vizianagaram	Garugubilli		Millets, Rice, Maize	Banana	
Vizianagaram	Pachipenta			Mango	
Vizianagaram	Badangi			Vegetables	
Vizianagaram	Pusapatirega		Millets, Rice, Maize	Coconut	
Vizianagaram	Nellimarla			Vegetables	
Vizianagaram	Saluru			Banana	Cashew
Vizianagaram	Kurupam		Millets, Rice, Maize	Vegetables	Cashew
Vizianagaram	Ramabadrapuram			Vegetables	Vegetables
Vizianagaram	Badangi			Mango	

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Vizianagaram	Komarada			Vegetables	
Vizianagaram	Vepada		Millets, Rice, Maize	Vegetables	
Vizianagaram	Kurupam	Millets			
Vizianagaram	Merakamudidam				Cashew
Vizianagaram	Parvathipuram		Millets, Rice, Maize		Cashew
Vizianagaram	Makkuva				Cashew
Vizianagaram	Bobilli		Millets, Rice, Maize		
Vizianagaram	Bondapalli		Millets, Rice, Maize		
Vizianagaram	Mentada		Millets, Rice, Maize		
Vizianagaram	Denkada		Millets, Rice, Maize		
Srikakulam	Seethampeta	Millets	Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)	Amla, Coconut, Tamarind, Cashew, Coconut	Cashew
Srikakulam	Veeragattam	Millets	Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)	Amla, Coconut, Tamarind, Cashew	
Srikakulam	Kotthur	Millets	Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		Cashew
Srikakulam	Bhamini				Cashew
Srikakulam	Meliaputti				Cashew
Srikakulam	Mandasa				Cashew
Srikakulam	Hiramandalam				Cashew
Srikakulam	Pathapatnam				Cashew
Srikakulam	Vajrapakothuru				Cashew
Srikakulam	Sarvakota		Rice, Sugarcane, Maize, Green gram, Blackgram, ragi (finger millet)		
Srikakulam	Ponduru		Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		
Srikakulam	Ranasthalam		Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		
Srikakulam	Etcherla		Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		
Srikakulam	Gara		Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		
Srikakulam	Tekkali		Rice, Sugarcane, Maize, Green gram, Black gram, ragi (finger millet)		

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
East Godavari	Maredumilli	Millets			Cashew
East Godavari	Devipatnam	Millets			Cashew
East Godavari	Eleswaram		Rice, pulse, Maize, Sesame	Cashew, Mango, Coconut, Banana	
East Godavari	Rowthulapudi				Rice + Vegetables
East Godavari	Kotananduru				Rice + Vegetables
East Godavari	Y Ramavaram		Rice, Pulse, Maize, Sesame		Cashew
East Godavari	Gangavaram		Rice, Pulse, Maize, Sesame		Cashew
East Godavari	Addateegala				Cashew
East Godavari	Rampachodavaram		Rice, Pulse, Maize, Sesame		Cashew
East Godavari	Rajavommangi				Cashew
East Godavari	Prathipadu		Rice, Pulse, Maize, Sesame		
East Godavari	Gokavaram		Rice, Pulse, Maize, Sesame		
East Godavari	Korulonda		Rice, Pulse, Maize, Sesame		
East Godavari	Shankavaram		Rice, Pulse, Maize, Sesame		
East Godavari	Thotangi		Rice, Pulse, Maize, Sesame		
East Godavari	Tuni		Rice, Pulse, Maize, Sesame		
Kadapa	Vempalli		Rice, Pulse, groundnut	Banana	
Kadapa	Mylavaram				Bengal gram + Chillies
Kadapa	Jammalamadugu				Bengal gram + Chillies
Kadapa	Galiveedu				Red gram + Groundnut
Kadapa	Chakrayapet				Red gram + Groundnut
Kadapa	Pendamilli		Rice, Pulse, Groundnut		
Kadapa	Rly Koduru		Rice, Pulse, Groundnut		
Kadapa	L.R.Palli		Rice, Pulse, Groundnut		
Kadapa	Mydukur		Rice, Pulse, Groundnut		
Kadapa	Kalasapadu		Rice, Pulse, Groundnut		
Kadapa	Ksinayana s.a.k.n		Rice, Pulse, Groundnut		
Kadapa	Vontimitta		Rice, Pulse, Groundnut		

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Kadapa	Chinamandem		Rice, Pulse, Groundnut		
West Godavari	Yelamanchili		Rice, Maize, Oil palm, Black gram	Coconut	
West Godavari	Dwarakatirumala			Vegetables	Rice + Black gram
West Godavari	Jeelugumilli		Rice, Maize, Oil palm, Black gram	Cashew	
West Godavari	Nallajerla				Rice + Black gram
West Godavari	Gopalapuram				Vegetables + rice
West Godavari	Thallapudi				Vegetables + rice
West Godavari	Unguturu		Rice, Maize, Oil palm, Black gram		
West Godavari	Chintapudi		Rice, Maize, Oil palm, Black gram		
West Godavari	Kamavarupukota		Rice, Maize, Oil palm, Black gram		
West Godavari	Pedavgi		Rice, Maize, Oilpalm, Black gram		
West Godavari	Buttaigudem		Rice, Maize, Oilpalm, Black gram		
West Godavari	Polavaram		Rice, Maize, Oilpalm, Black gram		
West Godavari	Devarapalli		Rice, Maize, Oilpalm, Black gram		
West Godavari	Kovurru		Rice, Maize, Oil palm, Black gram		
West Godavari	Peravali		Rice, Maize, Oilpalm, Black gram		
Nellore	Venkatagiri			Vegetables	
Nellore	Dakkili			Vegetables	
Nellore	Balayapalli			Vegetables	Rice + Black gram
Nellore	Guduru			Vegetables	
Nellore	Chillikur		Rice, Groundnut, Black gram, Green gram, Vegetable, Lime	Vegetables	
Nellore	Doravarisatram			Mango, Sapota	
Nellore	Ozilli		Rice, Groundnut, Black gram, Green gram, Vegetable, Lime	Mango, Sapota	
Nellore	Kovuru			Jasmine	
Nellore	Sidhapur			Acidlime	
Nellore	Indukurpeta			Vegetables	
Nellore	Thotapalli			Vegetables	
Nellore	Sydapuram				Rice + Black gram

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Nellore	Kaluvoya				Rice + Black gram
Nellore	Podalakuru				Rice + Black gram
Nellore	Dagadarti		Rice, Groundnut, Blackgram, Greengram, Vegetable, Lime		
Nellore	Kavali		Rice, Groundnut, Blackgram, Greengram, Vegetable, Lime		
Nellore	Naidupeta		Rice, Groundnut, Blackgram, Greengram, Vegetable, Lime		
Nellore	Rapur		Rice, Groundnut, Black gram, Green gram, Vegetable, Lime		
Nellore	D.V.Satram		Rice, Groundnut, Black gram, Green gram, Vegetable, Lime		
Nellore	Dakkili		Rice, Groundnut, Black gram, Green gram, Vegetable, Lime		
Prakasam	Pullacheruvu			Mango, Sapota, Guava	
Prakasam	Dornala		Bengal gram, Rice, Chillies, Vegetables	Mango, Sapota, Guava	
Prakasam	Yerragondapalem		Bengal gram, Rice, Chillies, Vegetables	Mango, Sapota, Guava	
Prakasam	Tarlupadu			Chilli	
Prakasam	Konakana			Chilli	
Prakasam	Mittala			Chilli	
Prakasam	Donakonda			Chilli	
Prakasam	Cumbum			Chilli	
Prakasam	Kanigiri				Red gram + Black gram
Prakasam	Hanumanthunipadu				Red gram + Black gram
Prakasam	Addanki				Rice + Red gram
Prakasam	Maddipadu				Rice + Red gram
Prakasam	Korisapadu		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Mundlamur		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Nagulapapadu		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Ballikuruva		Bengal gram, Rice, Chillies, Vegetables		

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Prakasam	Martur		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Yaddanapudi		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Santamaguluru		Bengal gram, Rice, Chillies, Vegetables		
Prakasam	Kothapatnam		Bengal gram, Rice, Chillies, Vegetables		
Guntur	Kollipra		Pulse, Cotton, Jowar (sorghum), Maize	Turmeric	
Guntur	Mangalagiri		Pulse, Cotton, Jowar (sorghum), Maize	Turmeric, Chilli	
Guntur	Tadepalli			Turmeric	
Guntur	Machavaram			Chilli	
Guntur	Edlapadu		Pulse, Cotton, Jowar (sorghum), Maize	Chilli	
Guntur	Bapatla			Floriculture	
Guntur	Amaravathi				Chillies
Guntur	Krosuru				Chillies
Guntur	Kakamanu				Chillies
Guntur	Pedanandipadu				Chillies
Guntur	PV Palem		Pulse, Cotton, Jowar (sorghum), Maize		
Guntur	Bellamkonda		Pulse, Cotton, Jowar (sorghum), Maize		
Guntur	Rajupalem		Pulse, Cotton, Jowar (sorghum), Maize		
Guntur	Dachepalli		Pulse, Cotton, Jowar (sorghum), Maize		
Guntur	Bhattiprolu		Pulse, Cotton, Jowar (sorghum), Maize		
Guntur	Bollapally		Pulse, Cotton, Jowar (sorghum), Maize		
Krishna	Thotalvalluru			Banana	
Krishna	Mopidevi			Vegetables	
Krishna	Musunuru		Rice, Black gram	Banana, Palmoil, Vegetables	
Krishna	Nandigama			Chilli	
Krishna	G.Konduru			Mango, Vegetables	Chillies + Vegetables
Krishna	Mylavaram			Jasmine, Vegetables	

District	Mandal	Millets Revival NFSM (47)	NF/NPM (131)	Horticulture (105)	SERP (39)
Krishna	Vuyyuru			Vegetables	
Krishna	A Konduru				Rice+ Black gram
Krishna	Gampalagudem				Rice+ Black gram
Krishna	Veerullapadu				Chillies + Vegetables
Krishna	Nagayalanka		Rice, Black gram		
Krishna	Machilipatnam		Rice, Black gram		
Krishna	Agiripalli		Rice, Black gram		
Krishna	Bapulapadu		Rice, Black gram		
Krishna	Nizuvidu		Rice, Black gram		
Krishna	Chatrai		Rice, Black gram		
Krishna	Reddygudem		Rice, Black gram		

* SFAC proposed FPOs were not mapped as they were identified at district level only
Note: Ash color highlighted mandals were considered in the baseline survey

Appendix 4.1 District-wise proposed FPOs by sub-sector in AP State

	Agriculture																	
		SFAC			Millets Revival		Animal Husbandry				Fisheries						Horticulture	SERP
District	NF/NPM	IGC	VRUTTI	ALC	Tribal	Rainfed	Dairy FPO	Sheep & Goat	Poultry FPO	Fodder FPO	FW Fish	Shrimp/ prawn	Marine	Marketing	Sea bass	Mud crab		Agri commodities
Anantapur	10	3	6			20	13	11	0	2								2
Chittoor	10	3	3			6	12	2	2	2								2
Kadapa	10		3				15	6	0	0								2
East Godavari	10				2		38	0	3	0	1	11	1	0	0	0		6
Guntur	10	6					9	6	1	0	2	4	1	0	0	1		2
Krishna	10						19	7	1	1	4	10	3	0	1	2		2
Kurnool	11	15	9			6	18	11	0	0								2
Nellore	10						5	2	0	0	0	3	0	0	0	0		2
Prakasam	10						12	2	0	0	1	3	3	0	0	0		2
Srikakulam	10			5	3		8	2	0	0	0	1	0	0	0	0		5
Visakhapatnam	10				8		6	2	1	0	0	1	2	0	0	0		4
Vizianagaram	10	3			2		6	2	0	0	0	0	0	1	0	0		6
West Godavari	10						15	2	2	0	3	6	0	0	0	0		2
Total	131	30	21	5	15	32	176	55	10	5	11	39	10	1	1	3	105	39
Grand Total			**234**					**246**						**65**			**105**	**39**

Appendix 5.1 Activities initiated by POPIs

S. No	Commodity	Activities	Y/N	Reasons if not undertaken/ what were undertaken
1	Banana	Awareness creation	Y	Kalajatha,
		Training need assessment (TNA)	Y	Fertilizer, crop improvement & management
		Infrastructure identified	Y	4 Van, Weighing machines 10, Gunny bags @ 200 per day, collection centre at temple, requested area within premises to construct sheds
		Market intervention assessment	Y	
		Capacity building/exposure visits	Y	Tamil Nadu
		Linking with relevant officials	Y	
		Preparation of business plan	Y	
		Facilitation of credit	Y	
2	Jasmine	Awareness creation	Y	Kalajatha,
		Training need assessment (TNA)	Y	Fertilizer, crop improvement & management
		Infrastructure identified	Y	4 Van, Weighing machines 10, Gunny bags @ 200 per day, collection centre at temple, requested area within premises to construct sheds
		Market intervention assessment	Y	
		Capacity building/exposure visits	Y	Tamil Nadu
		Linking with relevant officials	Y	
		Preparation of business plan	Y	
		Facilitation of credit	N	No formal credit from banks
		Others	Y	Personal investments from directors
3	Turmeric	Awareness creation	Y	
		Training need assessment (TNA)	Y	
		Infrastructure identified	Y	
		Market intervention assessment	Y	
		Capacity building/exposure visits	Y	
		Linking with relevant officials	Y	
		Preparation of business plan	Y	
		Facilitation of credit	Y	
4	Inland Fish	Awareness creation	Y	Village level awareness programmes, Skits, Meetings, Gramsabha
		Training need assessment (TNA)	Y	Need based analysis, market linkages, skill upgradation, technical inputs
		Infrastructure identified	Y	Rented office
		Market intervention assessment	Y	Near Akuveedu, Kaikaluru, Kalidindi
		Capacity building/exposure visits	Y	Not yet
		Linking with relevant officials	Y	NABARD, FDO Fisheries Mr. Sudhakar Nayak, Bankers interation
		Preparation of business plan	Y	Proposal submitted to fisheries department
		Facilitation of credit	Y	Trying through local banks
5	Marine Fish	Awareness creation	Y	on fish grading systems, marketing,
		Training need assessment (TNA)	Y	Cooling boxes, thermocoal boxes, weighing machine, farmers two wheelers
		Infrastructure identified	Y	Collection centre,
		Market intervention assessment	Y	Near Narsapur or bhimavaram
		Capacity building/exposure visits	Y	Akuveedu, bhimavaram, machlipatnam, kakinada and Chennai market scans
		Linking with relevant officials	Y	NABARD, FDO Fisheries Mr. Pothuraju
		Preparation of business plan	Y	Proposal submitted to fisheries department for
		Facilitation of credit	Y	

Appendix 5.2 Activities initiated by RSA

S. No	Commodity	Activities	Y/N	Reasons if not undertaken/ what were undertaken
1	Banana	Capacity building of POPI/FPO level	Y	Share capital, marketing, value addition training
		Facilitate value addition/marketing at FPO level	Y	
		Monitoring the FPO implementation process	N	Never visited FPO
		Guiding from time to time	N	Not in field
		Others		
2	Jasmine	Capacity building of POPI/FPO level	Y	Share capital, marketing, value addition
		Facilitate value addition/marketing at FPO level	Y	
		Monitoring the FPO implementation process	N	Never visited FPO
		Guiding from time to time	N	Not in field
		Others		
3	Turmeric	Capacity building of POPI/FPO level	Y	
		Facilitate value addition/marketing at FPO level	N	Don't know?
		Monitoring the FPO implementation process	N	
		Guiding from time to time	N	
4	Inland Fish	Capacity building of POPI/FPO level	Y	Share capital, marketing, value addition
		Facilitate value addition/marketing at FPO level	Y	
		Monitoring the FPO implementation process	N	Never visited FPO
		Guiding from time to time	N	Not in field
5	Marine Fish	Capacity building of POPI/FPO level	Y	
		Facilitate value addition/marketing at FPO level	Y	
		Monitoring the FPO implementation process	N	Never visited FPO
		Guiding from time to time	N	Not in field

Appendix 6.1 Functional & proposed FPOs in Andhra Pradesh

S. No	District	Mandal	Functional FPOs	Proposed FPOs	Commodity
1	East Godavari	Amalapuram	NOVEEAL COCONUT PRODUCER COMPANY LIMITED AMALAPURAM		Coconut
2	East Godavari	Kapileshwarapuram		(Name not finalized)	Vegetables
3	East Godavari	Kothakota		(Name not finalized)	Banana, Vegetables
4	East Godavari	Sakkinetipalli		BS Murthy AFWS	Fisheries
5	East Godavari	Razole		Sri Lakshmi Pathi AFWS	Fisheries
6	East Godavari	Sakkinetipalli		Sri Satyanarayan AFWS	Fisheries
7	Guntur	Mangalagiri	Mangaladri Agri producer company		Turmeric
8	Guntur	Machavaram		Red Chilli Farmer's PC	Red chilli
9	Guntur	Repalle		Gangaputra Fisheries PC	Inland fishes, prawn
10	Guntur	Mangalagiri		Sehamitha Producers C	Organic cotton, chillies
11	Guntur	Machavaram		Srinidhi Milk Producers C	Fresh Milk
12	Krishna	Kruttivennu	Samyuktha Fisheries FPO		Marine fishes
13	Krishna	Kaikalur	Snehanjali inland fisheries		Inland fishes, prawn
14	Krishna	Thotavalleru	Vigneswars Banana		Banana
15	Krishna	Mylavaram	Sambasiva Jasmine		Jasmine
16	Krishna	Vijayawada rural		Navyandhra Organic Producer's company	Natural organic farming
17	Kadapa	Rayachoti		(Name not finalized)	Organic Farming
18	Kadapa	Mydukur	Health Education & Rural Development Society		Animal Husbandry (sheep, goat)
19	Kadapa	B Matam		Chainchaigaripalli Macha Sahakara Sangham	Fisheries
20	Kadapa	Vempalle		Sri Sai Sangameshwara Horticulture Farmers Producers Mutually aided Cooperative Society	Horticulture (banana)
21	Kurnool	Betamcherla		Bethamcherla Progressive Farmers Producers Company Ltd	Redgram; Foxtail Millet
22	Kurnool	Nandyal		Dairy FPO	Dairy
23	Kurnool	Alur	Reliance Foundation		Multiple Commodities
24	Prakasam	Kanigiri		Dairy FPO	Dairy
25	Prakasam	Kothapatnam	Chethana Groundnut Producer Company Limited		Groundnut
26	Visakhapatnam	V Madugula		Proposed	Fisheries
27	Visakhapatnam	Cheedikada		Seethamma Milk Producers Company Ltd	Animal Husbandry
28	Visakhapatnam	S Rayavaram		Gurajada Coconut farmers producer Company Ltd	Coconut
29	Visakhapatnam	Paderu		D Gonduru Girijan Farmer Producer Company Ltd, Paderu	Medicinal plants
30	Visakhapatnam	Araku valley		Sabari Farmer Producer Company Ltd	Multi commodity (Mango, sapota, Turmeric, Amla, pulses)
31	Visakhapatnam	Subavaram	Susag Millet Producers Company Ltd (Recently registered)		Pulses

S. No	District	Mandal	Functional FPOs	Proposed FPOs	Commodity
32	West Godavari	Chagallu	Sri Seetharamanjaneya Seed Society		Rice Seed
33	West Godavari	Kovurru		Sri Venkateshwara Farmer Seed Society	Rice Seed
34	West Godavari			Dharmavaram Society	Natural Farming
35	West Godavari	Chinatalapudi		Viswa Mitra FPO,	Natural Farming (Multicommodity)
36	West Godavari			Sri Anjaneya FPO	
37	West Godavari	KAMAVARAPUKOTA		Kamadenuvu FPO,	Palm oil (Natural farming)
38	West Godavari			Laxmi Sai FPO	Natural Farming (multi Commodity)

Appendix 6.2 Number of godowns and capacity

		Andhra Pradesh	
S. No	Ware house	Number	Capacity in (MMT)
1	Godowns existing up to 2004	591	0.374
2	Godowns existing between the period 2004-2009	289	0.238
3	Godowns existing between the period 2009-2016	60	0.169
4	Godowns under Progress in RDF	33	0.063
	Total	1060	0.848

Source: http://market.ap.nic.in/department-activities.html

Appendix 6.3 Sector and commodity wise cold storages in districts of Andhra Pradesh

	Fish				Fruits and vegetables						Milk Products						Multipurpose	
	Public		Private		Coop		Public		Private		Coop		Public		Private		Private	
District	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)	No	Capacity (Tons)
Anantapur																	8	21043
Chittoor									2	558			2	1654			8	21145
Kadapa											1	136						
East Godavari	1	271	4	1936							1	88			1	2205	10	21950
Guntur	1	335			1	4680					1	113					65	283958
Krishna			2	415					1	1054	1	15					12	41068
Kurnool											2	1097					2	7200
Nellore			4	11936													6	12506
Prakasam			2	1136													10	51779
Srikakulam																	1	4000
Visakhapatnam	1	169	22	7637			1	90			1	48					7	27849
Vizianagaram									1	15							6	33650
West Godavari			5	2067													5	8225
Grand Total	3	775	39	25127	1	4680	1	90	4	1627	7	1497	2	1654	1	2205	140	534373

Source: APEDA

Appendix 6.4 Details of storage facilities available including in Andhra Pradesh as reported by the Marine Products Export Development Authority

	Cold Storage		Chilled Storage		Dry Fish Storage		Other Storages		Total	
Name of the State	No	Capacity (Tons/ Day)	No	Capacity (Tons / Day)	No	Capacity (Tons / Day)	No	Capacity (Tons / Day)	No	Capacity (Tons / Day)
Andhra Pradesh	63	24,805.00	1	50.00	11	3,912.00	0	0.00	75	28,767.00
Goa	12	4,326.50	0	0.00	1	920.00	1	200.00	14	5,446.50
Gujarat	101	46,457.80	3	1,322.80	15	1,419.00	3	59.00	122	49,258.60
Guwahati	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Karnataka	21	8,368.70	0	0.00	8	2,105.00	18	6,564.00	47	17,037.70
Kerala	149	62,370.50	1	861.00	2	19.00	5	771.00	157	64,021.50
Kolkata	39	5,689.00	0	0.00	9	1,040.00	1	60.00	49	6,789.00
Maharashtra	48	31,623.30	0	0.00	6	691.00	0	0.00	54	32,314.30
New Delhi	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Odisha	23	11,019.00	17	7,038.00	0	0.00	0	0.00	40	18,057.00
Tamil Nadu	41	16,229.40	7	2089.00	5	1900.00	7	812.00	60	21,030.40
Total	497	210,889.20	29	11,360.80	57	12,006.00	35	8,466.00	618	242,722.00

Source: MPEDA

Appendix 6.5 District wise warehouses and capacity (Tons)

	Owned		Hired		Investor		Total	
District	Number	Capacity	Number	Capacity	Number	Capacity	Number	Capacity
Anantapur	3	16175					3	16175
Chittoor	2	7950					2	7950
East Godavari	6	95100	2	40000	9	70000	17	205100
Guntur	8	117880					8	117880
Kadapa	3	34300			1	10000	4	44300
Krishna	2	19450			3	45000	5	64450
Kurnool	3	27200	1	2845	1	10000	5	40045
Nellore	5	68900	1	2000			6	70900
Prakasam	3	150930					3	150930
Srikakulam	3	36300	3	55935	2	35000	8	127235
Visakhapatnam							0	0
Vizianagaram	1	11800	4	14983	5	60000	10	86783
West Godavari	4	53375	1	5000	8	155000	13	213375
Grand Total	43	639360	12	120763	29	385000	84	1145123

Source: APSWC

Appendix 6.6 Number of godowns and capacity under AP Markfed

S. No	District	Location	No. of godowns	Capacity of each godown (Tons)	Total Capacity (Tons)
1	Guntur	Guntur	3	1000	3000
2	Kadapa	Kadapa	6	1000	6000
3	Krishna	Moturu	1	1000	1000
4	Krishna	Vijayawada	8	1000	8000
5	Krishna	Vijayawada	2	1500	3000
6	Kurnool	Nandyala	2	1000	2000
7	Nellore	Nellore	3	1000	3000
8	Prakasam	Chirala	2	1000	2000
			27		28,000

Appendix 6.7 Animal husbandry facilities available district-wise

District	Veterinary Poly Clinic	Super Specialty Veterinary Hospitals	Veterinary Hospitals	Veterinary Dispensaries	Mobile Veterinary Clinics	Rural Livestock Units	Total
Anantapur	1		16	110	3	61	191
Chittoor	1		15	135	2	171	324
East Godavari	1		15	151	1	76	244
Guntur	1		16	126	2	141	286
Kadapa	1	1	12	102	2	131	249
Krishna	1	1	17	114	1	190	324
Kurnool	1		15	121	2	205	344
Nellore	1		15	101	1	100	218
Prakasam	1		8	119	3	103	234
Srikakulam	1		13	83	2	99	198
Visakhapatnam			16	87	3	62	168
Vizianagaram	1		11	69	2	74	157
West Godavari	1		11	102	1	92	207
Andhra Pradesh	12	2	180	1420	25	1505	3144

Appendix 6.8 District wise slaughter houses available

S. No	DISTRICT	LOCATION OF RECOGNISED SLAUGHTER HOUSES
1	Anantapur	Anantapur, Gooty, Guntakal, Kadiri, Dharmavaram, Rayadurg
2	Chittoor	V.Kota, Palamner, Kuppam, Madanapalli, Punganur, Pakala, Puttur, Srikalahasti
3	East Godavari	Kakinada, Jaggampet, Peddapuram, Pithapuram, Samalkota, Rajahmundry, Ramachandrapuram, Draksharama, Anaparthy, Alamuru, Mandapeta, Gokavaram, Amalapuram
4	Guntur	Guntur, Chilakaluripet, Narasaraopet, Mangalagiri
5	Kadapa	Kadapa, Pulivendula
6	Krishna	Machilipatnam, Pedana, Jaggaiahpet, Gudivada, Vizayawada, Vuyyuru, Nuzvidu
7	Kurnool	Kurnool, Kodumur, Nandikotkur, Dhone, Bethamcherla, Gudur, Adoni, Yemmiganur, Alur, Pathikonda, Kosigi, Kowthalam, Maddikera, Nandyal,Banaganapalli, Sunnipenta, Atmakur, Allagadda
8	Nellore	Nellore, Gudur, Kavali, Venkatagiri, Chennur
9	Prakasam	Ongole, Chirala
10	Srikakulam	Srikakulam
11	Visakhapatnam	Chinagadili, Anakapalli, Bheemunipatnam, Elamanchili
12	Vizianagaram	Vizianagaram, S.Kota, Bobbili, Parvathipuram, Salur
13	West Godavari	Eluru, Vangayagudem, Tadepalligudem, Velpuru, Penugonda, Narasapuram, Palcole, Bhimavaram, Nidaavole, Tanuku.

Appendix 6.9 District maps with mandals

Anantapur District

Chittor District

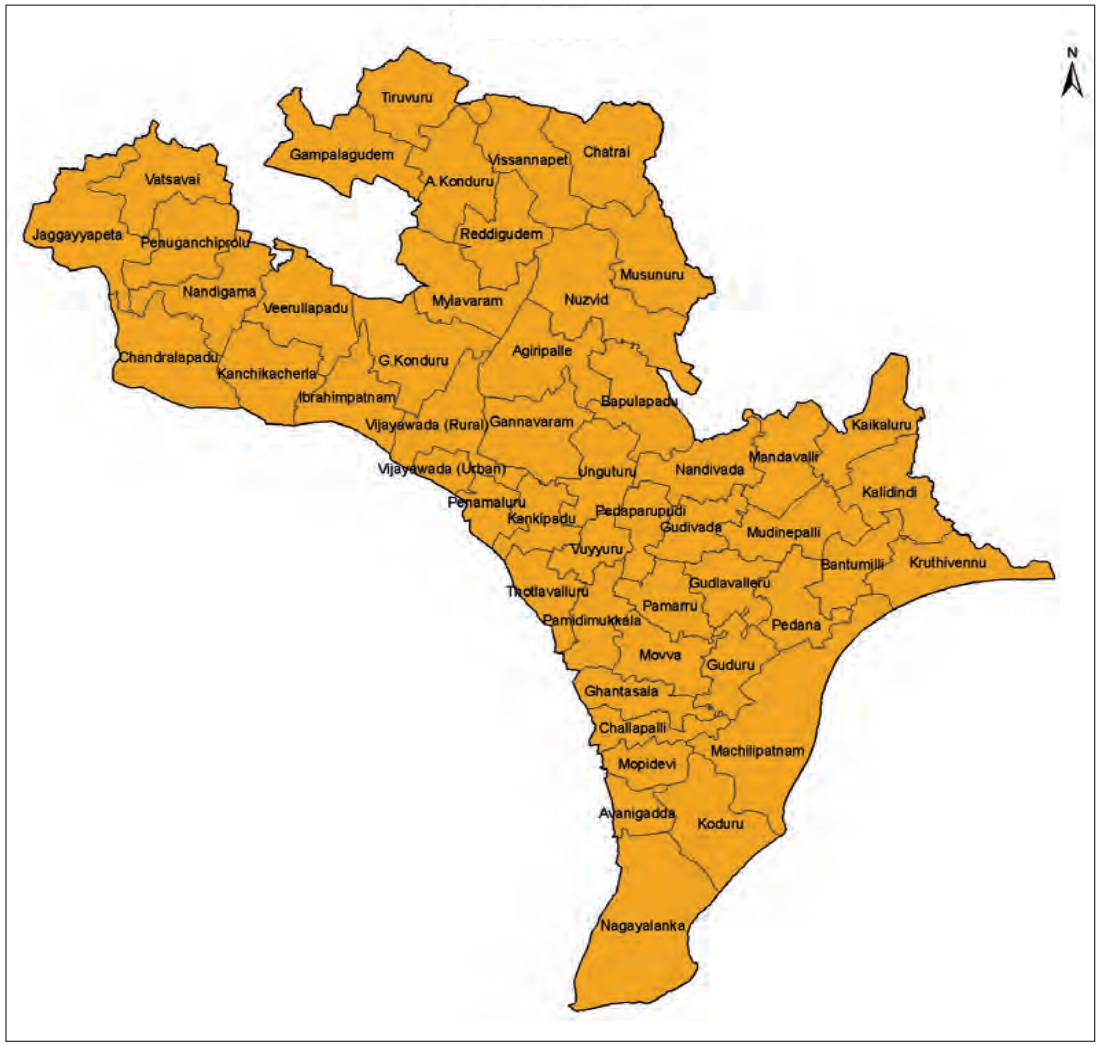
East Godavari District

Kurnool District

Guntur District

Kadapa District

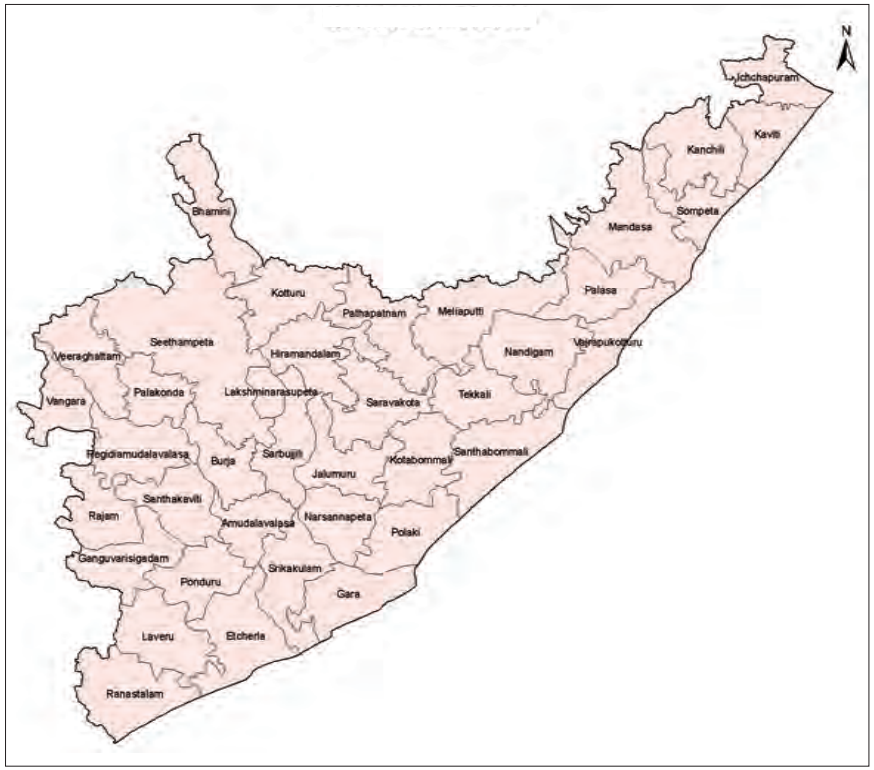
Krishna District



Nellore District

Prakasam District

Srikakulam District



Visakhapatnam District

Vizianagarm District

West Godavari District

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