BASELINE SURVEY: PHASE VII

KENDRAPARA DISTRICT

Special Program for Promotion of Millets in Odisha
(Shree Anna Abhiyan)

Submitted to
Directorate of Agriculture and Food Production,
Government Of Odisha
2025

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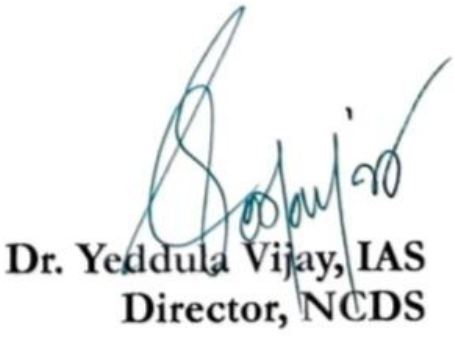
FOREWORD

Sustainable Development Goal 2 seeks to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture. Millets offer a promising solution to help accomplish these objectives. The Shree Anna Abhiyan (SAA) is a great initiative of Odisha government that shows the state's commitment to reviving the cultivation of millets that are not only climate-resilient but has significant implications on health and nutrition of people. The programme has brought different stakeholders to work together to reinstate the significance of millets in Odisha's agricultural landscape. I am delighted to have the opportunity to write this foreword for the 'Special Programme for Promotion of Millets in Odisha.'

The SAA programme has emerged from a consultation with diverse array of stakeholders including NCDS. A memorandum of understanding (MoU) was signed on February 27, 2017, bringing together key stakeholders including the Directorate of Agriculture and Food Production (DAFP), NCDS, and the Watershed Support Services and Activities Network (WASSAN). This MoU delineated the framework for concerted efforts towards implementing the SAA, with NCDS assuming the pivotal role of anchoring the research secretariat. NCDS embarked on a comprehensive survey initiative encompassing Baseline, Midterm, and End-line assessments in the designated blocks of the SAA. These surveys, designed to provide a situational analysis of the status of millet production, marketing, consumption, represent a critical step towards informed intervention and strategic decision-making. The findings of the baseline survey presented in the report would provide a situational analysis of the current status of the millet at the time of survey and a reference point to analyse the impact of intervention.

As the Director, I commend all the dedicated team members of NCDS for their unwavering commitment and tireless efforts in achieving the objectives of the SAA. Your hard work and perseverance have played a crucial role in turning our shared vision into reality. I also extend my heartfelt gratitude to our partners, stakeholders, and collaborators for their invaluable support and steadfast dedication in this direction.



Dr. Yeddula Vijay, IAS
Director, NCDS

ACKNOWLEDGEMENT

It gives me immense pleasure to extend my heartfelt gratitude to all those who contributed to the successful completion of the “Baseline Survey Report of Phase VII, 2023”. This endeavour was truly a collaborative effort, and I am deeply grateful for the unwavering support and dedication demonstrated by each individual and organization involved. First and foremost, I would like to express my sincere appreciation to the research team of Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar, for spearheading the preparation of this report. Your commitments to excellence and tireless efforts have been instrumental in ensuring the quality and accuracy of the findings presented.

I extend my heartfelt thanks to the related government departments, organizations, and stakeholders, including farmers' associations, whose invaluable support and cooperation played a pivotal role in the successful completion of this study. Special mention goes to Dr. Arabinda Kumar Padhee, Principal Secretary to the Government, Department of Agriculture & Farmers' Empowerment (DA&FE), Mr. Prem Chandra Choudhury, Director of Agriculture DA&FE, and the Joint Director of Agriculture for their invaluable contributions.

I would like to extend my sincere appreciation to our esteemed Director, Dr. Yeddula Vijay (IAS) Additional Secretary to the Government, Planning and Convergence Department, Government of Odisha, and Director of Nabakrushna Choudhury Centre for Development Studies (NCDS). Your guidance, wisdom, and valuable suggestions have been invaluable in shaping the direction of this study. Many thanks to NCDS administration for their continuous support for smooth functioning of the research work. I also wish to acknowledge the contributions of Dr. Biswabas Patra and Dr. (Ms.) Rashmi Misra for their valuable insights and assistance.

I would also like to express my appreciation to the members of the Programme Secretariat (Watershed Support Services and Activities Network, WASSAN), particularly Mr. Dinesh Balam, Programme Secretariat, and the facilitating agencies and staff of the concerned areas under study for their support and cooperation. I am particularly grateful to Mr. Sushil Kumar Senapati, Ms. Kalpana Pradhan and Mr. Bikash Pradhan, along with the dedicated staffs of the State Project Monitoring Unit (SPMU), for their unwavering support and assistance throughout the duration of this project.

My sincere gratitude goes out to the Chief District Agricultural Officer (CDAO) of Kendraparadistrict, the Scheme Officer, District Programme Coordinator, Block Coordinators, and other block-level officials for their invaluable support in providing crucial information for completion of the Baseline Survey, 2023. Once again, thank you all for your invaluable contributions, dedication, and support. It has been a privilege to work alongside each of you, and I look forward to continued collaboration in our future endeavours. I extend my best wishes for the success of the publication.

Dr. Sandhya R. Mahapatro
Project Director, SAA

EXECUTIVE SUMMARY

Kendrapara district is one of the 17 districts where the "Special Programme for the Promotion of Millets in Odisha or (hereafter) Shree Anna Abhiyan (SAA)" Phase VII has begun in the Kharif 2022 in its two blocks, namely Kendrapara and Derabis by identifying total 152 target households for the programme. Moreover, out of the total, the Baseline Study covered only 145 households across the two blocks. As the survey revealed, among the surveyed households, 71.03 per cent belonged to OBCs/ SEBCs followed by the Schedule Caste (13.10 per cent), and another 6.25 per cent belong to others categories and only 0.69 per cent belongs to Schedule Tribe. Out of the total population surveyed, 52.91 per cent are male and 47.09 per cent are female. The religious composition of the surveyed households indicates that the district purely dominated by Hindu community and only 0.68 per cent are Muslim.

The other significant finding is that out of the 145 sample households, 91.03 per cent possess Ration Card. Out of the total population, 28.07 per cent are Housewife, followed by Farmer (25.15 per cent), the share of Wage Labourers is 2.76 per cent, while Government Employees are 0.92 per cent, Students comprises 20.35 per cent, about 2.30 per cent of the sample population in the working age group are found to be unemployed. In addition to that out of total 145 sample households, 34 (23.45 per cent) have *Semi-Pucca* houses, 30 HHs (20.69 per cent) have *Kutcha* houses, and 81 households (55.86 per cent) have *Pucca* houses. Out of total Population, 4.14 per cent found to be illiterate.

As observed in the Baseline Study, as many as 64.14 per cent HHs are having Marginal land ownership, followed by 31.72 per cent small land owners, 3.45 per cent are medium land owners and only 0.69 per cent are having large land ownership. With respect to their annual income, it was found that only 7.59 per cent HHs have their income more than above Rs.2000000/- and as less as 26.9 per cent of the sample HHs were taken agricultural loan.

The other significant finding is that all samples HHs are producing Paddy, whereas only 28.27 percent households are cultivating millets. The average yield of millets production among the sample HHs was 3.01 quintals per acre and the total millets production was 74.69 quintals. All of the millets cultivating households use their own seeds as well as certified seeds. The study also observed that the most common method of millets cultivation among the sample HHs is Line Transplantation (78.04 per cent) and 21.95 per cent adopted the SMI Method.

As far as their consumption of millets is concerned, it is also found that out of 145 HHs and total sample population, 61.37 per cent HHs consume millets on a regular basis. It is also found that the

consumption of millets is highest during the summer season is as much as 48.97 per cent, while 20.00 per cent consume during rainy season, and another 42.07 per cent consume during the winter season. Another observation is that majority of people consume millets during their breakfast (76.40 per cent) and followed by 53.93 per cent during lunch and another 37.07 per cent in evening snacks. As far as the recipes consumed by the sample population are concerned *Jau/Torani* is the popular recipe among the surveyed households as all of them are found to be consuming this recipe. The other popular recipes are *Tampo/Pitha*, *Khiri* and *Idli/Upma*.

As found by the Baseline Survey, majority of the sample households 18 HHs which is 56.25 per cent had processed manually and only 14 HHs (43.75 per cent) had processed through machine. As far as the marketing of millets are concerned, about 63.41 per cent households sell their millets to the Middlemen. It is also found that 63.41 per cent of sample households experienced distress sale during 2022.

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ABBREVIATIONS

APL	: Above Poverty Line
BPL	: Below Poverty Line
CBO	: Community Based Organisation
CRP	: Community Resource Person
FAs	: Facilitating Agencies
FAQ	: Fair Average Quality
FGD	: Focused Group Discussion
FPO	: Farmer Producers Organization
Ha	: Hectare
HH(s)	: Household(s)
ICDS	: Integrated Child Development Scheme
LS	: Line Sowing
LT	: Line Transplant
ITDA	: Integrated Tribal Development Agency
MDM	: Mid-Day Meal
MFP	: Minor Forest Produce
MSP	: Minimum Support Price
NAL	: Non-Agricultural Labour
NCDS	: Nabakrushna Choudhury Centre for Development Studies
NSSO	: National Sample Survey Organization
OBC	: Other Backward Class
SAA	: Shree Anna Abhiyan
PDS	: Public Distribution System
PVT	: Participatory Variety Trial
Qtls.	: Quintals
SC	: Scheduled Caste
SMI	: System of Millets Intensification
ST	: Scheduled Tribe
WASSAN	: Watershed Support Services and Activities Network

CHAPTER I

INTRODUCTION

1.1 Background

Millets have been a staple food for millions of people in India for centuries, especially in the central tribal belts. They are drought-resistant, highly nutritious, and can be cultivated in a wide range of soil and climatic conditions. Millets are also low in Glycaemic Index and gluten- free, making them an ideal choice for people with various health conditions. In recent times, there has been a renewed interest in millets cultivation due to its numerous health benefits and its potential to address food security challenges in the country. The Government of India has been promoting the cultivation of millets as part of its efforts to increase farmers' incomes, reduce dependence on water-intensive crops like rice, and promote sustainable agriculture. In this context, it is essential to understand the significance of millets cultivation and its associated challenges and opportunities.

Millets are cereal grain belongs to the Poaceae family, commonly known as the grass family. Millets are small, round whole grain grown in India, Nigeria, and other Asian and African countries. It is considered an ancient grain, used both for human consumption and livestock and bird feed. Millets have multiple advantages over other crops, including drought and pest resistance. It's also able to survive in harsh environments and less fertile soil. These benefits stem from its genetic composition and physical structure — for example, its small size and hardness. This crop is also divided into two categories — major and minor millets, with major millets being the most popular or commonly cultivated varieties. Major millets include Pearl, Foxtail, Proso (or White), Finger (or Ragi); Minor millets include: Kodo, Barnyard, Little, Guinea, brown top, Fonio, Adlay (or Job's tears). Like most Cereals, Millet is a starchy grain — meaning that it's rich in Carbs. Notably, it also packs several vitamins and minerals. Therefore, it may offer multiple health benefits.

The United Nations designating 2023 as the International Year of Millets, it gets further attentions of general public including the farmers. In the Indian state of Odisha, millets have always been an integral part of the traditional diet and have been cultivated for centuries, primarily among the tribal population. However, during last couple of decades, the popularity of millets has declined due to the increasing adoption of modern food habits and the promotion of high-yielding crops like rice and wheat. This shift has led to a decline in soil fertility and an increased vulnerability to climate change. To address these challenges, the Government of Odisha has launched several initiatives to promote the cultivation of millets, including "The Special Programme for Promotion of Millets in Odisha (also known as Shree Anna Abhiyan, SAA) with a novel organisational structure was initiated by the

Government of Odisha in 2017-18 emphasising production, consumption, processing, and marketing of millets. The program aims to increase production, consumption, processing, and marketing of millets in tribal areas, where they have been a staple food for generations. In this context, it is crucial to understand the significance of millets cultivation in Odisha and its potential to promote sustainable agriculture and improve food security. Among other Millets found in Odisha, Mandia constitutes a significant share of about 95 per cent.

The Millet Mission program tried to revive these nutrient-rich millets in the agricultural landscape, which were fading away after its launch in 2017-18 by the Government of Odisha. It aimed to promote the production, consumption, processing, and marketing of millets, with a particular focus on tribal areas. The program had a unique structure that emphasized cultivating traditional millets such as Ragi, Gurji, Kosla (small millet), Kodo, Kangu (foxtail millet), and Jowars, which were forest dwellers' age-old foods. This initiative gave millet crops the much- needed attention they deserved and revived their growth across the state. In 2022, the implementation of SAA phase VI began in 17 districts, including Kendrapara district and this Baseline study aims to provide information on the program's dimensions in the district. The profile of the Kendrapara district is presented below.

1.2 District Profile

Kendrapara District is an administrative district of Odisha State in Eastern India. The town of Kendraparais the district headquarters. Kendrapara District is situated in the eastern portion of the state, and is bounded on the north by Bhadrak district, on the east by the Bay of Bengal, on the south by Jagatsinghpur District, on the west by Cuttack District on the northwest by Jajpur District.

1.2.1. Geography

Kendrapara District lies in 20° 20' N to 20° 37' N Latitude and 86° 14' E To 87° 01' E Longitude and situated in central coastal plain zone of the Odisha. The Bay of Bengal lies in the eastern part of the district. The coastline covers 48 Km stretching from Dhamra Muhan to Batighar. Kendrapara district headquarters is 55 km from Cuttack. Figure 1 shows the location of Kendrapara district and its administrative boundaries. Kendrapara District lies in the river delta formed by the Brahmani and Baitaraniand branch rivers of Mahanadi. The Bhitarkanika Mangroves,Bhitarkanika National Park, Gahirmatha Beach and Baladevjew Temple lie in the district. Other features in the district include Suka- Parikshita Ashram, Kudanagari, Landibata Mahapurusha Matha Chanpur, Pentha sea beach, Pathara Kani Temple Gogua, Harihar Kshetra Mahala, Gadadhara Gosain Pitha, and Korua. This district has 9 blocks named as Aul, Derabish, Garadpur, Mahakalapada, Marshaghai, Kendrapara, Rajanagar, Rajkanika, and Patamundai.

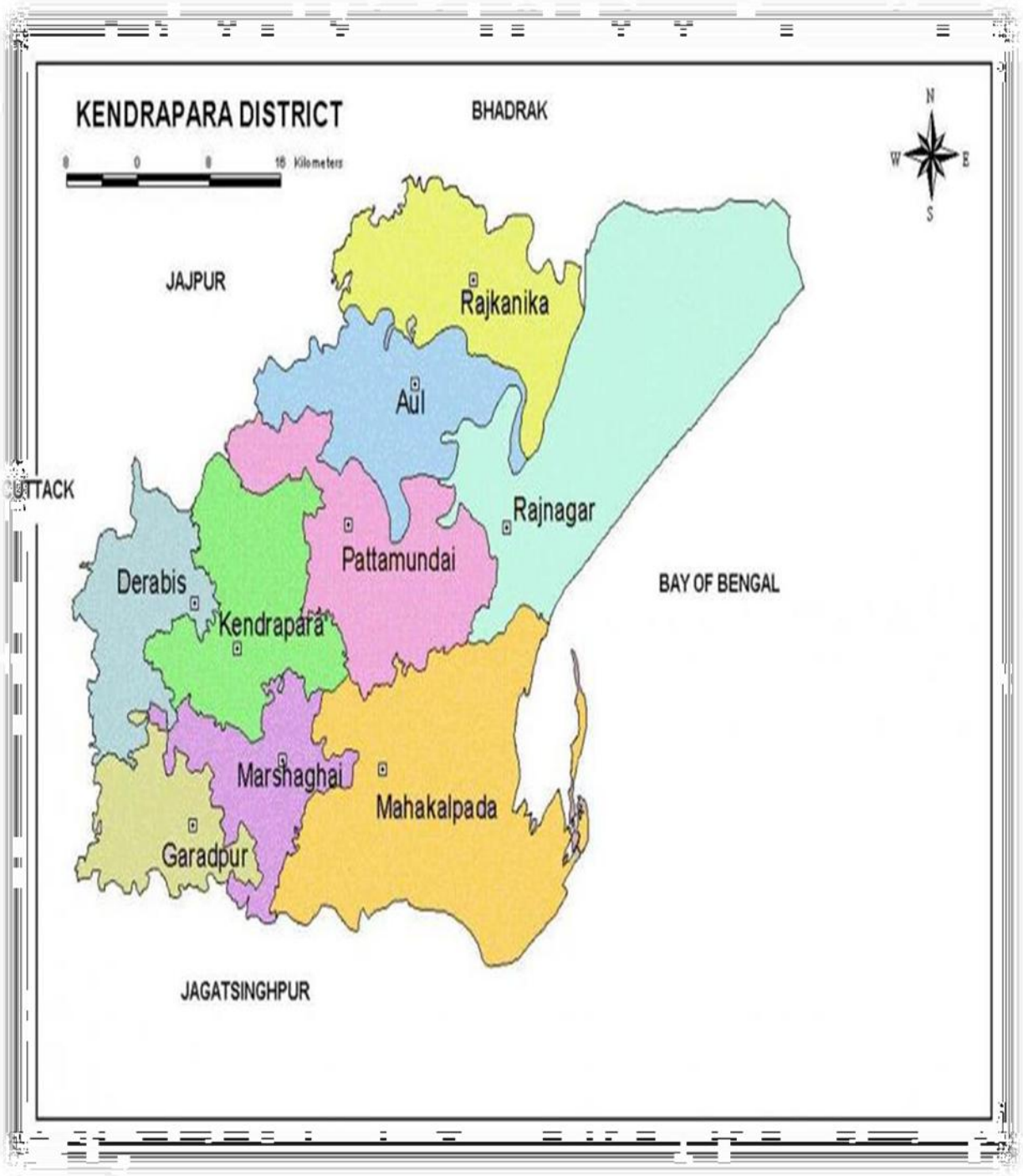


Fig 1. Map of Kendrapara District with Blocks

1.2.2. Demography

According to the 2011 census Kendrapara district has a population of 1440361, the district has a population density of 545 inhabitants per Square Kilometre (1410/Sq. Mile). Its population growth rate over the decade 2001–2011 was 10.59 per cent. Kendrapara has a sex ratio of 1006 females for every 1000 males, and a literacy rate of 85.93 per cent. 5.80 per cent of the population lives in urban areas. Scheduled Castes and Scheduled Tribes make up 21.51 per cent and 0.66 per cent of the population respectively. At the time of the 2011 Census of India, 91.47 per cent of the

population in the district spoke Odia, 4.76 per cent Bengali and 3.31 per cent Urdu as their first language (Table 1.1).

Table1.1: Socio-economic and Demographic Features of Kendrapara District	
Indicator	***Value***
Census 2011	
Population (in Lakh)	14,40,361
Males (in Lakh)	7,17,814
Females (in Lakh)	7,22,547
Scheduled Caste (in Lakh)	3,09,780
Scheduled Tribe (in Lakh)	9,484
HHs (in Lakh)	3,21,315
Sex Ratio	1007
Total Workers (in Lakh)	4,66,890
Main Workers (in Lakh)	3,22,265
Marginal Workers (in Lakh)	1,44,625
Non-Workers (in Lakh)	9,73,471
Work Participation Rate (WPR %)	
Cultivator as % of Total Worker	31.97
Agricultural Labourers as % of Total Workers	30.81
Literacy rate (%)	85.15
Total Geographical area (sq.km)	2644.00
Land Use Pattern (Area in'000 ha) (2014-15)	
Forest	2414.00
Gross Cropped area	268
Cultivable area	229293
Permanent Pasture and Other Agricultural Land	12309
Net Area Sown	126633
Cultivable Waste Land	4931
Old Fellow	10794
Current Fellows	22961
Miscellaneous Trees and Groves	45483
Agriculture,2014-15	
Fertilizer Consumption (kg/ha)	34.27
Irrigation, Kharif ('000 Ha)	138
Irrigation, Ravi ('000 ha)	135.3
Other Information	
No. of Village Electrified (as on March 2014)	1407
No. of Banks	135
No. of AWC	2147
No. of BPL Families	32065
No. of Job Card Issued (cumulative, March 2017-18)	2.09
Source: District Statistical Handbook, Kendrapara, 2011 and District at a Glance 2020 *Note: MGNREGS is Mahatma Gandhi National Rural Employment Guarantee Scheme*	

1.2.3. Agriculture

Agriculture is the prime source of income of the district. A little more than 70 percent people dependent on agriculture. Rice, Groundnut, Green gram, Black gram and Jute are the main crops grown in the district. However, frequent occurrence of natural calamities viz. cyclone, flood and drought has broken the backbone of the people. In order to survive under these conditions, people go for cultivation of their staple food crop rice during rabi in the assured irrigated areas. Jute is the main cash crop of the district, grown since long. Groundnut is an important oil seed crop of the district. Coconut is the important horticulture crop in Kendrapara district.

1.2.4. Culture

The Baladev Jew Temple is located in Kendrapara district of Odisha. A Chariot Festival, or Rath Yatra, is held in the month of Ashadha(June/July) every year. The chariot of Lord Baladevjew is known as Brahma Taladhwaja and is considered the biggest chariot of its type in the world. The Gajalaxmi Puja on Kojagari Purnima or Kumar Purnima Durga Puja at Amruta Manohi village is celebrated in the month of October, and Kartikeya Puja and Maa Kali Puja at Olaver are held in November each year. Gajalaxmi Puja is a big festival in Kendrapara and is celebrated for 7 days. Maa Basanti Durga Puja in Basupur has been one of the region's most famous festivals for over 80 years. The Oriya sweet dish, Rasabali originated in Kendrapara. Kendrapara is also known as Tulasi Kshetra and Gupta Kshetra (Lord Balabhadra wished to stay here secretly). Different types of prasad prepared and used in Baladevjew Temple are Rasabali, PotaliPitha, Magaja Ladoo, Kakara, Khaja, Karanji,Chhena Khiri,Ghanabrata, Dahipakhala, Khiri, and Kendrapara.

1.3 Objectives

The objectives of the baseline survey were to obtain information on proposed interventions under SAA around production, consumption, processing and marketing. It is also pertinent to have some background information of the HHs surveyed. The objectives are as follows.

- To assess the socio-economic condition of the HHs;
- To outline millet production, productivity and package of practices;
- To examine the consumption pattern of millets and
- To elucidate the method of processing and mode of marketing.

1.4 Methodology

1.4.1. Sample Design

Multi-stage sampling method has been used to select the sample HHs. In the first stage, Kendrapara

District has been selected purposively for the study as it is one of the 17 districts where state Government has introduced this Programme. In the second stage, two blocks namely Kendrapara and Derabis has been selected purposively. In the third stage, two GP from each block has been randomly selected, and in the last stage, 65 HHs from Derabis block and 80 HHs from Kendrapara block have been randomly selected. Therefore, the total numbers of 145 HHs from two blocks, GPs and village have been randomly selected for this study (Table 1.2).

Table 1.2: Sample Households in KendraparaDistrict

Blocks	Program Households (N)	Sample Households (N)	% of HHs Covered under the Survey to Program HHs
Kendrapara	85	80	94.11
Derabis	67	65	97.01
Total	152	145	95.39

Sources: Baseline Survey and Facilitating Agency, 2023

1.8.2 Data Collection, Compilation and Analysis

This baseline survey report is based on both secondary and primary data. The primary data was collected from the respondents in the concerned districts by using a pre-tested interview schedule (Annexure 1). The secondary data on the geographical information, population, agriculture, education, irrigation, forest and institutions has been collected by using various published and unpublished sources including the 2011 Census.

1.5 Limitations of the Study

The present Baseline Survey focuses solely on two Blocks of the KendraparaDistrict. However, due to the onset of the harvesting season, coupled with both in and out-migration, some household heads and female respondents were found to be absent during the data collection process. Despite these challenges, it is important to acknowledge the limitations of the present study. In addition to that due to logistical reasons and other difficulties, such as the non-availability of respondents, the study was limited to a random sample of 145 households. Secondly, there is the possibility of recall error, especially in cases involving the actual quantity of consumption and marketing, among others. Lastly, in some instances, sample households, particularly non- participant farmer households, consumed millets without producing them. This was made possible by past stock and acquiring of millets through exchange and barter. Unfortunately, these details were not captured during the survey.It is essential to consider these limitations while interpreting the findings of the survey. Future studies can address these gaps and improve the accuracy of the data collection process. Despite these limitations, the present survey provides valuable insights into the socio-economic conditions of the selected households and serves as a baseline to measure the progress made in the future.

1.6 Chapters

The baseline survey has been divided into six chapters including the current IntroductionChapter, which provides District Profile, Objectives, Methodology and Limitations. Chapter II provides the Socio-economic Profile of the Surveyed HHs. Chapter III provides details on Production and Productivity of Millets. Chapter IV discusses the Consumption Pattern of Millets. Chapter V annotates on the Processing and Marketing of Millets.

CHAPTER II

SOCIO-ECONOMIC PROFILE

2.1 Introduction

This chapter looks into social and demographic profile of HHs surveyed that is their distribution by social group, religion, gender, age structure, education, occupation and so on. In addition, for the HHs surveyed, it provides the distribution by poverty status (proportion below poverty line and proportion above), distribution by economic activities (not mutually exclusive, as a HH can have multiple economic activities), and distribution by house structure. It also provides information about the distribution of households by their landownership and operational holdings.

2.2 Social and Demographic Profile

The analysis of social composition (Table 2.1) of sample households under the Baseline Survey 2023, Phase VII in Kendrapara district total 145 HHs shows that majority of the sample households of the belong to Other Backward Caste (OBCs) i.e., 71.03 per cent and followed by Other Categories which is 15.18 per cent, Scheduled Caste (SCs) is 13.10 per cent.

Table 2.1: Distribution of Sample HHs by their Social Group

Blocks	SC		ST		OBC/SEBC		Others	
	No	%	No	%	No	%	No	%
Derabis	7	10.77	0	0	54	83.08	4	6.15
Kendrapara	12	15.00	1	1.25	49	61.25	18	22.5
Total	19	13.10	1	0.69	103	71.03	22	15.18

Source: Baseline Survey, 2023

Similarly, distribution of households in Derabis block reveals that about 10.77 percent households belong to belong to Scheduled Caste (SC), 83.08 per cent of households from Other Backward Class or Socially and Educationally Backward Class (OBC/SEBC) and only 6.155 per cent of households belonged to Others social categories. Similarly, in Kendrapara block, 15.00 per cent belong to SCs, 61.25 per cent belong to OBC/SEBCs and 22.5 per cent of households belongs to others social categories.

2.3 Distribution of Sample Population by their Sex

As found in the Baseline Survey, under the sex distribution among the sample households (Table 2.2) that out of 652 total population among the sample households 53.37 per cent of them are male and 46.63 per cent are female.

Table 2.2: Distribution of Sample Population by their Sex						
Blocks	Male		Female		Total	
	N	*%*	*N*	*%*	*N*	*%*
Derabis	171	56.25	133	43.75	304	46.63
Kendrapara	174	50.00	174	50.00	348	53.37
Total	345	52.91	307	47.09	652	100

Source: Baseline Survey, 2023

Similarly, block-wise distribution of households in Derabis block reveals that about 56.25 percent are male and 43.75 per cent are female. Similarly, in Kendrapara block, 50 per cent per cent are male and female.

2.4 Marital Status

As found in the Baseline Survey, 2023 (Table 2.3) distribution of sample population by their marital status in the study area of Kendrapara district. As observed that a majority (60.12 per cent) of them are Married, 1.84 per cent is Widows, 1.23 per cent is Widower and 0.15 per cent is Divorced. While about 36.66 per cent Unmarried, 2.38 per cent of women are Widows, and only 0.48 percent is Widower.

Table 2.3: Distribution of Sample Population by their Marital Status						
Blocks	Derabis		Kendrapara		Total	
	N	*%*	*N*	*%*	*N*	*%*
Unmarried	108	35.53	131	37.64	239	36.66
Married	187	61.51	205	58.91	392	60.12
Widow	6	1.97	6	1.72	12	1.84
Widower	3	0.99	5	1.44	8	1.23
Divorced	0	0	1	0.29	1	0.15
G. Total	304	100	348	100	652	100

Source: Baseline Survey, 2023

Similarly, block-wise distribution of marital status in Derabis block shows that about 61.51 per cent are married and 35.53 per cent are unmarried, 1.97 percent of women are widows, and only 0.99 per cent of widower is found in the sample HHs. Similarly, in Kendrapara block 58.91 per cent are married and 37.64 per cent are unmarried, 1.72 per cent of women are widows, and only 0.29 per cent of widower is found in the sample HHs.

2.5 Distribution of Sample Population by their Age Group

As found in the Baseline Survey (Table 2.4) that the age group of the sample population is the distribution of people of various ages. It is a useful tool for social scientist, public health and policy makers because it illustrates population trends like rates of birth and death. According to baseline survey adult person found more which is 38.65 per cent and followed by middle age group which is

24.64 per cent.

Table 2.4: Distribution of Sample Population by their AgeGroup						
Age Groups	Derabis Block		Kendrapara Block		Total	
	N	%	N	%	N	%
Infant (0-2)	2	0.66	7	2.01	9	1.38
Preschool (3-5)	7	2.30	7	2.01	14	2.15
Children (6-12)	26	8.55	30	8.62	56	8.59
Adolescent (13-18)	25	8.22	36	10.34	61	9.36
Adults (19-44)	116	38.16	136	39.08	252	38.65
Middle Age (45-59)	70	23.03	91	26.15	161	24.69
Old age (Above 60)	58	19.08	41	11.78	99	15.18
Total	304	100	348	100	652	100

Source: Baseline survey, 2023

Similarly, block-wise distribution of marital status in Derabis block reveals that about adult person found more which is 38.16 per cent and followed by middle age group which is 23.03 per cent. Likewise, in Kendrapara block, adult person found more which is 39.08 per cent and followed by middle age group which is 26.15 per cent.

2.6 Education

Education plays an important role in development, modernization and population progress. Education can not only directly affect attitudes, but also directly affect a person's awareness of rights. In this study, education is one of the important variables because it has a significant impact on the views and opinions of respondents. The level of education becomes more important because it can strongly influence your understanding of rights and privileges; the following table shows the education level of the interviewee's family. Table 2.5 shows that out of the total sample population, 4.14 per cent are illiterate, 36.35 per cent people belong to secondary education and followed by primary education likewise 18.40 per cent are graduation and 1.23 per cent is post graduate. 4.14 per cent are belonging to other education (ITI, Diploma and Management).

Table 2.5: Distribution of Sample Population by their Education						
Blocks	Derabis		Kendrapara		Total	
	N	%	N	%	N	%
Illiterate	15	4.93	12	3.45	27	4.14
Primary	80	26.32	43	12.36	123	18.87
Secondary	113	37.17	124	35.63	237	36.35
Higher Secondary	47	15.46	63	18.10	110	16.87
Graduation	42	13.82	78	22.41	120	18.40
Post-Graduate	2	0.66	6	1.72	8	1.23
Others	5	1.64	22	6.32	27	4.14
G. Total	304	100	348	100	652	100

Source: Baseline Survey, 2023

Similarly, block-wise status of education in Derabis block reveals that, 37.17 per cent belong to secondary education and followed by primary education which is 26.32 per cent. As far as illiteracy is concerned, it is found be 4.93 per cent in Derabis block and 3.45 per cent in Kendrapara block. In case of Higher secondary, Graduation and Post-graduation it is observed to be 18.10 per cent in Higher secondary, 22.41 per cent in Graduation and another 1.72 per cent in post-graduation respectively in Kendrapara Block, whereas in Derabis block it is 15.46 per cent, 13.82 per cent and 0.66 per cent. Across the two blocks, it is also found that 1.64 per cent person belongs to other education like Diploma, Management ITI and so on. However, In Kendrapara block reveals that; 36.35 per cent belong to secondary education and follow by primary education which is 18.87 per cent. The illiterate found 4.14 per cent. In case of higher education is too high i.e. 18.40 per cent of graduation and post- graduation is 1.23 per cent, 1.02 per cent respectively. 4.14 per cent person belongs to other education like Diploma, Management ITI and so on.

2.7 Religion

Religion is a social institution; it includes belief and practices that serve the needs of the society. In the study area Hindu is the dominant religion regarding the caste stratification of the population comprises of SC, ST, OBC and general. Only 1.25 per cent belongs to Muslim community found in Kendrapara block (Table 2.6).

Table 2.6: Distribution of the Sample Population by their Religion

Blocks	Hindu		Muslim	
	N	*%*	*N*	*%*
Derabis	65	100	0	0
Kendrapara	79	98.75	1	1.25
Total	144	99.31	1	0.68

Source: Baseline Survey, 2023

2.8 Type of Family

In Indian family structure was that a joint family, indicating every person of the same clan living together. This system change time to time and became divide. However, in the baseline survey 83.44 per cent are nuclear family and 16.56 per cent are joint family (Table 2.7).

Table 2.7: Distribution of Sample HHs by their Type of Family

Blocks	Nuclear		Joint		Total	
	N	*%*	*N*	*%*	*N*	*%*
Derabis	60	92.30	5	7.69	65	100
Kendrapara	61	76.25	19	23.75	80	100
Total	121	83.45	24	16.55	145	100

Source: Baseline Survey, 2023

2.9 Ration Card Holders

Baseline Survey (Table 2.8) reflects the distribution of sample households by their possession of Ration Card in Derabis and Kendrapara blocks of Kendrapara district. It shows that out 145 sample household's very significant majority i.e., 91.03 per cent households possess ration card and avail the various benefits thereof.

Table 2.8: Block-Wise Distribution of sample HHs by Ration Card Holding

Blocks	HHs without Ration Cards		HHs with Ration Cards		Total	
	No	*%*	*N*	*%*	*N*	*%*
Derabis	1	1.53	64	98.46	65	100
Kendrapara	12	15	68	85	80	100
Total	13	8.96	132	91.03	145	100

Source: Baseline Survey, 2023

2.10 House Structure

The household facilities play an important role for a family. A person lives home for work purpose and when he returns, he needs a relaxation. A home is a place where a person feels secure life, if the facility is available for a balanced life that is awesome or hectic that does depend on residence. Household facilities have impact on psychology and work efficiency of the people. Data collected under the Baseline Survey 2023, Phase VII shows that out of 80 surveyed HHs across the Derabis and Kendrapara blocks in Kendrapara district, majority of HHs reported that they have Pucca houses which constitute about 55.86 per cent and follow by Semi-Pucca house which is 23.44 per cent, and only 20.68 per cent has Pucca house of the total surveyed HHs (Table 2.9& Fig.2.1).

Fig. 2.1: Distribtion of Sample HHs by their Type of House

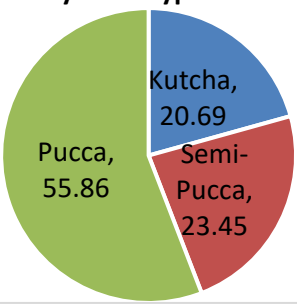


Table 2.9: Distribution of Sample HHs by their Type of House

Blocks	Kutcha		Semi-Pucca		Pucca	
	N	*%*	*N*	*%*	*N*	*%*
Derabis	14	21.53	4	6.15	47	72.30
Kendrapara	16	20	30	37.5	34	42.5
Total	30	20.69	34	23.45	81	55.86

Source: Baseline survey, 2023

Similarly, block-wise distribution of house structure in Derabis block reveals that majority of HHs reported that they have Pucca houses which constitute about 72.30 per cent and follow by Kutcha house which is 21.53 per cent, and only 6.15 per cent has Semi-Pucca house of the total surveyed HHs. Similarly, in Kendrapara; block: majority of HHs reported that they have Pucca houses which constitute about 42.5 per cent and followed by semi-Pucca house which is 37.5 per cent, and 20.00 per cent has kutcha house of the total surveyed HHs.

2.11 Occupation

Baseline Survey (Fig 2.2 and Table 2.10) reveals the economic activities of surveyed HHs in Derabis and Kendrapara blocks that consists of the occupational pattern of the sample population across the blocks. It shows that out of total population of 652 persons, 25.15 per cent are farmer followed by students 24.39 per cent. While only 2.76 per cent worked as a labourer and 0.92 per cent working in government sectors. Housewife made up 28.07 per cent of the population. The unemployed and others had 2.30 per cent and 3.22 percent respectively.

Similarly, block-wise distribution of occupation status in Derabis block shows that out of total population of 304 persons, 22.36 per cent are students, followed by farmer which is about 25.65 per cent. While only 2.96 per cent worked as a labourer and 0.98 per cent working in government sectors. Housewives made up to 27.96 per cent of the population. The unemployed and others had 1.97 per cent each. Pensioners constitute up to 7.89 per cent. About 6.25 per cent are engaged as private sector employees. However, in Kendrapara block, it shows that out of total population of 348 persons, 26.15 per cent are students, followed by farmer 24.71 per cent. While only 2.59 per cent worked as daily labourers and 0.86 per cent working in government sectors. Housewives made up to 28.16 per cent of the population. The unemployed and others had 2.59 per cent and 4.31 per cent respectively. Pensioners constitute up to 2.87 per cent in this block. About 6.61 per cent are engaged as private sector employees.

Table 2.10: Occupational Pattern of the Sample HHs across Blocks

Occupations	Derabis		Kendrapara		Total	
	N	*%*	*N*	*%*	*N*	*%*
Agriculture	78	25.65	86	24.71	164	25.15
Daily Labour	9	2.96	9	2.59	18	2.76
Business	6	1.97	4	1.15	10	1.53
Govt. sector	3	0.98	3	0.86	6	0.92

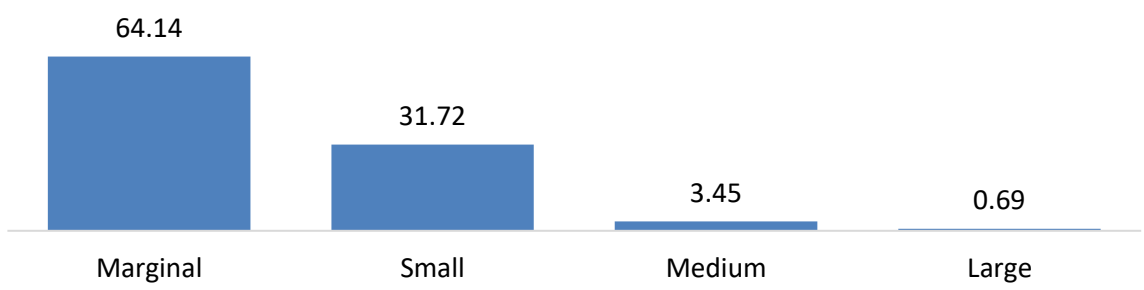
Private sector	19	6.25	23	6.61	42	6.44
Pension	24	7.89	10	2.87	34	5.21
Student	68	22.36	91	26.15	159	24.39
Housewife	85	27.96	98	28.16	183	28.07
Unemployed	6	1.97	9	2.59	15	2.30
Others	6	1.97	15	4.31	21	3.22
G. Total	304	100	348	100	652	100

Source: Baseline Survey, 2023

2.12 Land Ownership

Land as an asset plays a crucial role for people's livelihood. The quantity of land plays a vital role in society and it furnish social status to a family/person and they know as Jamindar (Landlord) or the Big Farmer. In addition to that there are also small farmer, Marginal farmer and Landless households in an area. The primary occupation of family depends on quantity of land what they possessed. In this fig the majority of households belong to marginal land which is 64.14 per cent and followed by 31.72 per cent are small land ownership (Fig. 2.2 and Table 2.11).

Fig. 2.2: Disribution of Sample HHs by their Landownership



Source: Baseline Survey, 2023

As follows, the Table 2.12 highlights the households land ownership status of the sample households in Derabis and Kendrapara Blocks of Kendrapara district. In Derabis block, 70.77 per cent households having marginal land ownership and followed by 26.15 per cent were having small land ownership. Similarly, in Kendrapara, 58.75 per cent households having marginal land ownership and followed by 23.75 per cent were having small land ownership.

Table 2.11: Distribution of Sample HH's by their Land Ownership (in Acres)

Blocks	Landless		Marginal		Small		Medium		Large	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Derabis	0	0	46	70.77	17	26.15	2	3.08	0	0
Kendrapara	0	0	47	58.75	19	23.75	3	3.75	1	1.25
G. Total	0	0	93	64.14	46	31.72	5	3.45	1	0.69

Source: Baseline Survey, 2023

2.13 Annual Income

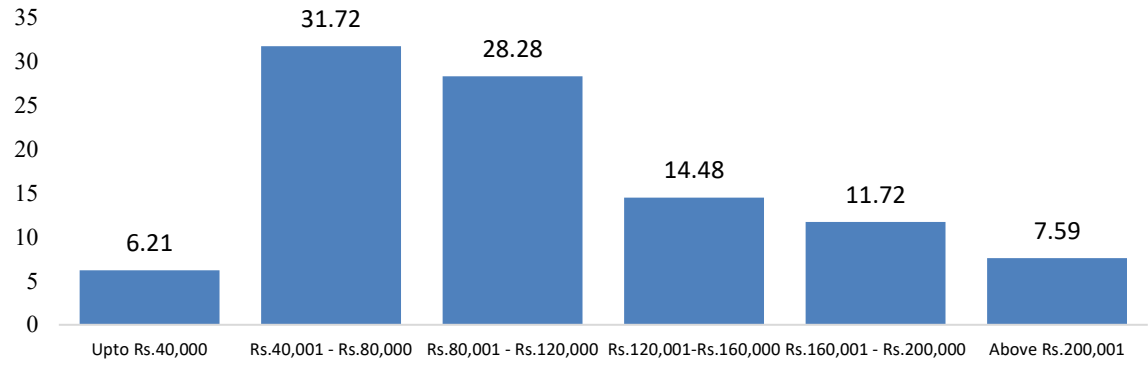
Household income is the total gross income received by all members of a household within a year. In the following table indicated that HHs income, only 6.21 per cent HHs there income is below Rs.40000/- and no household have their income above Rs.200000/-. Nearly 28.28 per cent HHs there income belong to Rs.80001/- to Rs.1200000/- which is maximum HHs (Fig 2.3 and Table 2.12)

Table 2.12: Distribution of Sample HHs by their Annual Income (in Rs.)

Blocks	Up to Rs.40000/-		Rs.40,001/- to Rs.80000/-		Rs.80001/- to Rs.120000/-		Rs.120001/- to Rs.160000/-		Rs.160001/- to Rs.200000/-		Rs.200001/- & Above	
	N	%	N	%	N	%	N	%	N	%	N	%
Derabis	4	6.15	24	36.92	19	29.23	8	12.31	6	9.23	4	6.15
Kendrapara	5	6.25	22	27.50	22	27.50	13	16.25	11	13.75	7	8.75
Total	9	6.21	46	31.72	41	28.28	21	14.48	17	11.72	11	7.59

Source: Baseline Survey, 2023

Fig. 2.3: Distribution of Sample HHs by their Annual Income (in %)



Source: Baseline Survey, 2023

2.14 Agricultural Loan

Agricultural loan is availed by a farmer to fund seasonal agricultural operations or related activities like animal farming or agricultural tools. This type of loans also helps buying such as fertilize, seeds, insecticides etc. Table 2.13 shows that, out of 145 households; 26.9 per cent farmers have taken loan from different organization or sectors.

Table 2.13: Block-Wise distribution of sample HHs by Agricultural Loan

Block	Availed		Didn't Avail		Total	
	N	%	N	%	N	%
Derabis	3	4.62	62	95.38	65	100
Kendrapara	36	44	44	55	80	100
Total	39	26.9	106	73.1	145	100

Source: Baseline Survey, 2023

As shared by the respondents, out of 80 samples HHs in Derabis Block, only 3 samples HHs (4.62 per cent) availed the agricultural credit, the remaining 95.38 per cent did not avail. In the same in Kendrapara Block in Kendrapara district, as many as 36 samples HHs (44 per cent) availed the facility; where as another 55 (80 per cent) did not avail. The reasons, as shared by the sample respondent HHs are due to the lengthy and time taking procedure, high interest rate as well as the need to comply with collaterals.

2.15 Conclusion

Majority of the surveyed households across the two selected blocks belongs to Other Backward Caste (OBC) category. Agriculture is the primary occupation for most of the people. From the various social and economic indicators mentioned in this chapter (including Tables and Figures) and corresponding analysis indicates that out of all 145 surveyed HHs across the Derabis and Kendrapara blocks of Kendrapara district majority of them possess ration card. Out of 80 HHs in each block, only three samples HHs in Derabis and 33 sample HHs in Kendrapara Block of Kendrapara district availed and utilized the agricultural credit.

CHAPTER III

PRODUCTION OF MILLETS

3.1 Introduction

Agriculture activities are carried out by both male and female members of the household. Paddy is the main crop produced in the district. However, farmers were found to be cultivating vegetables in some cases as well**.**

3.2 Land Holding Pattern under Different Crops

As revealed in the Baseline Survey (Table 3.1), the landholding status under different crops of sample households. Out of 145 households, 100 per cent households cultivating paddy; 65 sample HHs in Derabis and 80 samples HHs in Kendrapara Block. In addition to that it is also found that across the two blocks out of the total 28.27 per cent households are cultivating millets; 18 samples HHs (27.69 per cent) in Derabis and 23 sample HHs (28.75 per cent) in Kendrapara Block are cultivating millets. As far as other crops are concerned, 56.55 per cent households cultivating vegetables and 62.75 per cent are cultivating Other Crops.

Table 3.1: Sample HHs Operational Land Holding under different Crops

Blocks	Paddy		Millets		Vegetables		Other Crops	
	N	%	N	%	N	%	N	%
Derabis	65	100	18	27.69	38	58.46	46	70.76
Kendrapara	80	100	23	28.75	44	55.00	45	56.25
Total	145	100	41	28.27	82	56.55	91	62.75

Source: Baseline Survey, 2023

3.3 Annual Expenditure under Different Crops

As observed in the Baseline Survey (Table 3.2), the average annual expenditure on millets is lesser in comparison to paddy and vegetables in Derabis and Kendrapara block of Kendrapara district. Both the blocks cultivated different crops such as paddy, millets, vegetable and so on. To be specific, in terms of paddy, the total operational land is 303.53 acre and average annual expenditure of paddy sum of Rs.8655/-. However, in millets the total operational land is 24.79 acres and the average annual expenditure of millets is a total sum of Rs.1472.90, which is around 24.70 per cent to the total.

Table 3.2: Average Annual Expenditure under Different Crops (in Rs.)								
Blocks	Paddy		Millets		Vegetables		Others	
	Acre	Avg.	Acre	Avg.	Acre	Avg.	Acre	Avg.
Derabis	107.45	8500.33	12.35	1545.44	16.84	3245.45	58.63	4216.28
Kendrapara	196.08	8809.67	12.44	1400.36	8.18	3025.68	84.41	4122.46
Total	303.53	8655	24.79	1472.90	25.02	3135.56	143.04	4169.37

Source: Baseline Survey, 2023

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3.4 Area, Production and Yield of Millets

The surveyed HHs in Kendrapara district indicated production of millets only in form of Mandia. As presented in Table 3.3, the total productions of millets are 74.69 quintal. Mandia was cultivated by 41 HHs and it was cultivated in an area of 24.79 acre of land in Kharif seasons. As revealed in the Baseline Survey, the total yield is 3.01 quintal per acre across the two blocks in Kendrapara district.

Table 3.3: Area, Production and Yield of Mandia by the Sample HHs												
Blocks		Kharif			Rabi			Summer			Total		
	No. of HHs Cultivating Millets	Mandia Area (in Acres)	andia Production (inQtls.)	Yield (Qnt. /Acre)	Mandia Area (in Acres)	a Production (in Qtls.)	Yield (Qnt. /Acres)	Mandia Area (in Acres)	andia Production (inQtls.)	Yield (Qnt. /Acre)	Mandia Area (in Acres)	andia Production (InQtls.)	Yield (Qnt. /Acres)
Derabis	18	12.35	36.45	2.95	0	0	0	0	0	0	12.35	34.45	2.95
Kendrapara	23	12.44	38.24	3.07	0	0	0	0	0	0	12.44	38.24	3.07
Total	41	24.79	74.69	3.01	0	0	0	0	0	0	24.79	74.69	3.01

Source: Baseline Survey, 2023

3.5Millets Cultivation and the Type of Land being used

Generally, millets are cultivated low fertility slope land, or in others word millets require less rainfall, moderate temperature and but adequate sunlight. There are different types of land, like Upper land, Middle land and Low land are found in the Baseline study across the two blocks in Kendrapara district. As found, out of total 145 sample households (Table 3.4), 44 sample HHs (28.27 per cent) cultivated millets across the two blocks (Derabis 18 HHs and Kendrapara 23 HHs) in Kendrapara district. It is also found that all the millets farmers produced millets only during Kharif Season; out of the total 27 HHs (65.85 per cent) cultivated in Upper land and 7 HHs (17.07 per cent) cultivated both slope land and another 7 HHs (17.7 per cent) cultivated using the middle land in Kharif season.

Table 3.4: Cultivation of Millets and the Type of Land being used				
		Kharif		
Block	No. of HHs Cultivating Millets	Upper Land	Slope Land	Middle Land
Derabis	18 (27.69)	11 (61.11)	1 (5.55)	6 (33.33)
Kendrapara	23 (28.75)	16 (69.56)	6 (26.08)	1 (4.34)
Total	41 (28.27)	27 (65.85)	7 (17.07)	7 (17.07)

Source: Baseline Survey, 2023

3.6 Sample Millets Farmers Perception on the Quality of Seeds being used

As per the findings of the Baseline Survey, millet farming households in Kendrapara district believe that seed quality is a crucial component of cultivation and crop production. Most of the time, the quality of seeds used determines the volume of production. High quality seeds are preserved for the next crop to reap the benefits. It was attempted to understand the general perception of millet farmers, whether they are satisfied with the quality of seeds they use for millets cultivation. Out of the 145 surveyed households in Kendrapara district, all the millets cultivating households in Kendrapara district is satisfied with the local seeds as well as certified seeds in Kharif seasons.

Table 3.5: Millets Cultivating Sample HHs by their Sources of Seeds being used				
Seasons	*Types of Seeds being Used*	*No of HHs Cultivating Millets*	*Kendrapara Block*	***Derabis Block***
Kharif (June–Oct)	Local	21 (51.21)	9 (39.13)	12 (66.66)
	Certified	10 (24.39)	9 (39.13)	1 (5.55)
	HYV	10 (24.39)	5 (21.73)	5 (27.77)
	Total	41 (100)	23 (56.10)	18 (43.90)

Source: Baseline Survey, 2023

As observed, in Kendrapara district across two blocks out of 145 sample farmers, 41 (23 HHs in Kendrapara and 18 HHs in Derabis blocks) farmers are cultivating millets. As far as the variety of seeds is being used for cultivating millets are concerned, in Kendrapara the local verity has been adopted by 9 HHs (39.13 per cent) and in Derabis Block 12 HHs (66.66 per cent). In Kendrapara Block 9 HHs (39.12 per cent) and in Derabis Block 1 HH (5.5 per cent) adopted the certified veracity. In Kendrapara the HYV verity has been adopted by 5 HHs (21.73 per cent) and in Derabis Block 5 HHs (27.77 per cent). It is also found that in the other two seasons, not a single farmer has cultivated millets (Table 3.5).

3.7 Sources of Seeds being used by the Sample HHs

As observed (Table 3.6) the distribution of millets cultivating sample households by the sources

from which they procure millets seeds for cultivation. It shows that majority 17 HHs (41.46 per cent) of them procure seed for millets cultivation from Govt. floated Community Seeds Centers, 14 HHs (34.15 per cent) of them used their Own Seeds having local landraces, 6 HHs (14.63 per cent) procure it form the market, 3 HHs (7.32 per cent) procure it from their Local NGOs while only 1 HH (2.24 per cent) procure it from their relatives. It is also found that not a single HH have cultivated millets during the Rabi and Summer Seasons.

Table 3.6: Distribution of Sample HHs by their Sources of the Seeds

Agricultural Seasons	Blocks	Kendrapara	Derabis	Total
	No.of HHs Cultivating millets	*23 (28.75)*	*18 (27.69)*	*41 (28.27)*
Kharif	OwnSeed	2(8.70)	12(66.66)	14 (34.15)
	Relatives	0	1 (5.55)	1(2.44)
	Market	1	5	6 (14.63)
	NGO	3	0	3 (7.32)
	Govt./ Community	17 (73.91)	0	17 (41.46)

Source: Baseline Survey 2023

3.8 Quality of Seeds

According to the Baseline Survey 2023 (Table 3.7) millet farming households in Kendrapara district believe that seed quality is a crucial component of cultivation and crop production. Most of the time, the quality of seeds used determines the volume of production. High-quality seeds are preserved for the next crop to reap the benefits. It was attempted to understand the general perception of millet farmers, whether they are satisfied with the quality of seeds they use for millets cultivation. Out of the total respondents, 35 HHs (85.36 per cent) reveals that the seed being used by them during the last Kharif Season was of good quality.

Table 3.7: Quality of Seeds being Used by the Sample HHs

Blocks	No of HHs Cultivating Millets	Kharif	
		Good	Average
Derabis	18 (27.69)	18 (100)	0
Kendrapara	23 (28.75)	17(73.91)	6(26.08)
Total	41 (28.27)	35(85.36)	6 (14.63)

Source: Baseline Survey, 2023

3.9. Package of Practices

As revealed in the Baseline Survey (Table 3.8) and is also accepted that different methods of cultivation techniques are used by the millets farmers such as Broadcasting, Line sowing/ Line

transplanting, System of Millets Intensification (SMI) method, and even sometimes a combination of one or more methods. In Kendrapara district, out of total sample HHs, in Derabis Block 18 HHs (27.69 per cent) adopt LT method and in Kendrapara block 23 HHs (28.75 per cent) adopted the same LT method during the Kharif seasons during 2022. As shared, only in Kharif season, all millet farmersadoptonly Line Transplantation (LT) method for cultivating millets.

Table 3.8: Package of Practices by sample HHs

Blocks	No of HHs Cultivating Millets	Kharif			
		SMI	LT	LS	BC
Derabis	18 (27.69)	0	18 (100)	0	0
Kendrapara	23 (28.75)	0	23 (100)	0	0
Total	41 (28.27)	0	41 (7100)	0	0

Source: Baseline Survey, 2023

3.10. Use of Fertiliser

Fertilisers are additional substances supplied to the crops to increase their productivity. Those are used by the farmers daily to increase the crop yield. These fertilisers contain essential nutrients required by the plants, including nitrogen, potassium and phosphorus. Table 3.9 presents the pattern of fertilisers and pesticides use among the millets cultivating households in the four selected villages of Kendrapara district. It reveals that out of total 145 sample households across the Derabis and Kendrapara block of Kendrapara district, a total sample of 26.86 per cent households are used organic manner and 51.21 HHs used chemical fertiliser for their production in Kharif seasons which is discuss in the following table 3.9.

Table 3.9: Use of Fertilizer by Sample HHs

Block	No of HHs Cultivating Millets	Kharif		
		Used Organic Manure	Used Chemical	Did not Use
Derabis	18 (27.69)	4 (22.22)	14 (77.78)	0
Kendrapara	23 (28.75)	7 (30.43)	7 (30.43)	9 (39.13)
Total	41 (28.27)	11(26.82)	21 (51.21)	9 (21.95)

Source: Baseline Survey, 2023

3.11. Use of Pesticide by the Sample HHs

Pesticides are used in agriculture to control weeds, fungi, insect infestation and diseases. There are many different types of pesticides; each is meant to be effective against specific pests. It reveals in the Baseline Study (Table 3.10) that out of total 145 sample households across the Derabis and Kendrapara block of Kendrapara district, a sample of 11 HHs (26.83 per cent) households did not use any pesticide. As revealed in the Study, out of the total 41 millets cultivating farmers in Derabis Block 16 HHs (88.89 per cent) used Bio-fertilisers and 2 HHs (11.11 per cent) Chemical fertilizers. In the same way, in Kendrapara Block out of the total millet cultivating sample HHs, 6 HHs (26.08 per cent) used Bio-fertilisers and another 6 HHs (26.08 per cent) Chemical fertilizers.

Table 3.10: Use of Pesticides by sample HHs

Block	No of HHs Cultivating	Kharif		
		Bio- Pesticides	Chemical Pesticides	No Use
Derabis	18 (27.69)	16 (88.89)	2 (11.11)	0
Kendrapara	23 (28.75)	6 (26.08)	6 (26.08)	11 (47.82)
Total	41 (28.27)	22 (53.66)	8 (19.51)	11 (26.83)

Source: Baseline Survey, 2023

3.12. Types of Farming

As revealed in the baseline Survey (Table 3.11) all 41 HHs cultivating millets (18 HHs in Derabis and 23 HHs in Kendrapara) preferred to adopt Mono Crop farming, where as they could have also adopted Mixed Crop Farming system as well. As revealed in the Baseline Survey, the entire millets farmer 41 HHs are cultivating millets by adopting the Mono Crop Farming system and not a single farmer opted for the Mixed Crop method. When asked why they do so, it was unanimously told that as they do not have either any training or exposure, they have no knowledge on any other method.

Table 3.11: Type of Farming adopted by the Millets Cultivating Sample HHs

Blocks	*No of HHs Cultivating Millets*	*Mixed Crop*	*Mono Crop*	*Total*
Derabis	18 (27.69)	0	18 (27.69)	18 (27.69)
Kendrapara	23 (28.75)		23 (28.75)	23 (28.75)
Total	41 (28.27)	0	41 (28.27)	41 (28.27)

Source: Baseline Survey, 2023

3.13. Storage of Seeds

After harvesting of millets, storage is the important instruments of any seeds. As observed in the Baseline Survey (Table 3.12), 18 millets cultivating farmers (100 per cent) used Jute Bag to store

their seeds, and the same is adopted in Kendrapara block by as many as 23 HHs (100 per cent). Even though they could have used Earthen pots, Bamboo basket, Pura and Open hanging system to store their seeds. However, all the farmers shared that as they don't know the other methods they did opted for such methods.

Table 3.12: Type of Storage of Seed used by the Millets Cultivating Sample HHs	
Blocks	In Jute Bag
Derabis	18(100)
Kendrapara	23(100)
Total	41 (100)

Source: Baseline Survey, 2023

3.14. Preservation of Seed

Seeds damaged means, seeds will not be able to grow in to plants since they cannot mature or germinate, in simple it says about the failure due to proper storage seeds. As revealed in the Baseline Study (Table 3.13) bout 2 HHs 11.11 per cent) in Derabis and 5 HHs (21.73 per cent) millet seeds got damaged due to their lack of knowledge. They also shared that if there would be some training from the Government or some other agency they can be benefited.

3.15. Weeding in Millets Cultivation

Weeding is the removal of weeds from the field. It is an effective pre-harvesting method of crop protection and crop production management. Weeds act as competitors of the crop for various resources required for growth like nutrients, light, water etc. As revealed in the Survey (Table 3.14), the entire millets farmer (18 HHs in Derabis and 23 HHs in Kendrapara) conducted weeding.

Table 3.14: Sample HHs Conducted Weeding				
Blocks	No. of HHs conducted Weeding		No Weeding	
	N	*%*	*N*	*%*
Derabis	18	100	0	0
Kendrapara	23	100	0	0
Total	41	100	0	0

Source: Baseline Survey, 2023

3.16. Methods Adopted for Weeding by the Sampe HHs

As observed in the Baseline Survey (Table 3.15), all the millets cultivating farmers have adopted manual (use of hand) while weeding their millets. However, now days a number of other methods are also available to weed the millets cultivation. When asked, why they did not adopt any other method they revealed that due to lack of knowledge and resources they did not do so. All these may go the government support in this regard.

Table 3.15: Methods adopted for Weeding Millets by the Sample HHs		
Blocks	Manually	
	No	%
Derabis	18	100
Kendrapara	23	100
Total	41	100

Source: Baseline Survey, 2023

3.17. Reasons for Not Cultivating Millets

To know the various reasons for not cultivating millets, both HH Interview Schedules and FGDs were conducted on the issue. As revealed by the sample HHs (Table 3.16) most of the people are not cultivating millets due to various reasons; such as not profitable, shortage of land, non-availability of seeds and lack of irrigation. Across both the blocks, out of the total 49 HHs (47.11 per cent) reported that cultivating millets is not profitable and 28 HHs (26.92 per cent) reported that land is not available. Similarly, 17 HHs (16.34 per cent) reported as seeds are not available for millets cultivation and another 10 HHs (9.61 per cent) reported lack of water while transplanting are the major reasons for cultivating millets.

Table 3.16: Reason of Not Cultivating Millets by Sample HHs										
Blocks	Not Profitable		Shortage of land		Non-availability of seed		Lack of irrigation		Total	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Derabis	20	42.55	12	25.53	9	19.14	6	12.76	47	100
Kendrapara	29	50.87	16	28.07	8	14.03	4	7.01	57	100
Total	49	47.11	28	26.92	17	16.34	10	9.61	104	100

Source: Baseline survey, 2023

3.17 Conclusion

Farmer HHs in Derabis and Kendrapara blocks of Kendrapara district was found to be engaged largely in mono cropping. Paddy is the main crop produced in the area and they restrict their cultivation to one season (Kharif) only. Quality of seed used for cultivation is perceived as good by most HHs. Method used for paddy cultivation is largely broadcasting, though there are instances of Broadcasting /Line Transplantation method in some cases. Lack of irrigation facilities, some farmer HHs produced vegetables along with paddy. However, there is no evidence of millet cultivation in the block.

CHAPTER IV

CONSUMPTION OF MILLETS

4.1 Introduction

Consumption plays a vital role in higher production, processing and marketing of millets or any other crop. In this chapter, various issues and concerns related to consumption of millets by the sample HHs has been discussed. Sample HHs also have shared their millet's intake across different seasons, meals (recipes), times of the day and also being consumed by different age groups. The chapter also explores the diversity of millet varieties, recipes and dishes that are being consumed by these farming households and how they prepare them. By doing so, the chapter aims to provide a comprehensive picture of the millet's consumption patterns as well as their preferences.

4.2 Consumption of Millets

According to the Survey (Table 4.1), out of the total population in Kendrapara district 89 sample HHs (61.37 per cent) consume millets i.e. in Derabis 41 sample HHs (63.07 per cent) and 48 HHs (60 per cent) in Kendrapara block. The remaining HHs did not consume millets die to a number of reasons.

Table 4.1: Consumption of Millets by the Sample HHs across Blocks

Blocks	Yes		No		Total	
	N	%	N	%	N	%
Derabis	41	63.07	23	36.93	65	100
Kendrapara	48	60.00	32	40.00	80	100
Total	89	61.37	55	37.93	145	100

Source: Baseline Survey, 2023

4.3 Millets Consumption by Age Groups

As per the Baseline Survey (Fig. 4.1 and Table 4.2) it is revealed that across different age groups millet recipes are being consumed across Derabisand Kendrapara blocks of Kendrapara district. Both the Table 4.2 and Fig. 4.1 reflect that out of the total sample population 401 people (61.04per cent) consume millets across the two blocks. The rate of millets consumption is highest among the adult's population which is 178 sample populations (70.63 per cent) and followed by middle age and old age group which is 106 populations (65.84 per cent). The rate of millets consumption among the preschool and children is 2 populations (14.29 per cent) and 16 (25.00 per cent) respectively.

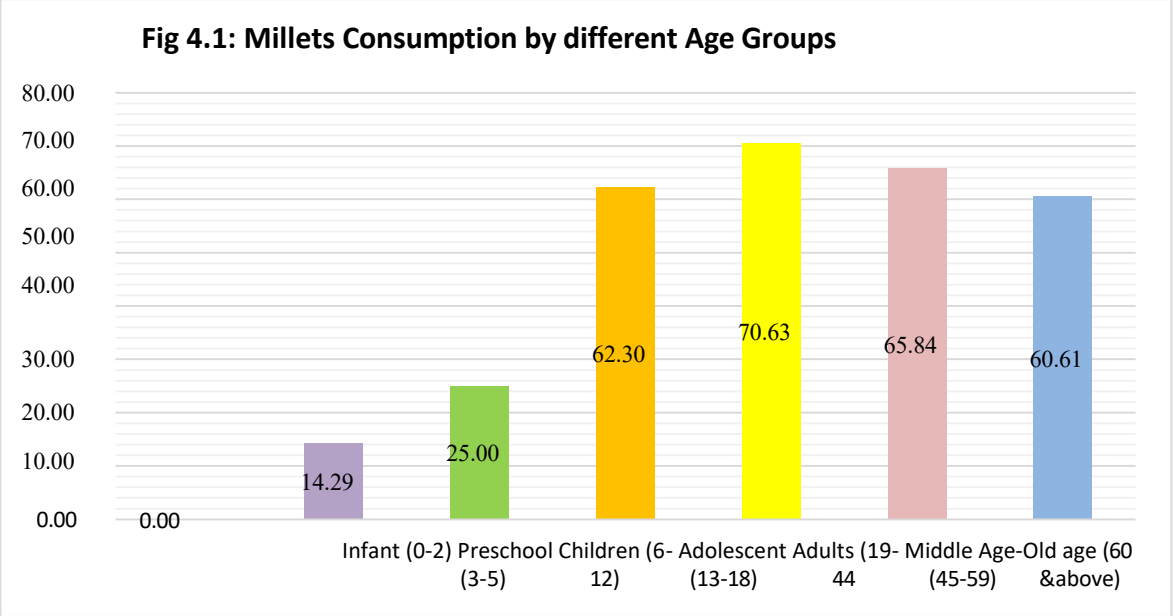


Table 4.2: Millets Consumption by different Age Groups									
Age Group	Derabis block			Kendrapara block			Total		
	Total Population	No. Consumed	%	Total Population	No. Consumed	%	Total Population	No. Consumed	%
Infant (0-2)	2	0	0.00	7	0	0	9	0	0.00
Preschool (3-5)	7	1	14.29	7	1	14.29	14	2	14.29
Children (6-12)	26	6	23.08	30	8	26.67	56	16	25.00
Adolescent (13-18)	25	16	64.00	36	22	61.11	61	38	62.30
Adults (19-44)	116	82	70.69	136	94	69.12	252	178	70.63
Middle Age (45-59)	70	45	64.29	91	60	65.93	161	106	65.84
Old age (60+)	58	36	62.07	41	25	60.98	99	60	60.61
Total	304	186	61.84	348	211	60.34	652	401	61.04

Source: Baseline Survey, 2023

Similarly, block-wise distribution of millets consuming population of Derabis block reveals that; out of total 304 populations, 70.69 per cent the millets consumption is higher among the adults age and followed by middle aged group, which is 64.29 per cent, 62.07 per cent consume millets by old age groups. The rate of millets consumption among the preschool and children is 14.29 per cent and 23.08 per cent respectively. Similarly, In Kendrapara block, out of total 348 populations, 69.12 per cent the millets consumption is higher among the adults age and followed by middle age group which is 65.93 per cent. While about 60.98 per cent consume millets by old age groups. The rate of millets consumption among the preschool and children is 14.29 per cent and 26.67 per cent respectively cent respectively.

4.4 Consumption during Different Meals of the Day

Consumption of millets by HHs during different meals of the day reveals that 76.40 per cent HHs had consumed it in their breakfast, 53.93 per cent HHs had consumed it in their lunch. 37.07 per cent HHs like to consume evening snack.

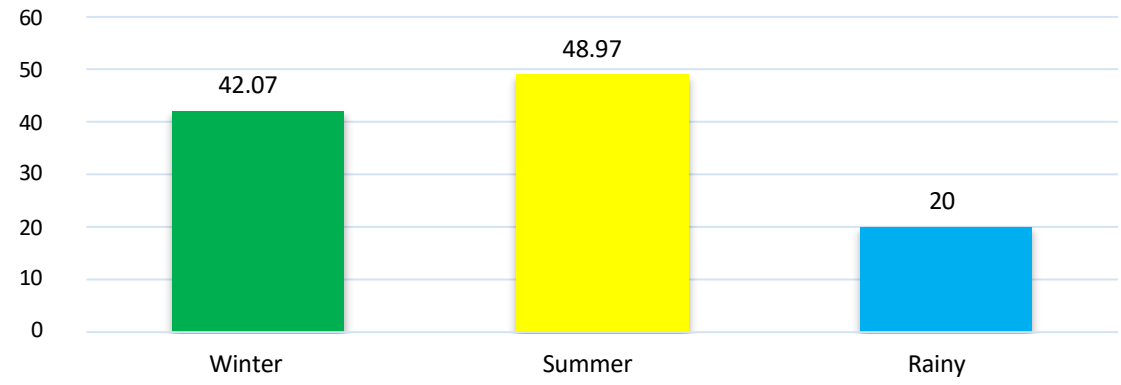
Blocks	Breakfast		Lunch		Evening Snacks	
	N	*%*	*N*	*%*	*N*	*%*
Derabis	31	75.60	23	56.09	11	26.82
Kendrapara	37	77.08	25	52.08	22	45.83
Total	68	76.40	48	53.93	33	37.07

Source: Baseline Survey, 2023

4.5 Millets Consumption across Seasons

Seasons-wise consumption pattern suggest that consumption of millet is more in summer season compared to rainy and winter seasons.As shared by the sample HHs, they consume millets more in summer season due to body hydrated and also used as summer drink. Most of the households perfect to consume millets in summer. It is observed in the field (Table. 4.4and Fig. 4.2) that HHs consumed millet during summer seasons which is 48.97 per cent, 42.07 per cent during winter season and 20 per cent in rainy season.

Fig. 4.2: Millets Consumption across Seasons



Source: Baseline Survey, 2023

Table 4.4: Millet Consumption by sample HHs across Seasons							
Blocks	Total No. of HHs	Winter		Summer		Rainy	
		N	*%*	*N*	*%*	*N*	*%*
Derabis	65	26	40.00	29	44.62	12	18.46
Kendrapara	80	35	43.75	42	52.50	17	21.25
Total	145	61	42.07	71	48.97	29	20

Source: Baseline Survey, 2023

4.6 Sources of the Millets being consumed

As found in the Baseline Survey (Table 4.5) out of the total 145 sample households only 90 HHs (62.06 per cent) are consuming millets. Across the two blocks, the data reflect that, 41 HHs (63.07 per cent) in Derabis block and in Kendrapara 49 sample HHs (61.25 per cent) consumed millets by purchasing from different sources as well as from own production. In Derabis block 18 sample HHs (27.69 per cent) consumed from own production and another 23 sample HHs (35.38 per cent) purchased and consumed. In the same way, in Kendrapara Block 23 sample HHs (28.27 per cent) consumed from own production and 26 HHs (32.50 per cent) purchased and consumed.

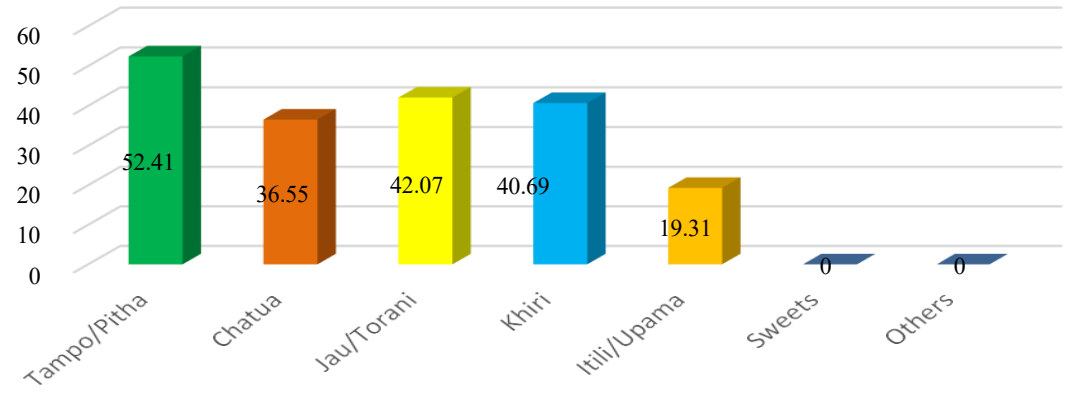
Table 4.5: Sources of the Millets being Consumed by the Sample HHs						
Blocks	Own Production		Purchased		Total	
	N	*%*	*N*	*%*	*N*	*%*
Derabis	18	27.69	23	35.38	41	63.07
Kendrapara	23	28.75	26	32.50	49	61.25
Total	41	28.27	49	33.79	90	62.06

Source: Baseline Survey, 2023

4.7 Consumption of Millets in different Recipes

From this baseline study it was found that people were consuming millets in several ways in the form of Tampo/Pitha, Khiri, Chhatua, Jau, and Upma and so on. As the Fig 4.3and Table 4.6 reflect, 61 HHs (42.07 per cent) consumed millets by preparing *Jau or Torani* and followed by *Tampo or Pitha* which is 76 HHs (52.41 per cent). Another recipe of millet is known as *Chhatua* which is consumed by 53 HHs (36.55 per cent). While about 59 HHs (40.69 per cent) of them are consuming *Khiri* as well.

Fig. 4.3: Consumption of different Millet Recipes by Sample HHs



Source: Baseline Survey, 2023

Similarly, block-wise distribution of Millets consumption (Table 4.6) in different recipes; in Derabis block it reveals that about 38 HHs (58.46 per cent) consumed millets as *Tampo/Pitha* and followed by *Chhatua* which is 25 HHs (38.46 per cent). Other recipes of millets are known as *Jau/Torani* which is consumed by 36 HHS (55.38 per cent). The people who consumed *Khiri*are26 HHs (40 per cent). However, in Kendrapara block, 38 HHs (47.50 per cent) consumed as *Tampo/ Pitha* and 33 HHs (41.25 per cent) as *Khiri*, 28 HHs (35 percent) consumed as *Chhatua* and 25 HHs (31.25 per cent) as a *Jau or Torani* and 16 HHs (20 per cent) as *Idli/ Upma* consumed millets respectively.

Table 4.6: Consumption of millets in different recipes by sample HHs

Recipes	Derabis		Kendrapara		Total	
	N	%	N	%	N	%
Tampo/ Pitha	38	58.46	38	47.50	76	52.41
Chhatua	25	38.46	28	35.00	53	36.55
Jau/Torani	36	55.38	25	31.25	61	42.07
Khiri	26	40.00	33	41.25	59	40.69
Idli/ Upma	12	18.46	16	20.00	28	19.31

Source: Baseline Survey, 2023

4.8 Conclusion

As revealed in the Baseline Survey, 2023millets consumption among the sample households across the two blocks of Kendrapara district shows that millet consumption is higher in the summer season than in winter and rainy season. Most of the respondents, except for infants and preschool children, reported consuming millets. The lower rate of millet consumption among infants may be due to the dietary restrictions for new-borns or young children. Most of the respondents consume millets during their lunch time. *Tampo/ Pitha* is the most common millet recipe across the two blocks of Kendrapara district, followed by *Jau/Torani, Khiri* and *Chhatua*.

CHAPTER V

PROCESSING AND MARKETING OF MILLETS

5.1 Introduction

Marketing millets as well as all millets varieties-based products largely depends on the extent of millets produced in the locality and also in other accessible places. Based on the findings and analysis of the Baseline Survey it is observed that in Derabis and Kendrapara blocks of Kendrapara district even if ther is not much production, the sample population consume millets. This chapter discusses the various methods being adopted by the respondents on their millet farming and processing, availability and the distance being covered by the sample households to reach their processing and marketing units. It also discusses the various modes of marketing as well as the exact trend in utilization of millets by the sample respondent HHs.

5.2 Processing of Millets

As observed in the Baseline Survey and also discussed earlier, some of the sample householdsare cultivating as well as consuming millets by preparing different recipes. It is also found that as many as 15 HHs (34.15 per cent) in Derabis Blok and 17 HHs (41.46 per cent) in Kendrapara Block are processing millets (Table 5.1).

Table 5.1: Sample Households Processing Millet Products

Blocks	Yes		No		Total	
	N	%	N	%	N	%
Derabis	15	36.59	4	9.76	18	43.91
Kendrapara	17	41.46	5	14.63	23	56.1
Total	32	78.04	9	24.39	41	100

Source: Baseline Survey, 2023

5.3 Methods of Processing Millets

As shred by the sample HHs, the local people prefer to process millets manually by using the local available *Chaki* or *Ghorna*, but now-days due to technological innovation and availability of the machine people get access to a number of options. It is also revealed that processing millets through machine in their locality help them to reduce their waste of time and additional manpower (5.2). Hence, it is shared that now-a-days people prefer both the mode of processing of millets. Whenever, the machinery is easily available in the locality they go for it otherwise do it manually. As shared by

the sample HHs, across both the blocks out of the total only 14 HHs (43.75 per cent) had processed through machine, and 18 HHs which is 56.25 per cent had processed manually.

Table 5.2: Methods of Processing Millets by the Sample HHs						
Blocks	Traditional		Machinery		Total	
	No	%	No	%	No	%
Derabis	10	31.25	5	15.62	15	46.87
Kendrapara	8	25	9	28.13	17	53.13
Total	18	56.25	14	43.75	32	100

Source: Baseline Survey, 2023

5.4 Selling of Millets

As observed in the Baseline Survey (Table 5.3) the proportion of households those who sold or did not sell millets during the year 2022. It shows that, out of the total 145 sample households across Derabis and Kendrapara blocks, 26 samples HHs (63.41 per cent) sell their millets at different selling points. In Derabis block, 11 samples HHs (61.11 per cent) and in the same way in Kendrapara block 15 HHs (65.22 per cent) sold millets.

Table 5.3: Selling of Millets by sample HHs						
Blocks	Yes		No		Total	
	N	%	N	%	N	%
Derabis	11	61.11	7	38.89	18	100
Kendrapara	15	65.22	8	34.78	23	100
Total	26	63.41	15	36.59	41	100

Sources: Baseline Survey, 2023

5.5 Millets Selling Points

Adequate millets cultivation, its proper production and timely processing help the farming households. If the production is satisfactory or when the millets farmer produces more than then their own consumption they usually go for marketing. In such a case, the producer has to take a right decision to whom and where to sell so that it would be profitable in income and savings. But in case of all surveyed blocks of Kendrapara district, Table 5.4 shows that, 26 sample HHs (63.41 per cent) sell their millets to the Middleman or Local Businessmen. As far as Derabis block is concerned, as many as 11 samples HHs (61.11 per cent) sold to the Middleman/ Local Businessman, whereas in Kendrapara Block as many as 15 sample HHs (65.22 per cent) sold them.

Table 5.4: Sample HH's Millet Selling Points				
Block	Govt. Mandi		Middlemen/ Local Businessmen	
	N	%	N	%
Derabis	0	0	11	61.11
Kendrapara	0	0	15	65.22
Total	0	0	26	63.41

Sources: Baseline Survey, 2023

5.6 Mode of Transportation of Millets

As found in the Baseline Survey (Table 5.5) the modes of transportation i.e., millets transported as head load, by Cycle, by Bullock Cart, by hiring Vehicle etc. However, in terms of transportation, as the Baseline Survey observes that out of the total 1 HH (11.11 per cent) used own vehicles for transportation of millets. In the same way 2 samples HHs (22.22 per cent) used their Head-load, another 2 samples HHs (22.22 per cent) used their own Cycle, and 4 samples HHs (44.44 per cent) used their other means of transport to carry millets.

Table 5.5: Sample HHs by Mode of Transportation												
Blocks	Head-load		Cycle		Own Vehicle		Public Transport		Others		Total	
	No	%	No	%	No	%	No	%	No	%	No	%
Derabis	0	0	0	0	0	0	0	0	0	0	0	0
Kendrapara	2	22.22	2	22.22	1	11.11	0	0	4	44.44	9	100
Total	2	22.22	2	22.22	1	11.11	0	0	4	44.44	9	100

Source: Baseline Survey, 2023

5.7 Distress Sale

As observed in the Baseline Survey (Table 5.6) a number of samples HHs across the blocks had to sell their products at a lower price than the official market rate. As revealed, out of total sample HHs, across both the blocks as many as 26 samples HHs (63.41 per cent) committed distress sale. In Derabis block 11 samples HHs (61.11 per cent) and in Kendrapara block 15 samples HHs (65.21 per cent) committed distress sale.

Table 5.6: Incident of Distress Sale by Sample HHs						
Blocks	Committed Distress Sale		No Distress Sale		Total	
	N	%	N	%	N	%
Derabis	11	61.11	7	38.88	18	100
Kendrapara	15	65.21	8	34.79	23	100
Total	26	63.41	15	36.59	41	100

Source: Baseline Survey, 2023

5.8 Conclusion

The processing and marketing of millets in the sample households across the Derabis and Kendrapara block of Kendrapara district under Baseline Survey 2023, Phase VII reveals that majority of households possess their millets both methods such as by using machine and traditional methods. Processing of millets through pulveriser is most commonly used processing units which are situated in nearby villages. Further, majority of households sell their surplus produce of millets. Among whom majority of them sells their millets to middleman or local businessman. Some of the sample HHs reported distress sale of their products.

Annexure-1

Mapping of Baseline Survey of Kendrapara District

Sl.	Indicators	Unit	Baseline Value		Total
			Derabis	Kendrapara	
1	% of Sample HHs Cultivating Millets	%	27.69	28.75	28.27
2	Types of Millets Cultivated (2023-24)				
	a) Mandia		100	100	100
3	Avg. Area under Millets/HH (Acre)	Acre	0.68	0.54	0.60
4	Millets/Ragi Production per HHs	Qtls.	2.02	1.66	1.84
5	% per of millets area to total cultivated area	%	0	0	0
6	Package of Practice	%	0	0	0
Kharif	a) Broadcasting	%	0	0	0
	b) LS	%	0	0	0
	c) LT	%	100	100	100
	d) SMI	%	0	0	0
Rabi	a) Broadcasting	%	0	0	0
	b) LS	%	0	0	0
	c) LT	%	0	0	0
	d) SMI	%	0	0	0
Summer	a) Broadcasting	%	0	0	0
	b) LS	%	0	0	0
	c) LT	%	0	0	0
	d) SMI	%	0	0	0
7	Yield Rate (Qntls./Acre)	Qtls.	2.95	3.07	3.01
8	% of HHs Consuming Millets	%			
	a) Breakfast	%	75.60	77.08	76.40
	b) Lunch	%	56.09	52.08	53.93
	c) Evening Snacks	%	26.82	45.83	37.07
	d) Dinner	%	0	0	0
9	Popular Millets Recipes (% HHs)				
	a) Tampo/Pitha	%	58.46	47.50	52.41
	b) Jau/Torani	%	55.38	35.00	42.07
	c) Khiri	%	40.00	41.25	40.69
	d) Idli/Upma	%	18.46	20.00	19.31
10	% of HHs using Processing Ragi				
	a) Manually	%	26.66	29.41	28.12
	b) Machines	%	73.34	70.59	71.88
	c) Both	%	0	0	0
11	%of HH Selling Millets				
	a) Middlemen	%	61.11	62.21	63.41
	b) Mandi	%	0	0	0
	c) Haat	%	0	0	0
	d) Moneylender	%	0	0	0
	e) Sahukar	%	0	0	0
12	Distress sale (% of samples HHs)	%	61.11	65.21	63.41

Source: Baseline Survey, 2023

Annexure 2

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Households Schedule for
Baseline Survey 2022-23, Phase VII of SHREE ANNA ABHIYAN (SAA)

Serial No..……. Date……...

Part-I: Socio-Economic Status

1. Profile of the Households

1.1. Name of the Households' Head: .....

1.2. Name of the Respondent: .....

1.3. Name of the (i) Village: (ii) GP

(iii) Blocks: (iv) District:

1.4. Category: (i) SC (ii)ST (iii) OBC/SEBC (iv) Others (specify)

1.5. Religion (i) Hindu (ii) Muslim (iii) Christian (iv) Animism (v) Others

1.6. Ration Card Holding: (i) Ration Card (ii) Antyodaya Card (iii) Other (iv) No Card

1.7. Type of Family: (i) Nuclear (ii) Joint (iii) Extended (iv) Others (specify)

1.8. House Structure: (i) Katcha (ii) Semi-Pucca (iii) Pucca

3. HHs' Land ownership in Acre:…….

4. Operational Holdings Under Different Crops (in Acre)

Sl No.	Name of the Crops	Yes/ No	Own Land*	Leased-in*	Sl. No.	Name of the Crops	Yes/ No	Own Land*	Leased-in*
a	Paddy				c	Vegetables			
b	Millets				d	Any Others Crops			
Total Operational Holding									

5. Annual Expenditure:

Sl. No	Source	Expenditure Heads						Total Amount (in Rs.)
1	Agriculture	Land Preparation	Transplantation/ Sowing	Weeding	Fertilizers/ Pesticides	Harvesting	Others	
	a) Millet							
	b) Paddy							
	c) Vegetables							
	d) Any Other Crops (Specify)							
3	Households Expenses							
4	Other HH Expenses							
	Total							

6. Annual income of the HH (last year.....)

7. Have you taken any agricultural loan? 1-Yes
2-No If

yes, please provide details……

2. Household Particulars:

Sl. No	Name of the HH Members	Relationship with HoH (Use Code)	Age	Sex	Marital Status (Use Code)	Educational Qualification (Use Code)	Main		Subsidiary		Consume Millet (Yes/No)
							Occupation (Use Code)	Annual Income	Occupation (Use Code)	Annual Income	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Codes: Marital Status: 1- Married, 2- Unmarried, 3- Widow, 4- Widower, 5- Divorced, 6- Separated, 7- Any Others (pl specify)

Relationship: 1-Self, 2- Spouse, 3- Son, 4- Daughter, 5- Daughter-in-Law, 6- Son-in-Law, 7- Father, 8-Mother, 9-Brother, 10-Sister, 11- Grandson, 12- Granddaughter, 13- Father- in-Law, 14- Mother-in-Law, 15- Any Other (Specify)

Education: 1- Illiterate, 2- Up to Class 5, 3- Class 6-10, 4- Higher Secondary, 5- Graduate, 6- Post-Graduate, 7- Technical (Diploma/Degree), 8- Professional/Management, 9- Any Other (Specify)

Occupation: 1- Agriculture, 2- Daily Wage Labour, 3- Business/Entrepreneurship, 4- Govt sector, 5- Private Sector, 6- Pension/Remittances 7- Student 8- Housewife, 9- Unemployed, 10- Others (pl. specify)

Part-II: Production of Millets

8. **Do you cultivate millets?** 1-Yes 2-No

If yes, give millet-wise production details

Sl. No.	Millet Crops	Season	Area (in Acre)	Land Type Used	Sources of Irrigation	Type of Seed Used	Source of Seed	Quality of Seeds	Method of Cultivation	Use of Fertilizer	Use of Pesticides	Production (Qnt.)	Kept for Seed (Qnt.)	Kept for Consumption (Qnt.)	For Marketing (Qnt.)
a	Mandia	Kharif													
		Rabi													
		Summer													
b	Suan/ Kosla /Gurji	Kharif													
		Rabi													
		Summer													
c	Koda	Kharif													
		Rabi													
		Summer													
d	Any other (specify)	Kharif													
		Rabi													
		Summer													

Land Type Used: 1-Upperland, 2-Slope Land, 3-Middle Land, 4-Low Land.

Sources of Irrigation: 1. Rain, 2. Farm Pond, 3- Stream, 4- MIP/WS, 5-River, 6- Canal, 7- Bore well, 8-Others(Specify).

Type of Seed Used: 1-Local, 2- Certified, 3-HYV. Source of Seeds: 1-Own Seed, 2- Relatives, 3-Market, 4- NGO, 5- Govt./ Community Seed Centre, 6-Others (pl. specify)

Quality of Seeds: 1. Good, 2. Average, 3. Bad

Method of Cultivation: 1) SMI- System of Millets Intensification, 2) LT- Line Transplantation, 3) LS- Line Showing, 4) Broadcasting, 5) Others (specify)

Use of Fertilizer: 1) Organic Manure, 2) Chemical Fertilizers, 3) Both, 4) No Use. Pest Control: 1) Bio-Pesticides, 2) Chemical Pesticides, 3) Both, 4) No Use

9. Whether you follow mixed farming or mono farming system? **1. Mixed 2 . Mono**
If mixed, with which are the crops(s)?

10. How do you store your seed and grain?

(i) Jute Bag (ii) Earthen Pot (iii) Bamboo Basket (iv) Pura (paddy rope)
(v) Open Hanging (vi) Other (Specify)

11. Had your seed or grain got damaged during last year? **1. Yes 2 .No**

12. Have you done weeding for the millets cultivation? **1. Yes 2 . No**

13. If Yes, Number of times you do weeding in your millet fields, by each method?

1) Manually_____ 2) By Weeder_____3) Both_____

14. If By Weeder, Sources of weeder?

i) Own ii) Rental iii) Borrowed from Neighbours iv) Govt. Provided v) Other

15. If HH is not cultivating any of the millets, what is the reason?

(i) Not profitable (ii) Shortage of land (iii) Non-availability of Seeds

(iv) Lack of Irrigation (v) Others (pl. specify) ……

16. How many years have you not cultivated Millets ..... ?

17. Do you like to cultivate Millets under this programme? **1.Yes 2.No**

Part-III: Consumption of Millets

18. Does your households consume millets? **1. Yes 2. No**
If Yes, Types of millets your HH consumed in different seasons (Put Tick Mark)

Sl. No.	**Name of the Millets**	**Winter**				**Summer**				**Rainy**			
	Times	Breakfast	Lunch	Evening Snacks	Dinner	Breakfast	Lunch	Evening Snacks	Dinner	Breakfast	Lunch	Evening Snacks	Dinner
a	Mandia												
b	Suan/ Kosla / Gurji												
c	Koda												
d	Any Other Millets (Specify)												

19. **Millets Requirements of the HH:**

Sl. No.	Seasons	Millets Consumed (in Kg.)	Total Requirement of Millets (Kg.)	Sources of Millet Consumed by HH (in Kg)				Total
				Produced	Purchased	Borrowed/ Exchanged	Other Sources	
a	Winter							
b	Summer							
c	Rainy							
d	Total							

20. **Consumption of Millets in different Recipes** (Put Tick Mark)

Sl. No.	Name of The Millets	Pitha/ Tampo	Chhatua	Jau/ Torani	Khiri	Idli/ Upama	Sweets Items	Others (Specify)	Remarks
a	Mandia								
b	Suan/ Kosla/ Gurji								
c	Kodo								
d	Any Other Millets (Specify)								

21. Is there any special occasion when you prepare millets based items? **1. Yes 2. No**

    If yes, what is/are the occasion(s) (specify)? _____

22. For this what type of millet is required (specify)?_____

23. Do you purchase Millet Based Products from market for consumption? **1.Yes 2.No**

24. If Yes, what are the millets-based items you usually purchase from the market?

    1. Biscuit/Mixture 2. Idli/Upama 3. Chhatua 4.Pakoda 5. Others (Specify)

25. How do you like the taste of millet-based products you purchased from market?

    1. Liked it 2. So-so 3. Do not Like it

Part-IV: Processing of Millets

26. Do you process the millet products in your house? **1.Yes 2.No**

27. If Yes, who among your family members involved in the processing of millets?

    i). Nos. of Male members_____. ii). Nos. of Female members_____

28. How do you process the millets? a) Traditionally b) Machinery c) Both d) Others (Specify)

29. If traditionally, pleases elaborate the methods of processing.

30. If Machinery, how far is the location of the processing unit from your village? _____km

Part-V: Marketing of Millets

31. Do you sell millets? 1. Yes 2 .No

Sl. No.	Millet Crops	Yes /No	Sources of Millets You Sale	Quantity	Price / Kg.	Govt. Price (MSP)	Where did you sell your millets	Distance in Km	Mode of Transportation Used for Millets Sale	Reason for Sale
a	Mandia									
b	Suan/ Kosla /Gurji									
c	Koda									
d	Any other (specify)									

Sources of Millets You Sell: 1. Own Produced, 2. Purchase from Farmers, 3. Others (Specify)
Where Sold Your Millets: 1. Govt. *Mandi, 2.* Middlemen/ Local Businessman, 3. Moneylender/ *Sahukar, 4.* Daily market/ Haat 5. Others (pl. specify)
Mode of Transportation: 1. Headload, 2. Cycle, 3. Cart, 4. Own Vehicle, 5. Hired Vehicle, 6. Public Transport, 7. Others (Specify)
Reason for Sale: 1. Better Price, 2. Immediate Need of Cash, 3. Loan Repayment, 4. Non-Availability of Market, 5.Any Others (specify)

32. Types of Millets, you Sell and Quantity

33. Any instance of distress sale (less than the market price) of Millets? **1.Yes 2.No**
34. If yes, what is the sale price.....and what is the market price.....
35. What are the marketing processes followed by you? a) Barter b) Money c) Others (specify)
36. Do you sell any millet based value-added products? **1.Yes 2.No**
37. If yes, provide the details about the Millet Based Value Added Products you sale.
38. Remarks

Contact no of Respondent ……. **Signature of the Researcher/Field Investigator**

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About NCDS, Bhubaneswar

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