



**Government Of Maharashtra**  
**Department Of Agriculture**

**World Bank assisted**

**Maharashtra Agricultural**  
**Competitiveness Project**  
**(MACP)**

**Marketing Strategy Supplement**  
**(MSS)**

**District - Sindhudurg**

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## Abbreviation

ABPF	-Agri Business Promotion Facility
AES	-Agri Ecological Situation
AGMARK	-Agri Marketing Information Network
APMC	-Agriculture Produce Market Committee
ATMA	-Agricultural Technology Management Agency
BTT	-Block level technology Team
CIGs	-Common Interest Groups
DMI	-Director of Marketing and Inspection
FAC	-Farmers Advisory Committee
FCSC	-Farmers Common Service Centers
FIAC	-Farmers Information and Advisory Center
FIG's	-Farmer Interest Groups
HPTI	-Horticulture Processing and Training Institute
MACP	-Maharashtra Agriculture Competitiveness Project
MANAGE	-National Institute of Agricultural Extension Management
MSS	-Marketing Strategy Supplement
NFSM	-National Food Security Mission
NHM	-National Horticultural Mission
PA	-Producer Associations
PC	-Producer Company
PCN	-Project Concept Note
PG	-Producer Groups
PHM	-Post Harvest Management
PPP	-Public Private Partnership
RKVY	-Rashtriy Krishi Vikas Yojana

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## Executive Summary

The overall goal of this document is to analyze relevant information that will enable the creation of sustainable and replicable businesses for farmers groups in the district of Sindhudurg. This report aims to contribute to the already existing 'Market Strategy Supplement' document developed by Vanamati and outlines the existing marketing systems and channels in the district alongwith analyzing the emerging crops of the district. This information will be critical in helping us understand the current activities and developments in Sindhudurgand enabling us to identify potential business opportunities that farmer groups can establish in the district. Furthermore, this document will also serve as a base document for ATMA and other organizations to plan their activities centered on developing specific capabilities of farmers, improving infrastructure in the district as well as providing required services to farmers and other stakeholders.

The primary crops as identified through our analysis for the district are found to be paddy, mango, cashew,coconutand groundnut. TechnoServe has primarily focused on these five crops to detail out the report. TechnoServe has further analyzed various business opportunities possible in the district and has identified three specific business opportunities– kokum syrup processing unit, jackfruit processing unit and desiccated coconut powder unit.However, in order to encourage business enterprises for farmer groups, basic facilities and services will need to be offered and improved. For instance, farmers will need to be encouraged and trained on ensuring continuous and good quality raw material for the processing units. Further, marketing infrastructure will need improvement so as to reduce post-harvest losses leading to better quality raw material for the businesses. The section on 'Recommendations' exhaustively discusses the factors that need to be taken into consideration for encouraging business activity amongst farmer groups and specifically helps identify a road map for relevant institutions.

By using a detailed analytical approach, this report has identified important information on marketing systems and emerging crops that will help in the development of the district and increase the economic and income opportunities for farmers. Specific topics discussed in this report are as follows:

1. Emerging major crops of the district
2. Price variation for emerging crops of the district
3. Farmer Assessment
4. Existing Marketing scenario
5. Constraints in the marketing system

## 6. Recommendations

While section 1 introduces the main crops of the districts, section 2 provides detailed information on these crops in terms of price variations and arrivals data. Section 1 and section 2 help us to explore and understand the current agricultural practices of farmers centered on the five emerging crops identified and recommend package of practices that will enable further development and income generation for farmers. This farmer assessment is discussed extensively in Section 3. Section 4 and 5 of this report then move on to evaluate the different marketing channels in the district and explore the constraints of this marketing system. These sections examine regulated markets of the district and compare these regulated markets with private markets. The main output from these sections is to understand the key trends in the marketing scenario and recommend improvements in infrastructure and services that will enable a more efficient marketing system in the district. Finally, the last section highlights the main opportunities feasible in the district centered on the emerging crops identified. This section also discusses qualitative results from the data obtained and recommends activities and services that ATMA and other similar organizations can undertake to improve the agricultural and marketing facilities of the district along with building the capabilities of farmers.

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## Introduction

World Bank assisted Maharashtra Agriculture Competitiveness Project is an initiative by Government of Maharashtra to overcome deficiencies in the present agriculture marketing system of the State. The present marketing system is placed with shortcomings. Though there is a good amount of marketable surplus in the district, the producers do not get a reasonable price for their produce because of serious deficiencies in the present agricultural marketing system. Broadly these are,

- i) The value chain is very long and fragmented. Therefore, particularly in perishables, share of the producer in the consumer's rupee is very low (it is at times as low as 20%)
- ii) Lack of standardization and enforcement of quality and grades
- iii) Insufficient and ineffective services to the farmers regarding inputs and information
- iv) Lack of facilities for grading, packing, cold storage and agro-processing units
- v) Inadequate transparency in marketing and
- vi) Lack of private sector investment.

This problem could be better addressed through different interventions resting on two pillars:

- i) Improving Extension support to farmers
- ii) Improving Agricultural Marketing.

The productivity improvement and production of improved quality of various agricultural produce is absolutely necessary to make agriculture viable. The thrust so far has been on increasing the productivity, and therefore, the extension machinery of the concerned departments was targeting to increase the production. Market led extension was totally lacking and this resulted in poor understanding of agricultural marketing by the concerned departmental agencies and the producers.

Various national programmes like Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), and National Food Security Mission (NFSM) have been implemented in the district. The proposed MACP, with the assistance of the World Bank, is one of the many steps being taken by the Govt. of Maharashtra, to address the various issues and constraints in development of agriculture. The components and subcomponents under MACP are based on the ingredients of the overall strategy of the State. MACP aims to enhance the productivity in agriculture and improvement of quality production through capacity building of producers with the help of ATMA programs. In order to enable farmer to fetch competitive price for the agriculture produce, various alternative channels of marketing are proposed to be developed, besides strengthening the present marketing structure, by way of modernization.

The Project Development Objective (PDO) and overall objectives of MACP are outlined below. The Project proposes to improve the productivity and quality of produce in agriculture and allied sector by various interventions proposed under Component A. The objective of better and reasonable returns to the farmer of his produce can be achieved if the farmers' access to the markets is improved. This has been proposed to be achieved by infrastructure development and creating alternative marketing channels under Component B.

#### Component A: Intensification and Diversification of Market led Production

- i) A1: Market-led Agriculture Technology Transfer (Objective: To increase the productivity of agriculture production by adopting modern technology.)
- ii) A2: Agri Business Promotion Facility (Objective: To create trained manpower to operate and manage the infrastructure facilities.)
- iii) A3: Market Information Services (Objective: To improve market access for enhancing the marketing opportunities for farmers.)
- iv) A4: Livestock Support Services (Objective: To strengthen sources of alternative income to farmers.)

## Component B: Improving Farmer Access to Markets

- i) B1: Promoting Alternative Markets
  - B1.1: Product Aggregation and Sale through Producers Association (Objective: To provide improved post-harvest handling facilities at village level.)
  - B1.2: Warehouse Receipts Development (Objective: To improve the capacity of farmers on price risk mitigation.)
  - B1.3: Rural Haat Markets (Objective: To strengthen alternative marketing channel of traditional rural haats.)
  - B1.4: Introducing e-Marketing Platform (Objective: To establish e-trading as one of the alternative marketing channels.
- ii) B2: Modernizing Existing Markets
  - B2.1: Modernizing Wholesale Markets (Objective: To improve transparency in all APMCs and to provide basic and productive infrastructure.)
  - B2.2: Upgrading Livestock Yards (Objective: To improve transparency in all Livestock Markets and to provide modern infrastructure.)

Efforts have been put in by the State Government to increase the production with the help of technology upgradation and dissemination of technology amongst the farmers. However there are critical gaps existing in the present system, because of which the producers are not in a position to get the reasonable value for their produce.

The project component A seeks to focus on the strengthening ATMA program to facilitate market-led extension. This will call for reorientation of the extension functionaries to focus on improved productivity, quality, market information and improved methods of marketing based on the updated market information and intelligence. This renewed focus on ATMA extension system would necessitate strengthening ATMA by institution and operation, making them vibrant and efficient to face the emerging challenges in agricultural production, marketing and agri-business. The focus would be on ways and means for developing and strengthening interdepartmental linkages to support not only Farmers Common Service Centers (FCSC) but also for providing support to the farmers in all the districts to achieve increased income from their land based occupations involving crops, horticulture and livestock. The effort would be to implement ATMA program as an integrated, demand-led and farmer-centered program of all line departments with special focus on marketing extension in all the districts of the state.

The SREPs for all the districts in Maharashtra have recently been prepared and cover the production aspects of field crops, vegetable, fruit, ornamental, spices and medicinal plants and livestock. Under this Project the Marketing Strategy Supplement (MSS) to the SREP will

be prepared for each district focusing on what needs to be done to improve market-led production, marketing related training of line department staff and farmers and linkages with the investments proposed for improving marketing infrastructure under component B of the project.

Some of the key objectives of the MSS report are outlined below:

- 1) To identify gaps/issues in market led production.
- 2) To study the existing marketing system of the district and to identify constraints in the marketing system.
- 3) To suggest strategies and activities to overcome gaps in market led production.
- 4) To suggest interventions to mitigate constraints in the marketing system of the district.

Overall MSS will focus on what needs to be done to improve market led production, marketing related trainings of line department staff and farmers and linkages with the investments proposed for improving marketing infrastructure. MSS will be a road map for implementing components in MACP.

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## Methodology

The Market Strategy Supplement (MSS) for each district is aimed to identify gaps in market led production and to suggest strategies to overcome these gaps. In this process, data specific to product grade, marketing channels, infrastructure facilities as well as trade licenses is quintessential for the genesis of these strategies. After an in-depth study of the district MSS, some data gaps have been identified primarily related to marketing channels and marketing bodies as well as facilities and infrastructure at APMCs and Rural Haats.

TechnoServe has addressed these gaps by making field visits as well as by using secondary level data from new sources, and a comprehensive use of the already available data. The refined Market Supplement Document (MSS) is a culmination of our secondary research and our primary insights from the field. The team also focused on validating the data in the existing MSS document wherever possible. While primary insights have been collected from Government stakeholders and farmers amongst other stakeholders, the secondary information has been derived from data received from the MACP and MSAMB offices in Pune and the Department of Agriculture, Government of Maharashtra. Through this process, we have addressed the gaps that exist in the current MSS document. The three step approach mentioned above is detailed below:



- i. Primary insights: Key components of the MSS including market development, farmer level issues and the SWOT analysis amongst others are supported by primary insights from the field. This includes interactions with APMCs to synthesize the market channels for crop categories, and interactions with traders, commission agents and warehouse operators to understand the storage periods of crops across APMCs in the district. Based on primary interactions with key stakeholders including MSAMB, APMC and Department of Agriculture, a snapshot of marketing bodies and their respective roles has also been synthesized.
- ii. Secondary research: Using crop arrivals data and crop areas, as collected from MACP and Department of Agriculture, pivot tables have been created to analyze the trend in prices as well as area and productivity of emerging crops in the district. This has been analyzed against a selected criteria used to choose district crops in Parts I and II. The analysis has further been strengthened using insights from secondary research on crop trends in the recent years. Official secondary resources such as agmarknet.nic.in have been referred to, to strengthen the analysis.
- iii. Validation of existing data: The information in the existing MSS has been validated in two ways:
  - a. Field visits: Through field visits and detailed discussions with various stakeholders across the value chain, data has been authenticated and validated. Some of the key discussions have been pertaining to:
    - i. APMC and Rural Haat infrastructure
    - ii. Agro processing industries and ginning factories
    - iii. Producer companies
    - iv. Grain storage facilities
    - v. Private markets and trade licenses
    - vi. Grade wise price variation and arrivals data
    - vii. Marketable and marketed surplus
    - viii. Constraints, strategies & proposed interventions for promoting market-led agriculture

The above methodology has enabled us to address some of the key gaps in the MSS and build a refined MSS report aimed at helping institutions understand the agriculture and market scenario in Sindhudurg. Data and information related to the agriculture scenario in Sindhudurg including detailed information on markets and marketing channels, APMC and Rural Haat infrastructure along with crop specific data has been collected. While the section

on District profile has been further detailed out to include information on irrigation facilities, other sections have been added to the report to bring more clarity and understanding to the marketing scenario of the district. Sections that have been included in this report are: Emerging major crops; Crop-wise price variation for emerging crops; Farmer assessment focusing on availability of the services and post harvest practices followed; and a detailed section on Recommendations. However, data regarding dairy, livestock and other markets has not been looked into in this refined MSS document.

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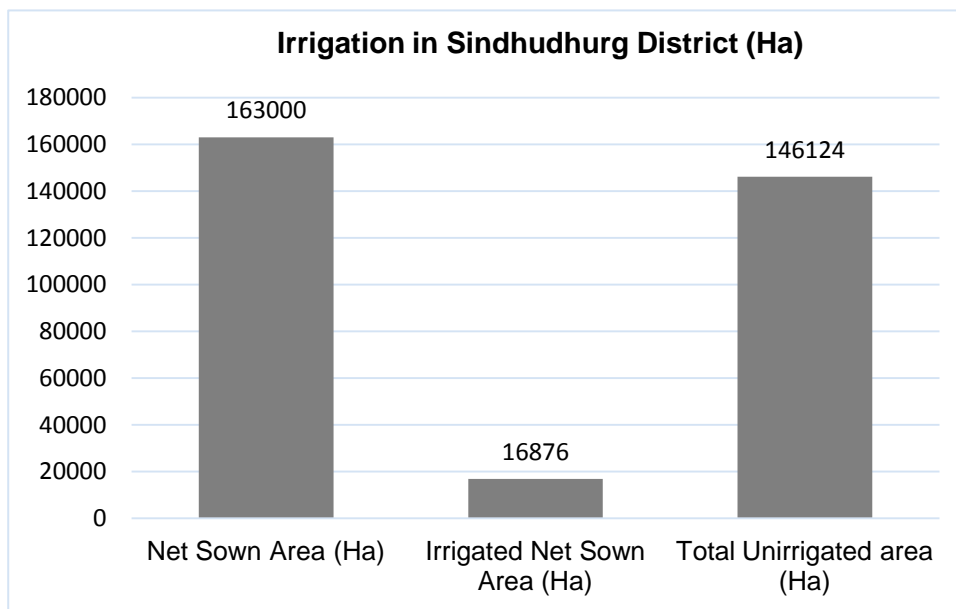
## District Profile

Sindhudhurg is located in the Konkan region of Maharashtra. It has borders with Kolhapur and Ratnagiri district of Maharashtra on the eastern and northern side, while states of Goa and Karnataka flank it on the south and south eastern side. Sindhudurg is a coastal district, with the entire western side facing the Arabian sea. The district is located in close proximity to Goa (150KM) and Belgaum (250Km), both key markets and gateways to south India. Sindhudhurg is relatively small district with population of 8,49,651. It is an industrially backward area with no presence of big industrial establishments. The economy of Sindhudhurg is primarily agrarian. Approximately 87% of the population is engaged in agriculture. In Sindhudhurg nearly 87% of farmers are small and marginal landholdings; the average landholding of farmer is 1 ha of land that is lesser than the state average of 1.44 ha.

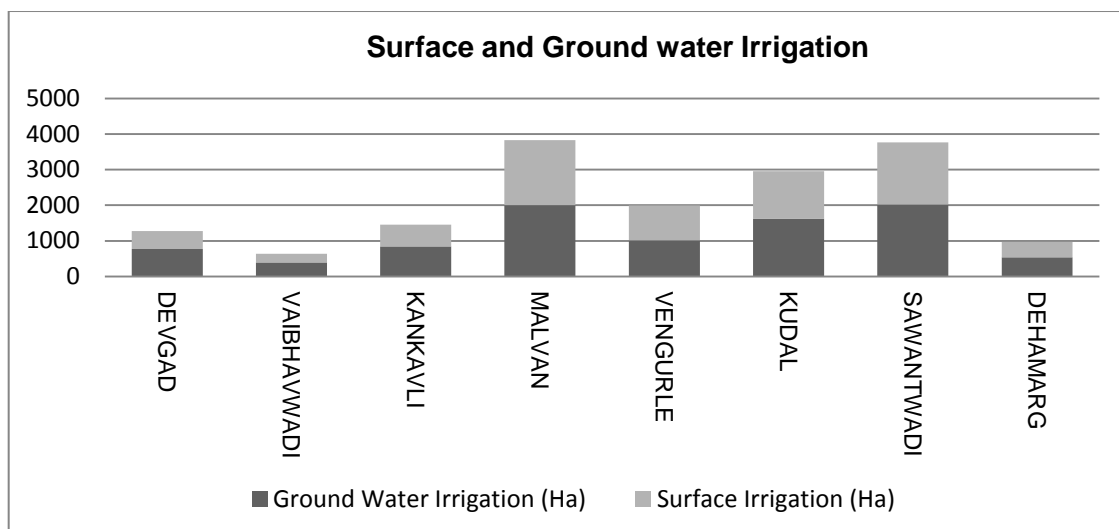
Sindhudhurg falls under the South Konkan Coastal Zone of the Department of agriculture, which is also classified as 'Very High Rainfall Zone'. As per IMD data, the district gets an average rainfall of 3,250 mm annually. However, the pre-dominantly laterite surface in the district has very little percolation potential and hence there are very few ground water deposits in the district. Most of the rainwater flows away into the sea. There are also very few irrigation projects in the district that provide surface irrigation and as a result, only a fraction of the district (around 10% of area) is under irrigation coverage<sup>1</sup>.

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<sup>1</sup>Irrigation potential of Sindhudhurg district: Economic survey of Maharashtra, Directorate of Economics & statistics.



Amongst the irrigated area, close to 70% irrigated area is concentrated in Malvan (22.68% of total irrigated area), Sawantwadi (22.30%), Kudal (18%) and Vengurla (12%).



Source: District Socio-Economic Survey. Note: Data available is of 2001-2002.

#### Agro-climatic Zones:

Based on the rainfall, topography and soil depth, Sindhudurg district has been divided into two major agro-ecological situations. This categorization has been done primarily to prepare situation specific strategic research and extension plans. Further details on the agro-ecological situations and their characteristic features are described below: -

Agro Ecological Situation	Soil Depth	Irrigation source available	Special Features	Crops
I – South Konkan coastal zone	Laterite soils	Rain-fed	Very high rainfall zone	Rice , Vari , Horse gram , Mango , Coconut

II – Ghat Zone	Light laterite and reddish brown	Rain-fed	3000 to 6000 mm rainfall	Rabi Jowar, Bengal gram, groundnut, sugarcane.
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Source: <http://www.mahaagri.gov.in/>

### **Agriculture:**

Sindhudurg district is endowed with red sandy loamy soils. Medium deep and shallow red soils accounts for 88.65% of soil type<sup>2</sup>. Major crops are Paddy, cashew, mango and coconut. These four together account for close to 95% of the gross cropped area in the district, with paddy being the largest (44.83% area) followed by Cashew (27.31%) and Mango (17.17%).

### **Cropping pattern:**

Major crops

The average gross cropped area for the major crops is given in the Table below.

Sr. No.	Crop	Average Gross Cropped Area (2009-13) (Ha)
1	Paddy	74157
2	Cashew	49453
3	Mango	22678
4	Coconut	13172
5	Groundnut	2029
6	Ragi	3134
7	Horse gram	2282

Source: Department of Agriculture and Department of Horticulture, Government of Maharashtra

Paddy and Cashew clearly are the most major crops, together accounting for approximately 71% of the total gross cropped area. Paddy is the staple food in the district, while Mango and Cashew are more of commercial value to the farmers. Cashew from the konkan belt of Maharashtra – particularly Sindhudurg and Ratnagiri districts – is renowned for its quality (in terms of size and colour) and hence popular amongst traders in Mumbai as well as for export purposes. As a result, cashew from this region also commands a better price than those grown in other states such as Andhra Pradesh, Tamil Nadu or Orissa<sup>3</sup>. Meanwhile, Sindhudurg is the home of Alphonso mango (particularly the Devgad region) which is one of the most popular and expensive mangoes sold in India and has significant export demand. Sindhudurg district has been a traditional grower of Mangoes and Cashews, and both these crops bring considerable commercial value to its farmers.

<sup>2</sup> Sindhudurg contingency plan

<sup>3</sup> Based on discussions with M/s Accesso Cashew, which is based in Ratnagiri and procures cashew from both Ratnagiri and Sindhudurg districts.

Paddy, being a staple food, its area is considerable in the district but had largely remained stable since 2009, neither growing nor reducing significantly. Similarly, Mango and Cashew are both plantation crops with multi-year gestation periods and hence long term investments. Acreage for both these crops have also largely remained stable during this period.

**Fruits:**

Sr. No	Crop	Average Gross Cropped Area (2009-13) (Ha)
1	Mango	22678
2	Cashewnut	49453
3	Coconut	13172

*Source: Department of Agriculture and Department of Horticulture, Government of Maharashtra*

Apart from mango and cashew, which are amongst the crops with the highest area under production, coconut has been identified as one of the potential crops for the future. Coconut suits the agro climatic conditions of the district and can feed into an existing market demand, particularly in local markets and Mumbai. Jackfruit and Kokum are also popular fruits in Sindhudurg district.

**Vegetables:**

Sr. No	Crop	Average Gross Cropped Area (2009-13) (Ha)
1	Brinjal	196
2	Okra	69

*Source: Department of Agriculture and Department of Horticulture, Government of Maharashtra*

Vegetables occupy a near negligible portion of the total area under crop production in Sindhudurg.

### Emerging major crops in the district

On the basis of existing as well as expanding area and changing crop trends, we have selected mango, cashew, paddy, coconut and groundnut as the emerging major crops in the district. The following table depicts the major trends in cropping pattern over the last 5 years for these 5 key crops of the district.

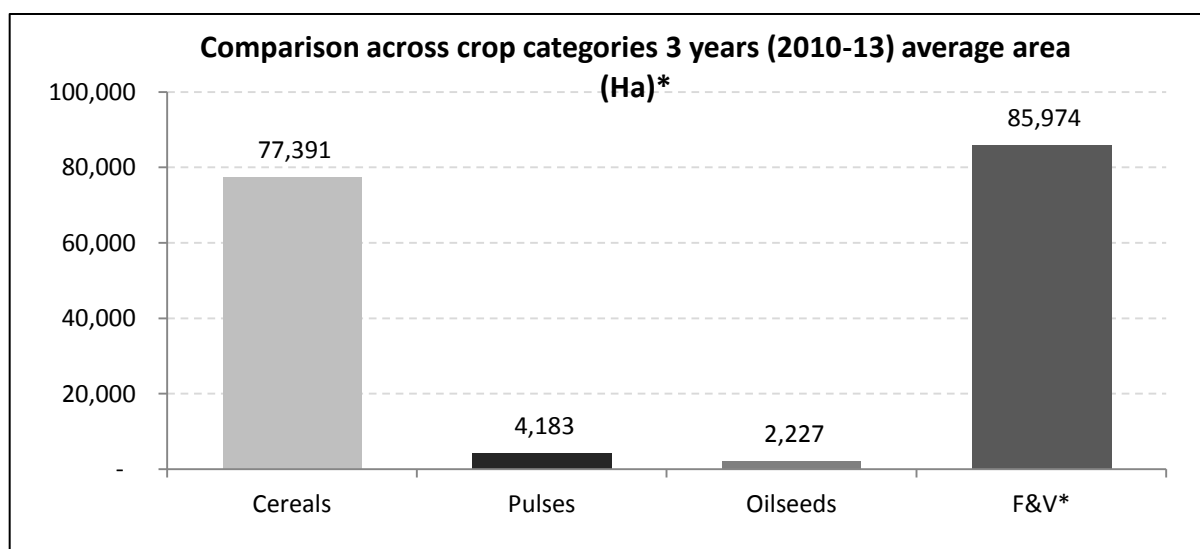
### Area under cultivation (Ha)

	Paddy	Mango	Cashew	Coconut	Groundnut
2012-13	NA	28420	NA	NA	NA
2011-12	74186	NA	NA	NA	2000
2010-11	73920	19270	45200	10200	1987
2009-10	NA	26085	53707	16144	NA
2008-09	74365	NA	NA	NA	2100

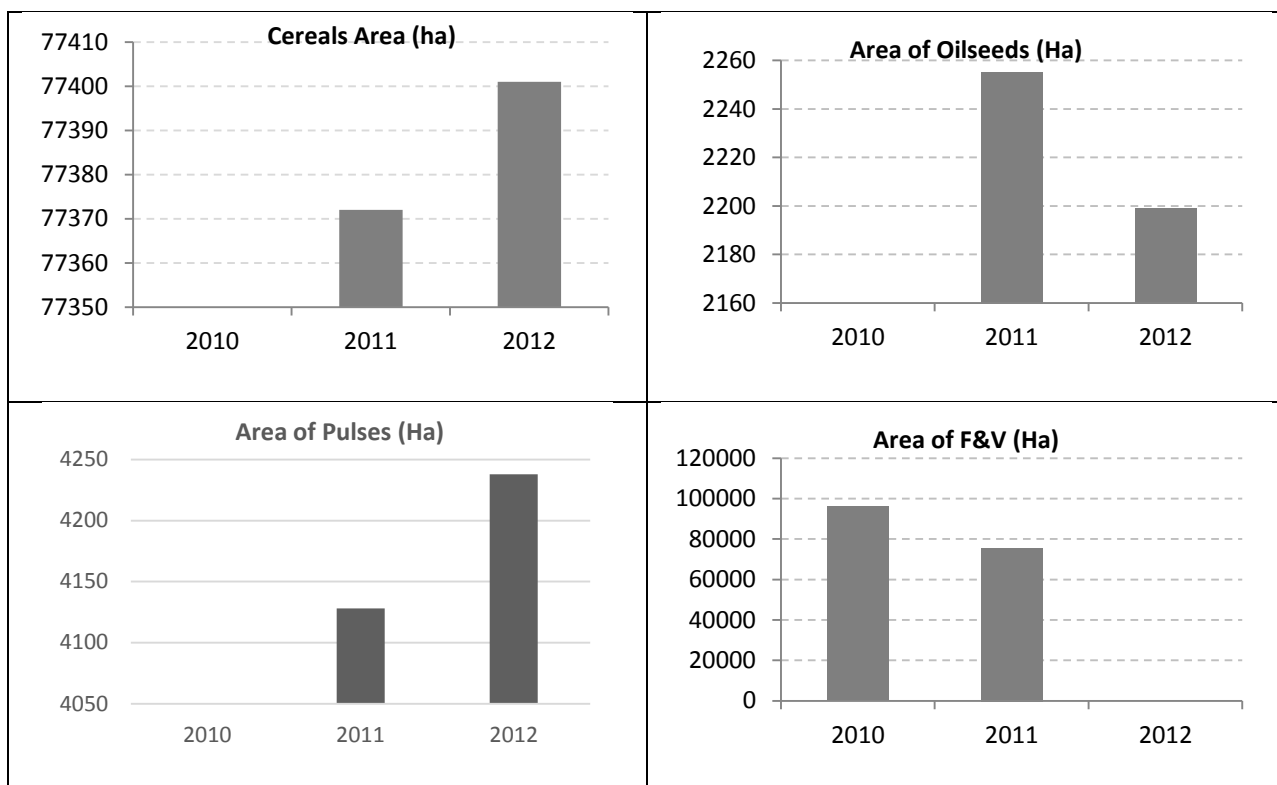
Source: Department of Horticulture, Government of Maharashtra

Paddy, Mango and Cashew are the major crops of Sindhudurg in terms of the area under crop production. Paddy production has been reasonably consistent over the last five years with the average area under production being close to 74157 hectares. Cashew production saw a decline of approximately 19 percent in 2011 from earlier level in 2010. The area under groundnut production has also remained similar over the years, however lately the agriculture department is encouraging farmers with land in relatively low rainfall areas to grow more groundnut.

The following charts depict the pattern of shift in the specific crop categories



\*Area data for Cereals, Pulses and Oilseeds was not available for the years 2010 and 2013. While for fruits and vegetables, it was available only for the years 2010 and 2011.



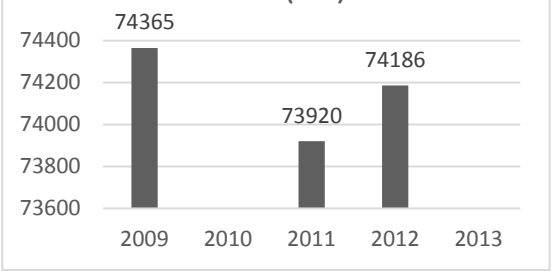
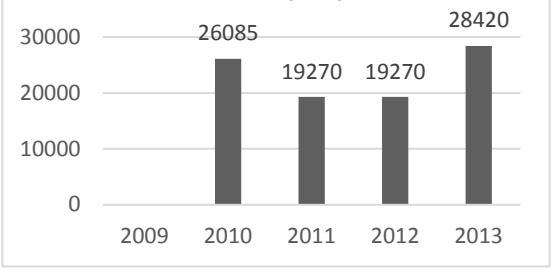
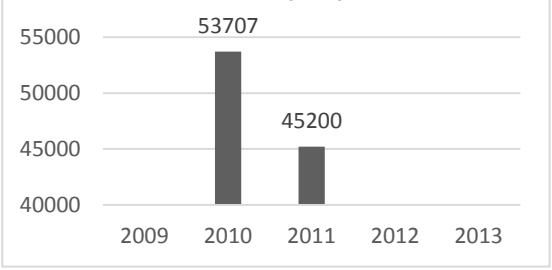
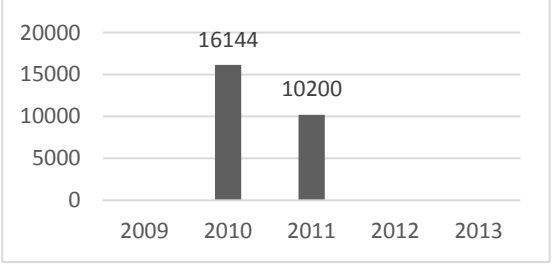
Source: Dept of Agriculture and Dept of Horticulture, Government of Maharashtra

**Cereals trend:** In Sindhudurg, the major cereal grown is paddy. Due to the extremely high rainfall which the area receives, paddy is the most suitable cereal which can be grown. Amongst other cereals, Ragi and Maize are grown in very nominal proportions. The average area under production for Ragi for the last few years was approximately 3134 hectares.

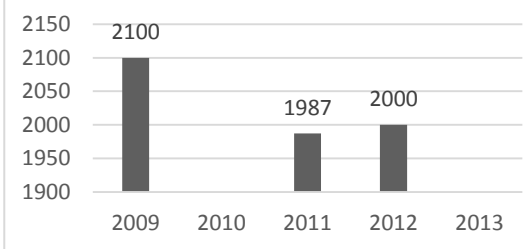
**Pulses trend:** In Sindhudurg, there is not a lot of focus on pulses and majority of the pulses grown in Sindhudurg are grown in the Kharif season. Red gram, green gram and black gram are the major kharif crops grown. The area under these has more or less remained constant over the years. Bengal gram, which is a Rabi crop has declined from 39,343 Ha in 2010 to 25581 hectares in 2013.

**Oilseeds trend:** Amongst oilseeds, Groundnut is the only major crop. The area under groundnut more or less remained constant over the years. There is a very nominal area under Sesamum and Niger.

**F&V trend:** Mango, Cashew and Coconut are the largest horticulture crops in Sindhudurg. Mangoes cover an approximate area of 28500 ha in the district, while cashew is grown on ~49453 Ha. Coconut occupies an approximate area of 13172 ha. Vegetable crops are not grown much in the district with Okra and Brinjal being two of the minor crops under production.

Crop Selection	Key Trends	Area Trend
<b>Paddy</b>	<ul style="list-style-type: none"> <li>Area under paddy production has seen minor fluctuations over the past few years but it has largely remained constant.</li> </ul>	<p style="text-align: center;"><b>Area (Ha)</b></p>  <p style="text-align: center;">Area details for the years 2010 and 2013 are not available.</p>
<b>Mango</b>	<ul style="list-style-type: none"> <li>Mango production grew 47% in 2013 from its earlier levels in 2011-2012.</li> <li>The area under mango production was at its peak in 2013 at 28420 hectares.</li> </ul>	<p style="text-align: center;"><b>Area (Ha)</b></p>  <p style="text-align: center;">Area details for the year 2009 is not available.</p>
<b>Cashew</b>	<ul style="list-style-type: none"> <li>Area under cashew fell from 53707 hectares in 2010 to 45200 hectares in 2011.</li> </ul>	<p style="text-align: center;"><b>Area (Ha)</b></p>  <p style="text-align: center;">Area details for the years 2009, 2012 and 2013 are not available</p>
<b>Coconut</b>	<ul style="list-style-type: none"> <li>Area under coconut production fell from 16144 hectares in 2010 to 10200 hectares in 2011.</li> </ul>	<p style="text-align: center;"><b>Area ( Ha )</b></p>  <p style="text-align: center;">Area details for the year 2009, 2012 and 2013 are not available</p>



<b>Groundnut</b>	<ul style="list-style-type: none"> <li>• Area under groundnut production has largely remained constant over the years.</li> <li>• The average area under groundnut production was 2029 hectares.</li> </ul>	<div style="text-align: center;"> <p>Area (Ha)</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Area (Ha)</th> </tr> </thead> <tbody> <tr> <td>2009</td> <td>2100</td> </tr> <tr> <td>2010</td> <td>Not available</td> </tr> <tr> <td>2011</td> <td>1987</td> </tr> <tr> <td>2012</td> <td>2000</td> </tr> <tr> <td>2013</td> <td>Not available</td> </tr> </tbody> </table> <p>Area detail for the years 2010, 2013 is not available</p> </div>	Year	Area (Ha)	2009	2100	2010	Not available	2011	1987	2012	2000	2013	Not available
Year	Area (Ha)													
2009	2100													
2010	Not available													
2011	1987													
2012	2000													
2013	Not available													

Source: Dept of Agriculture and Dept of Horticulture, Government of Maharashtra

The above analysis helps us understand ‘market led production’ in the district. Market led production is a way of backward planning of production. The main reasons that have led to the popularity of these crops amongst farmers, primarily market driven, are high demand from processing units as well as high prices for commodities in the market. The next section helps us further understand these five emerging crops by analyzing their arrivals data and their price variation.

### Crop-wise price variation for emerging crops

Sindhudurg is a small district, backward in terms of agri-business and hence poor in terms of being able to provide a competitive price to its farmers. Due to absence of APMC or regulated market structure in the district, major crops like Paddy are directly purchased by aggregators and then sold to rice mills in neighboring Kolhapur or local rice millers. Mango and cashew are also sold through a similar network of aggregators and traders. In the case of Mangoes, in many cases, mango orchards or trees are leased to a trader, who, while on one hand helps the farmer meet his/her immediate cash need, but undercuts the farmer on prices in comparison to the final markets. As a result price discovery is inefficient, and farmers are more price takers than being able to bargain for a competitive price.

Due to an absence of organised market in Sindhudurg price comparison analysis of the emerging crops over the years, is difficult. Noted below is a list of the major crops in Sindhudurg along with their average price.

Crop	Average Price ( INR/Kg)
Paddy	13.45
Cashew	80
Mango	120
Coconut	6

Source: Average prices through MSAMB and (iii) other information collected through interactions with farmers on the field

In order to encourage development and production of the five emerging crops of the district, it is important for regulated organizations to record prices and production regularly so as to encourage price discovery. Further, it is also important to also understand the current production practices of farmers on the basis of which best practices for crop cultivation can be recommended and extension services designed and planned. The next section of this report discusses the production practices of farmers in the district.

## Farmer assessment: Post-harvest management

Based on our interaction with farmers, certain package of practices for particular crops in the Sindhudurg district has emerged. The section below refers to the best practices as well as to specific recommendations corresponding to crops. Overall, we have observed that majority of the farmers did not follow the recommended package of practices. Major reasons for not following the key package of practices are lack of awareness and lack of willingness of farmers.

### Best Postharvest Management Practices

Practice	Paddy	Mango	Cashew	Coconut	Groundnut
Grading*					
Packaging					
Terminal and Wholesale market					
CA/MA Storage Packaging					
ApniMandi					
Cold Chain					

Source: Primary Survey

\*Grading is done only by traders for export purposes.

Discussions with farmers and traders indicate that either most of them don't engage in cleaning and drying of produce or it is done in an improper manner. Sorting and grading of produce is almost absent. Farmers believe that they might get around a 13-15% premium for grading of produce, but at an individual level, high labour costs does not make the process

worthwhile. Also fear of not being able to sell the second grade produce inhibits them from grading.

### Usability of available PHM equipment and machineries

PHM Equipment / Machinery	Degree of Usability	Barriers to usability
Warehouses and godowns	0%	No availability of warehouses or godowns. Farmers use a small godown provided by the PACS ( Primary Agricultural Cooperative Society )
Space for Sorting & Grading	0%	Lack of structured storage houses.
Refrigerated Vans	0%	Lack of refrigerated vans

*Source: Primary Survey*

Sindhudurg has very limited storage capacity and almost a bulk of it is at the village level and managed by the Primary Agriculture Credit Societies (PACS). Most warehouses are currently leased to the Food Corporation of India (FCI) for their rice procurement program, while the cold storages are used more for sea food than horticulture.

### Grading

Grade assessment of produce is almost entirely manual, though a significant portion of weighing is done through electronic weighing machines. Moisture meters are used a few times, but such examples are remote. There is a considerable ambivalence amongst farmers as well about adopting more mechanical grade assessment processes. This is because relatively few farmers actually sort/grade their produce since that involves incurring of labor costs. And farmers are not confident of getting commensurate returns for their efforts in the form of proper grade assessment.

While manual grading is not based on a new set of grades, the method of grade assessment is based on a set of established thumb rules and estimates developed by the traders and commission agents over long years of experience. Some examples of manual grade assessment are as follows:-

- In cereals and pulses, the size of the grain, uniformity of the grain size across the sample as well as boldness of the colour is also an important factor. For instance, in

Red Gram large and bold red coloured grains are rated above smaller and lighter coloured grains.

- Damage to grains is another factor that is important. Often crops which are harvested using machine harvesting have scratches on the grain and hence command a relatively lower price than those harvested by hand.
- Last, amount of thrash, foreign matter and other edible grain (for instance soya grains in a red gram sample) is another determinant of grade of the produce. While certain foreign matter such as twigs, leaves etc – to a manageable extent – is tolerable, edible grains and large amount of rocks, soil etc is graded low.

However, noted below are the standard grade specifications as stipulated by AGMARK and other grading authorities:-

**Paddy**<sup>4</sup>: Grading of paddy is usually done through mechanical devices, i.e. rotating grader, tiers, circular purifier, colour grader/sorter etc. Paddy grains having the same length but different thickness are graded by rotating graders; whereas, grains with the same thickness but different lengths, are separated by tiers. Sometimes both the rotating graders and the tiers are used. In the market, the sale of paddy is generally done on the basis of visual inspection of available sample and with local commercial name.

**Mango**<sup>5</sup>: At producer level, there is usually no grading done. They only remove immature, rotten and diseased fruits from the bulk. Wholesalers or pre-harvest contractors who purchase the produce from growers, grade mangoes according to size and variety before the consignments are dispatched to the consuming centers. The practice of sorting the fruits in several grades is common in Maharashtra, particularly for 'Alphonso'. The fruits are graded in several ways, according to size, color and maturity of the fruit. Some growers and contractors use sieves, having circular holes of 8, 7.5 and 7 cm diameter to distinguish fruits by simple marks on the package.

**Cashew**<sup>6</sup>: Kernels are graded according to the size manually. The grading standards developed in India refer to white whole (undamaged) kernels and indicate the number of kernels per pound of weight. The largest kernel come in the grade W210 (440- 460/kg) and the smallest of the seven grades is W500 (1000 to 1100/kg). Sound kernels are named as "wholes" and broken ones as "splits." Further classification refers to broken kernels, butts, splits, pieces, small pieces and whether kernels are white or scorched.

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<sup>4</sup> Commodity profile submitted by Global Agri

<sup>5</sup> Commodity profile submitted by Global Agri

<sup>6</sup> Commodity profile submitted by Global Agri

Grading is done for export purposes based on "counts" or number of kernels per pound. There are 27 exportable grades of cashew kernels. The entire grading operation is done manually. However for size-grading mechanical operation is also practiced. The wholes are again classified as whole white kernels, whole scorched kernels, whole dessert kernels (a) and whole dessert kernels (b). The splits are also further graded into white pieces, scorched pieces, dessert pieces (a) and dessert pieces (b) based on certain physical characters. The wholes are packed in several grades viz., 210, 240, 280, 320, 400, 459 and 500; the popular grade is 320.

**Coconut:**<sup>7</sup>The following table lists out the grade designations for different in shell coconuts:-

Grade Designation	Colour	Diameter (in mm)	Description
Extra Special	Brown	110 and above	The coconuts shall be well developed, matured and husked with or without water. These shall be free from bad smell, damage and blemish due to fungus and insect infestation. It shall be dark brown color at the top and when struck on the shell with finger or metal it shall give the characteristic metallic sound without any dull note.
Special	I Brown white or II Brown & white	100 and above	
Standard	I Brown white or II Brown & white	90 and above	
General	Mixed	Below 90	
Non specified	NA	NA	

Source: AGMARK

**Groundnut:** Groundnut is chiefly used for the extraction of oil and to a small extent as spice. The quality of seeds is therefore, judged by certain factors, which yield the quality i.e. mainly pungency of the oil etc. There are a number of other factors which have a direct bearing on the yield and quality of the oil obtained from the Groundnuts, i.e. size, colour, nature of damage of kernels, impurities and moisture content etc.

Groundnuts, grown in India fall under four main commercially important varieties, though they are marketed under a number of trade names. In some cases, the same variety is known by different names in different states. Important commercial type of varieties is Coromondal, Bold, Peanuts and Red Natalis.

The grading factors are the same for all the varieties both in respect of unshelled (pods) and shelled (kernels) groundnuts. These are as follows:

1. Unshelled groundnuts:
  - Foreign matter

<sup>7</sup>Commodity profile submitted by Global-Agri

- Damaged pods
  - Shriveled and immature pods
  - Pods of other varieties
  - Shelling percentage.
2. Shelled groundnuts:
- Foreign matter
  - Damaged kernels
  - Slightly damages kernels
  - Shriveled and immature kernels
  - Splits and broken
  - Nooks
  - Admixture of other varieties.

In addition, the produce shall have: (a) characteristic shape, configuration and appearance of the variety, (b) season's crop, (c) not moist to touch, (d) not showing visible signs of insects and moulds, (e) free from extraneous matter and obnoxious smell.

### Package of Practices and Post-Harvest Management

	Package of Practices (PoP)	Degree/ Comments	Post-Harvest Management (PHM)	Degree/ Comments
<b>Awareness</b>	Awareness of recommended PoP	Medium	Awareness of recommended PHM	Low
	Farmers following PoP	70-80%	Farmers following PHM practices	Low
<b>Affordability</b>	Degree of affordability	100%	Degree of affordability	Medium
<b>Availability</b>	Ease of availability of information	High	Usability of available facilities	
			Reasons for non-usability:	
			1. Dilapidated structure	
			2. Lack of coordinating operator	
			3. Lack of structure	Medium
<b>Accessibility</b>	Ease of accessibility of information	High	Accessibility to PHM facilities	Low
			Reasons for inaccessibility:	
			1. Lack of awareness	High
			2. Distance	High , no road

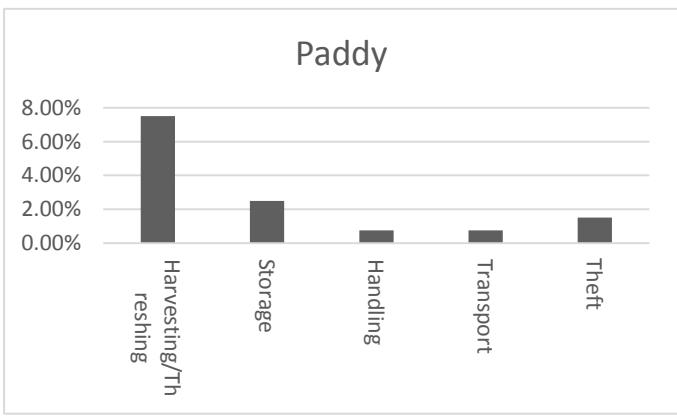
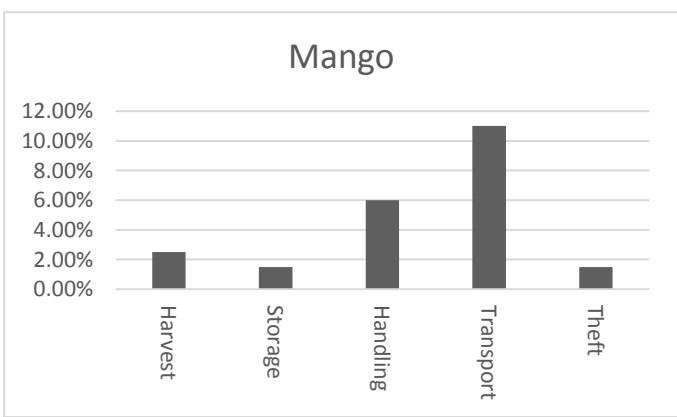
			connectivity
		3. Paperwork/Cost	Medium

Source: Primary Survey

Farmers in Sindhudurg district are adopting traditional post-harvest techniques for each of the major crops. As detailed in the table below one of the most common reasons for Post-Harvest losses across crops is lack of proper storage facilities and infestation pests and rodents post-harvest.

Crop	Major reasons for Loss
Paddy	Fungal growth due to heavy rains, premature harvesting, disease attack during storage, insects, rodents, birds and pest attacks , excessive drying ,
Mango	Improper maturity, manual harvesting, exposure to high temperature, transport
Cashew	Improper drying , theft
Coconut	Moisture , heap storage , damage during harvest
Groundnut	High moisture , pod losses during harvesting , insect and pest attack , transportation and handling

Specific quantification of post-harvest loss (based on farmer interaction) is provided below for the major crops:

Crop	Reasons for major loss													
Paddy	<ol style="list-style-type: none"> <li>1. Harvesting/Threshing – 5-10%</li> <li>2. Storage – 2-3%</li> <li>3. Handling – 0.5-1%</li> <li>4. Transport – 0.5-1%</li> <li>5. Malpractices/Theft – 1-2%</li> </ol>	 <p><b>Paddy</b></p> <table border="1"> <thead> <tr> <th>Reason</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Harvesting/Threshing</td> <td>7.5%</td> </tr> <tr> <td>Storage</td> <td>2.5%</td> </tr> <tr> <td>Handling</td> <td>0.5%</td> </tr> <tr> <td>Transport</td> <td>0.5%</td> </tr> <tr> <td>Theft</td> <td>1.5%</td> </tr> </tbody> </table>	Reason	Percentage	Harvesting/Threshing	7.5%	Storage	2.5%	Handling	0.5%	Transport	0.5%	Theft	1.5%
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Harvesting/Threshing	7.5%													
Storage	2.5%													
Handling	0.5%													
Transport	0.5%													
Theft	1.5%													
Mango	<ol style="list-style-type: none"> <li>1. Harvest – 2-3%</li> <li>2. Storage – 1-2%</li> <li>3. Handling – 5-7%</li> <li>4. Transport – 10-12%</li> <li>5. Malpractices/Theft – 1-2%</li> </ol>	 <p><b>Mango</b></p> <table border="1"> <thead> <tr> <th>Reason</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Harvest</td> <td>2.5%</td> </tr> <tr> <td>Storage</td> <td>1.5%</td> </tr> <tr> <td>Handling</td> <td>6%</td> </tr> <tr> <td>Transport</td> <td>11%</td> </tr> <tr> <td>Theft</td> <td>1.5%</td> </tr> </tbody> </table>	Reason	Percentage	Harvest	2.5%	Storage	1.5%	Handling	6%	Transport	11%	Theft	1.5%
Reason	Percentage													
Harvest	2.5%													
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<p><b>Cashew</b></p>	<ol style="list-style-type: none"> <li>1. Harvest – 2.5-3%</li> <li>2. Storage – 0.5-1%</li> <li>3. Handling – 0.5-1%</li> <li>4. Natural reasons –1-2%</li> <li>5. Malpractices/Theft – 2-3%</li> </ol>	<table border="1"> <caption>Cashew Post-Harvest Loss Data</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Harvest</td> <td>2.75%</td> </tr> <tr> <td>Storage</td> <td>0.75%</td> </tr> <tr> <td>Handling</td> <td>0.75%</td> </tr> <tr> <td>Natural reasons</td> <td>1.50%</td> </tr> <tr> <td>Theft</td> <td>2.50%</td> </tr> </tbody> </table>	Category	Percentage	Harvest	2.75%	Storage	0.75%	Handling	0.75%	Natural reasons	1.50%	Theft	2.50%		
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Natural reasons	1.50%															
Theft	2.50%															
<p><b>Coconut</b></p>	<ol style="list-style-type: none"> <li>1. Harvest – 1-2%</li> <li>2. Storage– 1-2%</li> <li>3. Handling – 0.5-1%</li> <li>4. Transport – 0.5-1%</li> <li>5. Malpractices/Theft– 1-2%</li> </ol>	<table border="1"> <caption>Coconut Post-Harvest Loss Data</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Harvest</td> <td>1.50%</td> </tr> <tr> <td>Storage</td> <td>1.50%</td> </tr> <tr> <td>Handling</td> <td>0.75%</td> </tr> <tr> <td>Transport</td> <td>0.75%</td> </tr> <tr> <td>Theft</td> <td>1.50%</td> </tr> </tbody> </table>	Category	Percentage	Harvest	1.50%	Storage	1.50%	Handling	0.75%	Transport	0.75%	Theft	1.50%		
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Transport	0.75%															
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<p><b>Groundnut</b></p>	<ol style="list-style-type: none"> <li>1. Harvest – 1-2%</li> <li>2. Drying/Sorting/Grading – 1-2%</li> <li>3. Storage – 2-3%</li> <li>4. Handling/Packaging – 4-5%</li> <li>5. Transport – 4-5%</li> <li>6. Theft – 0- 1%</li> </ol>	<table border="1"> <caption>Groundnut Post-Harvest Loss Data</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Harvest</td> <td>1.50%</td> </tr> <tr> <td>Drying/Sorting/Grading</td> <td>1.50%</td> </tr> <tr> <td>Storage</td> <td>2.50%</td> </tr> <tr> <td>Handling</td> <td>4.50%</td> </tr> <tr> <td>Transport</td> <td>4.50%</td> </tr> <tr> <td>Theft</td> <td>0.50%</td> </tr> </tbody> </table>	Category	Percentage	Harvest	1.50%	Drying/Sorting/Grading	1.50%	Storage	2.50%	Handling	4.50%	Transport	4.50%	Theft	0.50%
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Based on our interaction with various farmers and stakeholders, it is observed that some of the major causes of post-harvest losses are traditional techniques of storage, handling and transportation. While the reasons and practices are fairly well recognized but the adoption rate of practices by farmers is very poor.



## Existing Marketing Scenario in the District

### Agriculture Produce Market Committees (APMCs)

There is one APMC present in Sindhudurg but it is not functional. Due to the lack of any regulated market, it is not possible to do any trend analysis of the market prices or arrivals in the district.

Sr. No.	Name Of APMC	Average Annual Arrivals (2010-2013) in Qtls	Average Annual Value of Produce (2010-2013) in (Rs. Lakhs)	Major commodities sold
1	Sindhudurg	0	0	Nil

Source:MSAMB

### Market-wise Trend Analysis of Market Arrivals (in Qtl)

APMC	2013		2012		2011		2010	
	Total Arrivals	% of total	Total Arrivals	% of total	Total Arrivals	% of total	Total Arrivals	% of total
SINDHUDURG	0	0	0	0	0	0	0	0

Source: MSAMB

There is no employee structure in place within the APMC and currently there is only one APMC secretary appointed in Sindhudurg.

### Rural Haats (RH)

Apart from the regulated markets (APMCs) there are 55 rural haats in the district which are unregulated markets managed by gram panchayats. Annexure 1 gives the comprehensive list of rural haats in the district. Under MACP only 9 rural haats have been considered.

### Milk collection centers

Dairy is a major activity under the animal husbandry department. The average requirement of milk according to NDDDB's norms(per capita liquid milk + dairy products) is 250 ml. The total requirement of the district is 90000 liters of milk per day.

The following table provides details on the milk collection centers in Sindhudurg:-

Sr. No.	Name of organization	Within district	From outside District	Out of state	Total Collection
1	Mahananda	0	30000	0	30000
2	Government	3000	0	0	3000

3	Milk federation	550	0	0	550
	Total	3550	30000	0	33500

Source: Original MSS

The following table provides details on the daily milk distribution details in Sindhudurg

Sr. No.	Name of organization	Within district	To outside District	To Outside state	Total Distribution
1	Mahananda	10000	0	20000	30000
2	Government	3000	0	0	3000
3	Milk federation	550	0	0	550
	Total	13550	0	20000	33550

Source: Original MSS

About 3550 lit milk is collected per day through government, cooperative and private sector and is distributed through above mentioned mediums.

## Livestock Markets

There are no active livestock markets in Sindhudurg. For the farmers, rearing of local cows and buffaloes for milk and milk products is secondary occupation to agriculture. The following table highlights the number and type of animals reared in Sindhudurg:-

Sr. No.	Type of Animal		Number
1	Cow	Milch Cross Bred	2353
		Milch Indigenous	22510
2	Milch Buffalo		21425
	Total		46288
3	Breedable Cows		45885
4.	Breedable Buffaloes		36870
5.	Goat		33828
6.	Total Poultry		746932

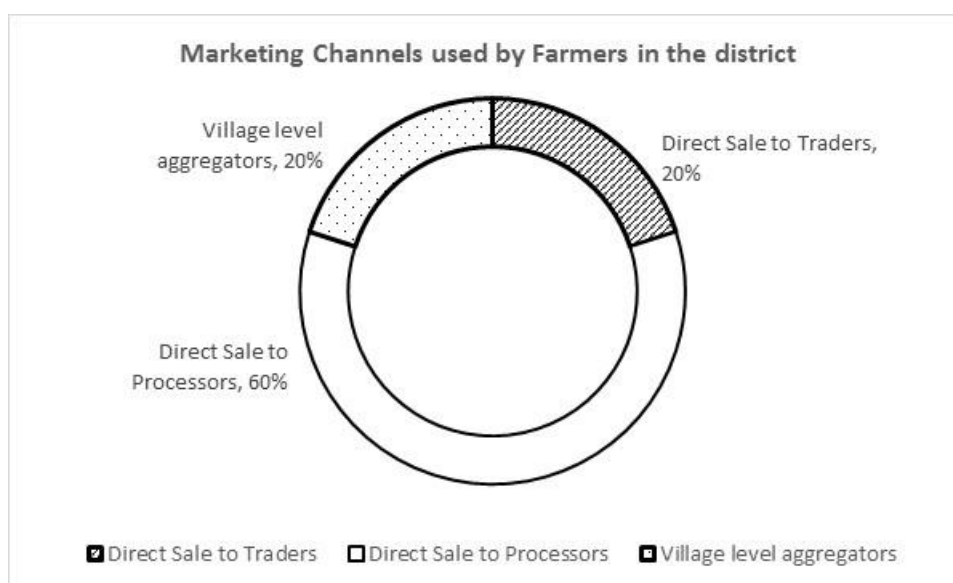
Source: Original MSS

## Other markets

There are no private markets or direct marketing license holders in Sindhudurg.

## Market Channels

Sindhudurg has a total of 7 market yards in the district, but there is no trading that happens on the APMC floor of the district. Almost all of the produce in the district is sold directly to local processors, traders (for transportation to neighboring districts) or village level aggregators who act on behalf of such traders and processors.



Source: Estimates provided by DMM – MSAMB

The major commodity - paddy is sold directly to the few rice millers in the district and largely to aggregators who are acting on behalf of rice mills in the neighboring Kolhapur district. Cashew (nuts) similarly is sold local processors as well as those in the neighboring Ratnagiri district, who purchase directly from farmers through their appointed village level aggregators.

The Mango crop is generally sold, when on trees, to traders, most of who operate in the Vashi APMC market, close to Mumbai or in the Pune market. Under this arrangement, the trader enters into a deal with the farmer to purchase all mangoes from a designated area of his/her plot.

In general, due to an absence of functioning regulated markets in the district, farmers don't have access to an efficient price discovery as well as multiple selling options, when selling their produce. At the same time, for local processing units, procurement turns out to be an

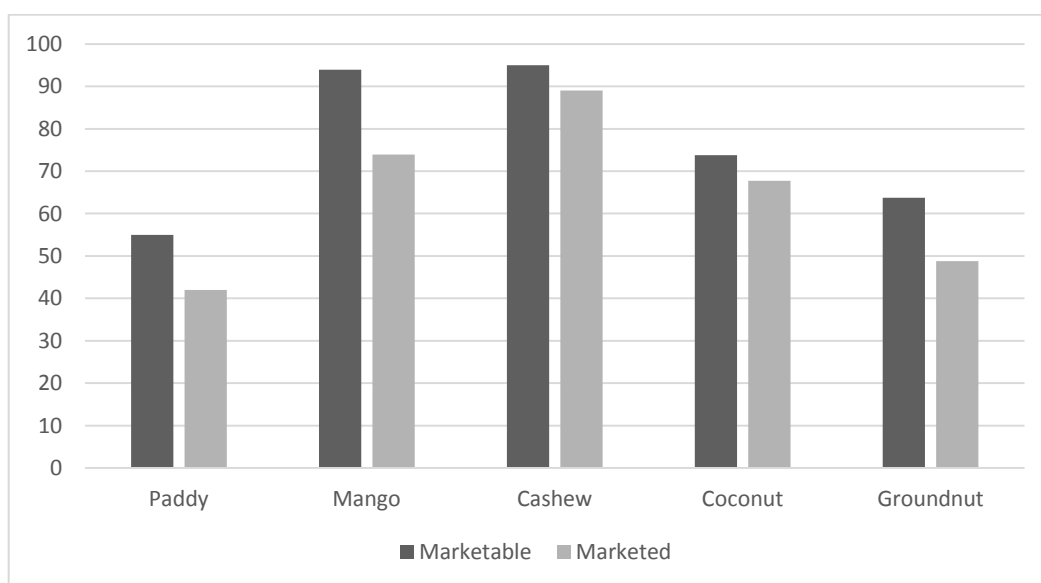
expensive affair, since they have to rely on a network of aggregators and agents, who add to the supply chain cost, without adding any significant value to the end product.

### **Agriculture commodities marketed vis-a-vis production.**

Details of Commodity wise average annual production, marketable surplus and average annual arrivals could not be collected due to the lack of any regulated trading through APMCs.

### **Marketable and Marketed surplus**

The following key observations were made regarding marketable surplus



*\*As reported by farmers*

As per our interaction with farmers the following key observations were made regarding marketable surplus

The actual marketable surplus exhibits a strong variation at the farmer’s level to the extent of +-30% depending on various factors which have a positive or negative effect on the marketable surplus.

<b>Factor</b>	<b>Effect on marketable surplus</b>
The consumption of the product by the farmer and his family	-Ve
Market fluctuations/change in policies lead to higher surplus as farmers tend	+Ve

to offload the product quickly, but then the price realized is lesser	
Market price: higher the price more the marketable surplus	+Ve
Natural Calamities (Hailstorms, drought,etc.)	-Ve
PHM losses in the product	-Ve
Malpractices by trader and theft	-Ve

Moreover it was also found that the method of market surplus estimation at the village level is very weak. Farmers do not keep a record of various losses and usage. Also it was said that they have never been asked to estimate their marketable surplus by any of the government departments.

Key reasons for difference in marketable surplus and marketed surplus were found as follows

	Handling/ Packaging	Storage	Transportation	Malpractices/theft
<b>Paddy</b>	√√	√√	√	√
<b>Mango</b>	√√	√	√√	√
<b>Cashew</b>	√√	√	√	√
<b>Coconut</b>	√	√	√	√
<b>Groundnut</b>	√√	√	√	√

**Note:**

- √ Low level of losses,
- √√ Medium level of losses
- √√√ High level of losses

*Source: Primary Survey*

While the major cause for difference in marketable and marketed surplus is the PHM loss, but the following observations were also made:

- Also some farmers reported that product is lost in transportation which they are not sure why.
- Malpractices by trader in terms of how much reduction he will assume are also common and the farmer has little control over such practices.
- Village aggregators are also cheating farmers by using forged weighing balances.



## Constraints in existing marketing system

An analysis of the strengths, weaknesses, opportunities and threats for the APMC in the district has been done. It helped realize the essential factors that APMCs can leverage on and those which it can improve on. Every APMC has a different need based on the requirements of the farmers, the arrivals, the sale, its connectivity by rail and road and the proximity of processing factories.

Sr.No	Name of APMC	Strength	Weakness	Opportunity	Threat
1.	Sindhudurg	District place, Connected Railway Station	Nonfunctional APMC, no facilities available.	Land, drinking water facilities, Internal Road, Farmer residences, Electricity, Compound Wall, Security room, Toilet facility, Auction Platform, Formation of group grading and Packaging, Electronic weighing machine, Cold Storage, Trade can be increased to adjacent district.	Private Market and direct license, adjoining district APMC's

The APMC is not functional and hence it could not be analyzed in terms of infrastructure and marketing practices. Please see Annexure 4 and 5 for the overall constraint analysis of APMCs.

Annexure 4 and 5 gives us a detailed assessment on the APMCs in Sindhudurg district. Additionally, the APMC has also been assessed on the basis of processes such as the use of display boards for displaying current market prices, the availability of cleaning units and other services/ facilities available. The assessment has been done using the Full Gap/ Partial Gap/ No Gap (F/P/N) analysis.

As per the Business Development Plan (BDP) of the APMC, certain activities and works have been proposed. Details of these proposed works and recent developments are given in Annexure 4. The three primary sources of funds for implementing these activities are Maharashtra Agricultural Competitiveness project (MACP), Director of Marketing & Information (DMI), and Rastriya Krishi Vikas Yojna (RKVY).

### Contract farming and direct farmers to consumer market in the district

To be finalized post receiving information from MACP given

The list of registered companies working with farmers directly as contractor is given below:

### Agro processing industry in the district

Sindhudurg district is rich in production of fruits such as mango, kokam, cashew and coconut and hence there is huge scope for agro processors for fruits processing industries. The NGO 'Kokan Nisarga Mancha' works with locals who process raw produce by traditional methods. The locals have been brought together to form different networks and are trained in upgraded processing systems to create upscale products making them viable for large scale market sales.

### Storage facilities available in Sindhudurg district

Sindhudurg has very limited storage capacity and majority of it is at the village level and managed by the Primary Agriculture Credit Societies (PACS). There are 102 PACS owned and managed warehouses in the district, but none of these are accredited for warehouse receipt financing.

Facility	No of Units	Capacity (MT)	Accreditation to warehouse receipt finance
Private Warehouses (NABARD Supported)	NA	NA	NA
PACS	102	33,160	NO
Cold Storage	4	NA	YES
Total	106	33,185	

Source: (i) List of NABARD warehouses; farmer.gov.in, (ii) Website of Maharashtra State Warehousing Corporation



The total storage capacity is 33,185 MT, which is just a fraction of the total rice produced in the district. But since a bulk of paddy is typically transported outside the district for processing, such shortage is rarely felt. Similarly in the case of Mangoes, since most of them are sold for table purposes and transported outside the district, warehouse shortage is rarely felt.

**Average Storage period:**

<b>Crop</b>	<b># of days</b>
Paddy	4 - 6 weeks
Mango	NA ( Farmers do not store )
Cashew	NA ( Farmers do not store )
Coconut	NA ( Farmer do not store )
Groundnut	NA ( Farmers do not store )

**Paddy:**

- Paddy is a highly perishable agri-commodity, therefore maximum storage period for Paddy is only 4 to 6 weeks.
- Paddy grains are stored in Kanga, bags, and bin.
- Paddy straw is stored in heaps.

**Mango:**

- Farmers do not store mango after harvesting but directly sell it to pre-harvest contractors and local mandis.
- A few farmers store mangoes for 2-3 days.
- Farmers generally use gunny bags and wooden boxes as a packing material.
- In market, traders/commission agents store it for 1-2 days in wooden pack. Marketing board provide facilities of cold storage of 125 MTs capacity for mango in Maharashtra. They use crates and boxes as a packing material in cold storage.

**Cashew:**

- Farmers do not store cashew.
- Raw nuts immediately after harvest are separated from cashew apple and sun dried for 2 to 3 days.
- Well dried raw nuts (moisture content 8 to 9%) can be stored upto one year without any quality deterioration.

**Coconut:**

- Copra has to be dried to 6% moisture by sun drying or by using copra driers.
- The storage period of copra can be increased up to 6 months by storing the copra in polythene tar coated gunny bags.

- For household storage the nuts may be kept in vertical position.

#### **Groundnut:**

- Ground nut needs to be stored in dry and neat place to avoid formation of toxins.
- Producers store groundnut in pod and kernel form at farm godowns or in their own house using various types of traditional and improved structures
- Some producers also pack groundnut in jute gunny bags or in gunny bags lined with polythene and stack in room.

#### **Transportation facilities related to agriculture goods**

Primarily motor transport is utilized for activities related to agriculture goods to transport produce within the district and outside the district. Farm transportation activities include the use of motorized equipment to deliver the final produce to the local Mandi. This needs proper transportation facility to maintain the quality of the produce as well as the time lines, so that the produce can reach its final destination within time and the farmers can get the benefit of good rates. The transportation facility in the Sindhudhurg district is considered sufficient to meet the agricultural needs. Accessibility of vehicles is believed satisfactory and whenever there is deficit, vehicles are usually always available from neighbouring district such as Ratnagiri, Kolhapur and Panji district of Goa. However there is no proper road connectivity within the district which is a major problem as majority of the farms are located in extremely remote and interior locations.

Normally there are two types of transports. 1) Primary transport and 2) Secondary transport. In primary transport, farmers use their own sources such as tractors, small trucks, bullock cart, private trucks to deliver the product to the local mandi. In secondary transport, the traders who are dealing in bulk quantities, prefer to take a bigger vehicle to deliver the stock to the final buyers or companies. Transportation activities should be timed to occur as much as possible during regular working hours.

It is observed that after drying and cleaning of the produce it is packed in gunny bags, plastic bags, crates. For pulses and cereals, they are usually packed in gunny bags. Vehicle is used as per the volume of the produce and the place where it is to be delivered.

Horticultural crops like mango and cashew specifically require proper logistic facility to deliver stocks. In these crops, harvesting takes place in the evening time to maintain the freshness and quality of the produce and after packing, it is immediately loaded in the vehicle for the delivery.

Farmers / Traders using public roadways must comply with existing legislation, regulation the required documents such as bill or invoice copy, direct marketing licenses if they have, or the proper information of the delivery.

In some cases farmers / traders face certain issues while delivering stock within district or to other state. Some of these issues faced by them are:

- Road infrastructure is not proper, rough and damaged roads, traffic problems leads to delay in reaching the final destination.
- Statewise different taxation policy on one crop.
- Higher transit damage during the transportation.
- Heat Accumulation or very poor ventilation within the transport vehicle.

### **Private Markets versus Regulated Markets**

### **Recent developments and proposed changes**

To be finalized post receiving information from MACP

### **Existing system**

It has been observed that the existing infrastructure is unable to handle the agriculture produce and this is true in case of the livestock market and dairy sector as well. The unregulated rural haats are unorganized and have little capacity to handle the agricultural produce. There are insufficient infrastructure facilities like warehouse, cold storages, etc. and incompetent marketing practices in the existing system, for example lack of electronic weighing machines, etc.

Maharashtra Agricultural Competitiveness project (MACP) has recently undertaken an exercise (Project Concept Note–PCN) to assess the existing infrastructure and other facilities in the APMC. Please refer to Annexure 4 for proposed development works on APMCs, infrastructure, dairy, rural haats and other markets. There have also been some other market developments by MACP recently.

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## **Constraints in Market led Production**

Strategic Research and Extension Plan of district gives analysis of gaps in technology adoption in production practices of major crops and allied enterprises in agriculture. However this does not include post-harvest practices to improve quality of produce so as to add value to product for better price realization. Market led production includes such pre and post-harvest practices which improves the quality of produce for higher returns in the market. From this perspective of analyzing constraints in market led production following major crops are considered.

### **Crops**

1. Paddy
2. Mango
3. Cashew
4. Coconut

## 5. Groundnut

Some of the key insights gathered from the constraint analysis are noted below for the emerging crops of the district.

Key insights from the constraints analysis for Paddy are:

- Farmers need to organize in producer groups to increase their bargaining power.
- As far as they can farmers should plant varieties like R24, jaya, indrayani, sonam, sarthi, pro agro, which fetch better prices.
- Produce should be packaged in jute gunny bags starting from 50 Kg bags and for retail where possible for better handling and to avoid post-harvest loss.
- Storage should be done at room temperature with 12-14% moisture level in gunny bags.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Mango are:

- Farmers need to organize in producer groups and also use commodity exchanges more
- The crop variety Alphonso (Haapoos) is the principal mango variety in the district.
- Emphasis needs to be put on proper grading activities along with proper storage so as to avoid pest infestation.
- Controlled atmospheric packaging is the best modern packaging method for packaging of fruits.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Groundnut are:

- Farmers need to organize in producer groups to increase their bargaining power
- Better storage facilities which ensures prescribed moisture levels are not exceeded.
- Crop varieties such as TAG-24, Desi, SB-11, Phule Pragati need to be encouraged in the district. need to be encouraged in the district.

- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened
- Pods should be properly dried.
- Pledge loan facilities need to be made available to farmers to reduce the number of distress sales.
- There is scope to increase contract farming in the form of public-private partnerships.

Key insights from the constraints analysis for Cashew are:

- Farmers need to organize in producer groups to increase their bargaining power.
- Farmers should practice clean picking of the cashew nut and should do it early morning and evening.
- The crop should be free from stained and immature locks, as well as trash in the form of hulls, stalks and leafy bits and sand.
- Packaging should be in Woven Cotton Bags Warp Knitted Cotton Bags, Polyethylene Film Bags,
- It should be stored in dry, area free from rats and danger of fire under the shed.
- Access to information for farmers through the AGMARK and MSAMB websites and electronic media on grades and pricing, contract farming, certification, training and opportunities to export can be strengthened.
- There is scope to increase contract farming in the form of public-private partnerships.

There was insufficient data to do a constraint analysis for coconut. Details of the constraint analysis are given in Annexure 3 with a Full (F), Partial (P) and No (N) gap analysis for cashew.

## Recommendations

The MSS report outlines the existing marketing systems and channels in Sindhudurg district along with detailed information on the main crops of the district. This information helps us understand the current activities and developments in Sindhudurg and enables us to identify potential business opportunities that farmer groups can establish in the district. This MSS report also helps us to propose specific activities that ATMA may undertake to promote production and productivity of crops as well as encourage business activity amongst farmer groups.

### Major gaps

For production in the district to be market led, improvement in productivity along with improvement in quality for better value produce is needed. Strategies have to be framed which will be supported

by interventions/ activities to achieve set targets. Interventions proposed will act as cafeteria for preparation of extension projects for addressing the identified issues of particular crops. Some key issues that need to be immediately addressed are as follows.

Processing capacity gaps: Sindhudurg is a small industrial zone, with agro processing dominating the industrial scene. Cashew and Mango based industries dominate the agro processing sector, with cashew being more predominant. There is a large gap in rice processing within the district, with a bulk of produce being transported to neighbouring Kolhapur for milling. As a result, farmers in Sindhudurg don't always get a competitive price for their produce. More mills in the district can improve selling options for farmers as well as ensure better prices. Mango processing is another opportunity that can be exploited in the district. At the moment, only a fraction of Mangoes come for further processing, with a bulk of the production sold as table fruit in the key metros. Other opportunities exist in some of the relatively under-tapped horticulture crops such as Coconut, Kokum and Jackfruit.

Weak extension: Agricultural extension services in the district are carried out by ATMA and KVK at Kirlos Malvan, Sindhudurg, in addition to the agriculture department. ATMA and College of Horticulture Sindhudurg also provide training on crop production and technology on major crops like cashew and mango farmers across the Sindhudurg district. The extension network for the district is well structured with respect to design of essential services. In the opinion of the program coordinator of KVK, they are able to cover all the major operational areas well. Meanwhile, ATMA in association with agriculture department has been conducting wide spread training on crop production and technology for major crops like cashew and mango farmers across the district and has rated its outreach at 3 point, on a scale (1 to 5), for effectively training farmers at all level. NGOs like Native Bamboo Konbac Products Ltd is also playing major role for training farmers. However, all of them agree that they are not able to reach out to all farmers, even within their focal areas. Only a third of the 30 farmers interviewed said they had ever been exposed to some kind of training. Clearly, outreach is a big problem, as the current extension system is barely able to reach out to farmers. At the same time, private players – like input providers – and peers are reaching out better and are found to be more reliable by farmers. There are definitely lessons to be learned and opportunities to co-opt some of these channels for improving extension efficiency.

Absence of formal regulated markets: Sindhudurg has a total of 7 market yards in the district, but there is no trading that happens on the APMC floor of the district. Almost all of the produce in the district is sold directly to local processors, traders (for transportation to neighbouring districts) or village level aggregators who act on behalf of such traders and processors. In general, due to an absence of functioning regulated markets in the district, farmers don't have access to an efficient price discovery as well as multiple selling options, when selling their produce. At the same time, for local processing units, procurement turns out to be an expensive affair, since they have to rely on a

network of aggregators and agents, who add to the supply chain cost, without adding any significant value to the end product.

### **Road Map**

The strategy for development of agri-business in Sindhudurg is three pronged – (i) Promote warehouses amongst farmers, (ii) Reduce information asymmetry in Markets and (iii) Systematically promote Coconut from the district, particularly the coir industry

Focus Area	Specific Action Points	Activities	Responsibility	Time frame & Cost
<b>URGENT GAPS</b>				
Promote warehouses amongst farmers.	<p>Ensure Adequate Capacity</p> <ol style="list-style-type: none"> <li>1) Ensure adequate storage capacities at each APMCs considering a 10 year expectation.</li> <li>2) Focus on setting up warehouses at secondary market levels as well as at key villages.</li> <li>3) Experiment with a combination of brick &amp; mortal warehouses as well as hermetic storage structures to ensure expansion in capacity within short period of time.</li> </ol> <p>Promote Usage by Farmers</p> <ol style="list-style-type: none"> <li>1) Explore options of farmers tying up with traders/processors to stock on their behalf using an accredited warehouse and against a buy back guarantee from the trader/processor. Such a tri-party arrangement will help the processor not require to maintain stock and take benefit of lower storage costs of farmers; the farmer to take benefit of price rise in non-peak seasons; while assure farmer of a market due to a buy-back guarantee.</li> <li>2) Explore option of using trained agri-service providers working on commission basis to promote warehouse services amongst farmers. Such service providers could work on a commission basis and help farmers plan their business by using a warehouse, help them with documentation</li> </ol>	<p>Improve basic &amp; productive infrastructure in APMC's and Rural Haats</p> <p>PHT Demonstration Pledge Loan Farmer Trainings</p>	<p>PD ATMA, in collaboration with</p> <ol style="list-style-type: none"> <li>1) MSAMB for augmenting APMC infrastructure and conducting trader level survey.</li> <li>2) With Agri-department to promote concept amongst farmers.</li> </ol>	<p><b>Annexure 5:</b> Constraint Analysis for APMC</p> <p><b>Annexure 4:</b> District agriculture market development plan</p> <p><b>Annexure 6:</b> Constraints, Strategies&amp; Proposed Interventions For Promoting Market Led Agriculture Production</p> <p><b>Annexure7:</b> Timeframe for implementation of market led agriculture production</p>



<p>Reduce information asymmetry in Markets</p>	<p><u>Set up a system to record trading data</u></p> <p>Set up a system to record trading data from licenses local traders and processors on a periodic basis.</p> <p>For instance, make it mandatory for processors and traders in the district to voluntarily disclose trading volumes and average trading prices twice daily to the MSAMB office</p> <p>Collate prices and volumes and publish aggregates through a multitude of sources (such as previous day price written on display boards at APMC and MSAMB office, published in local newspaper, published on Sindhudurg.nic.in website etc)</p>	<p>Demonstrations</p> <p>Farmer Trainings</p> <p>Exposure visits</p> <ul style="list-style-type: none"> <li>• Within state</li> <li>• Outside state</li> </ul>	<p>DMM- MSAMB</p>	<p><b>Annexure 5:</b> Constraint Analysis for APMC</p> <p><b>Annexure 4:</b> District agriculture market development plan</p> <p><b>Annexure 6:</b> Constraints, Strategies&amp; Proposed Interventions For Promoting Market Led Agriculture Production</p>
<p>Systematically promote Coconut from the district, particularly the coir industry</p>	<p>1) Create database of Coconut farmers and take interest from farmers willing to participate in an intensive coconut program.</p> <p>2) Provide training and extension to database farmers as per existing methods on coconut farming.</p> <p>3) Similarly train such farmers on coir based products. Link such farmers to Producer groups working on Coir (see below for recommendation)</p> <p>4) Hire an independent agency/call center to maintain track of outreach to farmers by calling up the database farmers on a periodic basis.</p> <p>Support Development of Market</p> <p>1) Display information and contact details of database farmers on a district website (either a page created on sindhudurg.nic.in) or a special website created for the purpose; to enable traders to directly contact such farmers.</p> <p>2) Promote a marketing group of volunteering farmers who are willing to aggregate produce and sell in an established market such as Mumbai, Pune, or Delhi. Support initial logistics cost through a subsidy to promote the concept of aggregating and trading in markets outside the district.</p>	<p>Crop Demonstration</p> <p>Farmer Training</p> <p>Farmer Collective Service Centres</p> <p>Group Formation</p> <p>Exposure visits</p> <ul style="list-style-type: none"> <li>• Within state</li> <li>• Outside state</li> </ul>	<p>PD ATMA in collaboration with DSAO</p>	<p>Budget &amp; Time Frame to be made by ATMA: Leverage on MACP Scheme and/ or Agri Entrepreneurs scheme under ACABC</p>

A comprehensive action plan for the time period of 2012-2017 was developed by the team in VANAMATI detailing the specific approaches required to be taken for each crop category- Cereals, pulses, oilseeds and fruits & vegetables. The team has classified the action plan in terms of activities to be undertaken specific to: Crop demonstration; PHT demonstration; Group formation; FCSC (grains); Pledge loans; Farmers training; Farm school and Exposure visits (within state/ outside state). All these activities have been proposed to solve for issues related to non adoption of package of practices and post harvest practices along with the lack of market awareness. Additionally, the total costs of implementing the action plan has been laid out after considering the availability of funds from major institutions such as MACP, ATMA, MSWHC, NABARD, ISOPAM, NHM and MWSIP. While most of the prescribed activities in the action plan may already be under implementation, a reference to this action plan will further help in creating a strategic approach to the development of the district. Please refer to Annexure 4 and 5 for the action plan. Noted below is the abstract of planned activities.

Sr No	Activity	Financial provision from(lakh)		Total(lakh)
		MACP	Non MACP	
A	Intensification and diversification in market led production			
1	Market Led Extension in Cereals	47.35	95.35	142.7
2	Market Led Extension in Pulses	14.575	353.75	368.33
3	Market Led Extension in Oilseed	52.87	177.67	230.54
4	Market Led Extension in Fruits & vegetable	26.74	877.7	904.44
	Total A	141.535	1404.47	1546.005
B	Improving farmer access to market			
7	Market modernization of APMC	40	238.68	278.68
8	Livestock Market Modernization	0	0	0
9	Rural haat Modernization	162	14.89	176.89
	Total B	202	253.57	455.57
	Total A +B	343.535	1658.04	2001.575

## Potential Businesses

Furthermore, there is significant potential for additional value capture by the kokum, coconut and jackfruit farmers. The above analysis and recommendations will help strengthen the infrastructure for cultivation of these crops in turn encouraging the growth and establishment of processing units in the district. We found it useful to further understand the business environment in Sindhudurg and identify potential business opportunities in the district. Based on the data produced in the report and our assessment of the needs and gaps of the district, we suggest potential areas for intervention across key crops identified. The potential for value addition through processing at different levels to

increase efficiency, preserve quality and/or reduce wastage/spoilage was also taken into account and assessed. A detailed analysis of all the business opportunities possible across the main crops was conducted and three of the most beneficial business opportunities for the district were shortlisted. The assessment evaluated each of the above economic opportunities for the crops on the basis of the following scoring matrix (on a scale of 1 to 3) to arrive at a shortlist of three promising business opportunities.

Parameter	Score
Raw material availability	1 – Less than 5% of gross cropped area under cultivation 2 – 5 to 15% of gross cropped area under cultivation 3 – >15% of gross cropped area under cultivation
Market potential	1 – Low growth, small market size dependent on nature of business 2 – Medium growth, medium market size dependent on nature of business 3 – High growth, large market size dependent on nature of business
Complexity of operations	1 – Very complex technology/processes 2 – Moderately complex technology/ processes 3 – Simple technology/processes
Investment required	1 – More than Rs.50 lacs 2 – Between Rs.20 to 50 lacs 3- Less than Rs.20 lacs
Potential for impact	1 – 0% to 5% of the total number of farmers growing the crop 2 – 5 to 20% of the total number of farmers growing the crop 3 – >20% of the total number of farmers growing the crop

On the basis of the scoring exercise undertaken the following emerged as the most promising business opportunities which can potentially be promoted among the farmer groups in Sindhudurg:

Sr. No.	Business model/opportunity	Focus crop(s)	Value chain impact	Key considerations
1.	Kokum syrup processing unit	Kokum	Primary processing	<ul style="list-style-type: none"> <li>• Sindhudurg is known for its Kokum production – crop is indigenous to the district</li> <li>• High value add with significant margins</li> <li>• Existing processing is relatively weak</li> <li>• Will formalize a largely unorganized value chain</li> </ul>
2.	Jackfruit processing unit	Jackfruit	Primary processing	<ul style="list-style-type: none"> <li>• District with unorganized jackfruit production which is almost entirely being wasted</li> <li>• High value add business with different outputs that gives business inherent diversification</li> <li>• Will establish a jackfruit value chain – first of its kind in Maharashtra</li> <li>• Encourages greater production of jackfruit</li> </ul>

3.	Desiccated Coconut powder unit	Coconut	Primary Processing	<ul style="list-style-type: none"> <li>• Coconut is a major crop in the district</li> <li>• Coconut powder is a key ingredient in Indian diets and is required on a large scale by confectionary and biscuit factories.</li> <li>• Will establish a Coconut value chain in the district</li> </ul>
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Encouraging the establishment of the above businesses will encourage production and cultivation of crops and help farmers realize a better price for their produce

### **Review of ATMA**

In order to ensure adoption of best practices in crop cultivation and encourage the establishment of businesses in Sindhudurg, ATMA will need to create specific and structured extension programmes and interventions using the above information and recommendations. A scoring assessment of ATMA conducted by the TechnoServe team on key parameters reveals that ATMA Sindhudurg will have to significantly improve in almost all parameters except utilisation of received fund; more so specifically in working with line departments and convergence; carrying out impactful activities and enhance adoption; and overall coverage and outreach of ATMA in the district.

ATMA in the district is evolving as an organisation in promoting extension services in the district. ATMA in the district is also moving towards engaging multi-agency extension strategies, facilitating convergence in planning and execution and ensuring its extension services are consistent with the farming system; however, this may require more efforts where, convergence and closer synergy with public and private institutions needs to be appropriately addressed in its current work. Further improvement and promotion of market led extension needs to be undertaken. Specialised personnel with sound technical knowledge on marketing at the block level as well as additional SMS with marketing knowledge at the block level quire to be recruited. Additionally, regular training of the Block Technology Managers and Deputy Director (Marketing) on concept of market led extension needs to be undertaken.

With the initiation of MACP and overall emphasis on Market led extension in general, ATMA, Sindhudurg has been proactively gearing towards the same. However, ATMA Sindhudurg will need to play a critical role in helping establish infrastructure and policy. Amongst other important undertakings, capacity building of ATMA staff through modular structured training programs particularly on specific skills such as monitoring and evaluation, market led extension, value addition and processing, and formation and strengthening of FPOs will further improve the impact and execution of activities. Recruitment of key staff members in ATMA along with creating an annual plan on detailed tasks and key result areas for staff members will be helpful in streamlining processes and implementing activities. Finally, regularly monitoring work at ATMA and documenting the processes and progress in quarterly and annual reports will help ATMA create impact through its

activities and course correct their implementation strategies required so as to create the most impact.

A broad action plan for ATMA is noted below:

Action Areas	Description	When
<b>A. Strategy</b>		
i) Articulation of key focus areas based on gap assessment	<ul style="list-style-type: none"> <li>• Identify key gaps through following:               <ul style="list-style-type: none"> <li>○ Review of SREP, MSS and this study</li> <li>○ Sample need assessment exercise through PRA and other tools</li> </ul> </li> <li>• Articulate focus areas based on the above</li> </ul>	Yearly once before Annual Action Plan preparation (January-February)
ii) Strategic cum planning workshop with AMC on key focus areas	<ul style="list-style-type: none"> <li>• Discuss focus areas with AMC members</li> <li>• Build consensus and develop broad initiatives that can be promoted</li> <li>• Communicate the focus areas and broad initiatives to BTTs</li> </ul>	Yearly once before Annual Action Plan preparation (January-February)
iii) Focus on market led extension on the identified priority and emerging crops	<ul style="list-style-type: none"> <li>• Key crops identified are: Paddy, Mango, Cashew and Coconut</li> </ul> <p><u>Paddy</u> –some of the initiatives that can be taken up by ATMA sindhudurg are:</p> <ul style="list-style-type: none"> <li>○ Focus on new planting techniques, varieties that may provide high yield</li> <li>○ Farmer Friend,</li> </ul> <p><u>Mango</u>- In Mango initiatives that can be promoted are:</p> <ul style="list-style-type: none"> <li>○ FIG's to be trained on value addition aspects for mango processing.</li> <li>○ Promote and provide small mango processing units with necessary equipment's to support FIGs</li> </ul> <p><u>Cashew</u>– In Cashew, initiatives that can be promoted are:</p> <ul style="list-style-type: none"> <li>○ Farmers need to be exposed to different markets to understand the different grades and market prices;</li> <li>○ Facilitate farmer's access to storage and warehousing; and inform farmers on the daily market prices through sms based system.</li> <li>○ Processing the Cashew apple may provide additional monitory benefit.</li> </ul> <p><u>Coconut</u>- In Coconut the initiatives that may be promoted are</p> <ul style="list-style-type: none"> <li>○ Create awareness and organize exposure trip of farmers to understand the market base and opportunity for coconut (tender) and its linked industry especially for coir and cocopith within M.S</li> <li>○ Promote coconut cultivation and provide access to farmers for marketing it to major cities within M.S</li> <li>○ Conduct exposure visits and encourage FIG to establish small units for coir production and cocopith</li> </ul>	<p>Immediate</p> <p>The proposal may be discussed in GB meeting for approval.</p>
iv) Focus on strengthening of Farmer Interest	<ul style="list-style-type: none"> <li>• Identification of the gap areas as reflected in the grading exercise</li> <li>• Prepare customised plan for each of the FIGs under</li> </ul>	<p>Immediate;</p> <p>Planning and</p>

Groups and Producer Companies	<p>different grades for strengthening</p> <ul style="list-style-type: none"> <li>• Allocate man power to handhold FIGs on a regular basis</li> <li>• Initiate activities (preferably economic) to encourage FIGs to actively involve</li> </ul>	activities to be reviewed every month
<b>B. Structure</b>		
v) Develop selection criteria for non-official members through pre-set criteria	<ul style="list-style-type: none"> <li>• The farmers need to be selected through a set of criteria</li> <li>• AMC to develop a set of criteria and the same can be approved by GB</li> <li>• Following are the suggestive criteria: <ul style="list-style-type: none"> <li>○ Farmer having diversified farming system</li> <li>○ Farmer currently engaged in agriculture and is located in the village/place of farming</li> <li>○ Demonstrated use of new technology having good relationship with research institutions or agencies in the business of promoting agriculture</li> <li>○ No current or past engagement/relationship with political parties; or have hold any positions at district or Taluka level</li> <li>○ Literate and have ability to read and write (Higher education is preferable but not essential)</li> </ul> </li> </ul>	Immediate
vi) Functioning of GB and AMC through orientation and regular meetings	<ul style="list-style-type: none"> <li>• Orientation of members on their roles and responsibilities</li> <li>• Quarterly meetings for GB</li> <li>• Monthly meetings for AMC</li> <li>• Ensure attendance and participation of members through involving members in the regular work of ATMA</li> </ul>	Immediate
vii) Involve BFAC, DFAC and AMC members in regular monitoring of ATMA's work	<ul style="list-style-type: none"> <li>• Orient the BFAC, DFAC and AMC members on their roles and responsibilities</li> <li>• Active participation in the meeting, discussion on the needs of farmers/ block and during effective implementation.</li> <li>• Create plan for the members to undertake monitoring function on monthly basis</li> <li>• Include specific agenda to discuss the feedback from the BFAC, DFAC and AMC members post their visits in their monthly meetings</li> </ul>	
<b>C. Staff</b>		
viii) Building skills of ATMA staff through modular structured training programs	<p>Following are the suggested trainings for</p> <ul style="list-style-type: none"> <li>○ <u>Project Director</u> – Project Formulation and Management, Market led Extension, Monitoring and Evaluation, Networking, Negotiations</li> <li>○ <u>Deputy Project Director (Marketing)</u> – Market Led Extension, PHM, Value Addition and processing</li> <li>○ <u>Deputy Project Director (Research)</u>: Research methodology, farm schools, demonstrations, trainings, crop based trainings on new technology</li> <li>○ <u>BTM</u> – Concepts of Market led Extension, Post-Harvest Management in the key crops, Value addition and Processing</li> <li>○ <u>SMS</u> – Formation, strengthening of FIGs, CIGs, FPOs</li> <li>○ <u>Farmer Friend</u> – Group Dynamics, Formation and strengthening of FPOs</li> </ul>	Yearly, spread evenly across the year
ix) Recruitment of key staff	<p>Following vacancies need to be filled up:</p> <ul style="list-style-type: none"> <li>• Deputy Project Director (Marketing) – 1</li> <li>• BTM – 3, SMS – 12; preference for candidates having skills and experience on marketing of agro-</li> </ul>	Immediate

	produce	
x) Annual Planning for key staff and articulation of Key Result Areas (KRAs)	<ul style="list-style-type: none"> <li>• Each ATMA staff to outline and articulate their Key Result Areas (KRAs)</li> <li>• Goals to be based tightly on the key identified priority areas and annual action plan</li> <li>• BTMs and SMS to spend minimum of 50% of their time in field working with farmers and FIGs</li> <li>• A Season wise / fortnightly work plan to be made at the outset of the month and verified/approved by TAO and DPD</li> </ul>	<ul style="list-style-type: none"> <li>• Annual (post finalisation of Annual Work plan)</li> <li>• Every month</li> </ul>
<b>D. System</b>		
xi) Improve Annual Action Planning process by detailing the key activities at the block and District level and getting advisory support from Farmers Advisory Committee and BTT members	<ul style="list-style-type: none"> <li>• Communicate the key focus and intervention areas to BTT/BTM as planned by the AMC</li> <li>• Use detailed template to support the BAP/DAP template</li> <li>• Develop a roster of activities and advertise the Block and District level activities through websites, sms, print media and putting the same at common places</li> <li>• Maintain a transparent and stricter guidelines for selection of beneficiary</li> <li>• Review of the plans versus achievement to be undertaken monthly at the Block level at BTT/BFAC meetings</li> <li>• Coordination between ATMA and TAO for the updates on the block wise field activities. MPR and fund utilised.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual while preparation of Annual Action Plan</li> <li>• Monthly</li> </ul>
xii) Documentation of ATMA's work through a quarterly and annual report.	<ul style="list-style-type: none"> <li>• ATMA to produce a two to three page report (both physical and financial) on the activities undertaken in the blocks</li> <li>• These quarterly reports to be translated in as Annual report</li> </ul>	Quarterly and compilation to be done by the end of every year
xiii) Annual evaluation by involving experts	<ul style="list-style-type: none"> <li>• ATMA to undertake annual evaluation of its work through hiring professional consultants at the District level</li> </ul>	Annual

In addition to ATMA, the Agriculture Marketing Experts ('AME') of the districts along with other officials will play a critical role in identifying and implementing the district plan so as to encourage business activity. The district AMEs will need to develop a plan to encourage contract farming, direct selling and processing industries. It would be of utmost importance for the AMEs to identify the key buyers/ consumers in the district in terms of large institutions and organizations such as hospitals, military camps, police camps, colleges and others. These organizations will be important buyers of locally processed commodities and locally cultivated fruits and vegetables. Furthermore, the AMEs must identify the potential industries for the main crops of the district and the market requirement and demand from companies and processors. This will enable a detailed approach to encouraging business activity in the district and thus ensuring farmers receive a better price for their crops.

## Annexures

### Annexure 1. Rural Haats in the district.

ANNEXURE - 2							
RURAL HAAT IN DISTRICT							
Sr .No.	Name of taluka	Name of Rural Haat	Week Day of Rural Haat	Major Commodities Marketed	No. of Villages Connected	Annual Market Fee Collected by Grampanchyat (Av. Of 5yrs.)	
1	Dodamarg	Dodamarg	Sunday	Vegetables, Fruits, Grain, Other	35		
		Bhedshi	Saturday	Vegetables, Fruits, Grain, Other	25		
	Sawantwadi	Sawantwadi	Tuesday	Vegetables, Fruits, Grain, Other	20		
		Banda	Monday	Vegetables, Fruits, Grain, Other	25		
		Danoli	Sunday	Vegetables, Fruits, Grain, Other	15		
		Aronda	Saturday	Vegetables, Fruits, Grain, Other	20		
	Vengurla	Vengurla	Sunday	Vegetables, Fruits, Grain, Other	35		
		Shiroda	Sunday	Vegetables, Fruits, Grain, Other	20		
		Hodavada	Thursday	Vegetables, Fruits, Grain, Other	25		
	Kudal	Mahapan	Tuesday	Vegetables, Fruits, Grain, Other	15		
		Mangaon	Tuesday	Vegetables, Fruits, Grain, Other	25		
		Kudal	Wednesday	Vegetables, Fruits, Grain, Other	30		
		Kadaval	Friday	Vegetables, Fruits, Grain, Other	20		
		Oros	Sunday	Vegetables, Fruits, Grain, Other	20		
		Valaval	Tuesday	Vegetables, Fruits, Grain, Other	20		
	2	Malvan	Aachra		Vegetables, Fruits, Grain, Other		
		Kankavli	Kankavli	Tuesday	Vegetables, Fruits, Grain, Other	12	
Kanedi-Sangve			Tuesday	Vegetables, Fruits, Grain, Other	6		
Talere			Tuesday	Vegetables, Fruits, Grain, Other	8		
Devgad		Phonda	Monday	Vegetables, Fruits, Grain, Other	8		
		Devgad	Friday	Vegetables, Fruits, Grain, Other	7		
		Jamsande	Sunday	Vegetables, Fruits, Grain, Other	7		
		Shirgaon	Wednesday	Vegetables, Fruits, Grain, Other	5		
		Talebajar	Thursday	Vegetables, Fruits, Grain, Other	5		
		Mithbav	Wednesday	Vegetables, Fruits, Grain, Other	6		
		Vaibhavwadi	Vaibhavwadi	Thursday	Vegetables, Fruits, Grain, Other	5	
Bhuibavda	Friday		Vegetables, Fruits, Grain, Other	2			



**Annexure 2. Commodity wise grades**

Sr. No.	Commodity	Local Grade Name & Specification						variation in Price Compared to Av. Pieces (% more or less)		
		Grade I		Grade II		Grade III		Grade I	Grade II	Grade III
		Local Name	Specification	Local Name	Specification	Local Name	Specification			
1	Cashew	Special	No. of nuts/kg Max.=160, Moisture=12%, Damage disco;our nuts max.=2.0	Good	No. of nuts/kg Max.=180, Moisture=12%, Damage disco;our nuts max.=3.0	Fair	No. of nuts/kg Max.=210, Moisture=12%, Damage disco;our nuts max.=5.0			

**Annexure 3. Constraint Analysis for market led production in cashew crop**

CONSTRAINT ANALYSIS FOR MARKET LED PRODUCTION					
Crop	Cashew				
Sr.	Technology for Market Led Production	Recommendation	Adaption		
No.			F	P	N
1	Farmers organized in Group	Farmers should be organized in group CIG, FIGs, PA, PGs etc.		P	
2	Post Harvest Technology		F		
A	Primary Processing (Picking)	Clean Picking should be done early morning and evening.		P	
a	Drying (Moisture %)		F		
b	Grading	There are 6 grades and grading specifications are as per staple length.	F		
		Grade 1: No. of nuts/kg Max.=160, Moisture=12%, Damage discolored nuts max.=2.0, Grade 2: No. of nuts/kg Max.=180, Moisture=12%, Damage disco;our nuts max.=3.0 Grade 3: No. of nuts/kg Max.=210, Moisture=12%, Damage disco;our nuts max.=5.0			
		Grade 6: Short staple- 19.5 and below length.			
c	% Foreign Matter	It should be free from stained and immature locks, as well as trash in the form of hulls, stalks and leafy bits and sand.	F		
d	Packaging	Packaging should be in Woven Cotton Bags Warp Knitted Cotton Bags, Polyethylene Film Bags, Polypropylene Bags, Polyethylene Woven Bags, and Jute Bags.	F		
e	Preventive Measures to protect from			P	
	stored grains pest				
f	Storage	It should be stored in dry, area free from rats and danger of fire under the shed.		P	
g	Value Addition	primary processing		P	
B	Marketing		F		

a	Access to Market Information	Use of AGMARK, MSAMB websites, News paper ,Radio ,TV etc		P	
	and Intelligence				
b	Pledge loan facility:	To avoid distress sell ,storage in accredited warehouses & avail pledge loan from bank	F		
c	Packaging for sell		F		
d	Product aggregation	Small marginal farmers should organize in producer groups & aggregate produce .	F		
e	Contract farming	Promote the contract farming with Public/Private Partnership.		P	
f	Participation in commodity	Organize in producer groups aggregate produce &try this as alternative market		P	
	Exchange/Forward markets				

**Annexure 4.District agriculture market development plan**

<b>DISTRICT</b>										
<b>AGRICULTURE MARKET DEVELOPMENT PLAN</b>										
-	-	-	-	Source of Fund				Source of Fund		
Sr.No.	Name of APMC	Proposed Basic Infrastructure Development	Total Cost Basic Infrastructure (Lakhs)	Own Contribution Basic Infrastructure (Lakhs)	MACP\RK VY\Other Schemes (Lakhs)	Proposed Productive Infrastructure	Total Cost Productive Infrastructure (Lakhs)	Own Contribution Productive Infrastructure (Lakhs)	MACP\RK VY\Other Schemes	Total Cost of the Project (Basic + Productive)
1	Sindhudurg	Land, Drinking Water, Internal Road, Farmer Residence, Electricity, Compound Wall, Security room, Toilet Facility	93.38	55	38.38	Auction Platform, Electronic Weight Machine	50.6	50.6	0	143.98
		<b>Total</b>	93.38	55	38.38		50.6	50.6	0	143.98

**ANNEXURE-5 Constraint analysis of existing marketing arrangement**

Sr.No	Basic Infrastructure /process	Full/Partial/No Gap referred as F/P/N
		Sindhudurg
1	Storage to farmers produce	F
2	Adequate certified electronic weighing	F
3	Auction hall	F
4	Roads in Premises	F
5	Banking service for the farmers	F
6	Platform Shaded	F
7	Toilet, Guest house to Farmer/Traders	F
8	Street Light	F
9	Roads with Watchman cabin	F
10	Drinking Water Facility	F
11	Solid waste management unit	F
12	Fencing/Wall Compound	F
	<b>Process/Trading/Marketing Practices</b>	F

13	Open auction	F
14	Pack House for F&V	F
15	Marketing charges	F
16	Use of electronic display boards	F
17	Cold Storage	F
18	Cleaning Unit of Food Grains/Vegetables	F

**ANNEXURE-6.1** Constraints, Strategies and Proposed Interventions for Promoting Market Led Agriculture Production in Cereal crops.

Sr No	Issues	Strategy	Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost(lakh)
1	Non adaptation Package of practices for improving quality of grains	Promotion of pre harvest practices for bridging gaps identified in Table 4.3 to 4.4	Crop Demonstration	MACP	0.40 ha	6000	225	250
				Cereal development Project(CDP)	0.40 ha	2000	10000	1750
				ATMA	0.40 ha	2000	5000	500
				MACP	No	4000	15	0.60
2	Non adaption of Post harvest practices	Promotion of post harvest practices for bridging gaps identified in Table 4.3to 4.4	PHT Demonstration	Sub total A			2515	70.6
				Demonstration	MACP	No	7000	20
3	Lack of market awareness	Awareness about sources of market information & intelligence	A)Group Formation	ATMA	No	5000	30	1.5
				Sub total B			50	2.9
				MACP	No	750000	4	30
			B)FCSC(grains)	MACP-MSWHC	Farmers		5000	0
			C)Pledge loan	ATMA	No	2500	1000	25

			D)Farmers Training	CDP	No	17000	105	17.85
				MACP	No	13000	10	1.3
				ATMA (FSS)	No	1700	25	4.25
				Sub total C			2740	63.4
			E)Exposure visits	MACP	Farmers	1500	15	0.25
			i)With in State	ATMA	Farmers	3000	250	0.75
				MACP	Farmers	6000	30	1.8
			ii)Outside State	ATMA	Farmers	6000	50	3
				Sub Total D			402	5.8
			Exposure visit	Grand Total			Total	142.7

**ANNEXURE-6.2** Constraints, Strategies and Proposed Interventions for Promoting Market Led Agriculture Production in Pulses crops.

Sr No	Issues	Strategy	Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost(lakh)
1	Non adaptation Package of practices for improving quality of grains.	Promotion of pre-harvest practices for bridging gaps identified in Table 4.5	Crop Demonstration	MACP	0.40 ha	7000	225	15.75
				Accelerated pulse production(AP3)	0.40 ha	2000	20000	400
				NFSM	0.40 ha	2000	10000	200
				ATMA	0.40 ha			
2	Non adaption of Post harvest practices	promotion of post harvest practices for bridging gaps identified in Table 4.5	PHT Demonstration	MACP	No	4000	10	0.4
			Demonstration	Sub total A			30235	616.15
3	Lack of market awareness	Awareness about sources of market information &intelligence	A)Group Formation	MACP	No	7000	30	2.1
				ATMA	No	5000	1000	50
				Sub total B			1030	52.1
			B)FCSC(grains) for product aggregation	MACP/NABARD	No	750000	4	0
			C)Pledge loan	MACP-MSWHC	Farmers		1000	0

			D) Farmers Training	ATMA	No	2500	1600	40
				MACP	No	13000	5	0.65
				Sub total C			2609	40.65
			E)Farmer Field School	ATMA	No	17000	50	8.5
				NFSM	No	1400	230	32.20
			F)Exposure visits					0
			i)With in State	MACP	Farmers	1500	15	0.025
				ATMA	Farmers	300	250	0.75
			ii)Outside State	MACP	Farmers	6000	15	0.90
				ATMA	Farmers	6000	50	0.30
				Sub total D			630	42.67
				Grand Total			15029	368.33

**ANNEXURE-6.3** Constraints, Strategies and Proposed Interventions for Promoting Market Led Agriculture Production in Oilseeds crops.

Sr. No	Issues	Strategy	Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost(lakh)
1	Non adaptation Package of practices for improving quality of grain.	Promotion of preharvest practices for bridging gaps identified in Table 4.1	Crop Demonstration	MACP	0.40ha	8000	150	12
				Oilseed development Project(ISOPAM)	0.40 ha	3000	2100	63
				MWSIP	0.40 ha	2500	300	7.75
				ATMA	0.40 ha	4000	625	25
2	Non adaption of Post harvest practices	promotion of post harvest practices for bridging gaps identified in Table 4.1	PHT Demonstration	MACP	No	4000	5	0.2
			Demonstration	Sub total A			3180	107.95
3	Lack of market awareness	Awareness about sources of market information & intelligence	A)Group Formation	MACP	No	7000	30	2.1
				ATMA	No	5000	250	12.5
				ISOPAM	No	5000	105	5.25
				Sub total B		17000	225	11.65
			B)FCSC(grains)	MACP	No	750000	5	37.5



			C)Pledge loan	MACP-MSWHC	Farmers		1000	0
			D)Farmers Training	ATMA	No	2500	1600	40
				MACP	No	13000	5	0.65
				ISOPAM (FFS)	No	22680	105	23.58
				MWSIP	No	2500	51	1.29
				ATMA (FFS)	No	17000	25	4.25
				Sub total C			2791	107.27
			E)Exposure visits					
			i)With in State	MACP	Farmer	1500	30	0.45
				ATMA	Farmer	3000	250	7.5
				MWSIP	Farmer	50000	3	1.5
			ii) Outside State	MACP	Farmer	6000	30	1.8
				ATMA	Farmer	6000	50	3
				Sub total D			333	3.675
				Grand Total			Total	230.54

**ANNEXURE-6.4** Constraints, Strategies and Proposed Interventions for Promoting Market Led Agriculture Production in Fruits and Vegetables crops.

Sr No	Issues	Strategy	Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost (lakh)
1	Non adaptation Package of practices for improving quality of grading	Promotion of pre-harvest practices for bridging gaps identified in Table 4.6 to 4.8	Crop Demonstration	MACP	0.4 ha	6000	34	2.04
				MWSIP	0.40 ha	10000	150	15
				ATMA	0.4 ha	4000	125	5
				Sub Total A			309	22.04
			Controlled Farming	NHM	No	150000	400	600
2	Non adaption of Post harvest practices	promotion of post harvest practices for bridging gaps identified in Table 4.6 to 4.8	Post Harvest Management	MACP	No	4000	20	0.8
				NHM	No	1000000	160	240
3	Lack of market awareness	Awareness about sources of	A)Group Formation	MACP	No	7000	1.05	5

		market information & intelligence		ATMA	No	5000	100	5
				Sub Total B			681.05	850.8
			B)FCSC(Fruits and Veg)	MACP	No	450000	3	13.5
			C)GAP Certification	NHM	No	6000	10	0.6
			D)Farmers Training	ATMA	No	2500	100	2.5
				MACP	No	13000	5	0.65
				MACP	No	50000	5	2.5
				MWSIP	No	5000	6	0.30
				Sub Total C			126	6.55
			E)Exposure visits					0
			i)With in State	MACP	Farmer	1500	30	0.45
				NHM	Farmer	1200	200	6.0
			ii)Outside State	MACP	Farmer	6000	30	1.8
				NHM	Farmer	600	500	15.30
			Exposure	Sub Total			763	25.05
				Grand Total			Total	904.44

**ANNEXURE-7.1** Time frame for implementation of market led production in cereals

Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost (lakh)	Time frame for implementation									
						2012-13		2013-14		2014-15		2015-16		2016-17	
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Crop Demonstration	MACP	0.40 ha	6000	250	12	50	3	50	3	50	3	50	3	50	3
	Cereal development Project (CDP)	0.40 ha	2000	1750	35	350	7	350	7	350	7	350	7	350	7
	ATMA	0.40ha	4000	500	20	100	4	100	4	100	4	100	4	100	4
PHT Demonstration	MACP	No	4000	15	0.60	3	0.12	3	0.12	3	0.12	3	0.12	3	0.12
	Sub total A			2515	70.6	503	14.12	503	14.12	503	14.12	503	14.12	503	14.12

A)Group Formation	MACP	No	7000	20	1.4	4	0.128	4	0.128	4	0.128	4	0.128	4	0.128
	ATMA	No	5000	30	1.5	100	5	100	5	100	5	100	5	100	5
	Sub total B			50	2.9	104	5.128	104	5.128	104	5.128	104	5.128	104	5.128
B)FCSC(grains)	MACP	No	750000	4	30	1	7.5	1	7.5	1	7.5	1	7.5	0	0
C)Pledge loan	MACP-MSWHC	Farmers	0	1000	0	200	0	200	0	200	0	200	0	200	0
D)Farmers Training	CDP	no	17000	105	17.85	21	3.57	21	3.57	21	3.57	21	3.57	21	3.57
	MACP	No	13000	10	1.3	2	0.26	2	0.26	2	0.26	2	0.26	2	0.26
	ATMA	No	2500	1600	40	320	8	320	8	320	8	320	8	320	8
	Sub total C		794500	2715	59.15	543	11.83	543	11.83	543	11.83	543	11.83	543	11.83
E) Farm School	ATMA	No	1700	25	4.25	5	0.85	5	0.85	5	0.85	0	0	0	0
	Sub total E		1700	25	4.25	5	0.85	5	0.85	5	0.85	0	0	0	0
F)Exposure visit	MACP	Farmer	1500	15	0.25	5	0.75	5	0.75	5	0.75	5	0.75	5	0.75
i)With in State	ATMA	Farmer	300	250	0.75	50	0.15	50	0.15	50	0.15	50	0.15	50	0.15
ii)Outside State	MACP	No	6000	30	1.8	10	0.6	10	0.6	10	0.6				
	ATMA	Farmer	6000	50	3	10	0.6	10	0.6	10	0.6	10	0.6	10	0.6
	Sub Total D		13800	402	5.8	75	2.1	75	2.1	75	2.1	75	2.1	75	2.1
Exposure visit	Grand Total			Total	142.7	1230	34.028	1230	34.028	1230	34.028	1230	34.028	1230	34.028

**ANNEXURE-7.2** Time frame for implementation of market led production in pulses

Activity	Source of Fund during project period	Unit	Unit cost (Rs)	Total Units	Total cost (lakh)	Time frame for implementation									
						2012-13		2013-14		2014-15		2015-16		2016-17	
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Crop Demonstration	MACP	0.40 ha	7000	150	10.5	30	2.1	30	2.1	30	2.1	30	2.1	30	2.1
	Accelerated pulse production (AP3)	0.40 ha	2000	1200	24	240	4.8	240	4.8	240	4.8	240	4.8	240	4.8
	NFSM	0.40 ha	2000	8900	178	1780	35.6	1780	35.6	1780	35.6	1780	35.6	1780	35.6
	ATMA	0.40 ha	4000	500	20	100	4	100	4	100	4	100	4	100	4

PHT Demonstration	MACP	No	4000	10	0.4	10	0.4	0	0	0	0	0	0	0	0
Demonstration	Sub total A		19000	10760	232.9	2160	46.9	2160	46.9	2160	46.9	2160	46.9	2160	46.9
A)Group Formation	MACP	No	7000	30	2.1	30	2.1	0	0	0	0	0	0	0	0
	ATMA	No	5000	1000	50	200	10	200	10	200	10	200	10	200	10
	Sub total B		12000	1030	52.1	230	12.1	200	10	200	10	200	10	200	10
B)FCSC(grains)	MACP/NABARD	No	750000	4	0	1	7.5	1	7.5	2	15	0	0	0	0
C)Pledge loan	MACP-MSWHC	Farmers		1000	0	200	0	200	0	200	0	200	0	200	0
D) Farmers Training	ATMA	No	2500	1600	40	320	8	320	8	320	8	320	8	320	8
	MACP	No	13000	5	0.65	1	0.13	2	0.26	2	0.26	0	0	0	0
	Sub total C		765500	2609	40.65	522	15.63	522	15.63	522	15.63	500	8	500	8
E)Farmer Field School	ATMA	No	17000	50	8.5	10	1.7	10	1.7	10	1.7	10	1.7	10	1.7
	NFSM	No	1400	230	32.20	46	6.44	46	6.44	46	6.44	46	6.44	46	6.44
F)Exposure visits					0										
i)With in State	MACP	Farmer	1500	15	0.025	5	0.075	5	0.075	5	0.075	0	0	0	0
	ATMA	Farmer	300	250	0.75	50	0.15	50	0.15	50	0.15	50	0.15	50	0.15
ii)Outside State	MACP	No	6000	15	0.90	5	0.30	5	0.30	5	0.30	0	0	0	0
	ATMA	Farmer	600	50	0.30	10	0.06	10	0.06	10	0.06	10	0.06	10	0.06
	Sub total D		26800	630	42.675	126	8.725	126	8.725	126	8.725	116	8.35	116	8.35
	Grand Total			15029	368.33	3038	83.355	3008	81.255	3008	81.255	2976	73.25	2976	73.25

**ANNEXURE-7.3** Time frame for implementation of market led production in oilseeds

Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost (lakh)	Time frame for implementation									
						2012-13		2013-14		2014-15		2015-16		2016-17	
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Crop Demonstration	MACP	0.40ha	8000	150	12.00	30	2.40	30	2.40	30	2.40	30	2.40	30	2.40
	Oilseed development Project(ISOPAM)	0.40 ha	3000	2100	63	420	1.26	420	1.26	420	1.26	420	1.26	420	1.26

	MWSIP	1 ha	2500	300	7.75	100	2.50	110	2.75	100	2.50	0	0	0	0
	ATMA	0.40 ha	4000	625	25	125	5	125	5	125	5	125	5	125	5
PHT Demonstration	MACP	No	4000	5	0.2	1	0.04	1	0.04	1	0.04	1	0.04	1	0.04
	Sub total A		21500	3180	107.95	676	11.2	686	11.45	676	11.2	576	8.7	576	8.7
A)Group Formation	MACP	No	7000	20	1.4	10	0.7	10	.07	0	0	0	0	0	0
	ATMA	No	5000	100	5	20	1	20	1	20	1	20	1	20	1
	ISOPAM (FSS)	No	5000	105	5.25	21	1.05	21	1.05	21	1.05	21	1.05	21	1.05
	Sub total B		17000	225	11.65	51	2.75	51	2.12	41	2.05	41	2.05	41	2.05
B)FCSC(grains)	MACP	No	750000	5	37.5	1	7.5	2	15	2	15	0	0	0	0
C)Pledge loan	MACP-MSWHC	Farmer		1000	0	200	0	200	0	200	0	200	0	200	0
D)Farmers Training	ATMA	No	2500	1600	40	320	8	320	8	320	8	320	8	320	8
	MACP	No	13000	5	0.65	1	0.1	1	0.1	1	0.13	1	0.13	1	0.13
	ISOPAM (FFS)	No	22680	105	23.58	21	4.76	21	4.76	21	4.76	21	4.76	21	4.76
	MWSIP	1 Day	2500	51	1.29	17	0.43	17	0.43	17	0.43	0	0.0	0	0.0
	ATMA (FSS)	No	17000	25	4.25	5	0.85	5	0.85	5	0.85	5	0.85	5	0.85
	Sub total C		807680	2791	107.27	565	21.64	566	29.14	566	29.17	547	13.74	547	13.74
E)Exposure visits															
i)With in State	MACP	Farmer	1500	15	0.225	5	0.075	5	0.075	5	0.075		0		0
	ATMA	Farmer	300	250	0.75	50	0.15	50	0.15	50	0.15	50	0.15	50	0.15
	MWSIP	Farmer	50000	3	1.5	1	0.50	1	0.50	1	0.50	0	0.0	0	0.0
ii)Outside State	MACP	Farmer	6000	15	0.90	5	0.3	5	0.3	5	0.3	0	0	0	0
	ATMA	Farmer	600	50	0.3	10	0.06	10	0.06	10	0.06	10	0.06	10	0.06
	Sub total D		58400	333	3.675	71	1.085	71	1.085	71	1.085	60	0.21	60	0.21

**ANNEXURE-7.4** Time frame for implementation of market led production fruits and vegetables

Activity	Source of Fund during project period	Unit	Unit cost(Rs)	Total Units	Total cost (lakh)	Time frame for implementation									
						2012-13		2013-14		2014-15		2015-16		2016-17	
						Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Crop Demonstration	MACP	0.4 ha	6000	34	2.04	7	0.42	7	0.42	7	0.42	7	0.42	6	0.36
	MWSIP	1 ha	10000	150	15.0	45	4.50	50	5.0	55	5.50	0	0.0	0	0
	ATMA	0.4 ha	4000	125	5	25	1	25	1	25	1	25	1	25	1
	Sub Total A		20000	309	22.04	77	5.92	82	6.42	87	6.92	32	1.42	31	1.36
Controlled Farming	NHM	No	150000	400	600	80	120	80	120	80	120	80	120	80	120
Post Harvest Management	MACP	No	4000	20	0.8	4	0.16	4	0.16	4	0.16	4	0.16	4	0.16
	NHM	No	150000	160	240	32	48	32	48	32	48	32	48	32	48
A)Group Formation	MACP	7000	15	1.05	5	0.35	5	0.35	5	0.35	0	0	0	0	7000
	ATMA	No	5000	100	5	20	1	20	1	20	1	20	1	20	1
	Sub Total B		309015	681.05	850.8	136.35	174.16	136.35	174.16	136.35	169.16	136.35	169.16	136	7169.16
B)FCSC(Fruits and Veg)	MACP	No	450000	3	13.5	1	4.5	1	4.5	1	4.5		0		0
C)GAP Certification	NHM	No	6000	10	0.6	0	0	0	0	0	0	5	0.30	5	0.30
D)Farmers Training	ATMA	No	2500	100	2.5	20	0.5	20	0.5	20	0.5	20	0.5	20	0.5
	MACP	No	13000	5	0.65	1	0.13	1	0.13	1	0.13	1	0.13	1	0.13
	MACP	No	50000	5	2.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5
	MWSIP	NA	5000	6	0.30	2	0.10	2	0.10	2	0.10	0	0.0	0	0.0
	Sub Total C		76500	126	6.55	24	1.23	24	1.23	24	1.23	27	1.43	27	1.43
E)Exposure visits					0										
i)With in State	MACP	Farmer	1500	30	0.45	10	0.15	10	0.15	10	0.15		0		0
	NHM	Farmer	1200	200	6.0	200	1.20	200	1.20	200	1.20	20	1.20	200	1.20
	MWSIP	Farmer	50000	03	1.5	1	0.50	1	0.50	1	0.50	0	0.0	0	0.0
ii)Outside State	MACP	Farmer	6000	30	1.8	10	0.6	10	0.6	10	0.6		0		0
	NHM	Farmer	600	500	15.30	100	3.0	100	2.8	100	3.5	10	3.0	100	3.0

												0			
Exposure	Sub Total		59300	763	25.05	321	5.45	321	5.25	321	5.95	300	4.2	300	4.2
	Grand Total		464815	1879.05	904.44	558.35	186.76	563.35	187.06	568.35	183.26	495	176.21	494	7176.15

### **Annexure 8. Abstract of planned activities**

Sr No	Activity	Financial provision from(lakh)		Total(lakh)
		MACP	Non MACP	
A	Intensification and diversification in market led production			
1	Market Led Extension in Cereals	47.35	95.35	142.7
2	Market Led Extension in Pulses	14.575	353.75	368.33
3	Market Led Extension in Oilseed	52.87	177.67	230.54
4	Market Led Extension in Fruits & vegetable	26.74	877.7	904.44
	Total A	141.535	1404.47	1546.005
B	Improving farmer access to market			
7	Market modernization of APMC	40	238.68	278.68
8	Livestock Market Modernization	0	0	0
9	Rural haat Modernization	162	14.89	176.89
	Total B	202	253.57	455.57
	Total A +B	343.535	1658.04	2001.575