

“Value Chain Study for Vegetable Subsector in Malkangiri, Koraput, Rayagada and Nawarangpur Districts of Odisha”



Study Commissioned by
Madhyam Foundation
(on behalf of South Odisha Development Initiative)

A report by
Access Livelihood Consulting India Ltd,
Secunderabad-03, Telangana,

Supported by
National Rural Livelihood Mission, Govt. of India
and
Sir Dorabji Tata Trust, Mumbai



Mahila Kisan Sashaktikaran Pariyojona

“Value Chain Study for Vegetable Subsector in Malkangiri, Koraput, Rayagada and Nawarangpur Districts of Odisha”

Project Name:

“Promoting Livelihood Security among Women Farmers of South Odisha”

Study Commissioned by:

Madhyam Foundation (on belf of SODI Consortium)

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Executive Summary

South Odisha Development Initiative (SODI) is an informal network of 6 NGOs (Madhyam Foundation, RCDC, Harsha Trust, OPDSC, Pragati and Chetna Organic Farmers Association) having track record of successful interventions in South Odisha. SODI is currently implementing the Mahila Kisan Sashaktikaran Pariyojana (MKSP), a flagship programme of National Rural Livelihood Mission (NRLM), Govt. of India in Koraput, Rayagada, Nabrangpur and Malkangiri districts of Odisha. On behalf of SODI, Madhyam Foundation has been co-coordinating as the legal holder of the project. The target group comprises 13,200 women farmers (12,000 women farmers from small & marginal farmer's households and rest 1,200 land less women farmers). Major activities of the project are promotion of SRI, vegetable cultivation, cultivation of pulses, millets & tuber crops. The project envisages promoting vegetable cultivation among 6,000 women farmers by collectivizing them into 12 producer cooperatives.

Over the last few years, Odisha has been witnessing a trend of substantial rise in vegetable prices. And this seems to provide an encouraging sign to farmers for getting into vegetable production in a big way to maximize the potential of good returns. The emergence of retail markets also provides opportunities for small farmers and producers to get benefits from forward integration. To arrive at a clear picture of the vegetable market and its context for farmers an assignment for Value chain study of vegetable sub sector in four districts- Koraput, Malkangiri, Rayagada and Nabrangpur was assigned to Access Livelihoods Consulting India Limited. The objective of the study is to analyze the vegetable business environment in these districts, identify gaps in pre production, production, post harvest handling and marketing stages of the value chain in the vegetable subsector, identify the potential roles and prospects for collectives in the sector and finally suggest possible implementation strategies for intervention points. The ultimate aim is to find for small farmers a rightful place in the complex multilayered value chain of vegetable market that could ensure them maximum benefits for their produces.

For study purpose, the ALC India team (comprising of highly qualified and experienced enumerators) indulged in data collection directly from field area through various tools such as questionnaires, in depth interviews, FGD etc. To acquire a wholesome understanding of the entire value chain, multiple stakeholders ranging

from primary producers, retailers, commission agents to wholesalers to end consumers were interacted with and data collected from them. Institutions such as banks, hostels, CRPF camps were also visited to understand the financial and formal supply aspect of vegetable business. Apart from the primary information, extensive data scouring and searching was done through accessing relevant literature and documents available on websites and with government departments (such as Horticulture).

The major findings of the study present a generally discouraging trend among farmers towards vegetable production (major vegetables being Tomato, Brinjal, Chilli and Cabbage to name a few). The major reasons behind this lack of inclination are- rather lesser and erratic returns, price fluctuations, lack of storage facilities, small landholdings, lack of innovations and new technologies in production and unorganized market tilted in favor of big traders who have capital and resources to take risk.

At the end of the survey the impression that gains ground is that the vegetable sub sector though it may be mired with several bottlenecks but it also provides immense scope for farmers to derive high returns through engagement in its production and activity across the value chains. The basic facilities such as cold storage facilities, inputs (such as seeds and implements) as well as financial linkages and markets facilities are prerequisite for making this sector attractive for farmers. This cannot be done in isolation and individually; to be able to stand in a critical point in the value chain and be the arbiter of market the best strategy is to form the farmers into cooperatives that would provide farmers access to inputs, technical knowhow, infrastructure as well as better market access through scale of production and risk taking capacity through access to financial resources (banks, etc) as a collectivized entity. The propagation of cooperatives can result in not only increase in vegetable production but also bring the farmers on the centre of vegetable markets from the margins where they presently lie as individuals primary producers.

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1. PROJECT BACKGROUND

South Odisha Development Initiative (SODI) is an informal network of 6 NGOs (Madhyam Foundation, RCDC, Harsha Trust, OPDSC, Pragati and Chetna Organic Farmers Association) having track record of successful interventions in South Odisha. SODI is currently implementing the Mahila Kisan Sashaktikaran Pariyojana (MKSP), a flagship programme of National Rural Livelihood Mission (NRLM), Govt. of India in Koraput, Rayagada, Nabrangpur and Malkangiri districts of Odisha. Duration of the Project is three years starting from July, 2013 and the total amount of grant is Rs. 18.55 crores out of which 75% (Rs.13.92 crore) is being supported by NRLM and rest 25% (Rs 4.63 crore) is being supported by SIR Dorabji Tata Trusts, Mumbai. On behalf of SODI, Madhyam Foundation has been co-coordinating as the legal holder of the project. The target group comprises 13,200 women farmers (12,000 women farmers from small & marginal farmer's households and rest 1,200 land less women farmers). Major activities of the project are promotion of SRI, vegetable cultivation, cultivation of pulses, millets & tuber crops. The project envisages promoting vegetable cultivation among 6,000 women farmers by collectivizing them into 12 producer cooperatives.

Vegetable subsector is facing a host of problems including limited access to quality inputs and farming techniques, poor water and soil management, high post harvest losses, lack of market information leading to difficulty in pricing, multiple middle men in value chain, perish ability of the produce and lack of access to on time credit. Over past couple of years, Odisha has been witnessing a substantial rise in prices of vegetables. This is giving a positive incentive to increase production, productivity & quality of produce. The organization of retail markets over the past few years has opened up numbers of opportunities to small producers for forward integration. Understanding the value chain and ensuring one's critical place in it have become important for effectively participating in the market. Additionally, the importance of organizing small & marginal producers to enhance their bargaining power in the market has been clearly recognized. Though the product, price, promotion & place are considered important in marketing, but getting the community organization processes (from mobilization to institutional systems) is critical in creating, accessing and playing equally in the market. Against the above mentioned background and the context, Madhyam Foundation (on behalf of SODI consortium) is commissioning a study on

Value chain analysis of vegetable subsector in Koraput, Rayagada, Nabarangpur & Malkangiri districts of Odisha. This study has been done by Access Livelihoods Consulting India Ltd.

2. KEY OBJECTIVES OF THE STUDY

The major objectives of the study are:

- Analyze the vegetable business environment in 4 project districts (Koraput, Malkangiri, Rayagada and Nabarangpur).
- Identify gaps in pre production, production, post harvest handling and marketing stages of the value chain in the vegetable subsector.
- Identify the potential roles / responsibility of producer groups / Producer cooperatives.
- Suggest possible implementation strategies for intervention points.

3. KEY DELIVERABLES

The study includes following deliverables-

- a) Submission of research design and data collection formats (As per the methodology).
- b) Submission of field plan.
- c) Submission of draft report (District wise major vegetable subsector will be covered, single report will be prepared covering all four districts).
- d) Submission of final report incorporating feedback.

4. METHODOLOGY

To achieve its objective, the study was divided into three primary activities –

- a) Data Collection (both Primary and Secondary Sources).
- b) Analysis of the information in light of the subsector dynamics, and
- c) Presentation of key findings for designing appropriate interventions for the growth of the subsector.

The value chain study followed a combination of field survey and literature review. Secondary information related to agriculture specifically production has been collected from Agriculture Department of the districts. The records available with the partner NGOs have also been noted. The field team has been assigned the task to interview the producers (farmers), traders, vegetable sellers and the consumers.

4.1.SURVEY TOOLS

A variety of tools were used for survey purpose to capture the real picture and relevant data from primary stakeholders i.e. farmers, traders and intermediaries. These tools comprised different set of **questionnaires, formats and checklist** the details of which are given below:

- **Qualitative data** related to production, Post Harvest Management and constraints/ bottlenecks in the vegetables supply chain were collected using various **PRA tools like Resource mapping, matrix ranking etc. Checklists were used for open ended discussion** with vegetable traders, Mandi commission agents etc.
- The **data collection were of undisguised type**, i.e., the questionnaires were disclosed to the respondents and nothing was kept secret about the project from the respondents. The survey tools are attached as Annexure.

4.2.SAMPLING PLAN

Survey was conducted purposively in the target areas where the selected crops are grown intensively and the project is being implemented in the defined districts. Different farmers in the project area cultivating vegetable crops and different market actors were taken randomly from the vegetable cultivating sites of the study area. Both rural and urban locations from the study area have been taken into account while selecting farmers, market actors, consumers and other stakeholders.

Survey /meetings had been organized with following set of respondents:

TABLE 1 SAMPLE DETAILS

#	Particulars	Method	Sample Size	
			Planned	Achieved
1	Vegetable Producer Group	FGD	12	12
2	Vegetable Producers (To know farmer economics)	IDI	60	62
3	Input Suppliers (Fertilizer, Pesticide, Seed, Agri Machinery)	IDI	4	4
4	Transporters	IDI	8	6
5	Vegetable Traders/ Wholesalers	IDI	6	5
6	Vegetable Retailers	IDI	15	15
7	Consumers	IDI	15	15
8	Agriculture Officers (at District level)	IDI	4	4
9	Lead Banks/Supporting Banks/Other Financial Institutions	IDI	4	4
10	State Level Agriculture College	IDI	1	1
11	Storage go downs, Cold storage	IDI	4	0
12	Weekly Haats	IDI	6	3
13	District Level Markets (including Kunduli Haat)	IDI	4	3
14	Institutional Buyers (Tribal hostels, Schools(Mid Day Meal),BSF/police Camps) as applicable	IDI	12	6

Following are the few important points, which were taken care during the study:

- i. The farmers selected for the study were small and marginalized women farmers.
- ii. Each Focus Group Discussion (FGD) comprises of 10-15 farmers.
- iii. Analyzing the producer share in consumer rupee.
- iv. Mapping the value chain as per flow of produce with value proposition (Form change and price change).

4.3. DATA COLLECTION PROCESS

4.3.1. AT PRIMARY LEVEL

For information gathering, detailed focus group discussions with producers (through checklist, in-depth interview) of farmers and with input suppliers and intermediary buyers were conducted in the blocks of the different districts. Detailed interview and discussions were conducted with vegetable supply chain actors at aggregation centre of the target districts. Detailed consumer survey has also been conducted to understand the consumption pattern.

The primary information gathered through field survey will serve as the critical framework for analyzing vegetable sub-sector in study area while the secondary information would help in understanding the status of the vegetable subsector.

The quantitative information was collected using structured questionnaire while the qualitative investigations were carried out in participatory approach. This will help in getting meaningful insights into how the producers, traders, and service providers perceive various issues related to vegetable sub-sector and deal with specific business situations. **Information from different stakeholders was collected in following way:**

a) Farmer Survey: Different set of questionnaires, formats and checklists were used to collect quantitative as well qualitative data from primary stakeholders i.e. farmers, traders and intermediaries.

b) Producer Level: Focus Group Discussion was conducted by experienced and trained enumerators using checklist. In each of the selected Gram Panchayat, commercial vegetable producers groups (10-15 producers) were selected for FGD.

c) Market Study: A detailed study of the vegetable market has also formed part of the study. The study has covered the wholesale mandis, retail vegetable mandis and consumers in the target areas. For data collection and discussion, structured questionnaires and checklists were used. In order to understand the consumption patterns and buying behaviours of consumers, a comprehensive consumer survey was undertaken.

The study aimed to identify gaps, constraints and opportunities of the value chain actors in the vegetable sub-sector as well as its dynamics to identify the competitive

advantage of the actors to increase the productivity and profitability of vegetable production, trading and processing.

The value chain study covered the following aspects of the vegetable sub-sectors; identified quantifiable parameters are given below:

a) Vegetable Production System

- Landholding pattern and landholding in relation to vegetable cultivation for sample farmers.
- Detail assessment of acreage, area, production and productivity of major vegetable crops across the three seasons including area and production under protected conditions.
- Existing pre-production infrastructure viz. seed/seedling, production units, seed infrastructure units, composting units etc.
- Detail assessment of agronomic and crop management practices use of various inputs including fertilizer, pesticides etc.

b) Market Condition Assessment

- Detail assessment of Post Harvest Management & Market infrastructure including major haats (Agriculture Marketing Board) & aggregation points, storage godowns, cold storages, processing facilities etc.
- Demand, arrival and price pattern of vegetables in the study area.
- Identification of entrepreneurs/ traders at local haats and conduct meetings with them.

c) Supply Chain Assessment

- Mapping vegetable Supply Chain - from producers' farm to market.
- Identify major actors viz. farmer, retailer, wholesaler, transporter, trader, commission agent etc in the supply chain and the role played by them.
- Identification of physical wastages of produce at each stage of supply chain, value loss and cost build up.
- Identify the constraints faced by supply chain actors.

d) Assessment of Agri Business Development Services/Support Services

- Mapping farmers’ institutions/ SHG etc. functional in area
- Mapping resource institutions/ training organizations/ NGOs active in the area.
- Identifying existing service providers and assess the services being provided by them to the vegetable subsector and their relationship with clients.

e) Identification of Bottlenecks with respect to

- Getting remunerative price
- Over expenditure in pesticides and fertilizers
- Technical know-how and awareness
- Irrigation facilities
- Financial problem in investing
- Market risk
- Stock storage
- Packaging and transportation
- Easy access to market/mandis/local haats/aggregators
- Middlemen
- Value chain facilities/post harvest management

4.3.2. AT SECONDARY LEVEL

The secondary information has been collected from various government websites as well as information available with Horticulture department has also been used.

5. DISTRICT AT A GLANCE- RAYAGADA

5.1.DEMOGRAPHIC DETAILS

Rayagada is a mineral-rich district in the southern part of the state of Odisha, in India. The city Rayagada is it's headquarter. The population of this district consists mainly of tribal. The Kondhas or Kondhs forms the majority of population followed by Souras.

The Rayagada district is one of the new districts carved out of the old Koraput district in 1993. It has abundant natural resources and can be developed as an industrial base. It has substantial population which is backward as indicated by S.T. Percentage. Overall, Sex ratio is in favor of female population but the decrease in female population of less than 6 years age group is matter of concern. Power supply, educational and health facilities and road facilities are deficient areas and need to be improved. The district of Rayagada is constituted by five towns including two census towns and 2,667 villages spread over 11 blocks. For the past six decades, Rayagada has seen institutions like IMFA, JK PAPER mills enriching the economy. Rayagada has a great mineral source, with full of bauxite, silicon. According to a survey India has 56% of total bauxite storage of the world out of which Odisha has 62%.

TABLE 2 DEMOGRAPHIC DETAILS OF RAYAGADA DISTRICT

#	Particulars	Rural	Urban
1	Population %	84.82%	15.18%
2	Total Population	820,945	146,966
A	Male	397,774	74,186
B	Female	423,171	72,780
3	Sex Ratio	1064	981
A	Child Sex Ratio (0-6)	966	950
4	Child Population (0-6)	132,230	16,292
5	Density of population (per sq km)	137	
6	Literacy rate	49.76%	

Source: India Census 2011

5.2. CLIMATIC CONDITION

The climatic condition of the district is slightly different because of high elevation and forest cover. The summer is hot and winter is cold. The highest temperature recorded is 46°C. In winter season temperature comes down to as less as 20°C when cold wind blows, otherwise the temperature ranges within 20 to 30°C. The average rainfall is 1455 mm.

5.3. EXTENDED AREA OF RAYAGADA DISTRICT

Rayagada district is bounded by Gajapati district in the east, Koraput and Kalahandi districts in the west, Kalahandi and Phulabani districts in the north and Koraput and Srikakulam (Andhra Pradesh) districts in the south. Rayagada is divided into eleven blocks.

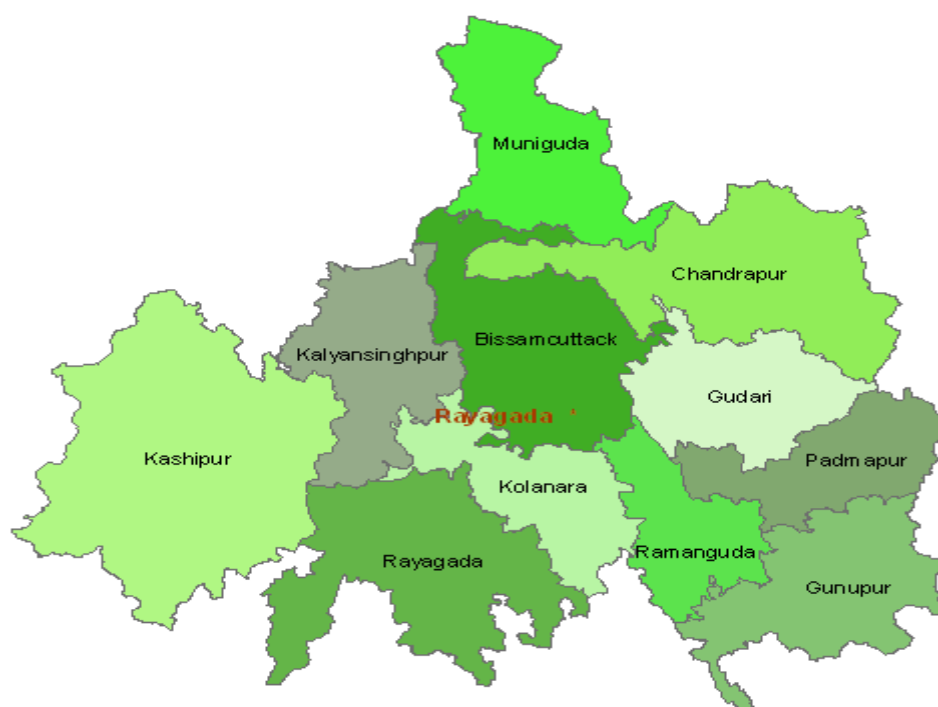


FIGURE 1 MAP OF RAYAGADA

The industrial areas in the district are spread in rural areas. These industrial pockets are emerging as fast growing consumption areas and can be considered equivalent to urban

area for consumption point of view. Some of the important industrial pockets in rural areas are – Chandrapura, Gomia, Chandan Kiyari etc.

5.4.LAND AND SOIL DETAILS IN RAYAGADA AND CATCHMENT AREA

Land is most critical natural resource for agricultural activities and communities dependent on farming. The topography of the area is very undulating, soil texture and fertility rapidly changes from plot to plot. Farmers classify their land based on topography and water/moisture retention capacity. The conventional classification of the land is – lowland, midland, upland and the soil type includes red loamy soil, alluvial soil, and mixed red and black soil.

TABLE 3 LAND AND SOIL DETAILS OF RAYAGADA DISTRICT

Soil Type	Area ('000 ha)	Percentage Of Total (Major Soil)
Red Loamy Soil	217.1	52.7
Alluvial Soil	104.3	25.3
Mixed Red & Black Soil	80.2	19.4
Agro- Climatic/Ecological Zone	Rayagada district comes under North Eastern Ghat Zone characterized by hot, moist and sub-humid climate and consists of Brown forest, lateritic, red alluvial, black and mixed red soil groups.	

Source: Odisha Agriculture statistics 2008-09

TABLE 4 IRRIGATION IN RAYAGADA DISTRICT

Irrigation	Area ('000 ha)
Net Irrigated Area	40.3
Gross Irrigated Area	57.8
Rainfed Area	98.1

Source: Odisha Agriculture statistics 2008-09

6. DISTRICT AT A GLANCE- KORAPUT

6.1.DEMOGRAPHIC DETAILS

It is the 15th largest district in the state by Population but 3rd largest district in the state by area. Its literacy rate is 49.21% which stands 27th rank among districts in state.

The district is known for its rich mineral deposits, located along the Eastern Ghats at an altitude of 2,900 feet above mean sea level.

Koraput was created on April 1, 1936. In October 1992, it was divided, resulting in the creation of the districts of Malkangiri, Rayagada and Nabrangpur.

Around 49% of the people of this district belong to the scheduled tribes. Demographic Details of Koraput district is given below.

TABLE 5 DEMOGRAPHIC DETAILS OF KORAPUT DISTRICT

#	Particulars	Rural	Urban
1	Population %	83.61%	16.39%
2	Total Population	1,153,478	226,169
A	Male	563,771	115,038
B	Female	589,707	111,131
3	Sex Ratio	1046	966
A	Child Sex Ratio (0-6)	984	944
4	Child Population (0-6)	199,037	26,089
5	Density Of Population (Per Sq Km)	157	
6	Literacy Rate	49.21%	

Source: India Census 2011

6.2.CLIMATIC CONDITION

The climatic condition of Koraput district is different from other districts in state because of its location. It is surrounded by hills. During summer, day temperature ranges between 29 to 40°C. In rainy and winter season temperature ranges between 15 to 31°C.

6.3.LAND DETAILS IN KORAPUT AND CATCHMENT AREA

The District falls into two agro climatic zones namely Eastern Ghat High Land comprising all the blocks of Koraput Sub-Division and Kotpad Block and South Eastern Ghat comprising the four blocks of Jeypore sub-division. Koraput is blessed with all three types of land- Low land i.e Bedajami generally located at the bottom or catchment area of the mountains, irrigated with the perennial streams and rain water and contain high moisture level which is useful for paddy cultivation. Another land type is Medium land located in middle part of local basin, good moisture retention capacity, fertility, good water table condition. High land is the third type of land which is marked by undulating topography.

6.4.EXTENDED AREAS OF KORAPUT DISTRICT

Koraput is bordered by Rayagada and Srikakulam (Andhra Pradesh) districts in the east, Madhya Pradesh’s Bastar district in the west, Nabrangpur district in the north, and Vijayanagaram and Visakhapatnam districts of Andhra Pradesh in the south. The district has two sub-divisions, 14 tehsils and 14 blocks.

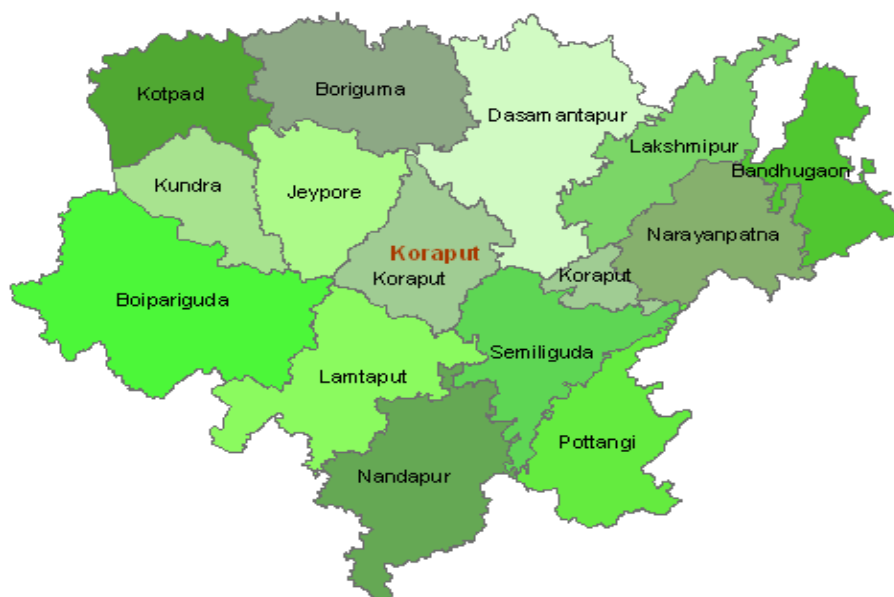


FIGURE 2 MAP OF KORAPUT DISTRICT

7. DISTRICT AT A GLANCE- NABRANGPUR

7.1.DEMOGRAPHIC DETAILS

The city of Nabrangpur is the district headquarters. Most of its population is tribal, and most of the land is covered by forest. Situated in the southwest corner of Odisha, district is covering its borders with Bastar district to the West, Kalahandi district to the North, Koraput district to the South. Sex ratio is higher in rural areas than urban area and major portion of people living in rural area as compared to urban area. Literacy rate of this district is 46.43%. Demographic details of Nabrangpur district is given below.

TABLE 6 DEMOGRAPHIC DETAILS OF NABRANGPUR DISTRICT

#	Particulars	Rural	Urban
1	Population %	92.82%	7.18%
2	Total Population	1,133,321	87,625
A	Male	560,771	44,041
B	Female	572,550	43,584
3	Sex Ratio	1021	990
A	Child Sex Ratio (0-6)	999	971
4	Child Population (0-6)	197,140	10,771
5	Density of Population (Per Sq Km)	231	
6	Literacy Rate	46.43%	

Source: Census 2011

7.2.CLIMATIC CONDITION

In summer season day temperature in Nabrangpur ranges between 22 ° C to 41° C. Average temperatures of January is 21 ° C , February is 23 ° C , March is 27 ° C , April is 29 ° C , May is 32 ° C .

7.3.EXTENDED URBAN AREA

Nabrangpur is located on the 2,000 ft Plateau (about 2,000ft above mean sea level) like that of historically famous Jeypur town. Nabrangpur is very much close and interlinked

with Koraput District, with which it shares its language, lifestyle, heritage, flora, fauna and climate.

District Headquarters Nabrangpur is well connected by road. Nabrangpur, Umarkote are the cities in this district having road connectivity to major towns and remote villages.

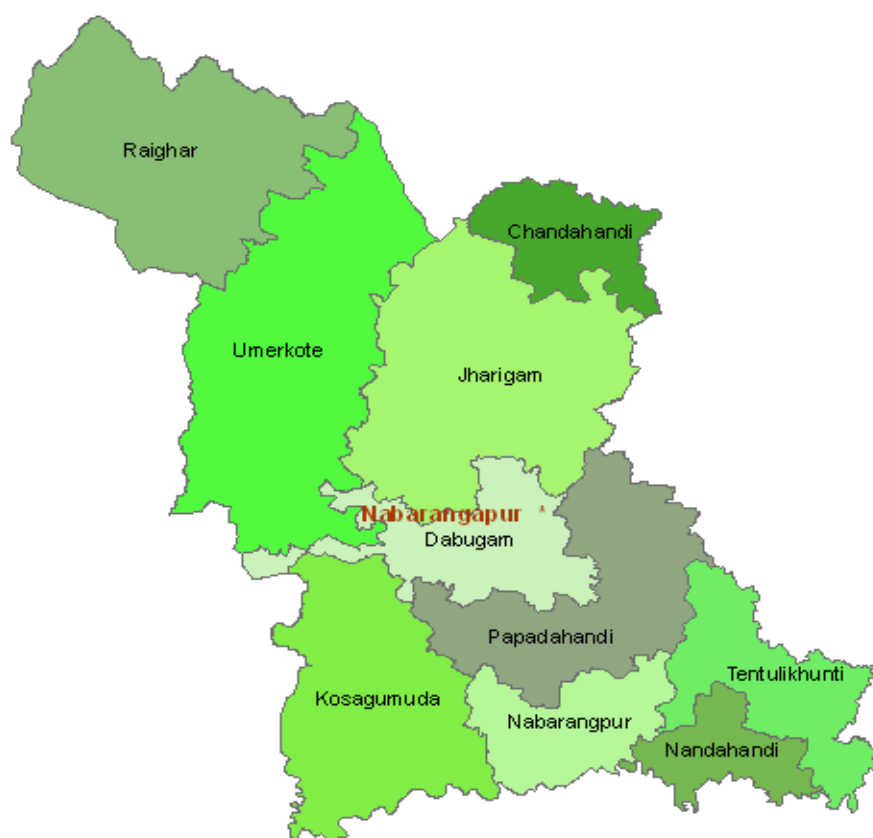


FIGURE 3 MAP OF NABRANGPUR DISTRICT

7.4. LAND DETAILS IN NABRANGPUR AND CATCHMENT AREA

The District falls into agro climatic zone namely Eastern Ghat High Land comprising all the blocks of Nabarangpur Sub-Division. Nabarangpur is blessed with all three types of land- Low land i.e Bedajami, medium land located in middle part of local basin, good moisture retention capacity, and high land.

8. DISTRICT AT A GLANCE - MALKANGIRI

8.1.DEMOGRAPHIC DETAILS

Malkangiri is a town and a Notified Area Council (NAC) in Malkangiri district in the Indian state of Odisha. Malkangiri district administrative head quarter is Malkangiri. It is located 544 KM east towards State capital Bhubaneswar. Most of its population resides in rural area (about 92%). And literacy rate is 48.54%.

It is one of the 19 most backward regions of Orissa that is receiving funds from the Backward Regions Grant Fund (BRGF) Program. A demographic detail of district is given below.

TABLE 7 DEMOGRAPHIC DETAILS OF MALKANGIRI DISTRICT

#	Particulars	Rural	Urban
1	Population %	91.92%	8.08%
2	Total Population	563,664	49,528
A	Male	277,901	25,723
B	Female	285,763	23,805
3	Sex Ratio	1028	925
A	Child Sex Ratio (0-6)	995	947
4	Child Population (0-6)	102,265	6,827
5	Literates	212,881	31,825
6	Literacy Rate	48.54%	

Source: Census 2011

8.2.CLIMATIC CONDITION

The climate in the district is generally cold during winter and hot in summer with temperature ranging from 13°C to 47°C. Average temperatures of January is 22°C, February is 24°C, March is 29°C, April is 31°C, May is 34°C.

The average annual rainfall is about 1,700 mm. Relative humidity is generally high, especially in the monsoon and post-monsoon months. During the rainy season, most areas of the district become impassably swampy and heavy floods isolate it from the outer world. This district lies within the malaria prone belt.

8.3. EXTENDED URBAN AREA

District Headquarters Malkangiri is well connected by road. Malkangiri is about 544 KM by road from Bhubaneswar (Capital of Odisha). Odisha State Road Transport Corporation (OSRTC) runs buses from major cities to towns and villages in this district. This district has a power station at Balimela and the proposed Vijaywada-Ranchi corridor road will pass through it.

Malkangiri District is famous for Hydroelectric Project called Balimela. This district is in High Altitude.



FIGURE 4 MAP OF MALKANGIRI

8.4.LAND DETAILS IN MALKANGIRI AND CATCHMENT AREA

The District falls into agro climatic zone namely south eastern ghat zone, eastern ghat high land zone. Malkangiri is blessed with all three types of land- Low land i.e beda jami generally located at the bottom or catchment area of the mountains, irrigated with the perineal streams and rain water and contain high moisture level which is useful for Paddy cultivation. Another land type is medium land located in middle part of local basin, good moisture retention capacity, fertility, good water table condition. Some of the key features of these different types of lands are.

TABLE 8 CLASSIFICATION OF LAND BASED ON TOPOGRAPHY

#	Type of Land	Common Features
1	Lowland (Beda Jami)	Generally located at the bottom or catchment area of the mountains, irrigated with the perennial streams and rain water. Contains high moisture level. Useful for paddy cultivation.
2	Midland	Located in middle part of local basin, good moisture retention and fertility, good water table
3	Upland (Dhepa Jami)	Generally situated as plots on the hills. Low water retention capacity and also affected with soil erosion, very poor organic content, low water table.

Source: FGD

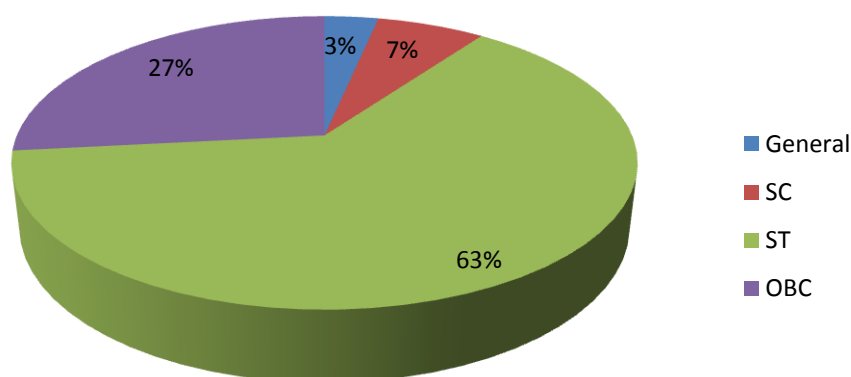
9. FARMER DATA ANALYSIS

9.1.PROFILE OF SAMPLE FARMERS

Social Category of the Respondents

In the study area it was found a majority of households belong to ST category (63%) followed by OBC (27%) and SC (7%) and General (3%). (n=60)

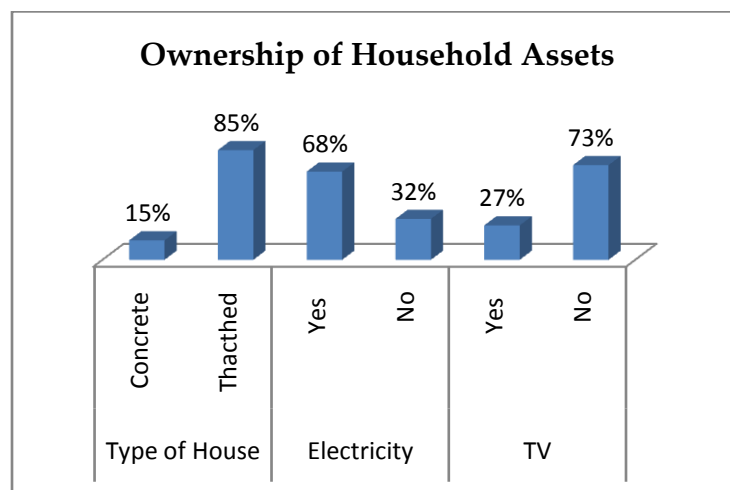
Social Category of Respondents



9.2.ECONOMIC STATUS OF SAMPLED HOUSEHOLDS

Ownership of Household Assets

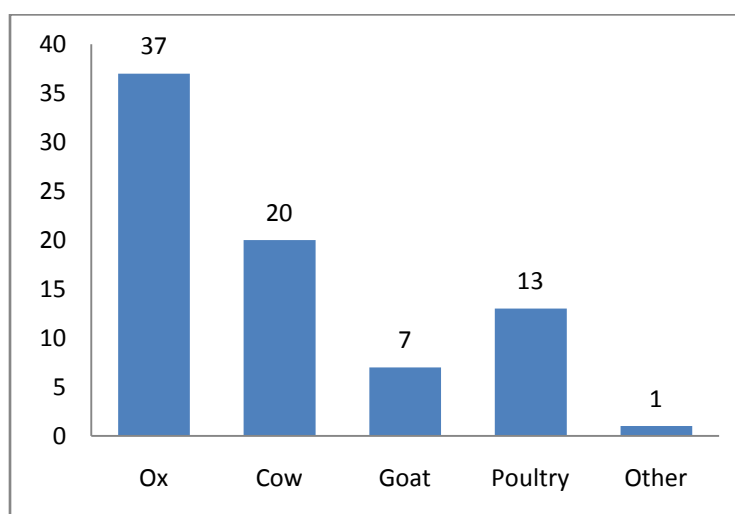
Out of the total 60 sampled households, 85% are living in thatched house, 15% in concrete house. 68% of the sampled households are having electricity connection. Around 73% respondents reported owning no television connection while 27% reported availability of television. These numbers show that the sampled populations have to struggle a lot to meet their basic needs.



Livestock Ownership

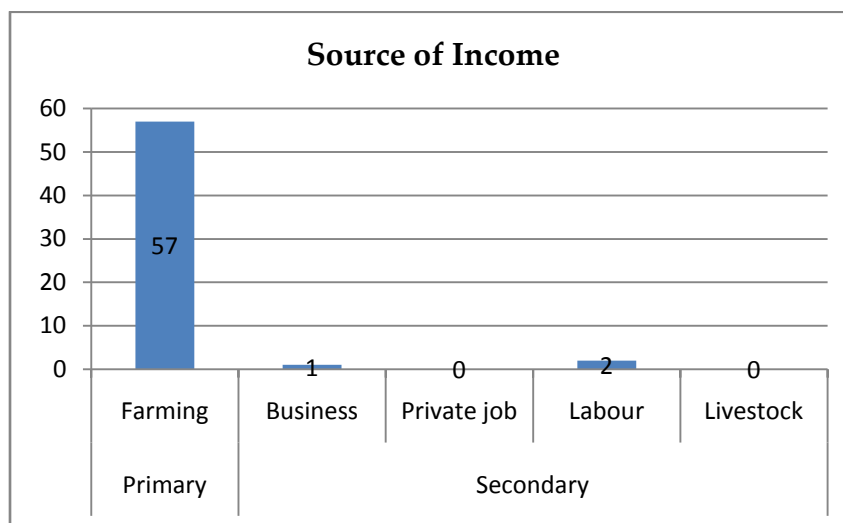
Ox, is the most popular animal in research area. A detail category wise ownership of the common animals has been presented below.

Ox ownership among all the people was more as compared to Poultry, Cow and Goat. Livestock rearing is also an important source of livelihood and people are engaged in it. Goat rearing is popular among people in some areas and they are doing it only for business purpose. When enquired about preference for Ox the reason that came out they are used for farming and local transportation of agri produces.



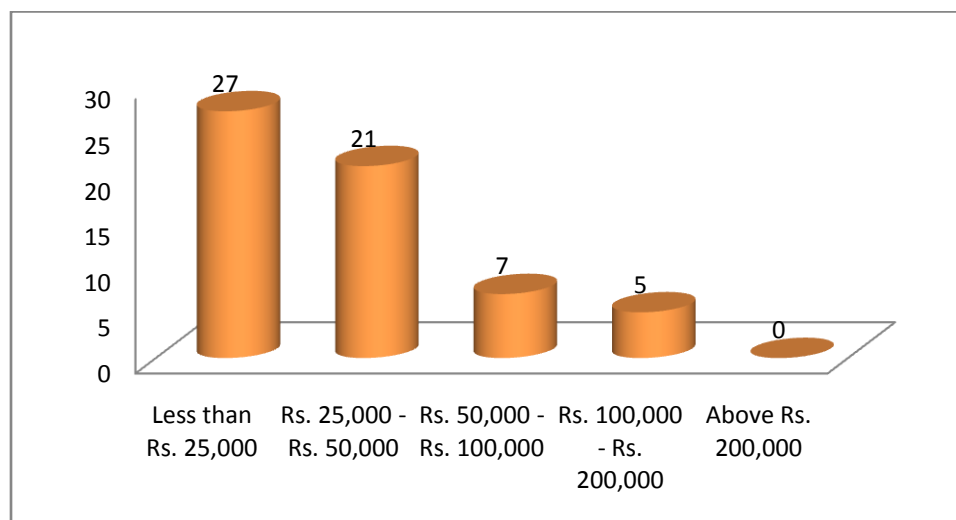
Occupation

As the sample was drawn from farming community, primary occupation of all the sampled households was agriculture. However, some of the family members were found to be engaged in other occupations like daily wages labour, petty business.



Annual Income of Sampled HHs

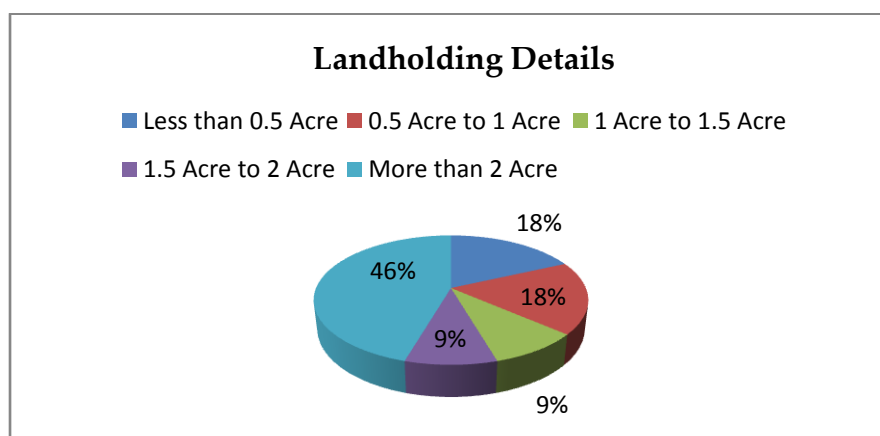
Annual income of sampled HHs is shown in column. Among sampled HHs, maximum number of HH were earning in the range of less than Rs. 25,000, followed by the range between Rs. 25,000 to Rs. 50,000 annually. Most of these respondents opt for farming which is of subsistence type and so their annual income also lies in the lowest range. The impression that comes through after interaction with farmers is that the farming does not provide them enough income to meet even their basic needs.



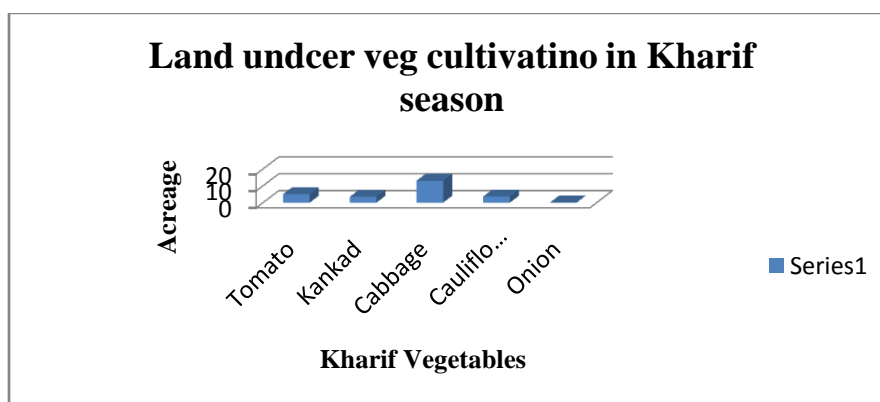
9.3.LAND DETAILS OF SAMPLED HOUSEHOLDS

Land Size Pattern of Sampled HHs

64% of the surveyed population had landholding of more than 1 acre, followed by 36% of population which has landholding of less than 1 acre. The farmers are using land for a variety of agricultural produce such as cereals and vegetables. If an enabling environment for vegetable cultivation such as markets and innovative production and harvesting practices are in place, the people may be encouraged to engage in vegetative cultivation in a major way which in turn will ensure them better remuneration for their efforts.

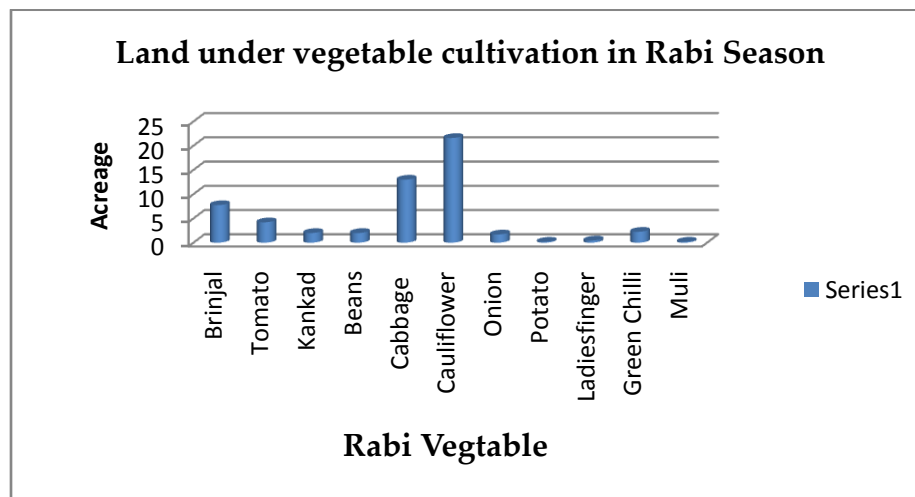


9.4. LAND UNDER VEGETABLE CULTIVATION IN KHARIF SEASON



During the study it was found most of the people are fond of winter vegetables, mostly Cabbage, Cauliflower, Tomato, Onion etc. Among all the vegetables Cabbage occupies the highest area during Kharif season across the four districts.

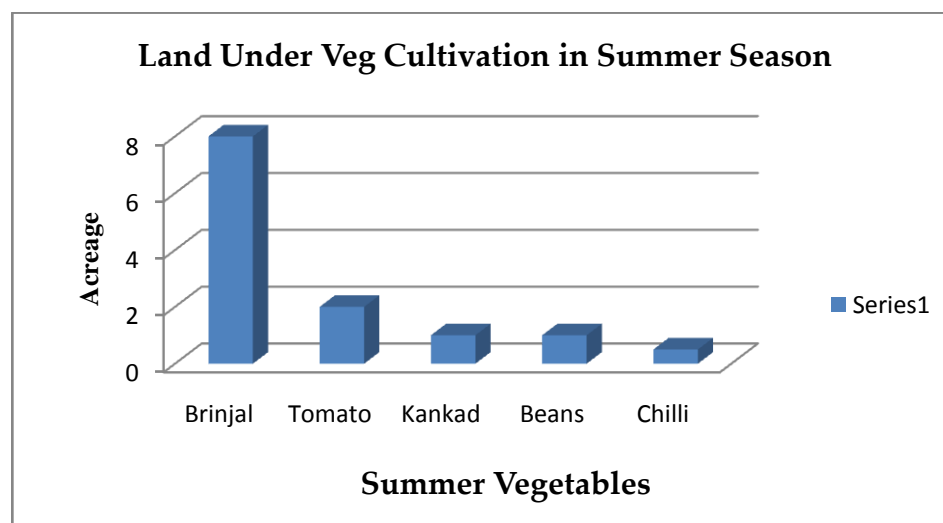
9.5. LAND UNDER VEGETABLE CULTIVATION IN RABI SEASON



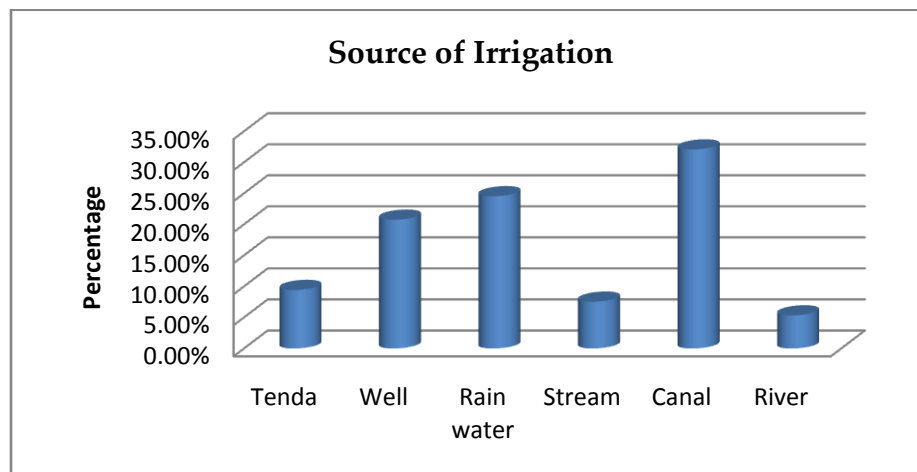
Winter is the season of all kind of vegetables and this is true for all the districts. From all four districts it was found Cabbage and Cauliflower are the most popular vegetables in Rabi season. Brinjal comes in third place and Tomato fourth. And all other vegetables are produced in small quantity.

9.6. LAND UNDER VEGETABLE CULTIVATION IN SUMMER SEASON

During summer Brinjal occupies highest area among all other vegetables grown. Second comes Tomato which is in high demand during that time along with Kankad, Beans and Green chilli.



9.7. SOURCE OF IRRIGATION



It has been found from the study that most of the people (from all four districts) prefer canal as a source of irrigation as it is quite easy to access; other source being rainwater. And from the surveyed villages, Well was also found to be a source of drinking water as well as of irrigation. From the column diagram, it can be inferred that canal is the most preferred source of irrigation (with 30% people), followed by rainwater (with 24% people) and Well (being the option of 20% people).

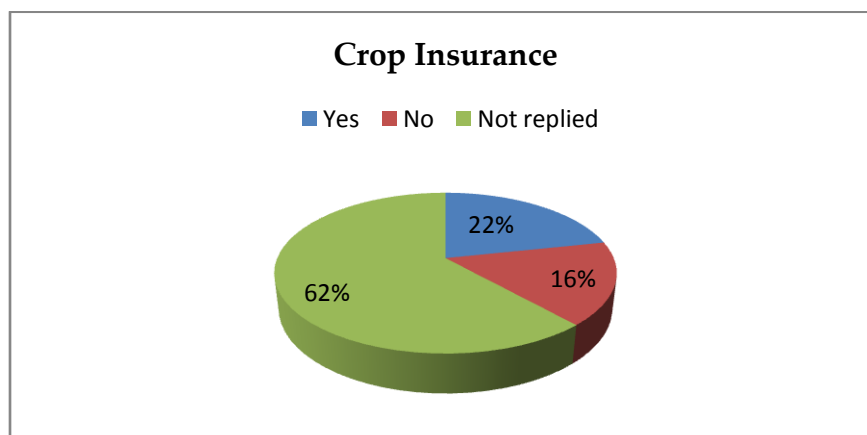
9.8. HIGH TECH VEGETABLE CULTIVATION

From the study it was found that no one is using any advanced technology for any type of vegetable cultivation in any sampled area. Now there is a normal trend for green house technology everywhere but in our study no one was found out to have tried green house technology and even plastic house with iron rod or shed till date. The common expression from respondents is that they don't get any government support for vegetable cultivation. But some of them are now practicing organic vegetable cultivation. They use cow dung, manure for cultivation and they are happy with it as they are getting good price for that.

9.9. CROP INSURANCE

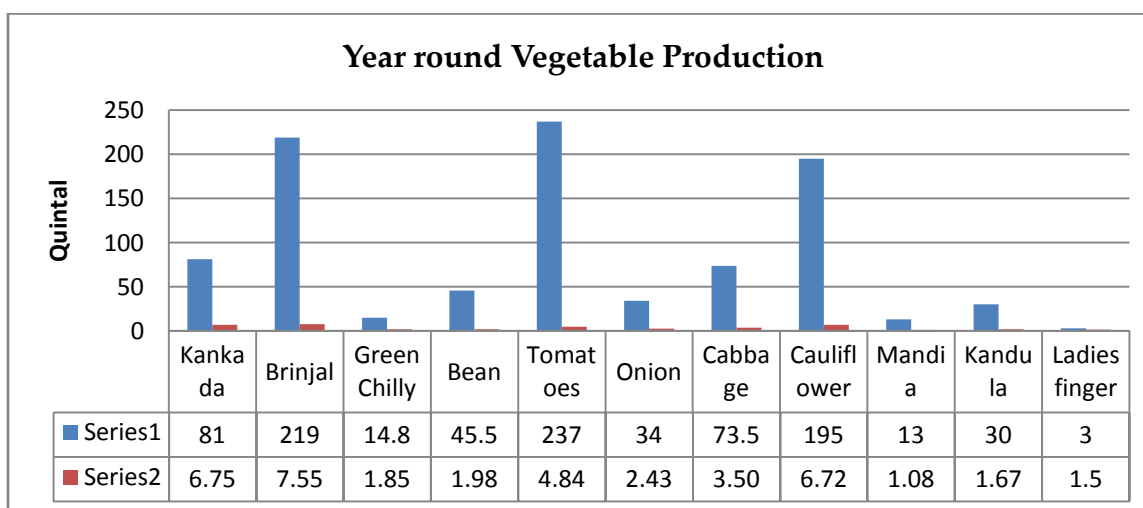
Nowadays, crop insurance has acquired great importance for farmers. From the study it was found 22% respondents have crop insurance while 16% respondents don't have any crop insurance and 62% respondents did not respond. One important point is the

farmers insured the crop not for vegetables but for Paddy. No one has even thought of getting insurance for vegetables.



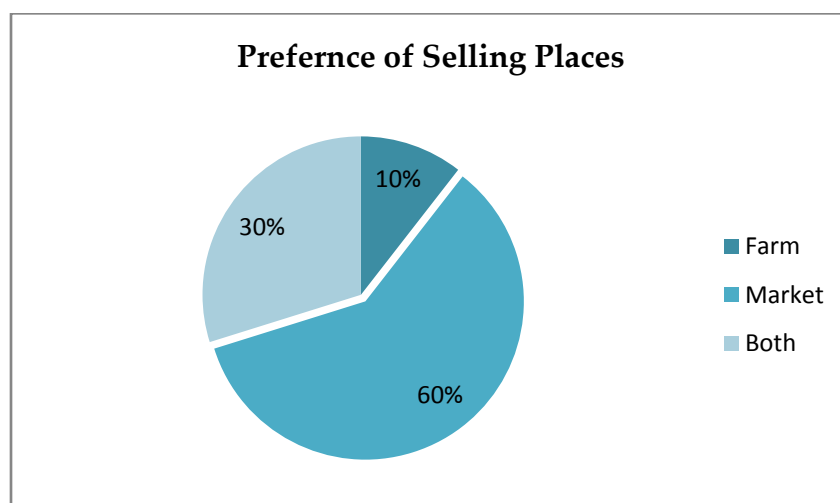
9.10. VEGETABLE PRODUCTION FOR THE WHOLE YEAR

There are a variety of vegetables farmers are cultivating for the whole year in all four districts. It ranges from Kankad, Brinjal, Green Chilli, Beans, Tomato, Onion, Cabbage, Cauliflower, Mandia, Ladies finger. Out of these vegetables, Tomato and Brinjal touch the production of more than 200 quintals. It was found from the study that most of the farmers are cultivating some common vegetables round the year. Very few people cultivate Onion, Beans, Mandia, Kandula. In the bottom line it is very clear from the table that average Kankad production is highest that means those cultivating Kankad are doing it in a good volume. Ladies finger and Mandia average production is less. According to producers, Kankad and Mandia production don't involve huge cost for cultivation.



9.11. PREFERENCE OF VEGETABLE SELLING PLACE

The preference of various vegetable selling places has been diagrammed in the pie chart. It has been found from the study that most of the producers i.e. 60%, like to sell their vegetables at the market places as they get more price for vegetables in market places than at farm gate. Again 30% of the producers sell their vegetables at both farm gate and market places whereas 10% of the producers sell at farm gate directly. Sellers across various selling places want to get their return early and so sale transactions are done in morning. If they want to sell the vegetables in the market they go to the market by cycle with good volume of vegetables. The reason behind farm gate sale is people prefer to buy fresh vegetables and they come to the farms to buy those vegetables.



10. VEGETABLE CULTIVATION AND MARKETING IN RAYAGADA AND CATCHMENT AREA

10.1. VEGETABLE CULTIVATION IN RAYAGADA AND CATCHMENT AREA

Cultivation of vegetable as commercial crop has created a good impact in some pockets in the sampled villages. The vegetable cultivation is not well developed due to lack of technology dissemination and also because return are not very remunerative and quick to come by. Some of the farmers cultivate a variety of vegetable crops across the season using manure. Some of the commonly cultivated vegetable crops have been listed below.

TABLE 9 SEASON WISE VEGETABLE CULTIVATION DETAILS

Season	Main Vegetables
Rabi	Cabbage, Cauliflower, Chilly, Potato, Tomato, Brinjal, Green Pea, Radish, French Bean etc.
Kharif	Brinjal, Tomato, Okra, Bottle/Sponge/Ridge/Bitter Gourd, etc.
Summer	Cucumber, Brinjal, Okra, Onion etc.

10.2. SEASONALITY OF VEGETABLES IN RAYAGADA AND CATCHMENT AREA

10.2.1. SEASONALITY OF SOWING AND MARKETING OF VEGETABLES IN RAYAGADA DISTRICT

TABLE 10 SEASONALITY OF SOWING AND MARKETING OF VEGETABLES IN RAYAGADA DISTRICT

Vegetables	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Cabbage												
Cauliflower												
Brinjal												
Tomato												
Chilly												
Potato												

Beans													
Lady Finger													
Bitter gourd													
Onion													
Ridge Gourd													
Bottle gourd													
Green Pea													
Cucumber													
Sponge Gourd													
Spinach													



Seasonality of Sowing

10.2.2. SEASONALITY OF MARKETING OF VEGETABLES IN RAYAGADA DISTRICT

TABLE 11 SEASONALITY OF MARKETING OF VEGETABLES IN RAYAGADA DISTRICT

Vegetables	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Tomato												
Brinjal												
Cabbage												
Cauliflower												
Green Chilly												
Beans												
Lady Finger												
Bitter Gourd												
Sponge Gourd												
Ridge Gourd												
Bottle Gourd												
Cucumber												
Potato												
Onion												
Green Pea												
Spinach												

Flush Season

Lean Season

10.3. VEGETABLE MARKETS OF RAYAGADA

The vegetable market is not in a good shape in the Rayagada urban cluster. Some vegetable retailers are running their business for a long time and as a result they have a common place for that. In this market place various levels of marketing channels and intermediaries are functional in the urban as well the rural areas of district. The active market players are – wholesalers, traders, commission agents (CA), and retailers. The town market, located in the heart of the city, is the main wholesale vegetable market of district while retail market is spread all over the district. In rural areas, most of the market related activities take place in haats (a place where people assemble to sell and purchase their goods and sometimes services), which are generally organized twice in a week or once in a week in cluster locations. People in remote locations especially poor families purchase items of their needs and sale surplus produce in these haats.

Block wise list of rural haat and distance from the block as well as catchment area are shown in below table.

TABLE 12 LIST OF RURAL HAAT AND AND VEGETABLE MANDI OF RAYAGADA DISTRICT

Blocks	Name of Haat and Mandi	Days	Catchment Area (Km)
Bishamacuttack	Bishamacuttack	Daily	5 to 7
	Muniguda	Daily	11
	Rayagada	Daily	60
Muniguda	Ambadolla	Friday	5
	Muniguda	Daily	4
Kesingpur	Kesingpur	Tuesday	6
	Majhiguda	Tuesday	2
Gunupur	Gunupur	Daily	4
	Putasing	Daily	5
	Talasing	Daily	10

10.4. RAYAGADA TOWN MARKET- RAYAGADA

Rayagada district is blessed with some of the main markets like-Rayagada, Gunpur, Muniguda, Bishamcuttack and Kesingpur. There are the important vegetable wholesale markets in Rayagada district from where vegetables are sourced. The Commission Agents (CA) are observed to be very active and major portion of the vegetable is sold through them. Price of the vegetable is fixed through open bidding process and CA plays important role in the price determination process. Wholesalers purchase from sellers (producers or traders who bring vegetables to the mandi). Retailers purchase from these wholesalers generally in lot of 5 Kg and sometimes directly from local farmers. Detail profile of vegetable market has been provided below:

TABLE 13 RAYAGADA TOWN MARKET PROFILE

Type of Traders	Numbers	Average Quantity
Commission Agents (CA)	2-3 agents	Medium: 8-10 Quintal
Wholesalers	Around 4-5 wholesalers visit everyday	5 - 7 quintals of fresh vegetables
Retailers with Permanent Shops	10	Each shop sells around 200 to 230 Kg of vegetables daily (all vegetables together)
Small Retailers	15-20	Each retailer sells around 50 to 60 Kg of vegetables daily (combination of vegetables)

Commission Agents play crucial role in vegetable market at Rayagada mandi. They facilitate the negotiation and price discovery process. They also make payment on behalf of wholesaler and collect payment from wholesaler in evening or next morning.

10.4.1. DAILY ARRIVAL, WHOLESALE PRICE AND SOURCE

The arrival of fresh vegetables in mandi is mainly based on production in source area. Traders and commission agents are well communicated through telephone and mobile. The traders adjust procurement price according to arrival and price trend in terminal market. The arrival pattern, average price and source areas for the Rayagada town markets have been given in below table.

TABLE 14 SEASONAL ARRIVAL, PRICE & SOURCE OF DIFFERENT VEGETABLES

Name of Vegetable	Average Per Day Arrival (Kg)			
	Particulars	Nov- February	March-June	July-October
Brinjal	Daily Arrival (Kg)	1100	900	700
	Wholesale Price (Rs.)	25-30	30	30-35
	Source	Local, Kunduli, Jaykeypur	Local, Jagdalpur, Raipur, Kunduli	Raipur, Kunduli, Bargarh
Tomato	Daily Arrival (Kg)	1200	800	650
	Wholesale Price (Rs.)	25-30	35	40
	Source	Local, Bangalore, Raipur	Local, Bangalore, Raipur	Bangalore, Kunduli, Jagdalpur
Cabbage	Daily Arrival (Kg)	1500	1450	900
	Wholesale Price (Rs.)	15-20	25	30-35
	Source	Local, Kunduli	Local, Kunduli, Jaykeypur	Kunduli, Raipur
Cauliflower	Daily Arrival (Kg)	1000	850	650
	Wholesale Price (Rs.)	25-30	35-40	45-50
	Source	Local, Kunduli, Jaykeypur	Local, Kunduli, Jaykeypur	Raipur, Kunduli, Bargarh
Potato	Daily Arrival (Kg)	800-1000	1200	1000
	Wholesale Price (Rs.)	15-20	25	25-30
	Source	Local, WB, Raipur, Kunduli	WB, Raipur, Kunduli	Local, WB, Raipur, Kunduli
Green Chilly	Daily Arrival (Kg)	180	140	130
	Wholesale Price (Rs.)	25-30	40-45	65-70
	Source	Local, Kunduli,	Jaykeypur,	Jaykeypur,

		Bargarh	Kunduli, Jagdalpur	Kunduli, Bargarh
Lady Finger	Daily Arrival (Kg)	115	60	150
	Wholesale Price (Rs.)	15	25	20-25
	Source	Local, Kunduli, Bargarh	Kunduli, Bargarh	Jaykeypur, Kunduli, Bargarh

10.5. EXPORT MARKET OF RAYAGADA TOWN MANDI

Export market of Rayagada town vegetable market is given in below table:

TABLE 15 DOMESTIC VEGETABLE EXPORT MARKET OF RAYAGADA

Vegetables	Domestic Export Market
Tomato	Present vegetable production capacity is not able to meet the continuously increasing population demand. The town is dependent for its daily consumption on outside vegetables for the whole year. So naturally there is no scope for vegetable supply to places outside the district and earn revenue. Obviously, farmers are also exploring other income options.
Brinjal	
Cabbage	
Cauliflower	
Green Chilly	
Beans	
Lady Finger	
Bitter Gourd	
Sponge Gourd	
Ridge Gourd	
Bottle Gourd	
Cucumber	

10.6. PRICE SPREAD ACROSS VALUE CHAIN

Transaction Point	Cost of Production/ Procurement (Rs. per Kg)	Selling Price (Rs./ Kg)	Gross Margin (Rs./ Kg)	Transaction Cost (Rs./ Kg)	Net Margin (Rs. per Kg)	% Return	% Net Margin of Total Margin	Actor
Brinjal								
Retailing	18	25	7	0.5	6.5	36.11	46.43	Retailer
Whole Selling	15	18	3	0	3	20.00	21.43	Wholesaler
Adhat (Mandi)	12	15	3	0.5	2.5	20.83	17.86	Small Traders
Production End (farm gate)	9	12	3	1	2	22.22	14.29	Farmers
Cauliflower								
Retailing	20	27	7	4	3	15.00	26.09	Retailer
Whole Selling	15	20	5	1	4	26.67	34.78	Wholesaler
Adhat (Mandi)	13	15	2	0	2	15.38	17.39	Small Traders
Production End (farm gate)	9.5	13	3.5	1	2.5	26.32	21.74	Farmers
Cabbage								
Retailing	15	25	10	1	1.5	10.00	30.61	Retailer
Whole Selling	13	15	2	0.3	1.2	9.23	24.49	Wholesaler
Adhat (Mandi)	10	13	3	0.3	1.2	12.00	24.49	Small Traders
Production End (farm gate)	8	10	2	0	1	12.50	20.41	Farmers
Tomato								
Retailing	15	25	10	1	9	60.00	58.44	Retailer
Whole Selling	12	15	3	0.3	2.7	18.00	17.53	Wholesaler
Adhat (Mandi)	10	12	2	0.3	1.7	11.33	11.04	Small Traders

Production End (farm gate)	8	10	2	0	2	13.33	12.99	Farmers
Chilly								
Retailing	15	25	11.5	3	8.5	56.67	56.67	Retailer
Whole Selling	12	15	3	0.5	2.5	20.83	16.67	Wholesaler
Adhat (Mandi)	10	12	2	1	1	10.00	6.67	Small Traders
Production End (farm gate)	7	10	3	0	3	42.86	20.00	Farmers
Lady Finger								
Retailing	15	20	5	0.5	4.5	30.00	37.82	Retailer
Whole Selling	12	15	3	0.3	2.7	22.50	22.69	Wholesaler
Adhat (Mandi)	10	12	2	0.3	1.7	17.00	14.29	Small Traders
Production End (farm gate)	7	10	3	0	3	42.86	25.21	Farmers
Potato								
Retailing	15	20	5	0.5	4.5	30.00	41.28	Retailer
Whole Selling	12	15	3	0.3	2.7	22.50	24.77	Wholesaler
Adhat (Mandi)	10	12	2	0.3	1.7	17.00	15.60	Small Traders
Production End (farm gate)	8	10	2	0	2	25.00	18.35	Farmers

11. VEGETABLE CULTIVATION AND MARKETING IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICTS

11.1. VEGETABLE CULTIVATION IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICTS

Cultivation of vegetable as commercial crop is somewhat popular in the sampled villages except Nabrangpur district. Nabrangpur district has a rather common trend of vegetable cultivation among farmers. But as per some respondents in other districts vegetable cultivation is not accepted well due to lesser as well as irregular and delayed return patterns. And another discouraging factor is lack of technology dissemination. Farmers produce a variety of vegetable crops across the seasons; some of the commonly cultivated vegetable crops of three districts have been listed in below table.

TABLE 16 DETAILS SEASON WISE VEGETABLE CULTIVATION DETAILS

Season	Main Vegetables
Rabi	Cabbage, Cauliflower, Chilly, Tomato, Brinjal, Radish, Carrot, Onion, Green Chilli, Lauki, Janhi
Kharif	Brinjal, Ladies finger, Kankada, Jhudang, Pumpkin, Chilli
Summer	Palwar, Brinjal, Ladies finger.

Source: FGD

11.1.1. SEASONALITY OF VEGETABLES IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICTS

Seasonality of Sowing and Marketing of Vegetables in Koraput, Nabrangpur and Malkangiri district:-

TABLE 17 SEASONALITY OF SOWING AND MARKETING OF VEGETABLES IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICT

Vegetables	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Brinjal												
Lady Finger												
Kankada												
Chilly												
Cucumber												
Spinach												
Cabbage												
Cauliflower												
Tomato												
Onion												
Beans												
Radish												

Flush Season Lean Season

11.1.2. SEASONALITY OF MARKETING OF VEGETABLES IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICTS

TABLE 18 SEASONALITY OF MARKETING OF VEGETABLES IN KORAPUT, NABRANGPUR AND MALKANGIRI DISTRICT

Vegetables	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec
Brinjal												
Lady Finger												
Kankada												
Chilly												
Beans												
Spinach												
Cabbage												
Cauliflower												
Tomato												
Onion												
Radish												

Flush Season Lean Season

11.2. VEGETABLE MARKETS OF KORAPUT DISTRICT

The vegetable markets are well developed in Koraput. This district comprises same marketing channels and intermediary likes Malkangiri and Nabrangpur district and operates in rural as well as urban area. The proactive actors are wholesalers, traders & commission agents. In rural areas, most of the market related activities take place in haats, which are generally organized twice in a week or once in a week in cluster locations. These haats serve as common points to farmers for both purchase of their need items and also for sale of their produces.

Block wise list of rural haat and distance from the block as well as catchment area are shown in below table.

TABLE 19 LIST OF RURAL HAAT AND VEGETABLE MANDI IN KORAPUT DISTRICT

Blocks	Name of Haat and Mandi	Days	Distance From Block Office(KM)	Catchment Area (Km)
Kotpad (Koraput)	Bari	Tuesday	5 to 7	5 to 7
	Kunduli	Thursday & Friday	5 to 7	Supply to all across state.
	Kusumi	Friday	5 to 7	3 to 4
	Kotpad	Daily	0	5 to 10
Koraput (Koraput)	Koraput	Sunday & Daily	15	15 to 20
	Hatapada			

The prominent vegetable markets in the Koraput districts are Kotpad, Bari, Kunduli, Kusumi, Hatapada, and Koraput itself which not only cater to the needs of state but also have sufficient vegetables to supply to the other states of the country. The vegetable supply chain is well developed in Koraput district.

Kunduli Vegetable Mandi

Kunduli vegetable mandi is situated in Kotpad block of Koraput district. It is one of the biggest mandis of Koraput district. Vegetable is sourced here from local areas as well sourced from outside Orissa. A variety of vegetables are available in this market. This market also acts as a collection center for bulk vegetables and many more wholesaler, traders from different districts also come here for lifting different vegetables for reselling in other districts.

TABLE 20 PROFILE OF KUNDULI MARKET

Type of Traders	Numbers	Average Quantity
Commission Agent	20 agents	10-20 quintals of fresh vegetables
Wholesalers	45-70 Wholesalers come from Vizag, Koraput, Jeypore, Malkangiri, Semiliguda, Berhampore, Srikakulam, Saluru etc.	5- 10 quintals of fresh vegetables
Retailers with Permanent Shops	Around 20-30 permanent shops	Each shop sells around 100 to 200 Kg of vegetables daily (all vegetables together)
Small Retailers	Around 400-500 in the Kunduli market on market days.	Each retailer sells around 50 to 75 Kg of vegetables daily (combination of vegetables)

Daily Arrival, Wholesale Price and Source

TABLE 21 DAILY ARRIVAL, WHOLESALE PRICE AND SOURCE OF VEGETABLE

Name of Vegetable	Average Per Day Arrival (Qt) (Kunduli)						
	Particulars	Dec-Jan	Feb-Mar	Apr-May	June-July	Aug-Sep	Oct-Nov
Brinjal	Daily Arrival	20	20	15	20	35	40
	Wholesale price	1200	1700	1800	2000	1100	1100
	Source	Local	Local	Local	Local	Local	Local
Tomato	Daily Arrival	40	30	15	30	30	30
	Wholesale price	700	1200	2000	3000	3000	1000
	Source	Local	Local	Local	AP, Bangalore	AP, Bangalore	AP, Bangalore
Green chilli	Daily Arrival	15	10	5		5	5
	Wholesale price	2000	2500	3000		2000	2000
	Source	Local	Local	Local		Local	Local
Cauliflower	Daily Arrival	40	30	5	40	50	80
	Wholesale price	2000	1000	500	3000	1500	1000
	Source	Local, AP, Berhampore, Rayagada etc.	Local, AP, Berhampore, Rayagada etc.	Local, AP, Berhampore, Rayagada etc.	Local	Local	Local
Cabbage	Daily Arrival	50	40	10	30	70	120
	Wholesale price	700	700	1000	3000	1500	1000
	Source	Local, AP, Berhampore, Rayagada etc.	Local, AP, Berhampore, Rayagada etc.	Local, AP, Berhampore, Rayagada etc.			
Lady Finger	Daily Arrival			5	5	10	
	Wholesale price			1000	1200	1100	
	Source			Local	Local	Local	
Kankada	Daily Arrival				15	15	
	Wholesale price				3500	4000	
	Source				Local	Local	
Beans	Daily Arrival					50	80
	Wholesale price					2000	1000

	Source					Local	Local
Onion	Daily Arrival	40	20	20	20	20	30
	Wholesale price	1700	2000	2100	2100	2000	1500
	Source	Local, WB	Local	A.P, Karnataka,WB, Maharashtra (sometimes)	A.P, Karnataka,WB, Maharashtra (sometimes)	A.P, Karnataka,WB, Maharashtra (sometimes)	Local, WB
Ginger	Daily Arrival				30	100	70
	Wholesale price				70	60	65
	Source				Local	Local	Local

11.3. VEGETABLE MARKETS OF NABRANGPUR DISTRICT

The vegetable markets are well developed in Papadahandi and Koshagumuda blocks. Nearest big market of vegetable is in Jagdalpur district of Chhattishgarh. Nabrangpur district also comprises some marketing and intermediary channels for running whole vegetable business. The proactive actors are wholesalers, traders & commission agents who are not only from local areas but also from some other nearest localities. They cover areas in the vicinity of 10-15 km from where people come to purchase vegetables. In rural areas, haats serve as centres of market transactions which are generally organized twice in a week or once in a week.

Block wise list of rural haat and distance from the block as well as catchment area are shown in below table.

TABLE 22 LIST OF RURAL HAAT AND VEGETABLE MANDI

Blocks	Name of Haat and Mandi	Days	Catchment Area (Km)
Papadahandi (Nabrangpur)	Simila	Sunday	10 to 15
	Maitalpur	Wednesday	10 to 15
	Tumberla	Thursday	10 to 15
	Papdihandi	Sunday	10 to 15
Koshagumuda(Nabrangpur)	Koshagumuda haat'	Daily	5 to 10

The prominent vegetable markets in the Nabrangpur district are Simila, Maitalpur, Tumberla, Papdihandi and Koshagumud itself not cater the needs of state only but also have sufficient vegetables to deport to other states of the country. The market consists of 50-60 big retailers who are doing their vegetable business for long time and they have their permanent shops. This market is operated with 6-7 big wholesalers who are importing vegetables from Bargarh, Kunduli, Boriguma market.

Nabrangpur Town Vegetable Market

Nabrangpur vegetable mandi is situated in one side of the town. It is one of the biggest mandis of Nabrangpur district. Koshagumuda market is in the named block and mandis operate on daily basis. A large number of retailers, traders and wholesalers frequent the mandi everyday and consumers get the chance to buy vegetables according to their choices.

TABLE 23 PROFILE OF NABRANGPUR TOWN MARKET

Type of Traders	Numbers	Average Quantity
Wholesalers With Permanent Shop	6 to 7 number of wholesalers (They are permanent wholesalers of the mandi generally imports vegetable from Bargarh, Nabrangpur, Kunduli, Ramavadrapuram, Boriguma, Jagadapur etc)	3-6 MT
Retailers With Permanent Shops	Around 3-4 number of shops have their permanent shop in the market.	Each shop sells around 100 to 200 Kg of vegetables daily (all vegetables together)
Small Retailers	100	Each retailer sells around 50 to 100 Kg of vegetables daily (combination of vegetables)

Daily Arrival, Wholesale Price and Source

Name of Vegetable	Average Per Day Arrival (Qt) (Nabrangpur)						
	Particulars	Dec-Jan	Feb-Mar	Apr-May	June-July	Aug-Sep	Oct-Nov
Brinjal	Daily Arrival	15	15	12	20	35	35
	Wholesale Price	1100	1500	2000	2000	1100	1100
	Source	Local	Local	Local	Local	Local	Local
Tomato	Daily Arrival	40	30	15	30	30	30
	Wholesale Price	700	1200	2000	3000	3000	1000
	Source	Local	Local	Local	AP, Bangalore, Jagadalspur etc	AP, Bangalore, Jagadalspur etc	AP, Bangalore, Jagadalspur etc
Green chilli	Daily Arrival	10	7	5		5	7
	Wholesale Price	2000	2500	3000		2000	2000
	Source	Local	Local	Local		Local	Local
Cauliflower	Daily Arrival	30	20	10	30	50	80
	Wholesale Price	2000	1000	500	3000	1500	1000
	Source	Local, AP, Chhattisgarh Berhampore, Rayagada etc.	Local, AP, Chhattisgarh Berhampore, Rayagada etc.	Local, AP, Chhattisgarh Berhampore, Rayagada etc.	Local	Local	Local
Cabbage	Daily Arrival	50	40	10	30	70	120
	Wholesale Price	700	700	800	3000	1500	1000
	Source	Local, AP,	Local,	Local, AP,	Local	Local	Local

		Berhampore, Rayagada etc.	AP, Berhampore, Rayagada etc.	Berhampore, Rayagada etc.			
Lady Finger	Daily Arrival			5	5	10	
	Wholesale Price			1000	1100	1000	
	Source			Local	Local	Local	
Kankada	Daily Arrival				15	15	
	Wholesale Price				3500	4000	
	Source				Local	Local	
Beans	Daily Arrival					50	80
	Wholesale Price					2000	1000
	Source					Local	Local
Onion	Daily Arrival	40	20	20	20	20	30
	Wholesale Price	1500	1600	2100	2100	2000	1500
	Source	Local, WB	Local	A.P, Karnataka, WB, Maharashtra (sometimes)	A.P, Karnataka, WB, Maharashtra (sometimes)	A.P, Karnataka, WB, Maharashtra (sometimes)	Local, WB

11.4. VEGETABLE MARKETS OF MALKANGIRI DISTRICT

The vegetable markets are well developed in the Govindpalli and Matheli blocks. There are in place various marketing channel and intermediary channels that dictate the vegetable business. The market players are wholesalers and traders who are not only from local areas but also from nearby localities. Commission agents are not active in this area. Market transactions take place in weekly haat that the farmers visit both for sale of vegetables and also for purchasing of daily need items. Block wise list of rural haat and distance from the block as well as catchment area are shown in below

TABLE 24 NAME OF HAAT AND MANDI OF GOVINDPALLI BLOCK OF MALKANGIRI DISTRICT

Blocks	Name of Haat and Mandi	Days	Distance From Block Office(KM)	Catchment Area (Km)
Govindpalli (Malkanagiri)	Khairput	Wednesday	10 to 15	3 to 5
	Matheli	Friday	10 to 15	3 to 5
	Govind palli	Tuesday	0	10
	Mundiguda	Sunday	5 to 7	5 to 10
	Guma	Thursday	10 to 15	10 to 15

TABLE 25 PROFILE OF GOVINDPALLI AND MATHELI MARKET

Type of Traders	Numbers	Average Quantity
Wholesalers	2 to 3 number of wholesalers (They are permanent wholesalers of the mandi generally imports vegetable from Jgdalpur, Bargad, Nabrangpur, Kunduli, Boriguma, Jagadalpur etc)	1-2 MT
Retailers with Permanent Shops	Around 50-60 number of shops have their permanent shop in the market.	Each shop sells around 400 to 500 Kg of vegetables daily (all vegetables together)
Small Retailers	60 to 70 local producers sell vegetable on the market days.	Each retailer sells around 50 to 100 Kg of vegetables daily (combination of vegetables)

11.5. DOMESTIC SUPPLY FROM KORAPUT, NABRANGPUR AND MALKANGIRI VEGETABLE MARKET

TABLE 26 DOMESTIC SUPPLY FROM KORAPUT, NABRANGPUR AND MALKANGIRI VEGETABLE MARKET

Vegetables	Domestic Supply from Koraput, Nabrangpur and Malkangiri Vegetable Market
Brinjal	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur, Paralakhemundi
Lady Finger	Berhampore, Malkangiri, Nabrangpur
Kankada	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur
Chilly	Rayagada, Malkangiri, Nabrangpur
Cabbage	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur, Ram vadrapuram, Saluru, Vizag
Cauliflower	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur, Ram vadrapuram, Saluru, Vizag
Tomato	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur, Ram vadrapuram, Saluru, Vizag
Radish	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur
Ginger	Cuttack, Bhubaneswar, Rayagada, Berhampore, Malkangiri, Nabrangpur, Bhadrak, Bargad, Sambalpur, Ram vadrapuram, Saluru, Vizag etc

12. VEGETABLE SUPPLY CHAIN (TERMINAL DISTRIBUTION CHANNEL)

The vegetable distribution channel is well developed in Rayagada district. Presence of big PSUs like JK Paper Limited and other ones has created strong local demand for vegetables in the area. The fresh vegetable passes through multiple channels and routes before reaching to the end consumer. There are different categories of intermediaries operating in vegetable supply/distribution chain, catering to different markets and segments of customers.

The survey findings indicate presence of 6 vegetable marketing channels, involving a set of different players with their own characteristics.

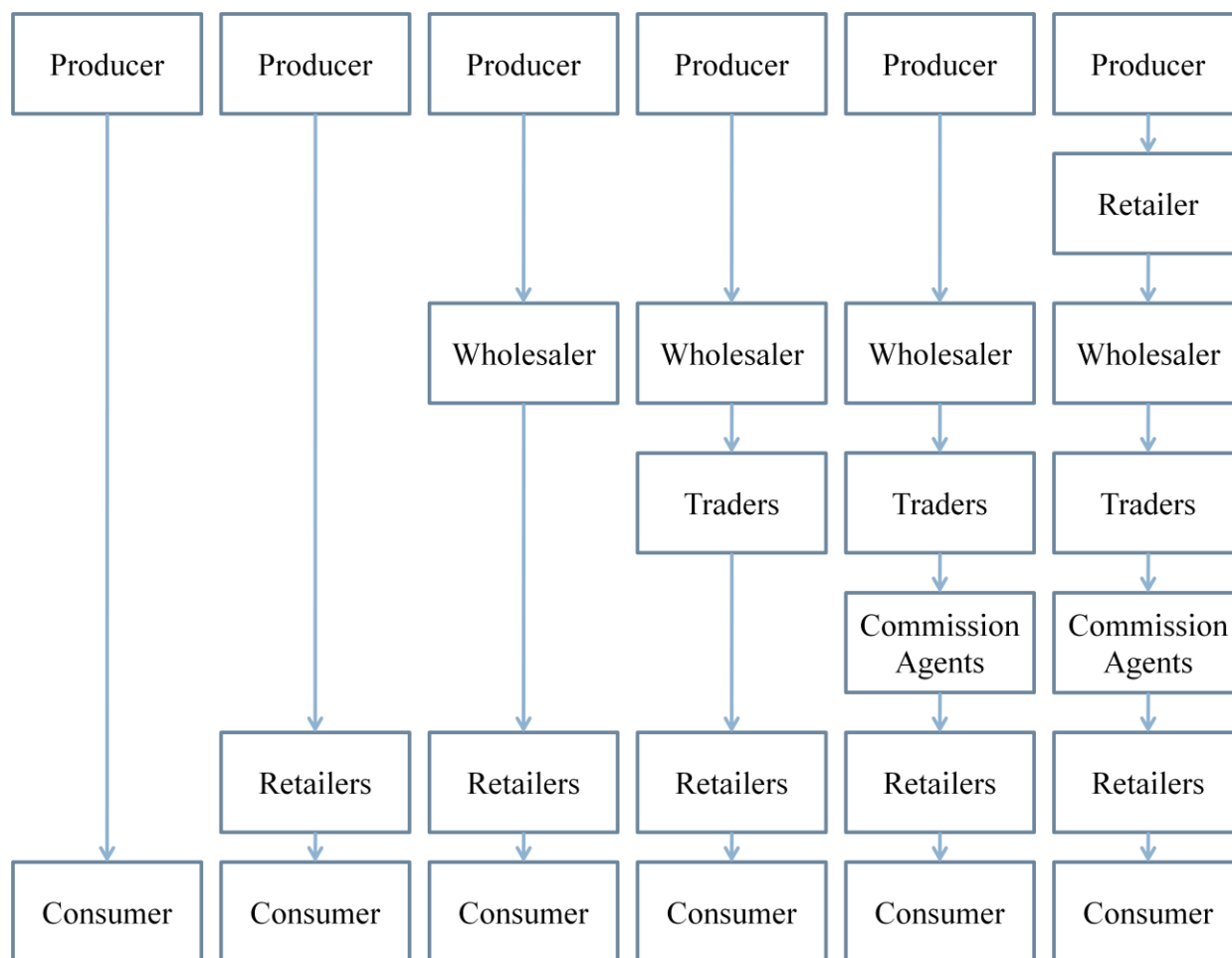


FIGURE 5 VALUE CHAIN OF VEGETABLES IN STUDY AREA

13. PROFILE OF VEGETABLE SUPPLY CHAIN ACTORS IN ALL FOUR DISTRICTS

TABLE 27 PROFILE OF VEGETABLE SUPPLY CHAIN ACTORS IN ALL FOUR DISTRICTS

Intermediary	Function/Profile	Average Volume	Destination Market
Primary Aggregator (I)	Collects vegetables from door to door, targets small producers who produce for HH consumption, uses bicycle for transport.	50–100 kg	Village traders, nearby hats & markets.
Primary Aggregator (II)	Collects vegetables from small producers at a central place of village. Do sorting, grading and packaging and transportation	5-10 quintals	Village traders, (local/ near-by market).
Village Traders	Collects vegetables from farmers and village aggregators. Do sorting grading, packaging and transportation. Also acts as representatives of CA/ wholesalers/ retailers.	As per demand, generally 30-50 quintals (pick up van, Tata-407)	Wholesalers/ Retailers in different consumption centre.
Traders (Vegetable Loader)	Operate in big mandi/ aggregation centre.	As per arrival, 50-200 quintals	Commission agents in big cities. Their role becomes important when a specific vegetable is not available in local area and the produce has to be brought to market from a distant place.
Commission Agent	Operate at secondary aggregation centre\ terminal market. Act as a trade facilitators, does price negotiation, and provide credit facility and market information to different actors.	As per arrival	Wholesalers and retailers operating at terminal market. Sometimes traders and also forward to distant terminal markets.
Wholesaler	Wholesaler or distributor operates in consumption market.	5-10 quintals	Perform the task of commission agent as well as supply the vegetable to retailers.
Retailers	Retailer is the last – link in the chain of middleman who sells directly to the consumer. The retailers buy vegetables from the producers/ village traders/ traders or wholesalers.		They sell to the consumers directly. They normally hold the stock for maximum period - 1 to 3 days.

14. MARKET INFRASTRUCTURE

This section examines market infrastructure of the selected vegetable markets, shown in below matrix.

TABLE 28 MARKET INFRASTRUCTURE

#	Marketing Infrastructural Facility	Rayagada Town Market Vegetable Mandi	Kunduli	Nabrangpur Market	Govindpalli/ Matheli
1	Main Trading Facilities.				
a	Common Covered Auction Halls.	×	×	×	×
b	Common Open Auction Platforms	√	√	√	×
c	Common Drying Yards	×	×	√	×
d	Traders Models Coffee, Auction Hall & Godown	×	×	×	×
e	Retail Shops	√	√	√	√
2	Ancillary Trading Facilities.				
a	Storage Godowns	√	√	√	×
b	Cold Storage	×	√	×	×
c	Weighing Equipment And Facilities	√	√	√	√
d	Processing Units	×	×	×	×
e	Grading Equipment	×	×	×	×
3	Administrative Facilities				
a	Banks, Post Office, Police Posts & Security Posts.	×	×	×	×
4	Farmers Facilities				
a	Farmer’s Rest House	×	×	×	×
b	Dormitory Accommodation	×	×	×	×
c	Agricultural Inputs Shops	√	√	√	√
d	Tea Shops	√	√	√	√
5	Common Facilities				

a	Bath Rooms	x	x	x	x
b	Toilets	x	x	x	√
c	Urinals	x	x	x	√
d	Daily Needs/Sundry Shop	√	√	√	√
e	Canteen	x	x	x	x
6	Water Supply Facilities.				
a	Open Wells	x	x	x	x
b	Tube Wells	√	√	√	√
c	Water Supply	x	√	√	x
d	Electric Pump Sets	x	x	x	x
e	Overhead Tanks	x	x	x	x
f	Drinking Water Taps	x	√	x	x
7	Publicity And Communicational Facilities.				
a	Rate Display Boards	x	x	x	x
b	Public Address System	x	x	x	x
c	Public Telephone	x	x	x	x
8	Parking And Traffic Facilities				
a	Area For Loading And Unloading Operations Parking	x	x	√	x
b	Internal Road.	√	√	√	√
c	Boundary Walls	x	√	√	x
d	Electric Lights	√	√	√	√
e	Avenue Platforms/Sitting Benches	x	x	√	x
9	Garbage Disposal And Drainage Facilities				
a	Garbage Disposal Systems.	x	x	x	x
b	Drainage Systems	x	x	x	x

15. UNDERSTANDING OF ROLE OF BANK FOR VEGETABLE VALUE CHAIN

15.1. ROLE OF BANK FOR VEGETABLE VALUE CHAIN IN RAYAGADA DISTRICT

In Rayagada town the lead bank is State Bank of India (SBI) and they have a separate branch for Agricultural loan operation which is called Agriculture Development Bank (ADB). Every year SBI is giving loan for agriculture purpose but loan default rate is 98%; repayment rate being only 2%. But the bank has the provision for loan every year (that is to be sanctioned) the excessive default rate notwithstanding. No surprise then that every year both number of loan sanctions and the loan amount is showing an increasing trend. Sometimes, farmers come for loan to repay the amount taken from the local money lenders during cultivation. During discussion the bank persons come to know that the relatives or local heads are coming for money in the name of farmers as it is easy to get the loan if you have cultivable land. The bank personnel shared no one has taken any loan particularly for vegetable cultivation; they have taken loan either for Paddy or Cotton cultivation. The Field officer also disclosed that now farmers are moving towards Cotton cultivation as return is faster than vegetable cultivation and there is no storage facility at Rayagada town. The SBI Field officer also disclosed so far no cold storage loan has been sanctioned by SBI and even private banks have not approved any such loan for Rayagada town. The main reason behind this is Rayagada town has not got any big vegetable mandi.

15.2. ROLE OF BANK FOR VEGETABLE VALUE CHAIN IN NABRANGPUR, KORAPUT AND MALKANGIRI DISTRICT

In Nabrangpur, Koraput and Malkangiri the lead bank is State Bank of India which has Agriculture Development Bank in place that caters to the financial requirements of farmers for whole gamut of agricultural activities like land preparation, post harvesting management and marketing. The bank has also appointed agri specialists for guiding farmers in their agri business. The bank is trying to cover poorest among the poor for hi-tech agricultural activities of the large farmers. They are having special marketing and recovery team in each region for building relationships with farmers and dealers of

the specific region. The rate of interest and financial products differ from region to region depending upon the topography and risk involved for the crops. They are also putting emphasis on the KCC which is intended to cover their cultivation needs along with the consumption requirements. The major problem in these regions is lack of awareness/financial literacy and transaction cost of producers. Because they want to access the finance in their village or at a nearest place. SBI is trying to commence new branches at the remote places; it has been observed a new branch has been opened in the Khairput gram panchayat one month back. The place is 15 Km away from Govind palli (Block) and there is a lack of communication.

Adding to this there are two other problems i.e. monitoring whether the amount is spent for the specified purpose or not and another is repayment of the loan amount which is lead by the first problem. Generally the loans taken for the equipment are repaid regularly.

16. UNDERSTANDING THE ROLE OF INSTITUTIONAL BUYERS

16.1. INSTITUTIONAL BUYER IN RAYAGADA DISTRICT

CRPF Camp: Rayagada is blessed with some of the good institutional buyers like - CRPF camp, School hostel, Engineering hostel and some other institute. The CRPF camp does not give anyone tender for their hostel or mess. It is rotated by them within their reserve force. The CRPF cooking in charge everyday goes to the town market and purchase whatever he gets. Even they do not consider fresh vegetables or organic one. They normally try to get the good vegetables at reasonable price. Because at the end of the day, they also have to maintain the accounts for the whole month (because of pre allocated budget). Every day nearly 15-18 kg of vegetables is purchased. They are happy with whatever the vegetables are available in the market, because they are now used to it. Seasonal vegetables are also welcome during season time. They don't have any specific choice for any vegetable.

Hostel-Residential School: The lady supervisor operates the school hostel where nearly 100 students reside. The supervisor does not go to market or mandi; instead she has fixed a person who goes to market every alternate day and purchase vegetables. Every alternate day the supervisor gives him a list of vegetables and cash for purchase for 2 days meal. As a result, whatever the price the person tells her she has to belief and accept and the quality of vegetables also. There is no choice for organically produced vegetables. They try to give fresh vegetables to children but the supervisor can't say anything about organically produced vegetables and not even go for higher price vegetables as organic vegetable are a bit higher priced.

16.2. INSTITUTIONAL BUYER IN NABRANGPUR, KORAPUT AND MALKANGIRI DISTRICT

There are several residential schools, BSF camp and CRPF camp in Koraput, Nabrangpur and Malkangiri. The average buying quantity of the vegetables is 10 to 25 Kg per day depending upon the strength of the institute (On an average 400 gm of

vegetable is required for each student per day). The residential schools (DD School, Oringi Ashram School, Khairput High School, Mudulipada Ashram School, etc) and BSF camps purchase from the nearest market or from the wholesalers whichever is less priced without compromising the quality. But they are more dependent on the whole sale traders as the local market is not large enough to supply them required amount of vegetables on a regular basis. The hostels can't store the vegetables more than three days so they need a regular supply, at least thrice a week. We found that the whole sellers add a minimum of Rs 4 to Rs. 6 to the mandi rate. Brijal, Onion, Sweet potato, Tomato, Chilli and Ginger comprise the regular food baskets of these schools along with the seasonal vegetable items. Some residential schools have signed contracts with the wholesalers for the vegetables. They say that it's a reliable source. They don't need to be bothered about the quality or regular supply of the vegetable. The price of the vegetable is prefixed so that they need not bother when there is an unusual price hike. As the whole seller is getting a regular income source so he is ready to take the risk. But according to him, as Odisha is a disaster prone state he can't rely only on this kind of income as a huge market risk is associated.

Below are some of the factors affecting the behavior of the institutional buyers-

1. Time and human resource spent on procurement
2. Ingredients for regular food items
3. Certainty in Supply of the demanded amount of vegetables (Availability)
4. Quality
5. Price
6. Storing capacity
7. Holidays and functions

17. UNDERSTANDING BOTTLENECKS FROM FARMERS POINT OF VIEW

In study the surveyors tried to identify bottlenecks at all stages of value chain viz. input side, at market side, technological and financial side, Bottle necks are shown in matrix ranking, I is quoted as more severe whereas VI quoted as less severe constraints.

17.1. BOTTLENECKS AT INPUT SIDE

Lack of knowledge and skills, lack of irrigation facility, unavailability of modern farm equipments, over expenditure on fertilizer and timely availability of seeds or fertilizer were the main problems indentified at input side.

TABLE 29 BOTTLENECKS AT INPUT SIDE

Particulars	Govindpalli	Kotpad	Koraput	Papadahandi	Kashagumuda	Bishamacuttack	Muniguda	Kesingpur	Gunupur
Lack Of Knowledge And Skill (GAP)	II	I	III	II	V	II	I	I	II
Lack Of Irrigation Facility	I	II	IV	I	I	I	V	III	III
Lack Of Purchasing Power For Seeds	VI	VI	V	VI	VI	VI	VI	V	VI
Over Expenditure In Pesticides And Fertilizers.	VI	V	VI	IV	III	VI	IV	II	V
Availability Of Modern Farm Equipments	III	IV	I	III	IV	IV	III	IV	IV
Seed (In Time Availability)	IV	III	II	V	II	III	II	VI	I

17.2. BOTTLENECKS AT MARKETING SIDE

Low returns due to unstable price, lack of packing and transportation facility, no collective marketing, traditional weight measurement and inaccessibility of market/ mandi are bottlenecks at marketing side.

TABLE 30 BOTTLENECKS AT MARKETING SIDE

Particulars	Govindpalli	Kotpad	Koraput	Papadahandi	Kashagumuda	Bishamacuttack	Muniguda	Kesingpur	Gunupur
Low Return	III	III	IV	I	III	III	I	IV	II
Lack Of Packaging And Transportation Facility	II	I	I	II	II	I	I	I	III
Involvement With Collective Marketing	V	IV	V	IV	IV	V	III	V	I
Traditional Weight Measurement	I	II	II	I	I	IV	II	II	II
Difficulty In Access Of Market/Mandies/Aggregators.	IV	V	VI	III	V	II	V	V	V

17.3. BOTTLENECKS-OTHERS

Farmers shared that they had post harvest management knowledge including grading, sorting, and packaging. Due to lack of accessibility to storage facility or unavailability of same, they are unable to store vegetables in cold storages.

TABLE 31 BOTTLENECKS-OTHERS

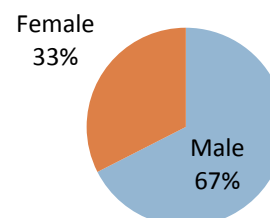
Particulars	Govindpalli	Kotpadi	Koraput	Papadahandi	Kashagumuda	Bishamacuttack	Muniguda	Kesingpur	Gunupur
Lack Of PHM Knowledge (Grading, Sorting, Packaging)	III	III	I	III	III	IV	IV	II	II
No Storage Facility (Cold Storage)	II	II	II	II	II	III	III	I	I
Lack Of Credit Linkage	I	I	IV	I	I	I	I	III	III
Debt Trap By Trader (Like Advance Payment)	IV	IV	III	IV	IV	II	II	IV	IV

18. UNDERSTANDING OF CONSUMER

18.1. GENDER OF RESPONDENTS

Among surveyed sample 67% of the respondents were male and 33% respondents were female.

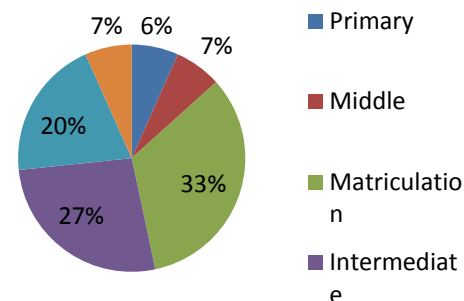
Gender of Respondents



18.2. EDUCATION ATTAINMENT OF RESPONDENTS

Among surveyed sample, 33% of the respondents had matriculation, 27% had intermediate degree, 20% of the respondents had graduate degree. Post graduate, primary and middle accounts for 7%, 7% and 6% of the population respectively.

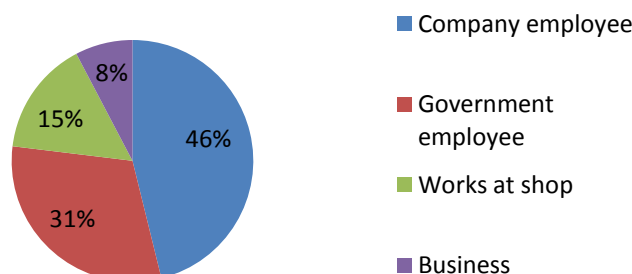
Education



18.3. OCCUPATION STATUS OF SAMPLED HHS

Among surveyed sample, 46% respondents were company employee, 31% were government employees, 15% works at shop, and 8% of the respondents were either involved in business or employers.

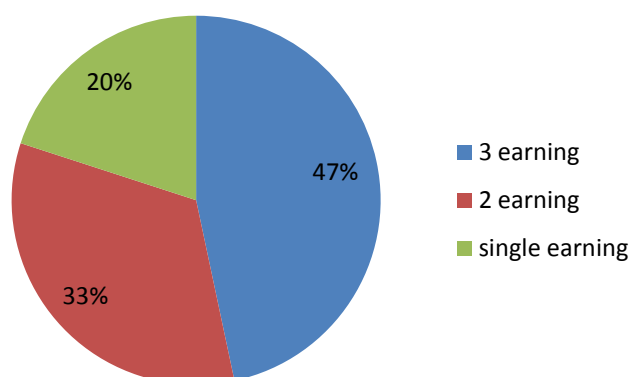
Occupation Status



18.4. INCOME EARNING MEMBERS

47% of the households in sample area had three earning members. 33% had two earning members and 20% of the households had one earning member.

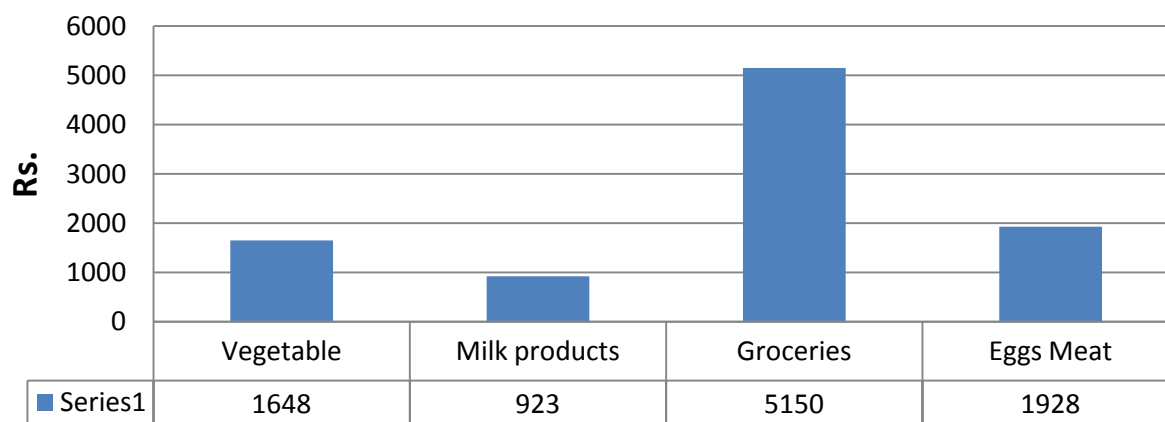
Number Earning Members



18.5. GENERAL MONTHLY HHS EXPENDITURE

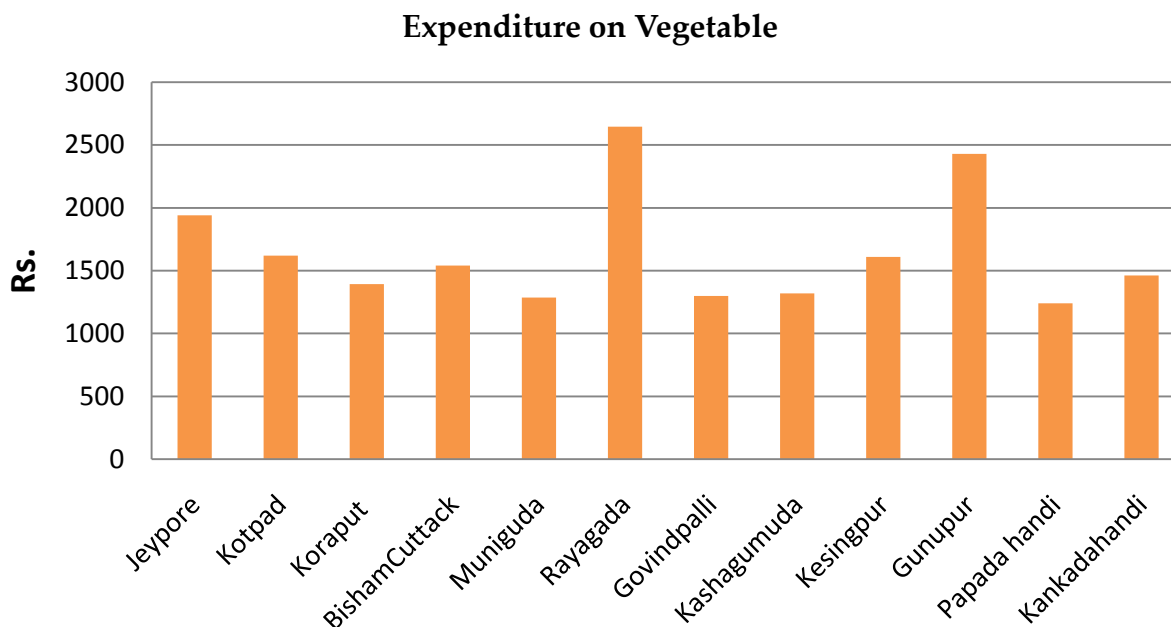
Monthly households' expenditure on vegetables, milk and milk products, groceries and eggs and meat is shown in bar graphs. Among sample households, average monthly expenditure on vegetables was Rs. 1648.

Monthly Expense



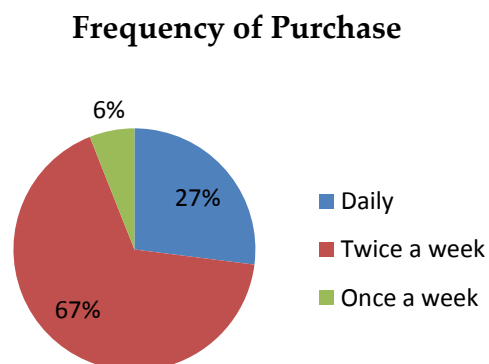
18.6. EXPENDITURE ON VEGETABLES

Monthly average expenditure on vegetables in different places is shown below in bar graph. It has been observed that in Rayagada the expenditure on vegetable is higher as compared to the other places.



18.7. FREQUENCY OF PURCHASE OF VEGETABLES

Among sample households, 67% households purchase vegetables twice a week, 27% reported they purchase vegetables daily whereas 6% households purchase vegetables once in a week.

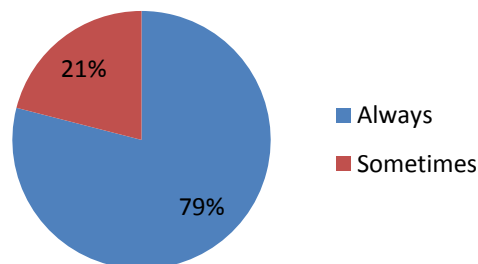


18.8. CONSUMER EXPECTATION AND SUPPLY GAP

79% of the households always get vegetables of choice whereas 21% households do not get vegetables of choice always.

Among the sample population, 72% respondents told seller always weights properly, while 27% reported that seller not always weights properly.

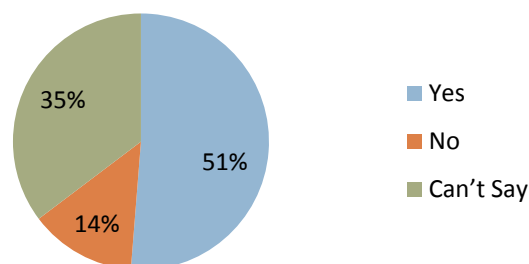
Availability of Vegetables



18.9. PROPOSED PRODUCT /SERVICES

51% of the respondents agreed that there should be home delivery of vegetables, where as 14% reported that there should be no mechanism for home delivery of vegetables. 14% were sceptical about responses.

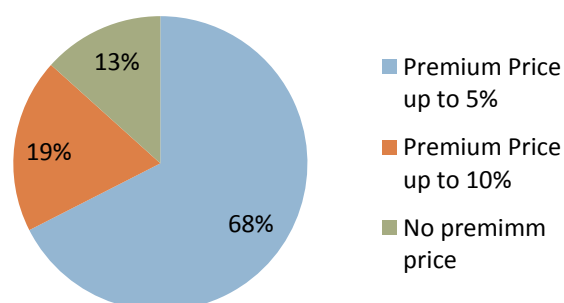
Willingness to Buy at Door Step



18.10. PREMIUM PRICE FOR VEGETABLES

68% of respondents were willing to pay up to 5% premium price for the pesticides free or organic products, whereas 19% were willing to pay premium price up to 10% whereas 13% were not agreed to pay premium price.

Premium Price



19. SWOT ANALYSIS

SWOT for Rayagada (From Producers, Production, Market Accessibility and Marketing and Sales Infrastructure point of view)

Strength	Weakness
<ol style="list-style-type: none"> 1. Potential urban consumer is available. 2. All types of vegetables are acceptable to consumers. 3. Nearby Jaykeypur mandi is available. 4. Easy availability of the agri inputs because of town area. 	<ol style="list-style-type: none"> 1. No structured market complex. 2. No price determination mechanism. 3. No storage facility in the town. 4. Lack of new technology. 5. Complete dependence on rain water for production.
Opportunity	Threat
<ol style="list-style-type: none"> 1. Different types of resource institutions/NGOs are working in area like OPDSC, RCDC etc. 2. Year round supply of vegetable. 3. Institutional buyers are there (like- Hotels, CRPF camp, Engineering Hostel, Primary School Hostel). 	<ol style="list-style-type: none"> 1. Farmers are shifting towards Cotton cultivation as return is lesser on vegetable and no storage facility in the town.

SWOT for Koraput (From Producers, Production, Market Accessibility and Marketing and Sales Infrastructure point of view)

Strength	Weakness
<ol style="list-style-type: none"> 1. Availability of good markets at most of the blocks eg. Boriguma, Boipariguda, Kotpad, Koraput, Semiliguda, Jeypore. 2. Heavy rainfall (More than 1500 mm) 3. Easy availability of largest vegetable mandi (Kunduli) compared to nearby districts. 4. Easy availability of the agri inputs because of town area of the blocks is large and developed. 	<ol style="list-style-type: none"> 1. Hilly topography with lack of water retention capability. 2. Lack of awareness regarding the quality of seed and fertilizer.
Opportunity	Threat

<p>1. Different types of resource institutions/NGOs are working in area like Pradan, Adhunik Mahia Utthan Samiti and Mahila Jan Shakti Sangathan etc.</p> <p>2. Availability of numerous big institutional buyers like hostels, BSF camps and hotels etc.</p> <p>3. Emerging among the vegetable consumers for organic food.</p>	<p>1. Distress Migration</p> <p>2. Soil erosion</p>
--	---

SWOT for Malkangiri (From Producers, Production, Market Accessibility and Marketing and Sales Infrastructure point of view)

Strength	Weakness
<p>1. Awareness among the vegetable producers for organic vegetable cultivation.</p> <p>2. Traditional method of seed preservation and application of manure and fertilisers.</p> <p>3. Sufficient rainfall</p>	<p>1. All vegetable pockets are not well connected to the urban area of Malkangiri.</p> <p>2. Poor infrastructure</p> <p>3. Improper weighing techniques lead to decrease in loss of producer's income.</p>
Opportunity	Threat
<p>1. Actively working Government agencies and organisations, NGOs.</p> <p>2. Efforts of government and banks for financial inclusion.</p> <p>3. Availability of the big institutional buyers BSF, CRPF and residential schools.</p>	<p>1. Naxal affected</p> <p>2. Climate change</p> <p>3. Distress Migration</p>

SWOT for Nabrangpur (From Producers, Production, Market Accessibility and Marketing and Sales Infrastructure point of view)

Strength	Weakness
<ol style="list-style-type: none"> 1. Plain topography and potential land for maize and vegetable cultivation. 2. Road connectivity with many remote blocks and villages (PMGSY). 3. Connectivity with the markets of Chhattisgarh, AP and other nearby districts. 4. Easy availability of the inputs at the block level. 5. Indravati river. 	<ol style="list-style-type: none"> 1. Lack of storage facility. 2. Uncertainty of rainfall. 3. Quality issues of the inputs. 4. Lack of awareness among the producers for crop management.
Opportunity	Threat
<ol style="list-style-type: none"> 1. Actively working GO and NGOs. 2. Competition within the Agricultural equipment companies. 3. Efforts of government and banks for financial inclusion. 4. Awareness among the consumers for organic products. 	<ol style="list-style-type: none"> 1. Distress migration

20. CRITICAL GAPS AND STRATEGIES

Gap 1:- Increasing population and very less vegetable production

Strategy

- Encouraging farmers' group / agriculture commodity growers to engage in vegetable production in big way.
- Need to leverage upon the strength of existing women farmers by collectivising them into Producer Companies/cooperatives for large scale production and profit making to large number of farmers
- New technology extension programme for farmers the need of the hour
- Initiate and train rural youth/ farmers for productive agricultural practices.

Very highly fluctuating market demand & no fixed price mechanism

Strategy

- Encouraging farmer organization/commodity growers groups to create local marketing centres
- Creating awareness among farmers about the commercial potential of vegetable production and encourage them to move into its production in a big way beyond consumption purpose
- Establishing direct linkage between rural market and urban consumers and end consumers
- Arranging buy back arrangements for farmers' produce
- Establishing linkage between corporate players and producers.
- Promotion of meets between producers and traders to mitigate frequent price fluctuations and business terms reasonably fair to farmers

Gap 2:- Lack of post harvest technologies

Strategy

- For lack of cold storage facility, farmers are not very enthusiastic towards vegetable production. Need to push for vegetable cooperatives and link with various programs and institutions to create storage infrastructure for sustainability of vegetable production activities
- Motivating farmers to go for value addition, product diversification and other post harvest technologies.

- Encouragement to farmers for adopting and practicing organic farming for vegetable production as it is very remunerative.

Gap 3:- General lack of organised vegetable market complex/Mandi

- The vegetable market mostly unorganised marked by presence of multiple small and big traders with transaction mostly taking place in haats and in some mandis.

Strategy

- Exclusive vegetable market complex along with primary facilities should be provided to retailers/ traders/wholesalers.

Gap 4:- Rather poor backward and forward linkages

- Despite exclusive provision for agri loans in banks the rate of loan sanctions particularly for vegetable production is very low and so is the repayment rate.
- Whatever loans are taken are mostly for repayment of personal loans and for paddy and cotton.

Strategy

- Through encouragement and promotion of cooperatives/ integrated services- both backward such as inputs(seeds, instruments, training etc) and market and financial linkage
- Stress on economy of scale through aggregation and production enhancement

ANNEXURES

SURVEY OF VEGETABLE PRODUCERS

Date					
Survey Code					

1. Farmer's Profile

1.1. District	
1.2. Block	
1.3. Gram Panchayat	
1.4. Village	
1.5. Hamlet	
1.6. Name of Family Head	
1.7. Name of Respondent	
1.8. Caste	
1.9. Mobile	

2. Family Description

#	Name	Age	Education#	Gender*	Occupations	
					Primary	Secondary
1.						
2.						
3.						
4.						

(*Code: 1-Male, 2-Female)

(#Code: 1-Illiterate, 2-Literate, 3-Primary, 4-Middle Pass, 5-10th Pass, 6-12th Pass, 7-ITI, 8-BA and above)

(\$Code: 1-Farming, 2-Livestock Rearing, 3-Agriculture Labourer, 4-Other Skilled Labourer, 5-Other Unskilled Labourer, 7-Traditional Architecture, 8-Pvt Job, 9-Govt Job, 10-House Maker, 11-Others (mention it).....)

3. Economic Aspects

3.1 Family Source of Income

Rank	Source of Income	Per Year Income
Primary		
Secondary		
Others (.....)		
Total Income of Family (per year)		

3.2 Type of house: (Code: 1-Concrete, 2: Thatched)

3.3 Means of Transport:

3.4 Electricity

Ye	<input type="text"/>
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No	<input type="text"/>
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3.5 TV

Ye	<input type="text"/>
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No	<input type="text"/>
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3.6 Total loan borrowed (as on date) Rs.....Source of loan.....

4. Assets of Producer

4.1 Agriculture Related

#	Particulars	Number	Ownership (Owned-1, In Partnership -2, SHG-3)	Expected Value (Rs.)	Have you availed any subsidy in purchase (yes/No)	Number
1.	Tractor/Power Tiller					
2.	Mini Truck/Tempo					
3.	Thela/Bullock Cart					
4.	Pump set (Diesel/Kerosene)					
5.	Pump set (electric)					

4.2 Livestock

#	Name of Livestock	Number	Expected Price	Subsidy Availed (yes/No)
1.	Ox			
2.	Cow			
3.	Goat			
4.	Poultry			
5.	Other (.....)			

4.3 Means of Irrigation

#	Source of Irrigation	Total Irrigated Land (in acres)	Ownership (Owned-1, In Partnership-2, SHG- 3)	Availability of Water (round the year-1, Only in Rabi-2, Only in Kharif-2)
1.				

2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

5. Agriculture Produce

5.1 Type of land and its uses pattern

#	Type of Land	Land (in acres)		Main Crop			
		Total Land	Irrigated Land	Kharif	Rabi	Garma	Others
a.							
b.							
c.							
d.							
e.							
f.							
g.							

5.2 Yield of the Main Crop (Other than Agriculture)

#	Name of Crop	Total Land	Total Production	For own Consumption (in qntls)	Surplus (in qntls)
1.					
2.					

3.					
4.					
5.					
6.					

5.3 Vegetable Cultivation

Season	Name of Vegetable	Total Acreage	Total Produce (in qntls)	Cost of Cultivation for 1 qntls (in Rs.)	Income for 1 qntls (in Rs.)
Kharif					
Rabi					
Garma					

5.4 Protected/High-tech Vegetable Cultivation

#	Particulars	Total Acreage	Main Crop		
			Kharif Crop	Rabi Crop	Garma Crop
1.	Green House				

2.	Plastic House (structure supported by Iron rods)				
3.	Plastic House (structure supported by Bamboo)				
4.	Shed Net (structure supported by Iron rods)				
5.	Shed Net (structure supported by Bamboo)				
6.	Sprinklers				

6. Financial Services

6.1 From where do you arrange the capital required for the cultivation?

#.	Source of Money	Amount (in Rs.)	How much spent on cultivation (%)	Rate of Annual Interest (%)	Years of Repayment (in months)
1	Own				
2	Bank (KCC/others)				
3	Businessman				
4	Moneylender				
5	Relative				
6	SHG				
7	MFI				
8	Others (.....)				
Total					

6.2 Do you have a running bank account?

Yes

No

6.3 Do you have a membership of PACS/Cooperative? Yes ☐ No ☐

6.4 Do you get your crop insured? Yes ☐ No ☐

7. Knowledge of Market.

7.1 Do you sell vegetable at home (farm)? Yes ☐ No ☐

(If yes then answer the questions below)

7.1.1 Whom do you sell vegetable from home (farm)?

- a. Retailer vegetable seller in village
- b. Wholesaler
- c. End Consumer
- d. Others

7.1.2 Generally how much vegetable do you sell in one crop season from your home (farm)?

Name of Vegetable	Amount (in quintals)

7.1.3 Why do you prefer to sell the vegetables from your home (farm) in comparison with selling in the market of village or town?

- a. Good Price
- b. Timely and ensured payment
- c. Inaccessibility of market
- d. Others (.....)

7.1.4 At most recent what rate did you sold vegetables from home (farm)?

Name of Vegetable	Amount (in quintals)

7.1.5 Payment method and terms for the vegetable sold by farmers.

Buyer	Method of Payment	Internal of Payment
	Cash(1)/Credit(2)	
Businessman		
Commission Agent		
Wholesaler		
Retailer		
Cooperative		

7.2. Do you sell your vegetable in any village market/sub-urban/urban markets?

Yes		No	
-----	--	----	--

(If yes, then please answer the questions, 7.2.1-7.1.7)

7.2.1 Information related to market:

Particulars	Distance from Village
Name of Market	
Market of Village	
Vegetable Mandi	
Any Other	

7.2.2 Whom do you sale the vegetables in vegetable market?

- Retail vegetable sellers
- Wholesaler
- Commission Agent
- Consumer
- Any Other (.....)

7.2.3. Generally how much vegetable do you sale in a crop season?

Vegetable	Quantity (Quintals)	Rate (Rs. Per Kg)

7.2.4. Why do you sale the vegetables in urban vegetable market?

- Better Price
- Timely payment

c. Others (.....)

7.2.5. Generally which mode of transportation do you use for transportation of vegetables to town area?

7.2.6. How much do you spent on transportation?

7.2.7. Most recent what was the rate that you fetched by sale of vegetable?

Name of Vegetable	Rate (Rs. Per Quintal)

FARMER CHECKLIST OF FOCUS GROUP DISCUSSION

Checklist for Probing

1. Mapping of general cultivation practices (a calendar of various agri-practices like summer plough, field preparation, FYM preparation & placement etc.)
2. Detail Vegetable calendar (Season wise Sowing, Harvesting & marketing)
3. Matrix ranking for various vegetable preferences
4. Matrix ranking for bottlenecks in vegetable sector
5. Centrality mapping for various Resource institutions/ training organizations/ NGOs active in the area?
6. Major vegetable growing pockets in the area (Coloring a big size map of the block)
7. Market preference mapping (why the prefer a particular market)
8. Mapping of financial service providers (Access & preferences)
9. **Knowledge about current practices and technological inclusion**
 - a. Awareness on sustainable farm practices – organic farming, green manure, FYM, bio fertilizer, NPM, IPM, INM etc.
 - b. Fertilizer use practices – DAP, Urea, MOP, micronutrient, growth promoters etc.
 - c. Seed selection practices (home grown, OP variety, hybrid, GM etc)
10. Awareness and benefit of government supports/schemes for agriculture in this area?
11. Post harvest management – sorting, grading, storage, primary processing etc.
12. **Observations on issues in agriculture**

Issues at Input Side	
Seed (Quality,	
Seed (in time availability)	
Lack of purchasing power for Fertilizer and organic manual	
Lack of availability of fertilizer	
Availability of Tractor/ Bullock for Plough	
Availability of equipments	
Lack of knowledge and skill	
Issues in cultivation practices	
Lack of Irrigation facility	
Low Productivity	
Erratic rain fall	
Issues at Market side	
Low return	
Lack of credit facility	

Lack of packaging and transportation facility	
Lack of market/mandis	
Involvement with collective marketing	
Technical and Financial Issues	
No Credit linkage	
Lack of technical knowledge(like soil test and cropping pattern idea)	
Lack of knowledge and proper guidance	
No storage facility(warehouse)	
Debt trap by trader (like advance payment)	
Traditional weight measurement	

CONSUMER SURVEY QUESTIONNAIRE

Date				
Survey Code				

Identification

1. Name of the city:
2. Area:
3. Sector No.:
4. House No.:
5. Name the Respondent:
6. Age (in Yrs):
7. Sex (Male/Female):
8. Education:
 - a. Primary, b. Middle, c. Matric (10th), d. Intermediate (10+2), e. Graduate, f. PG, g. Professional, h. ITI, i. Other (specify.....)

Family Details & Income Status

9. **Occupation:**
 - a. BSL Employee, b. Govt. Employee, c. Pvt. Sec. Employee, d. Pensioner, e. Business (employer), f. Business - self employed/ family member, g. Daily wages, h. Other (specify... ..)

10. Family size:

Particulars	Male	Female
Adults		
Children		

11. **No. of member employed/working:**

12. **Type of house:** a. Owned, b. Rented, c. Leased, d. Provided by Company
 - A.1 BHK B. 2 BHK, C.3 BHK, D. More than 3 BHK

13. Vehicle Ownership

A. Cycle, B. Motor cycle, C. Four wheeler, (Name.....) D. None

14. Lump sum monthly expenditure on

- A. Vegetables (Rs.) B. Other food item (Rs.)

C. Milk & Milk Products (Rs.)

D. Grocery (Rs.)

E. Egg & Meat (Rs.)

F. Other food item (Rs.)

Vegetable Buying Practices

15. Average weekly vegetable purchase by the family

#	Vegetable Category	Quantity	Value (in Rs.)
1	Potato		
2	Onion		
3	Tomato		
4	Leafy vegetables		
5	Cucurbits		
6	High Value/Exotic		
7	Other vegetables		
8	Salad items/ spices etc.		

16. From where you do buy vegetables?

Name of Purchase Point	Particulars	Approx. Qty (kg)	Value (Rs.)
Local vendors (door step)			
Retail Shop			
Sector Vegetables Shop			
Sector bi weekly Haat			
Mandi (Dundi Bag)			
Other (Specify.....)			

17. Frequency of purchase:

a. Daily b. Once a week c. Twice a week d. Other (specify.....)

18. Reason for purchasing vegetable at a particular outlet?

#	Reason for Preference	Ranking / Weight age (on scale of 1-10)
1.	Timely Availability	
2.	Proximity	
3.	Freshness	
4.	Sorted (premium quality)	
5.	Range of Vegetable	
6.	Proper Weight	
7.	Reasonable Price	

8.	Door Step Delivery	
9.	Credit	
10.	Other (specify)	

Consumer Expectation & Supply Gap

19. Do you get vegetables (type) of your choice?

a. All ways b) Sometimes c) Never

20. Do you get fresh vegetables?

a. All ways b) Sometimes c) Never

21. Do you get the required vegetables at your preferred point of purchase?

a. All ways b) Sometimes c) Never

22. Does vegetable seller weigh it properly/Accurately?

a. All ways b) Sometimes c) Never

23. Are you satisfied with the hygiene condition of vegetables?

a. All ways b) Sometimes c) Never

Proposed Product /Services

24. Do you think there should be some mechanism to supply vegetables at doorstep?

a) Yes b) No c) Can't Say

25. Would you prefer to buy vegetables at doorstep?

a) Yes b) No c) Can't Say

26. Would you like to provide order for vegetables over phone?

a) Yes b) No c) Can't Say

27. Would you like to provide order for vegetables over phone?

a) Yes b) No c) Can't Say

28. At what interval would you like to purchase vegetables?

a) Daily b) Alternate day c) Twice in a week d) Weekly

29. How much premium (higher price compare to avg. market prices) would you like to pay for such service:

a) 5% b) 10% c) 0%

30. Do you know about the Pesticide free/ Organic vegetables?

a) Yes b) No c) Need to know more

31. How much premium would you like to pay for Pesticide free/ Organic vegetables:

- a) 5% b) 10% c) 0%

Surveyor Name

Signature

CHECKLIST FOR DATA COLLECTION FROM VEGETABLE MANDI

General Information

- 1.1. Name of the city:
- 1.2. Name of the mandi.....
- 1.3. Location.....
- 1.4. Type of mandi(regulated/ unregulated)

Buyer - Seller Information

- 2.1. No. of commission agent operating in mandi:
- 2.2. Name of the mandis from where vegetables are sourced:
.....
- 2.3. Do wholesalers also come to mandi.....
- 2.4. No. of wholesalers coming to mandi.....
- 2.5. Name of the mandis from where traders (wholesalers) come to purchase vegetables:
.....
- 2.6. Do wholesalers also directly procure from production mandi.....
- 2.7. Does CA also acts as wholesaler
- 2.8. Does CA also source by providing order to trader in production area. If yes, from where?.....
.....
- 2.9. No. of retailers coming to mandi:.....
- 2.10. Average buying size of retailers:.....

Price determination practice (try to understand it):

- 3.1. How and when price is declared? Time/ volume/ quality?
- 3.2. Baddi- (provision for wastage, how much, vary with pack size).....
- 3.3. Commission:
- 3.4. Other expenses:
- 3.5. Other relevant observation:

Arrival and Price Pattern

Vegetable	Dec – January			February - March			April – May		
	Qty	Price	Source	Qty	Price	Source	Qty	Price	Source
Vegetable	June – July			August - Sept			Oct – Nov		
	Qty	Price	Source	Qty	Price	Source	Qty	Price	Source

Transport

- 5.1. How the transport facility is arranged?
- 5.2. Who arranges Transport facility?
- 5.3. What kind of vehicle used for transportation and an approximate number?
- 5.4. Who bears the cost?
- 5.5. Distance covered/ time?
- 5.6. Transport loss? Can be incidental/ normal?
- 5.7. Loss in Shrinkage as we are dealing with fresh vegetable

Storage

- 6.1. What is the storage facility?
- 6.2. What is the holding capacity in terms of time?
- 6.3. Storage in terms of volume?
- 6.4. Who takes charge of storage during transactions?
- 6.5. Who takes charge of storage after the transaction if some materials are left out?
- 6.6. What is the additional cost in terms of storage?

Payment

- 7.1 How the payment is done? (Advance payment/ credit/.....?)
- 7.2 For supplier? Commission agent? wholesaler? Retailer?
- 7.3 What is the contract term for supplying the required volume?
- 7.4 How the negotiation is made?
- 7.5 How the cycle of supply – payment – demand is met?

Packaging and other issues

- 8.1. Who supply the packaging materials?
- 8.2. How it is rotated in terms of crate/ other packaging material?
- 8.3. What is the prevalent practice of Packaging?
- 8.4. Is there a changing trend?
- 8.5. And how the packaging affects the price and quality?
- 8.6. How the market gets affected due to *bandi*?
- 8.7. How do they deal with it?
- 8.8. Why the particular person (whom you are interviewing) prefers this mandi?
- 8.9. What are the commodities he deals in?
- 8.10. Which are the preferred supply places? And why?
- 8.11. Does the preference change as per season?

Infrastructure:

- 9.1. What are the existing facilities? (also include your observation)

- 9.2. What are additional facilities the players are expecting to be in mandi?
- 9.3. How organised the mandi?
- 9.4. What they don't like?
- 9.5. Given a chance, which part of the system in the mandi, they would like to change?

CHECK LIST FOR IN DEPTH INTERVIEW WITH TRANSPORTER

1. Name and contact details of transporter.
2. Years of engagement in vegetable transportation.
3. On what terms you make your engagement with vegetable growers or wholesaler or retailers? (Long term contract/short term contract/daily contract, on paper contract/verbal contract, terms of payment etc)
4. per kg of expenses (logistics) for few major vegetables
 - a)
 - b)
 - c)
 - d)
 - e)
 - f)
5. Losses during transportation.

**CHECK LIST FOR IN DEPTH INTERVIEW WITH DISTRICT
AGRICULTURE/HORTICULTURE OFFICER**

- 1. Contacts of officials (agriculture and horticulture).**
- 2. Contacts (name, village, mobile number) of key point person (farmers) of the department.**
- 3. Major Vegetable Crop Grown in District In year, Kharif Season**

#	Vegetable	Target(Ha)	Area under Cultivation(ha)	Production (Tonn)	Productivity (Kg/Ha)
1	Brinjal				
2	Lady Finger				
3	Bottle Gourd				
4	Spoung Gourd				
5	Jhingi				
6	Bitter Gourd				
7	Bodi				
8	Chilly				
9					
10					
11					

- 4. Major Vegetable Crop Grown in District In year, Rabi Season**

#	Vegetable	Target(Ha)	Area under Cultivation(ha)	Production (Ton)	Productivity (Kg/Ha)
1	Cauli Flower				
2	Cabbage				
3	Onion				
4	Tomato				
5	Chilly				
6	Brinjal				
7	Bottle Gourd				
9	Potato				
10					
11					
12					
13					

5. Major Vegetable Crop Grown in District In year, Summer Season

#	Vegetable	Target (Ha)	Area under Cultivation (ha)	Production (Ton)	Productivity (Kg/Ha)
1	Tomato				
2	Brinjal				
3	Chilly				
4	Lady Finger				
5	Bottle Gourd				
6	Bitter Gourd				
7	Jhingi				
8	Sponge Gourd				
9					
10					
11					
12					

- 6. List of clusters promoted by department.**
- 7. List of major programs implemented by department.**
- 8. List of major ongoing programs for the promotion of vegetables.**

CHECK LIST FOR IN DEPTH INTERVIEW WITH BANKERS

1. Contacts of officials.
2. List out the financial products available with bank related to vegetable farming.
3. Loan sanctioned for vegetable farming. (some examples, with contact details)
4. Any willful case of default. (linked with financing made for vegetable farming)
5. Financial products available with bank related to cold storage and godown construction.
6. Total amount sanctioned for vegetable farming, cold storage and godown.
7. What was the rate of repayment? (in FY 13-14 and for the previous years)