

BASELINE SURVEY: PHASE VI

KORAPUT 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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Nabakrushna Choudhury Centre for Development Studies
ICSSR Institute in Collaboration with Government of Odisha

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FOREWORD

It is with great pleasure that I extend my warmest greetings to you through this foreword letter, reflecting on the remarkable journey of the "Special Programme for Promotion of Millets in Odisha," fondly referred to as the Shree Anna Abhiyan, SAA. The roots of the SAA delve deep into a significant consultation meeting convened on 27th January 2016 at the Nabakrushna Choudhury Centre for Development Studies (NCDS). Chaired by Mr. R. Balakrishnan, the then Development Commissioner-cum-Additional Chief Secretary (DC-cum-ACS) of the Government of Odisha and Chairperson, NCDS, this gathering brought together a diverse array of stakeholders. Representatives from various line departments of the Government of Odisha, esteemed members of civil society groups from across the nation and within the state, including notable organizations like the Alliance for Sustainable and Holistic Agriculture (ASHA), the Millets Network of India (MINI), and the Revitalizing Rain-fed Agriculture (RRA) Network of India, graced the occasion. Distinguished figures from academia, such as Dr. T. Prakash, the then Chairperson of the Karnataka Agricultural Price Commission, lent their expertise to the discourse.

NCDS took the initiative to submit a proposal to the Government of Odisha, emphasizing the imperative to revive millet production in the state. The resounding impact of this proposal was swiftly acknowledged, evident in the budget speech delivered on 18th March 2016 by the Government of Odisha, which articulated their commitment to reviving millets. This pivotal moment marked the inception of a journey marked by collaboration, dedication, and transformative action. Subsequently, a memorandum of understanding (MoU) was signed on 27th February 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 target blocks of the SAA. These surveys, designed to evaluate the status of millet production, marketing, consumption, and processing, represent a critical step towards informed intervention and strategic decision-making.

As the Director of NCDS, I extend my heartfelt appreciation to all the members of our dedicated team for their unwavering commitment and tireless efforts in realizing the objectives of the SAA. Your diligence and perseverance have been instrumental in bringing our collective vision to fruition. I extend my deepest gratitude to all our partners, stakeholders, and collaborators for their invaluable support and steadfast dedication to the cause of promoting millets in tribal areas of Odisha, especially for completion of the Baseline Study, Phase VI 2022. Together, let us continue to forge ahead, leaving an indelible mark on the landscape of sustainable agriculture and rural development.



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 VI, 2022”. 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 Chaudhary, 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, 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. 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 Koraput district, the Scheme Officer, District Programme Coordinator, Block Coordinators, and other block-level officials for their invaluable support in providing crucial information. 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

EXECUTIVE SUMMARY

Koraput 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 VI has begun in the Kharif 2021 in its two blocks, namely, Bandhugaon and Narayanapatna. Under Phase VI of implementing the Shree Anna Abhiyan (SAA) in Koraput district, 1365 target or programme households are identified for the programme. Out of these, 160 households were selected through multi-stage sampling method to conduct the Baseline Survey 2022, Phase VI, in the two blocks in Koraput district.

The Baseline Survey 2022, Phase VI, conducted in Koraput district, collected data from 160 sample households. The survey of both blocks revealed that all of the sample households belonged to Scheduled Tribes (STs) community. The total population of the sample households is 846, of which 50.83 per cent are male and 49.17 per cent are female. The religious composition of the sample households shows that that in Bandhugaon block majority (72.50 per cent) of them are Hindu while only 27.50 per cent of them are Christian. Similarly, in Narayanapatna Block majority (88.75 per cent) of them are Hindu while only 11.25 per cent of them are Christian. Agriculture is primary occupation for a significant portion of the population, i.e., 77.04 per cent, the share of wage labourer is 0.56 per cent, and about 1.11 per cent are business owners, while the share of private employees is only 0.19 per cent. About 0.56 per cent of them are in other occupations including poultry, dairy etc. while 7.41 per cent of them in the working age group are unemployed. Further, 7.59 per cent are students and 5.56 per cent of them are housewives. Majority (56.25 per cent) of the sample households have Semi-Pucca houses, followed by *Kutcha* (35 per cent) and Pucca houses (only 8.75 per cent).

From the field survey it is found that all the 153 sample households have cultivated millets in the year 2022. The total operational area among the sample households in the two selected blocks of Koraput district is 494.1 acres, of which a significant portion of operational areas, i.e., 243.1 acre is under millets cultivation. The average yield of millets production among the sample households for Mandia/ Ragi was 0.85 quintals per acre. The majority (60.78 per cent) of them are using *Desia* or local seeds, while about 39.22 per cent are using hybrid seeds. The most common method of millets cultivation among the sample households is SMI (58.82), line transplantation (LT), which is used by 13.07 per cent of households following it 19.61 per cent households used Line Sowing (LS) methods while Broadcasting methods used by 8.50 per cent of households. Out of the total 771 populations of 91.13 per cent consume millets in different seasons and at different meals of the day. The data shows that consumption of millets is highest during the summer season as 100 per cent of sample households consume it during this season, while 100 per cent of them consume it during rainy season, and 98.03 of households consumes it in the winter season. The data indicates that the majority of people consume millets during breakfast, with 100 per cent of the population across the blocks. While about 92.81 per cent of them consume millets during lunch, 74.50 per cent consume it during evening snacks, and 91.50 per cent consume it in dinner. *Jau/Torani* and *Tampo/Pitha* is the popular recipe among the sample households as 98.04 per cent both of them. The other popular recipes are *Tampo/Pitha*, *Khiri* and *Idli/ Upma*. While Mandia/Ragi is consumed by majority of the households, Suan and Kangu also consumed by some of the sample households.

Majority of the sample households, i.e., 20.42 per cent process millets through traditional methods, while 70.42 per cent of households process their millets sing machines and about 9.15 percent of households process it through both traditional methods as well as using machines. Out of the total 69 households about 45.1 per cent of them sell their millets to different selling points. While about 20.29 per cent sell it to middlemen, 24.64 per cent sell it to Moneylender/ *Sahukar* and about 39.13 per cent of them sell it to local businessman and rest of the 10.14 per cent of them sell it to haat . It is found that 76.81 per cent of the households experienced distress sale.

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ABBREVIATION

AAO	: Assistant Agriculture Officer
AL	: Agricultural Labour
ATMA	: Agricultural Technology Management Agency
AWC	: Anganwadi Centre
CBOs	: Community Based Organisation
CCD	: Centre for Community Development
CRPs	: Cluster Resource persons
CSOs	: Civil Society Organisations
DAFP	: Directorate of Agriculture and Food Production
DDA	: Deputy Director, Agriculture
FA	: Facilitating Agencies
FGD	: Focused Group Discussion
FPC	: Farmer Producer Company
FPO	: Farmer Producer Organizations
GP	: Gram Panchayat
FAQ	: Fair Average Quality
Ha	: Hectares
HHs	: Households
ICDS	: Integrated Child Development Scheme
ITI	: Industrial Training Institute
LS	: Line Sowing
LT	: Line Transplanting
MDM	: Mid-Day Meal
MFP	: Minor Forest Produce
MGNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	: Mahatma Gandhi National Rural Employment Guarantee Scheme
MSP	: Minimum Support Price
NCDS	: Nabakrushna Choudhury Centre for Development Studies
OBC	: Other Backward Classes
OMM	: Odisha Millet Mission
SAA	: Shree Anna Abhiyan
PDS	: Public Distribution System
SC	: Scheduled Castes
SMI	: System of Millet Intensification
SP	: Sale Price
ST	: Scheduled Tribe
WASSAN	: Watershed Support Service 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 Glycemic 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 is 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 is 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 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 Tribal Areas of Odisha (also known as Odisha Millets Mission, 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 emphasised 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 2021-22, the implementation of SAA phase VII began in 17 districts, including Koraput district, and this baseline study aims to provide information on the program's dimensions in the district. The profile of the Koraput district is presented below.

1.2 District Profile

Koraput is the third District in the state of Odisha in terms of geographical area and fifteenth in terms of population. The geographical area is of 8807 Sq. Km, which constitutes 5.7 per cent of the total geographical area of the State. As per 2011 Census, the population of the district is 13.8 Lakh. Out of the total population; more than 83% population resides in rural areas of the district which is depicted in Fig.1.1. Given the share of rural population, the district could be called as rural district. The district holds more than 50% tribal population followed by others social group whereas schedule caste population represents around 15% of the total population highlighted in Fig.1.2.

The land utilization of the district is depicted in Fig. 1.3 wherein we have observed that around 30% land is under Net Area Sown whereas around 25% land remained barren and no cultivable land in the district followed by forest (13%) and fallows land (12%). As per 2011 Census, the literacy rate of the district is 49.2%, out of which male 60.3 percent and female 38.6 per cent. Block-wise data reveals that the literates are highest in Koraput block and lowest in Bandhugaon Block. Male literates are higher than the female literates in all blocks.

The district is bounded by Nabarangpur district in North, Vishakhapatnam district of Andhra Pradesh in the South, Rayagada district and Srikakulam district of Andhra Pradesh in the east and Malkangiri district and Bastar district of Chhattisgarh in the west and the district is between 82°5'E to 83°13'E longitude and 18°13' N to 19°10' N latitude.

The district is of total 14 blocks out of which 10 blocks have been highlighted in the previous base line reports, herein this report we have highlighted two blocks namely, Narayanpatna and Bandhugaon. These two blocks are comparatively smaller in area size and population among the total blocks in the district. Both the blocks Bandhugaon and Narayanpatna hold 12600 HHs and 9317 HHs respectively. Narayanpatna is one of the smaller blocks among all blocks. In terms of inhabited village, Bandhugaon represents 148 revenue villages and Narayanpatna 123 villages. It is noteworthy to mention here that though these blocks have low population in comparison with other blocks, both the blocks represent more than average 80% tribal population. Out of the total workers (30272) in Bandhugaon block, one in three is engaged in cultivation and two in five are agricultural labour. The similar working pattern is also observed in Narayanpatna block (District Statistical Handbook, Koraput, Government of Orissa, 2011).

During the year 2010-11, the net area sown was 206 thousand ha against 4681thousand ha of the state. The production of maize was 84513 Qtls and Ragi was 259845qtls. During 2010-11, the total fertilizers used in the district was about 15171 MT with a breakage of 7847 MT nitrogenous 4383 MT Phosphatic and 2941 MT Pottasic and the consumption of fertilizer per ha is 38 kg. During the year 2010-11, it is reported that the irrigation potential created during Kharif and Rabi from all sources were 117.9 thousand Ha and 56 thousand Ha respectively through major/ medium/ minor (Flow, lift irrigation projects, and other sources).

Table 1.1: Socio-economic and Demographic Features of Koraput District

<i>Indicators</i>	<i>Value</i>
Population (In Lakh.)	
Person	13.8
Male	6.8
Female	7
Rural Population	11.5
Urban Population	2.3
Scheduled Castes	2
Scheduled Tribe	7
Others	4.8
Total HHs	3.4
Average HH Size (In Nos.)	4.1
Sex Ratio (per 1000)	1032
Literacy Rate	49.21
<i>Workers (In Lakh)</i>	
Total Worker	6.9
Main Worker	4
Marginal Worker	3
Non-Worker	6.9
WPR	50.3
Land Use Pattern 2018-19 (Area in '000)	
Total Geographical Area (Sq. km.)	881
Forest	188
Land put to Non-agricultural use	54
Barren & Non-Cultivable Land	210
Permanent Pasture & Other Agricultural Land	45
Net Area Sown	255
Cultivable Waste Land	44
Other Fallow	19
Current Fallows	49
Misc. Trees and Groves	17
Average Fertiliser Consumption(kg/ha)	
Kharif	62.23
Rabi	75.63
Irrigation Potential Created (Area in '000 ha.)	
Kharif	143.673
Rabi	92.599
<i>Others</i>	
No. of Village Electrified	1205
No. of Banks	78
No. of AWC	1488

Source: District Statistical Handbook, Koraput-2011 & Odisha Agriculture Statistics 2017-18.

1.3 Objectives

The Baseline Survey 2022 intended to collect primary data from the millets farming households at the village level on the current practices on cultivation, including production, consumption, processing, and marketing. The collected information would provide background information for planning and implementing the programme as well as it will be useful for evaluation of the programme in the future. The objectives are:

- 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

The SAA programme has been implemented in phased manner. It started with eight districts of the State in Phase I during 2017-18 however, later it has expanded to all 30 districts in different phases. Under Phase VI of the implementation of the programme, the Government of Odisha's Department of Agriculture and Farmers Empowerment introduced the "Special Programme for Promotion of Millets in Odisha" included an additional 58 blocks across 17 districts of the state including Bandhugaon and Narayanapatna blocks of Koraput district.

From the list provided by the SAA Programme Secretariat, there were 1365 beneficiary/ programme households across both blocks of Koraput district. For conducting the Baseline Survey 2022, Phase VI, multi-stage sampling methods has been followed. In the first stage, both blocks, namely, Bandhugaon and Narayanapatna have been purposively selected for the study as SAA is going to implement in the district during Phase VI.

The programme is going to be implemented in six GPs of Bandhugaon block and eight GPs of Narayanapatna block. In the second stage, two GPs from each block have been selected for the study in consultation with the respective facilitating agencies (FAs) and district level officials of the agriculture department from each block have been selected for the study.

In the third stage, two villages from each sample GPs have been randomly selected for the study and in the final stage 20 households from each village have been randomly selected for the study. Therefore, 160 households from 16 villages, four GPs and two blocks have been selected for the study as presented in the Table 1.2.

Table 1.2: Sample Households in Koraput District			
<i>Blocks</i>	<i>Programme Households (No.)</i>	<i>Sample Households (No.)</i>	<i>% of HHs Covered under the Survey</i>
Bandhugaon	883	80	9.06
Narayanapatna	482	80	16.59
Total	1365	160	11.72

Source: State Professional Agency (WASSAN), 2022

1.4.2 Data Collection, Compilation and Analysis

This comprehensive baseline survey report is based on both secondary and primary data. Primary data was collected by using a structured household interview schedule (Annexure II) and Focus Group Discussions (Annexure III) from the concerned villages of the districts. Additionally, secondary data on geographical information, population, agriculture, education, irrigation, forest, and institutions were collected from various published and unpublished sources, including the 2011 Census reports, Odisha Agricultural Statistics, and so on.

To supplement and complement the findings of the Baseline Survey, Focus Group Discussions (FGDs) were conducted in each sample village. The FGDs comprise of key respondents from the villages, including community leaders, village officials, and other stakeholders to gather more information and insights about the villages, especially, the status, problems, and opportunities of millets cultivation. This qualitative data helped in providing a more holistic understanding of the local context, which was further used to triangulate and validate the findings of the quantitative data collected through the survey.

The Baseline Survey aimed to collect data on various socio-economic indicators such as household demographics, income, livelihoods, education, health, and access to basic amenities like water and sanitation facilities. The findings of the survey and FGDs were analysed using appropriate statistical tools and techniques to generate a comprehensive report.

The report provides an in-depth analysis of the current situation in the selected villages and serves as a reference point to measure the progress made during the implementation of various development interventions in the future. It also highlights the gaps and challenges in the existing systems and infrastructure. It provides recommendations for improving the overall development indicators of the region.

1.5 Limitations of the Study

The present Baseline Survey focuses solely on the Bandhugaon and Narayanpatna blocks of Koraput district. 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.

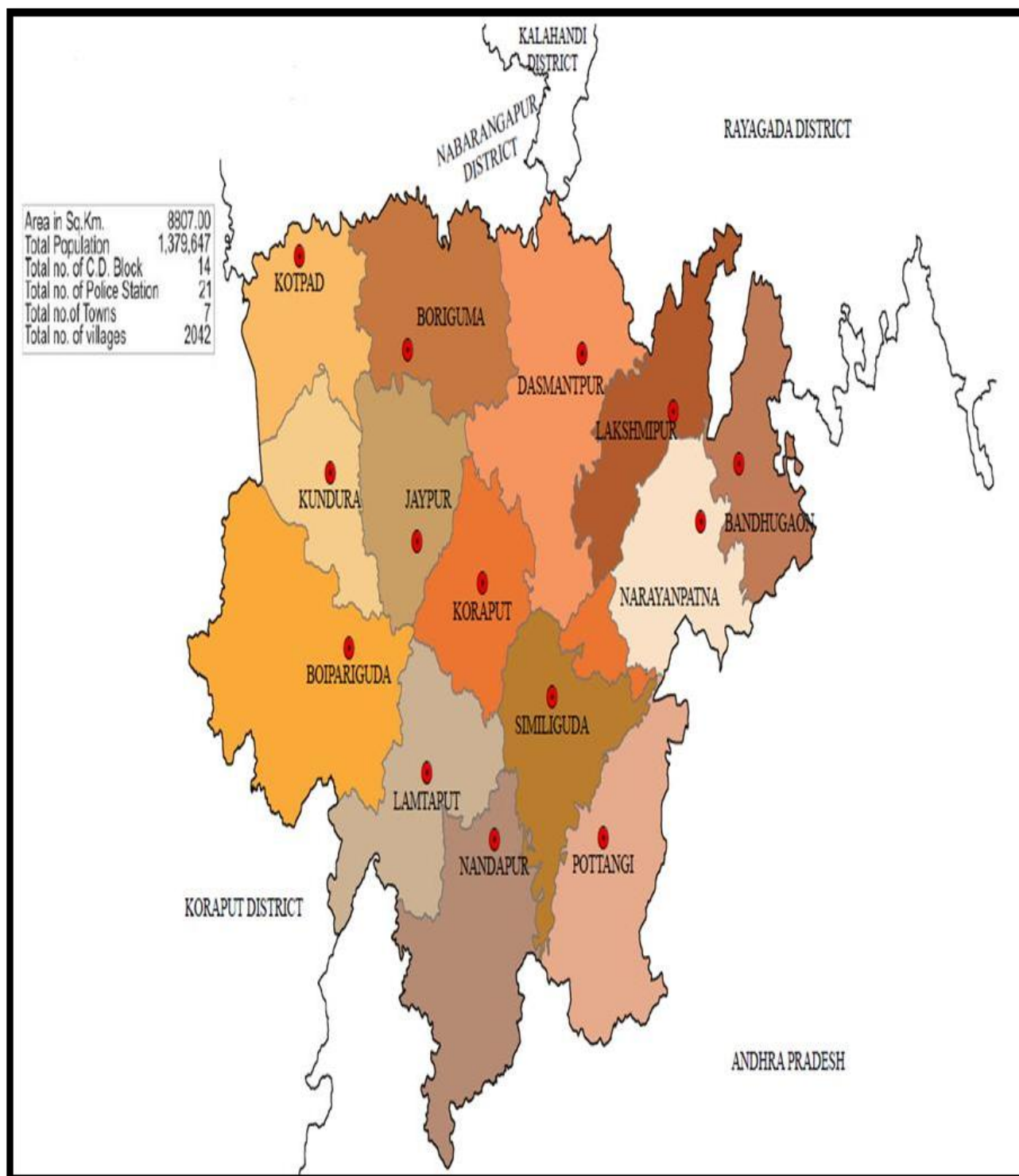
Firstly, the sample size was limited to a random sampling of 160 households. Secondly, there is the possibility of recall error, especially in cases involving the actual quantity of consumption and marketing, among others. Lastly, in some instances, sample households, particularly non-participant farmer 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 Report 2022, Phase VI” has been divided into six Chapters, including the current Introductory Chapter I, which provided a District Profile, Objectives, Methodology and Limitations. Chapter II provides the Socio-Economic Profile of Sample Households. Chapter III provides details on the Production and Productivity of Millets. Chapter IV discusses the Consumption Pattern of Millets. Chapter V elucidates the Processing and Marketing of Millets and summarises the Major Findings.

Fig. 1.1 Map of Koraput District



Source: <http://gisodisha.nic.in/Block/KORAPUT.pdf>

N.B: Baseline Survey 2022 was conducted in Bandhugaon Block, and Narayanpatna Block (shown on the Political Map of Koraput District (above) for implementing the Project titled “Special Programme for Promotion of Millets in Odisha or Shree Anna Abhiyan” under Phase –VI.

Chapter II

SOCIO-ECONOMIC PROFILE

2.1 Introduction

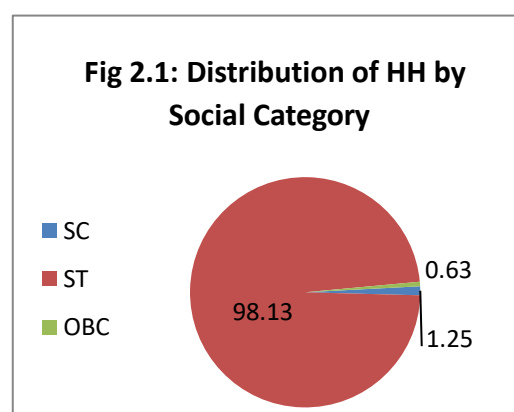
This chapter investigates the social and demographic profile of households surveyed under Baseline Survey 2022 Phase VI, which includes the distribution of sample households by their social groups, and the distribution of the population by gender as well as the distribution of population, by their educational status across the four blocks of Koraput district. It also provides information about the distribution of households by their region. It also provides information regarding occupational distribution of population among the sample households. Additionally, it also provides information about the possession of ration cards by the sample households and distribution of households by their house structure.

2.2 Socio-Demographic Profile

Under the Baseline Survey 2022, Phase VI in Koraput district, 16 selected villages were surveyed (for selection Methodology, see Section 1.4.1) across the two blocks of Koraput district. This section discussed the social composition of the surveyed households', their economic activities, poverty status, and housing structures.

2.3 Social Composition

Figure 2.1 presents the distribution of sample households by social category. It shows that a significant majority (98.13 per cent) of them belong to Scheduled Tribe (ST) category; about 1.25 per cent of them are Scheduled Castes (SC) while only 0.63 per cent of them belongs Other Backward Classes (OBC). Table 2.1 presents the block-wise distribution of sample households by social category. It shows that in Bandhugaon block majority (97.50 per cent) of them belong to ST category, 1.25 per cent each belong to SC and OBC category. Similarly, in Narayanapatna block as well majority (98.75 per cent) of them belong to ST category, while only 1.25 per cent of them belongs to SC category.



Blocks	ST		SC		OBC		Total	
	No	%	No	%	No	%	No	%
Bandhugaon	78	97.50	1	1.25	1	1.25	80	100
Narayanapatna	79	98.75	1	1.25	0	0	80	100
Total	157	98.13	2	1.25	1	0.63	160	100

Source: Baseline Survey 2022

2.4 Distribution of Sample Population by Gender

Figure 2.2 presents the gender distribution of population among the sample households. It shows that the share of males is marginally higher (50.83 per cent) than female (49.17 per cent). Table 2.2 presents the block-wise distribution of population among the sample households.

It shows that, in Bandhugaon block the share of male is marginally higher (50.11 per cent) than female (49.89 per cent). Similarly, in Narayanpatna block also the share of male is marginally higher (51.58 per cent) than female (48.42 per cent).

Fig2.2.Distribution of Population by Gender

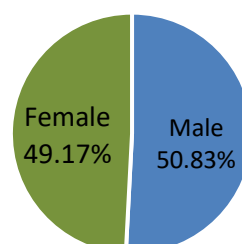


Table 2.2: Distribution of Population by their Gender

Blocks	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Male	218	50.11	212	51.58	430	50.83
Female	217	49.89	199	48.42	416	49.17
Total	435	100	411	100	846	100

Source: Baseline Survey 2022

2.5 Religion Distribution

Figure 2.3 presents the distribution of sample households by their religion. It shows that majority (80.26 per cent) of them follow Hindu religion while about 19.38 per cent of them follow Christianity.

Table 2.3 presents block-wise distribution of sample households by their religion. It shows that in Bandhugaon block majority (72.50 per cent) of them are Hindu while only 27.50 per cent of them are Christian. Similarly, in Narayanpatna block majority (88.75 per cent) of them are Hindu while only 11.25 per cent of them are Christian.

Fig 2.3: Distribution of HH by Religion

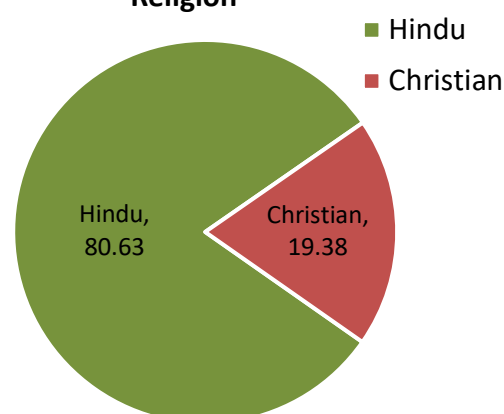


Table 2.3: Distribution of HHs by Religion

Blocks	Hindu		Christian		Total	
	No	%	No	%	No	%
Bandhugaon	58	72.50	22	27.50	80	100
Narayanapatna	71	88.75	9	11.25	80	100
Total	129	80.63	31	19.38	160	100

Source: Baseline Survey, 2022

2.6 Population distribution by age Groups

Table 2.4 presents the distribution of population across different age groups in Bandhugaon and Narayanpatna blocks. The total population of the surveyed households stands at 846 individuals, comprising 435 from Bandhugaon and 411 from Narayanpatna.

Age	Bandhugaon		Narayanpatna		Total	
	No.	%	No.	%	No.	%
Infant (0-2 Year)	17	3.91	16	3.89	33	3.90
Preschool (3-5 Year)	50	11.49	23	5.60	73	8.63
Children (6-12 Year)	71	16.32	64	15.57	135	15.96
Adolescent (13-18 Year)	50	11.49	53	12.90	103	12.17
Young Adults (19-44 Year)	169	38.85	150	36.50	319	37.71
Middle Age (45-59 Years)	42	9.66	60	14.60	102	12.06
Old (60 & above)	36	8.28	45	10.95	81	9.57
Total	435	100	411	100	846	100

Source: Baseline Survey, 2022

The age-wise distribution reveals a predominantly young population structure. Infants (0–2 years) constitute 3.91% in Bandhugaon and 3.89% in Narayanpatna, contributing 3.90% to the total population. Preschool children (3–5 years) account for 11.49% and 5.60% respectively, forming 8.63% overall. Children aged 6–12 years make up 16.32% in Bandhugaon and 15.57% in Narayanpatna, representing 15.96% of the total. Adolescents (13–18 years) comprise 11.49% and 12.90%, contributing 12.17% to the total population. The young adult group (19–44 years) dominates the population, with 38.85% in Bandhugaon and 36.50% in Narayanpatna, accounting for 37.71% of the total. The middle-aged group (45–59 years) represents 9.66% and 14.60% in the respective blocks, forming 12.06% overall. Meanwhile, the elderly population (60 years and above) constitutes 8.28% in Bandhugaon and 10.95% in Narayanpatna, together making up 9.57% of the total. Overall, the data indicate that the majority of the population in both blocks falls within the working-age group (19–59 years), reflecting a youth-dominated demographic pattern in the study area.

2.7 Education status

Table 2.5 presents the educational profile of 680 individuals across the two block- Bandhugaon and Narayanpatna. The data reveal that a large proportion of the population remains illiterate, accounting for 45% (306 individuals). Illiteracy is slightly higher in Bandhugaon (47.08%) compared to Narayanpatna (42.90%), indicating persistent educational challenges in both areas.

Individuals educated up to Class 5 constitute 2.06% of the total population, with a marginally higher share in Bandhugaon (2.63%) than in Narayanpatna (1.48%). The proportion of individuals with education from Class 6 to 10 stands at 17.06%, with Bandhugaon (18.71%) showing a slightly higher share than Narayanpatna (15.38%). Those who have completed higher secondary education represent 19.41% of the total, and the percentage is relatively higher in Narayanpatna (23.37%) than in Bandhugaon (15.50%). The share of individuals with graduation-level education is 7.21%, while post-graduates account for 1.62%. Both these categories show

slightly higher proportions in Narayanpatna. The percentage of individuals with technical education is 7.65%, distributed fairly evenly across both blocks.

Table 2.5: Distribution of Population by their Education

Blocks	Bandhugaon		Narayanpatna		Total	
	No.	%	No.	%	No.	%
Illiterate	161	47.08	145	42.90	306	45
Up To Class 5	9	2.63	5	1.48	14	2.06
Class 6-10	64	18.71	52	15.38	116	17.06
Higher Secondary	53	15.50	79	23.37	132	19.41
Graduation	23	6.73	26	7.69	49	7.21
Post-Graduate	4	1.17	7	2.07	11	1.62
Technical	28	8.19	24	7.10	52	7.65
Total	342	100	338	100	680	100

Source: Baseline Survey, 2022

2.8 Respondent HHs by their Ration Card

Table 2.6 presents the distribution sample households by the ration card they possess. It shows that all of them possess ration card in Bandhugaon block while in Narayanpatna block majority (98.75 per cent) of them possess it and only 1.25 per cent of do not have it.

Table 2.6: Distribution of HHs by their Ration Card

Blocks	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Ration Card	80	100	79	98.75	159	99.38
No Card	0	0	1	1.25	1	0.62
Total	80	100	80	100	160	100

Source: Baseline Survey, 2022

2.9 House Structure

Figure 2.4 presents the distribution of sample households by their house structure. It shows that majority (56.25 per cent) of the sample households have Semi-Pucca houses, followed by *Kutcha* (35 per cent) and Pucca houses (only 8.75 per cent).

Table 2.7 presents the block-wise distribution of sample households. It shows that in Bandhugaon block majority (52.50 per cent) of households have Semi-Pucca houses, followed by *Kutcha* (31.25 per cent) and *Pucca* (16.25 per cent). Similarly, in Narayanpatna block also majority (60 per cent) households have Semi-Pucca houses, followed by *Kutcha* (38.75 per cent) and Pucca houses (only 1.25 per cent).

Fig 2.4: Distribution of HH by House Structure

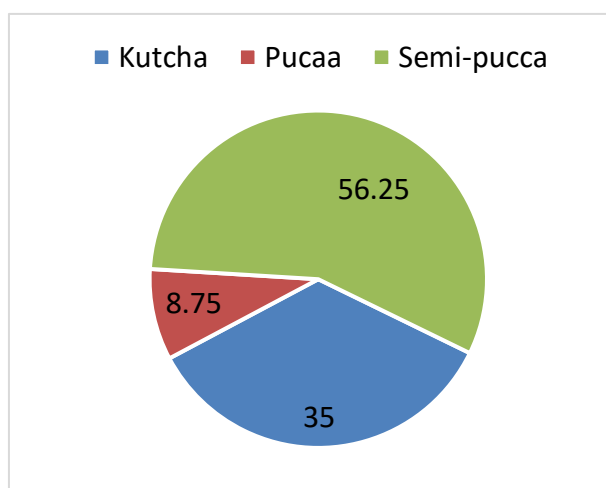


Table 2.7: Distribution of Household by House Structure

House Structure	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Kutcha	25	31.25	31	38.75	56	35
Pucca	13	16.25	1	1.25	14	8.75
Semi Pucca	42	52.50	48	60.00	90	56.25
Total	80	100	80	100	160	100

Source: Baseline Survey, 2022

2.10 Occupation

Figure 2.5 presents the distribution of population in the sample households by their occupation. It shows that majority (77.04 per cent) of them are associated with agriculture, only 0.56 per cent are wage earners, 1.11 per cent business owners, 0.19 per cent private sector employees, about 0.56 per cent of them are in other occupations including poultry, dairy etc. while 7.41 per cent of them in the working age group are unemployed. Further, 7.59 per cent are students and 5.56 per cent of them are housewives.

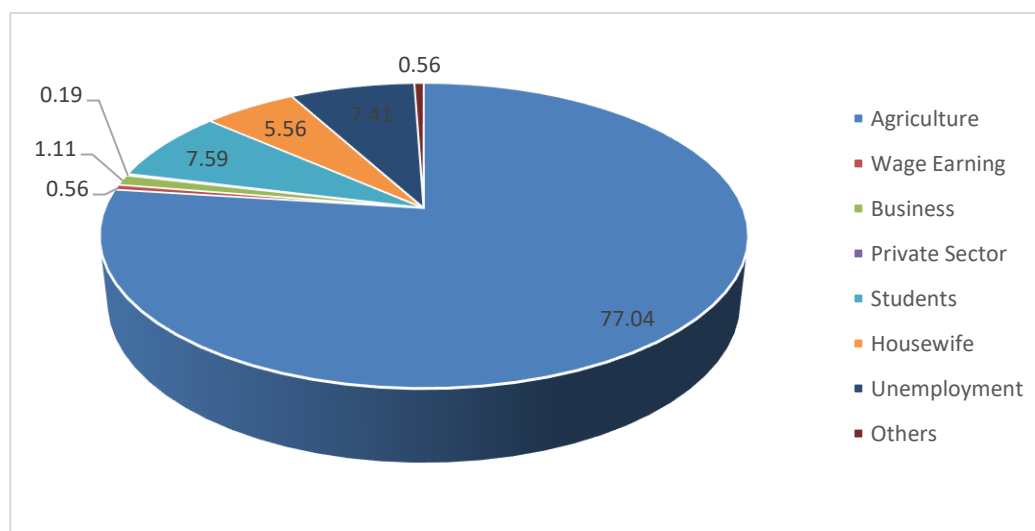
Fig. 2.5: Distribution of population by their Occupation

Table 2.8 presents the distribution of households in the sample area by their occupation. It shows that in Bandhugaon block, the majority of the households (77.11 per cent) are engaged in agriculture, followed by housewives and unemployed individuals (7.04 per cent each). Students constitute 4.58 per cent of the total, while a small proportion is involved in business (2.11 per cent), wage earning (1.06 per cent), and other occupations (1.06 per cent).

Similarly, in Narayanpatna block, most households (76.95 per cent) are engaged in agriculture, followed by students (10.94 per cent) and unemployed individuals (7.81 per cent). Housewives account for 3.91 per cent, while a very small share is employed in the private sector (0.39 per cent). Overall, agriculture remains the primary occupation across both blocks, with limited diversification into other livelihood sources

Table. 2.8 Distribution of Population by their Occupation

Occupation	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Agriculture	219	77.11	197	76.95	416	77.04
Wage Earning	3	1.06	0	0.00	3	0.56
Business	6	2.11	0	0.00	6	1.11
Private Sector	0	0.00	1	0.39	1	0.19
Students	13	4.58	28	10.94	41	7.59
Housewife	20	7.04	10	3.91	30	5.56
Unemployment	20	7.04	20	7.81	40	7.41
Others	3	1.06	0	0.00	3	0.56
Total	284	100	256	100	540	100

Source: Baseline Survey, 2022

2.11 Annual Income

Table 2.9 shows the distribution of sample households by annual income across Bandhugaon and Narayanpatna blocks. In Bandhugaon, most households (60 percent) earn up to ₹40,000 per year, followed by 31.25 percent earning between ₹40,000 and ₹80,000. A small proportion earns between ₹80,000 and ₹1,20,000, while very few earn above ₹2,00,000. In Narayanpatna, 50 percent of households fall in the lowest income group, and 43.75 percent earn between ₹40,000 and ₹80,000. Overall, the majority of households in both blocks have low annual income levels, indicating economic vulnerability and dependence on limited livelihood sources.

Table 2.9: Distribution of Households by their Income

Blocks	Up to		40000-		80000-		Above		Total	
	40000		80000		120000		200000			
	No.	%	No.	%	No.	%	No.	%	No.	%
Bandhugaon	48	60	25	31.25	6	7.5	1	1.25	80	100
Narayanpatna	40	50	35	43.75	5	6.25	0	0	80	100
Total	88	55	60	37.5	11	6.875	1	0.625	160	100

Source: Baseline Survey, 2022

2.12 Land Ownership Pattern

Table 2.10 presents the distribution of sample households by land ownership in Bandhugaon and Narayanpatna blocks. The data show that in Bandhugaon, a majority of households (81.25 percent) possess less than two acres of land, followed by 11.25 percent owning between two to five acres, and 6.25 percent having between five to ten acres. Only 1.25 percent of households are landless. In Narayanpatna, 85 percent of households own between two to five acres, 8.75 percent possess five to ten acres, and 5 percent have less than two acres. Overall, 48.13 percent of households own two to five acres of land, indicating small and marginal landholdings in both blocks.

Table 2.10: Distribution of HHs by their Landownership pattern

	Bandhugaon		Narayanpatna		Total	
Category	<i>No</i>	<i>%</i>	<i>No</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Landless	1	1.25	1	1.25	2	1.25
Less than 2 Acres	65	81.25	4	5	69	43.125
More than 2 to 5 Acres	9	11.25	68	85	77	48.125
More than 5 to 10 Acres	5	6.25	7	8.75	12	7.5
Total	80	100	80	100	160	100

Source: Baseline Survey, 2022

2.13 Conclusion

We have analysed different facets of social and economic condition of our respondents HHs from Bandhugaon and Narayanpatna Blocks in Koraput District. Their status has been analysed and interpreted based on the primary survey data conducted under Phase VI, Baseline Survey in 2022. Overall, the survey report shows our respondents are socially and economically backwards in terms of their social category, poverty status, economic activity, household annual income, and household structure. From the various social and economic data mentioned in the Tables and depicted in the Figures, it indicates that most of the respondents HHs (over 98.13%) are Scheduled Tribe (ST) from Hindu and Christianity, no other religions are there, and they all belong to Below Poverty Line. More than 77.04 per cent of the respondents HHs are primarily also engaged in agricultural activities. Housing status provides very grim and abysmal picture because state like Odisha where every year some natural calamity such as floods and drought is rampant, there in our study households, out of 160 HHs, only 14 HHs poses Pucca house, 55HHs kutcha and 90 HHs belongs to semi- pucca.

Chapter III

PRODUCTION OF MILLETS

3.1 Introduction

The Baseline Survey, 2022 Phase VI of SAA was conducted in four selected blocks of Koraput district to assess the situation of millets cultivation and its usage in the target villages before the implementation of the programme interventions. This chapter deals with the production of millets in Bandhugaon and Narayanpatna blocks of the district and analyses the data collected during the survey. The analysis focuses on the distribution of area under millets and other crops, the usage of seeds and agronomic practices, as well as the production and yield of millets in the sampled villages. The chapter also highlights the challenges and opportunities for promoting millets in the district.

3.2 Area, Production and Yield

Table 3.1 presents the distribution of sample households by area used under millets and crops. It reveals that out of the total 160 sample households' significant majority (95.63 per cent) of them are cultivating millets while operational areas under millets constitute about 49.20 percent of the total operational areas under sample households.

Further, block-wise distribution of sample by operational area under millets and other crops shows that in Bandhugaon block majority (91.25 per cent) of the sample households are cultivating millets while it covers about 50.34 percent of the total operational areas among the sample households. Furthermore, in Narayanpatna block all the sample households cultivating millets while about 48.10 per cent of the total operational area among the sample households is under millets cultivation. Table 3.2 presents the distribution of households by area, production, and yield of millets. It shows that total amount of millets production among the sample households is 207.1 quintals, and the yield of millets production 0.85 quintal per hectare. While average amount of millets production per households is about 1.35quintal per households.

Table 3.1: Distribution of HHs by Millets Area									
Blocks	Total Operational Area	Millets Cultivating HHs		Area Under Millets (in Acres)	% of Area under Millets	HHs Cultivating Other Crops		Area under Other Crops	% of Area under Other Crops
		N	%			N	%		
Bandhugaon	242.25	73	91.25	121.95	50.34	72	90.00	120.30	49.66
Narayanpatna	251.85	80	100	121.15	48.10	73	91.25	130.70	51.90
Total	494.1	153	95.63	243.10	49.20	145	90.63	251.00	50.80

Source: Baseline Survey, 2022

The block-wise distribution of households by area, production and yield of millets shows that in Bandhugaon total amount of millets production among the millets cultivating sample households is about 76.8 quintals, while the yield of millets production is 0.63 quintals per acre. Further, the average amount of millets production is about 1.05 quintal per households. Similarly, in Narayanpatna block the total amount of millets cultivation among the sample households among the millets cultivating sample households is about 130.3 quintals while the yield of millets cultivation is 1.08 quintal per acre. The average amount of millets production among the millets cultivating households is 1.62 quintal per households.

Table 3.2: Area, Production and Yield of Millets

Blocks	No. of Millets Cultivating Households	Millets Area (in Acre)	Millets Production (in Qtls.)	Yield of Millets (Qtls/Acre)	Average amount of Millets Production/ Qtls/HHs
Bandhugaon	73	121.95	76.8	0.63	1.05
Narayanpatna	80	121.15	130.3	1.08	1.62
Total	153	243.1	207.1	0.85	1.35

Source: Baseline Survey 2022

3.3 Type of Seed being used

Figure 3.1 presents the distribution of millets cultivating sample households by type of millets seeds they used. It shows that majority (60.78 per cent) of them are using *Desia* or local seeds, while about 39.22 per cent are using hybrid seeds. Table 3.3 presents the block-wise distribution of millets cultivating sample households by types of millets seeds. It shows that in Bandhugaon block majority (54.79 per cent) of them are using *Desia* or local seeds, while by hybrid (45.21 per cent). Similarly, in Narayanpatna block also majority (66.25 per cent) of them are using *Desia* or local seeds while about 33.75 per cent using hybrid seeds for millets cultivation.

Fig 3.1: Distribution of HHs by Types of Millets Seed they Used

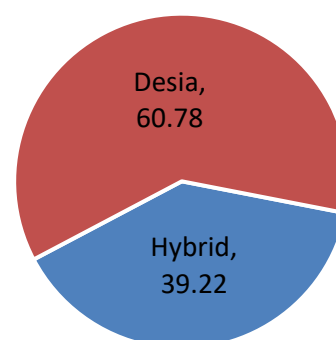


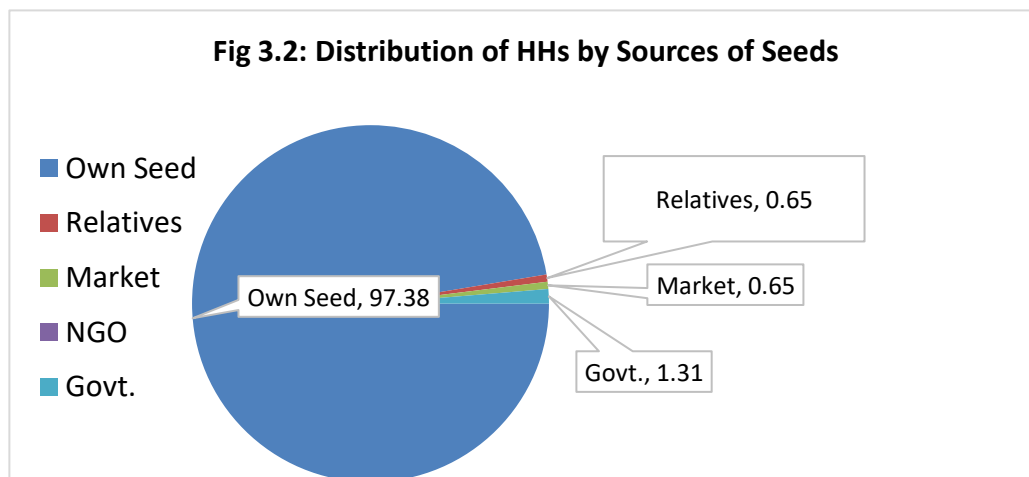
Table3.3: Distribution of HHs by Type of Millets Seeds they Use

Type of Seed	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Hybrid	33	45.21	27	33.75	60	39.22
Desi	40	54.79	53	66.25	93	60.78
Total	73	47.71	80	52.29	153	100

Source: Baseline Survey, 2022

3.4 Sources of Seed

Figure 3.2 presents the distribution of millets cultivating sample households by the source of millets seeds. It shows that a very significant majority (97.38 per cent) of them used own seeds, about 1.31 per cent of them acquired from Govt., while about 0.65 per cent of them each acquired it from relative and market. Here the distribution of millets cultivating sample households by their sources of millets seeds.



It shows that in Bandhugaon block all the millets cultivating households are using their own seeds for millets cultivation. While in Narayanpatna block majority (95 per cent) are using own seeds, about 2.50 per cent acquired it from govt., and 1.25 per cent of them each acquired it from relatives and market.

3.5 Package of Practices

Figure 3.3 presents the distribution of millets cultivating sample households by the package of practices they follow during millets cultivation. It shows that majority of them (90 HHS) follows SMI, then the next higher using method (30 HHS) is line sowing (LS) while 13HHs follows broadcasting (BC) methods and 20HHs follows line transplanting methods. It is a well-established fact that package of practices is very vital for a millets production and productivity. There are different packages of practices for millets cultivation and in fact farmers are following some of these cultivation practices. These practices include Broadcasting, Line Sowing (LS), Line Transplantation (LT) or use of the latest the most scientific i.e. System of Millets Intensification (SMI). Based on the method of cultivation, we have collected data from two blocks as discussed earlier sections.

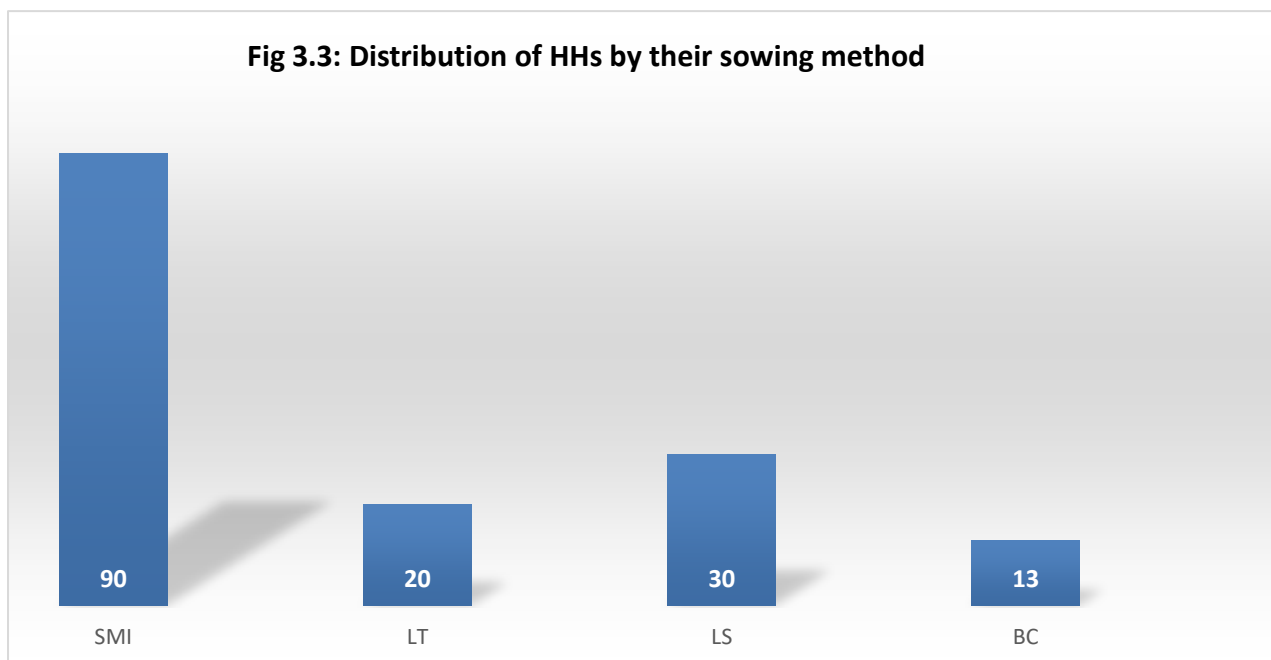


Table 3.5: Package of Practices followed by of Households										
Blocks	SMI		LT		LS		BC		Total	
	No	%	No	%	No	%	No	%	No	%
Bandhugaon	32	43.84	10	13.70	20	27.40	11	15.07	73	100
Narayanapatna	58	72.5	10	12.5	10	12.5	2	2.5	80	100
Total	90	58.82	20	13.07	30	19.61	13	8.50	153	100

Source: Baseline Survey 2022

Cultivation practices across Bandhugaon and Narayanapatna blocks shows notable differences in the adoption of methods such as System of Millet Intensification (SMI), Line Transplanting (LT), Line Sowing (LS), and Broadcasting (BC). Out of the total 90 farmers using SMI, Bandhugaon accounts for 43.84 per cent (32 farmers) while a larger share, 72.5 per cent (58 farmers), belongs to Narayanapatna, indicating relatively higher adoption of SMI in Narayanapatna block. For LT, both blocks contribute equally with (10 farmers each). In the case of LS, however, Bandhugaon leads with 27.40 per cent (20 farmers) compared to only 12.5 per cent (10 farmers) in Narayanapatna, suggesting LS is more common in Bandhugaon. Broadcasting practice is also more prevalent in Bandhugaon with 15.07 per cent (11 farmers), while Narayanapatna has only 2.5 per cent (2 farmers).

Overall, the pattern shows that Narayanapatna block favors SMI, while Bandhugaon prefers traditional practices like LS and Broadcasting. LT is practiced equally in both blocks, reflecting no significant block-level preference.

3.6 Use of Pesticides

Figure 3.4 presents the distribution of millets cultivating sample households by use of pesticides in millets cultivation. It shows that majority (44.44 per cent) of the millets cultivating sample households are not using any types of pesticides, about 41.83 per cent using organic pesticides, 9.80 per cent use chemical pesticides, while about 3.92 per cent use both chemical and organic/bio pesticides.

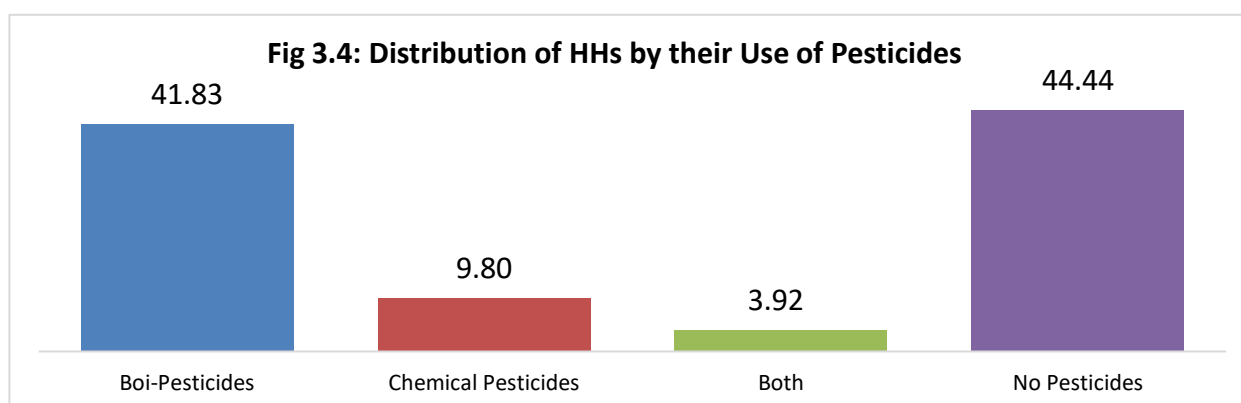


Table 3.6 presents the block-wise distribution of millets cultivating sample households in the Bandhugaon and Narayanapatna blocks of Koraput district by use of pesticides. It shows that in Bandhugaon block majority (53.42 per cent) of them do not use any pesticides, while about 36.99 per cent of them use bio-pesticides, 4.11 per cent use chemical pesticides, and 5.48 per cent use both (bio- and chemical pesticides). While, in Narayanapatna

block majority (46.25 per cent) of them use bio-pesticides, 15 per cent use chemical pesticides, 2.50 per cent use both (bio- and chemical pesticides).

Table 3.6: Distribution of HHs by their Use of Pesticides

Blocks	<i>Bio-Pesticides</i>		<i>Chemical Pesticides</i>		<i>Both</i>		<i>No Pesticides</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Bandhugaon	27	36.99	3	4.11	4	5.48	39	53.42
Narayanapatna	37	46.25	12	15.00	2	2.50	29	36.25
Total	64	41.83	15	9.80	6	3.92	68	44.44

Source: Baseline Survey 2022

3.7 Reason for not Cultivating millets

In Koraput, households cited that shortage of land as the primary reason for not cultivating millets. Specifically, in Bandhugaon block, (7HHs) reported that land scarcity emerged as the sole constraint, with no other limiting factors such as seed unavailability, lack of irrigation, or market issues being reported. This indicates that millet cultivation in the region is largely hindered by limited cultivable land rather than technological or resource-related challenges.

3.8 Conclusion

In this chapter we highlighted the production ecosystem of crops focusing on millets as well as paddy. This study includes production, area, and yield, usage of seeds and existing agronomy with package of practices for cultivation of crops. It was revealed that *Ragi* is the only millet which has been cultivated over the years in these two blocks. Out of the total 160 HHs, 150 HHs cultivated *Ragi* and more than 1 quintal per acre is yield rate. In comparison to Paddy, area under millet cultivation has decreased due to advancement of green revolution. We have observed that most of the respondents HHs used their own and local seed of *Ragi* for cultivation for ecological conduciveness. Further, in term of package of practice for cultivation, it was found that System of Millet Intensification (SMI) and Line sowing (LT) are popular methods of cultivation adopted by the respondent households.

Chapter IV

CONSUMPTION OF MILETS

4.1 Introduction

Millets production, consumption and marketing go hand in hand and interrelated. Demands for production of millets largely depend on the consumption of various millets-based recipes by all age groups throughout the day. In the earlier chapters, we have highlighted socio-economic including demography, pattern of production of millets and their package of practices followed by the millet farming respondent households. In this present Chapter, we attempt to shed light on understanding the consumption pattern of millets in different seasons in our study areas (Bandhugaon and Narayanpatna blocks in Koraput district) based on the findings of the Baseline Survey, Phase VI, 2022. Further, we delve into details on understanding consumption of different recipes of millets at different times such as breakfast, lunch, and dinner etc. in a day. There is no doubt behind the nutritional and other health benefits from the consumption of millets-based recipes. These health benefits of millets also determine its consumption at large. Therefore, this chapter brings out the different aspects of consumption culture among the respondent HHs.

4.2 Consumption of Millets by HHs

Table 4.1 presents the block-wise millet consumption among the surveyed households. Bandhugaon block recorded a total millet consumption of 6,132 kg among 73 households, while Narayanpatna block reported 6,089.64 kg consumed by 80 households. The average household consumption was higher in Bandhugaon (84.00 kg) compared to Narayanpatna (76.12 kg). Overall, across 153 households, a total of 12,221.64 kg of millets was consumed, with an average consumption of 79.88 kg per household, reflecting the continued importance of millets in the local diets of the study area.

Table 4.1 Consumption of millets by households			
Blocks	Total millets consumed (in kg)	Average consumption	No of HHS Consuming millets
Bandhugaon	6132	84	73
Narayanpatna	6089.64	76.12	80
Total	12221.64	79.58	153

Source: Baseline Survey, 2022

4.3 Intergenerational Consumption of Millets

Figure 4.1 presents the intergenerational distribution of population by millets consumption in Bandhugaon and Narayanpatna block of Koraput district. It shows that the rate of millets consumption is higher (100 per cent) among the adolescent and middle age, followed by adults (99.69 per cent), old (97.53 per cent), children (94.07 per cent), preschool (49.32 per cent) and infant (18.18 per cent). Table 4.2 presents the block-wise intergenerational distribution of population by millets consumption. It shows that in Bandhugaon block the rate of millets consumption is higher (100 per cent) among the adolescent and middle age group, followed by adults (99.44 per cent), old (97.22 per cent), children (95.77 per cent), preschool children (50 per cent), while less among infant (17.65 per cent).

Similarly, in Narayanpatna block, the rate of millets consumption is higher (100 per cent) among adolescent and middle age population, followed by adults (99.69 per cent), old (97.13), children (94.07 per cent), preschool (49.32 per cent), and infant (18.18 per cent).

Fig 4.1: Distribution of Respondent HHs by their Millets Consumption

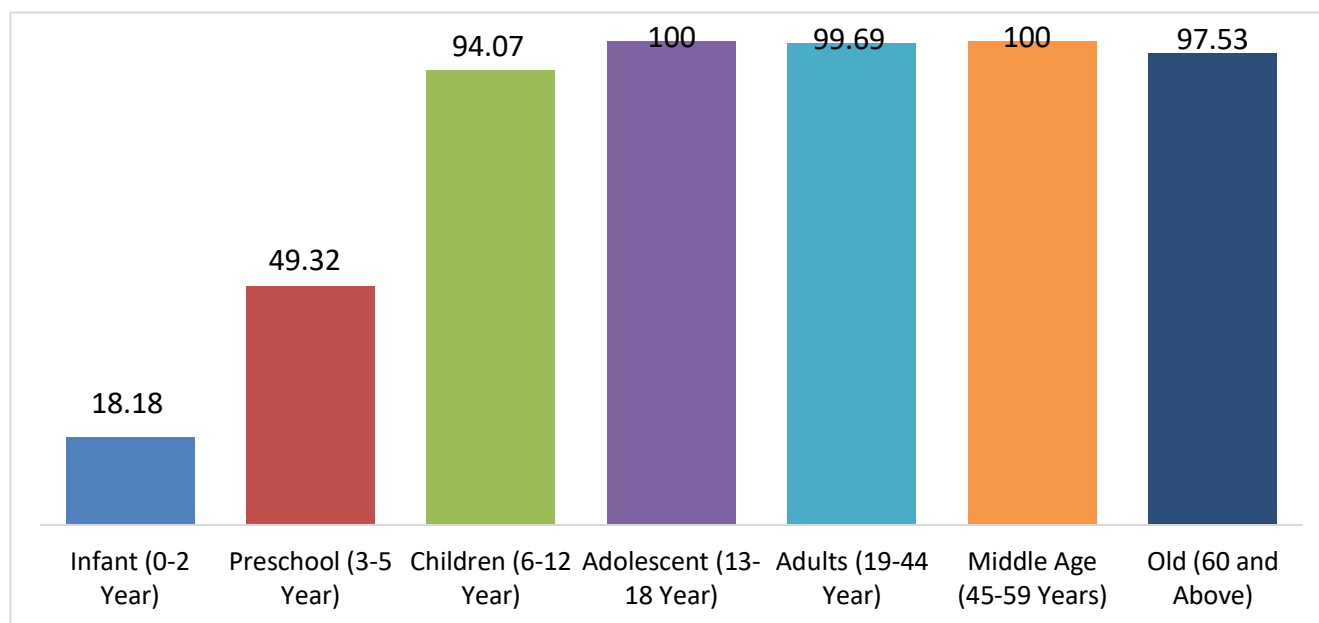


Table 4.2: Distribution of Sample Population by Millets Consumption in Age Groups

Age Group	Blocks						Total		
	Bandhugaon			Narayanpatna					
	Total Nos. of Person	Person Consumed	% Consumed	Total Nos. of Person	Person Consumed	% Consumed	Total Nos. of Person	Person Consumed	% Consumed
Infant (0-2 Year)	17	3	17.65	16	3	18.75	33	6	18.18
Preschool (3-5 Year)	50	25	50.00	23	11	47.83	73	36	49.32
Children (6-12 Year)	71	68	95.77	64	59	92.19	135	127	94.07
Adolescent (13-18 Year)	50	50	100	53	53	100	103	103	100
Adults (19-44 Year)	169	168	99.41	150	150	100	319	318	99.69
Middle Age (45-59 Years)	42	42	100	60	60	100	102	102	100
Old (60 and above)	36	35	97.22	45	44	97.78	81	79	97.53
Total	435	391	89.89	411	380	92.46	846	771	91.13

Source: Baseline Survey, 2022

4.4 Consumption of Millets in Different Seasons

It represents the distribution of sample households by season-wise millet consumption in the study area of Koraput district, while Table 4.3 presents the block-wise distribution. The data show that in Bandhugaon block, 72 households (98.63 per cent) consume millets during the winter season, while all sample households consume them during both the summer and rainy seasons. In Narayanpatna block, millet consumption is reported by 78 households (97.5 per cent) in winter, and all 80 sample households consume it during the summer and rainy seasons. Overall, the results indicate that millet consumption remains stable across all seasons, with a slightly higher proportion of households consuming it in Narayanpatna compared to Bandhugaon.

Table 4.3: Distribution of HHs by Seasons-wise Millets Consumption

Blocks	No. of HHs Consuming Millets	Winter		Summer		Rainy	
		No	%	No	%	No	%
Bandhugaon	73	72	98.63	73	100	73	100
Narayanpatna	80	78	97.5	80	100	80	100
Total	153	150	98.03	153	100	153	100

Source: Baseline Survey 2022

4.5 Consumption during Different Meals in a Day

Figure 4.2 presents the distribution of sample by households by millets consumption during different meals of the day. It shows that 153 sample households consuming it during breakfast, while majority of them 142 HHs consuming it during lunch, followed by evening snacks 114HHs, and in dinner 140 HHs consumed.

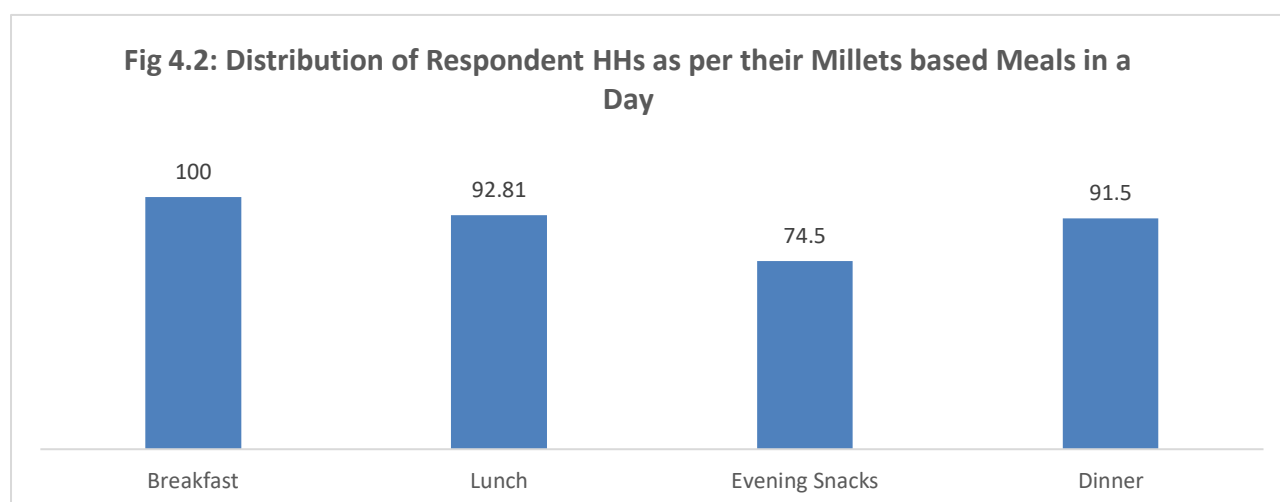


Table 4.4 presents the distribution of sample households by meals-wise millets consumption across the two blocks of the district. It shows that in Bandhugaon block all of the sample households are consuming it during breakfast, while majority (97.26 per cent) of them consuming it during lunch, followed by dinner (95.89 per cent) and evening snacks (76.71 per cent). Similarly, in Narayanpatna block also all the sample households are consuming it during breakfast, while majority (88.75 per cent) of them consuming it during lunch, followed by dinner (87.5 per cent), and evening snacks (72.5 per cent).

Table 4.4: Distribution of HHs by their Millet Meals in a Day

Blocks	Meals in a Day							
	Breakfast		Lunch		Evening Snacks		Dinner	
	No	%	No	%	No	%	No	%
Bandhugaon	73	100	71	97.26	56	76.71	70	95.89
Narayanpatna	80	100	71	88.75	58	72.5	70	87.5
Total	153	100	142	92.81	114	74.50	140	91.50

Source: Baseline Survey 2022

4.6 Millet Recipes Consumed by the HHs

Figure 4.3 presents the distribution of sample households by different millets recipes they consumed. It shows that *Jau/Torani* and *Tampo/pitha* are the most popular millets recipe as all the sample households in the study area are consuming it. While majority (45.10 per cent) of them consume *Lassi/Sarbat*, followed by *Khiri* (33.99 per cent), *Idli/Upma* (9.15 per cent), *Cake/Mixture/Biscuit* (4.58 per cent), *Chhatua* and *Sweets* (each 0.65 per cent). About 16.99 per cent of them consume other millets recipes including *Nikmki*, *Bara*, *Pakoda* and *aloo chop*.

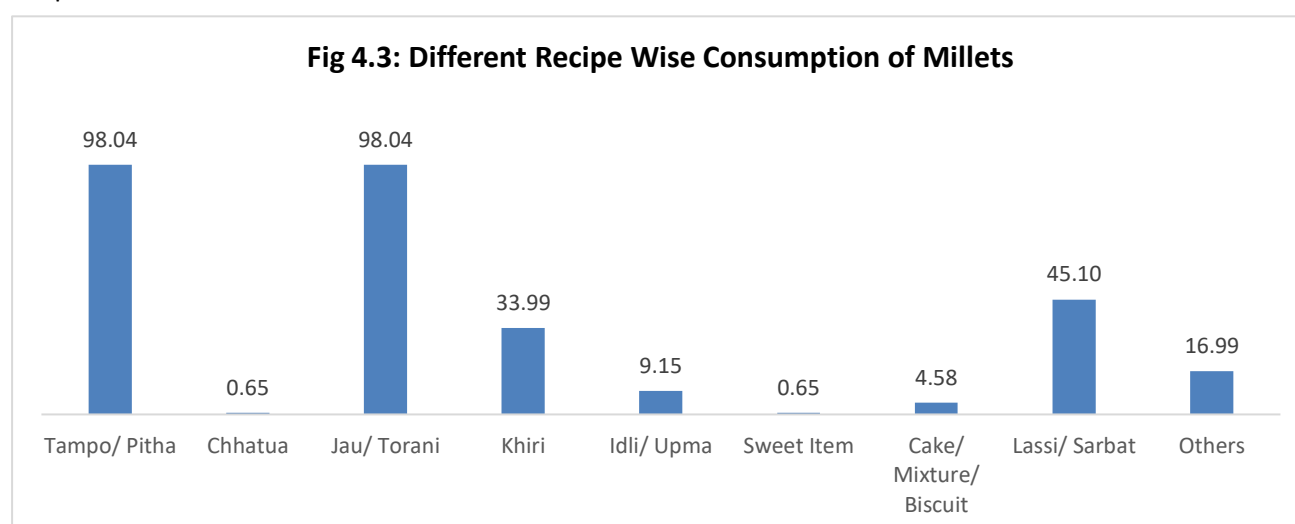
Fig 4.3: Different Recipe Wise Consumption of Millets

Table 4.5 presents the distribution of sample households by millets recipes they consume. It shows that in Bandhugaon block *Tampo/ Pitha* is the most popular millets recipe as all of them consume it, followed by *Jau/ Torani* (95.89 per cent), *Lassi/Sarbat* (53.42 per cent), *Khiri* (31.51 per cent), *cake/biscuit/mixture* (6.85 per cent), *Idli/ Upma* (2.74 per cent) while about 28.77 per cent of them consume other millets recipes including *Bara*, *Pakoda*, *Aloo Chop*, *Nimki*, and *Seo*. Similarly, in Narayanpatna block also *Jau/Torani* is the most popular millets recipe as all the sample households consume it, among the other popular millets recipe *Tampo/Pitha* (95 per cent), *Lassi/ Sarbat* (37.50 per cent), *Khiri* (36.25 per cent), *Idli/ Upma* (15 per cent), *Cake/ Biscuit/ Mixture* and *Chhatua* (each 2.50 per cent) while about 6.25 per cent of them consume other millets recipes including *Bara*, *Pakoda*, *Aloo Chop*, and *Seo*.

Table 4.5: Different Recipe Wise Consumption of Millets

Millet Recipes	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
<i>Tampo/ Pitha</i>	73	100	76	95	150	98.04
<i>Chhatua</i>	0	0.00	1	1.25	1	0.65
<i>Jau/ Torani</i>	70	95.89	80	100	150	98.04
<i>Khiri</i>	23	31.51	29	36.25	52	33.99
<i>Idli/ Upma</i>	2	2.74	12	15	14	9.15
Sweet Item	0	0.00	1	1.25	1	0.65
Cake/ Mixture/ Biscuit	5	6.85	2	2.5	7	4.58
Lassi/ Sarbat	39	53.42	30	37.5	69	45.10
Others	21	28.77	5	6.25	26	16.99

Source: Baseline Survey 2022

4.7 Conclusion

Findings of the Baseline study of Phase VI in the Bandhugaon and Narayanpatna block of Koraput district suggests that majority of households consume millets. Further it shows that most of them consume it during summer season while majority, followed by rainy and winter season. While the meals-wise millets consumption shows that all the households consume it during the breakfast, followed by Lunch, dinner, and evening snacks. Finally, *Jau/ Torani* and *Tampo/pitha* are the most popular millets recipe in the district as it is consumed by all the households.

Chapter V

PROCESSING AND MARKETING OF MILLETS

5.1 Introduction

The Baseline Survey 2022 Phase VI aimed at recording the processing and marketing practice followed by the sample households in Koraput district across the four selected blocks namely, Bandhugaon and Narayanpatna. This Chapter explores about the practices used by the sample households for the processing of their millets, both by traditional methods as well as using machines such as de-hulling, milling, roasting, and popping. It also examines the availability and accessibility of processing units in the locality, and the factors that influence the choice of processing methods. Furthermore, this chapter analyses the different modes of selling their millets, such as selling in Mandi, cooperatives, middlemen, and others. It also evaluates the accessibility to different selling point and their distance including mode of transportation of their millets during the marketing process. The main objective of this chapter is to assess the status of processing and marketing of millets in the sample area and to identify the challenges and opportunities for improving the value chain of millets.

5.2 Processing of Millets

Figure 5.1 presents the distribution of millets processing among sample households across two blocks of Koraput district. It shows that majority (70.42 per cent) of the millets cultivating sample households are processing it by using machine, about 20.42 per cent processing it through traditional methods, while about 9.15 per cent of them processing it by traditional methods as well as using machine.

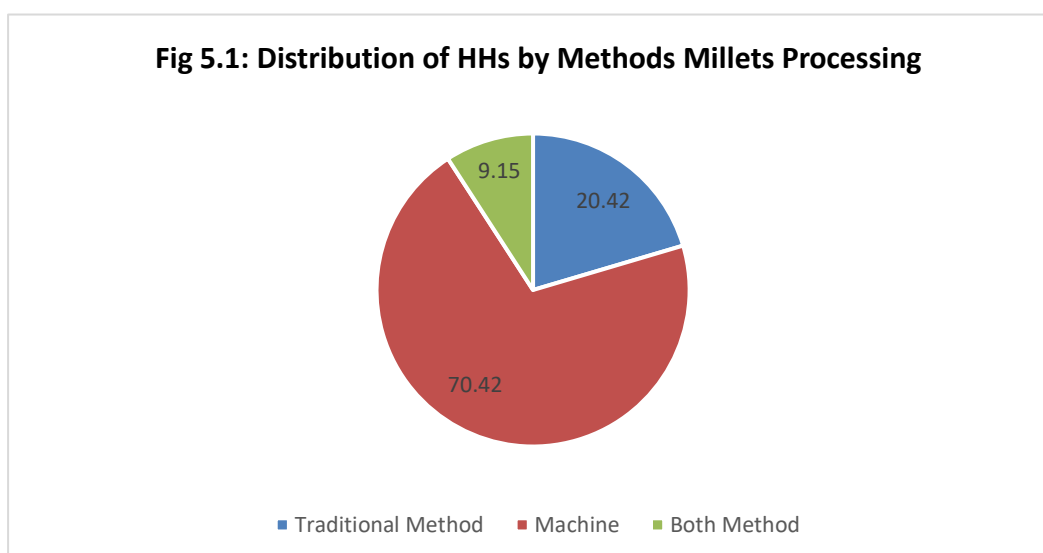


Table 5.1 presents the block-wise distribution millets processing sample households by their methods of millets processing. It shows that in Bandhugaon block majority (67.12 per cent) of them processing it by using machine, about 21.92 per cent of them processing through traditional methods while about 10.96 per cent processing it by using both traditional methods as well as using machine. Similarly, in Narayanpatna Block also majority (73.91 per cent) of them processing it using machine, while about 7.25 per cent of them processing it through both traditional methods as well as using machine and about 18.84 per cent of them processing through traditional methods.

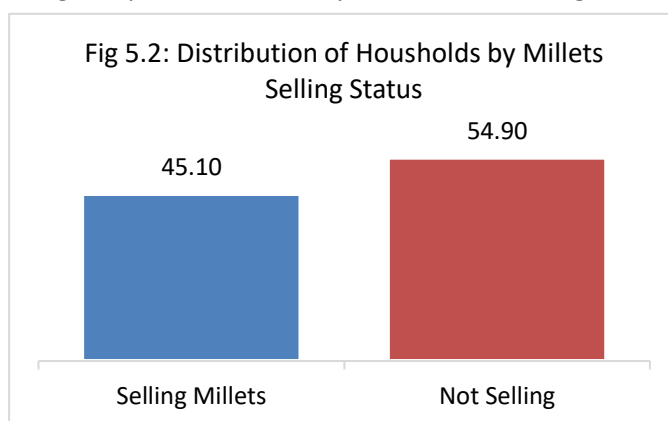
Table 5.1 Method of Millet Processing Units being Used by the HHs

Blocks	Traditional Method		Machine		Both		Total	
	No	%	No	%	No	%	No.	%
Bandhugaon	16	21.92	49	67.12	8	10.96	73	100
Narayanpatna	13	18.84	51	73.91	5	7.25	69	100
Total	29	20.42	100	70.42	13	9.15	142	100

Source: Baseline Survey, 2022

5.3 Marketing of Millets

Figure 5.2 presents the distribution of millets cultivating sample households by their millets selling status. It shows that majority (54.90 per cent) of them not selling the millets while only 45.10 per cent of them selling it. Table 5.2 presents the block-wise distribution of millets cultivating sample households by their millets selling status. It shows that in Bandhugaon block majority (58.90 per cent) of the millets cultivating sample households are not selling millets while only 41.10 per cent selling it. Similarly, in Narayanpatna block more than half (51.25 per cent) of the millets cultivating sample households are not selling it while about 48.75 per cent selling it.

**Table 5.2 Distribution of Household by Selling Millet Status**

Blocks	Millets Cultivating HHs	Selling Millets		Not Selling	
	N	N	%	N	%
Bandhugaon	73	30	41.10	43	58.90
Narayanpatna	80	39	48.75	41	51.25
Total	153	69	45.10	84	54.90

Source: Baseline Survey, 2022

5.4 Selling Points of Millets

Fig 5.3 presents the distribution of millets selling by the selling point they sell it. It shows that majority (39.13 per cent) of them are selling it to local businessman, followed by moneylender/ *Sahukar* (24.64 per cent), middlemen (20.29 per cent), *Haat*/ Daily market (10.14 per cent), while about 5.80 per cent are selling to other sources including FPO and NGOs.

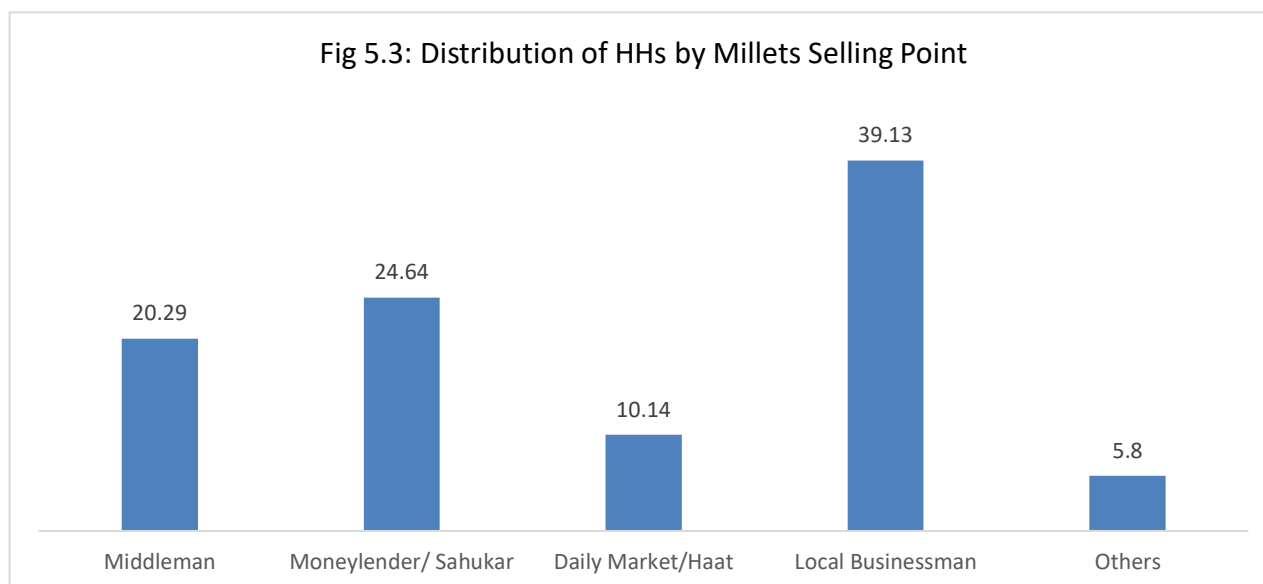


Table 5.3: Distribution of HHs by Millets Selling Points

Selling Points	Bandhugaon		Narayanpatna		Total	
	No	%	No	%	No	%
Middleman	7	24.14	7	17.5	14	20.29
Moneylender/ Sahukar	3	10.34	14	35	17	24.64
Daily Market/Haat	3	10.34	4	10	7	10.14
Local Businessman	12	41.38	15	37.5	27	39.13
Others	4	13.79	0	0	4	5.80
Total	29	42.029	40	57.97	69	100

Source: Baseline Survey, 2022

Here is the distribution of millets cultivating households by their millets selling points. It shows that in Bandhugaon block majority (41.38 per cent) of them selling to local businessman, followed by middleman (24.14 per cent), moneylender/Sahukar, and Haat/daily market (each 10.34 per cent), while about 13.79 per cent are selling it to other selling point including NGOs and FPOs. Similarly, in Narayanpatna block it is also observed that majority (39.13 per cent) of them selling it to local businessman, followed by the Moneylender/ *Sahukar* (24.64 per cent), Middleman (20.29 per cent) while in Haat/ daily market (10.14 per cent) and about 5.80 per cent are selling it to other selling point including NGOs and FPOs respectively.

5.5 Incidence of Distress Sale

Table 5.4 presents the distribution of millets selling sample households by their experience of distress sale of millets. It shows that majority (76.81 per cent) of them reported about that they experienced distress sale. In Bandhugaon block about 60 per cent of them experience distress sale. Similarly, in Narayanpatna block 89.74 per cent of them reported that they experienced distress sale.

Table 5.4: Distribution of HHs by Experience of Distress Sale of Millets						
<i>Blocks</i>	Yes		No		Total	
	No	%	No	%	No	%
Bandhugaon	18	60	12	40.00	30	43.48
Narayanpatna	35	89.74	4	13.33	39	56.52
Total	53	76.81	16	23.19	69	100

Source: Baseline Survey, 2022

5.6 Conclusion

The processing of millets among the sample household by shows that majority of them are using machine. About 45.10 per cent of the millets cultivating sample households are selling their millets. Most of the millets selling households sell their millets to local businessman. While majority of them reported that they experienced distress sale.

ANNEXURE: MAPPING OF BASELINE SURVEY DATA of Koraput Dist., 2022

<i>Indicators</i>	<i>Unit</i>	<i>Baseline Value</i>		
		<i>Bandhugaon</i>	<i>Narayanpatna</i>	<i>Total</i>
% of Sample households Cultivating Millets	%	91.25	100	95.63
Types of Millets Cultivated (2021)				
Mandia	%	100	100	100
Area under Millets/HH	Acre	121.95	121.15	243.10
% of millets area to total cultivated area	%	1.67	1.51	1.58
Production Millets HHs	Qtls.	1.05	1.62	1.35
Package of Practice				
Broadcasting	%	15.07	2.5	8.50
LS	%	27.40	12.5	19.61
LT	%	13.70	12.5	13.07
SMI	%	43.84	72.5	58.82
Yield Rate (Qtls. /Acre)	Qtls.	0.63	1.08	0.85
Percentage of HHs Consuming Millets	%	91.25	100	95.62
Breakfast (HHs)	%	100	100	100
Lunch (HHs)	%	97.26	88.75	92.81
Evening Snacks (HHs)	%	76.71	72.5	74.50
Dinner (HHs)	%	95.89	87.5	91.50
Popular Millets Recipes (% of HHs)				
Tampo/ Pitha	%	100	95	98.04
Jau/ Torani	%	95.89	100	98.04
Khiri	%	31.51	36.25	33.99
Idli/ Upma	%	2.74	15	9.15
Lassi/ Sarbat	%	53.42	37.50	45.10
Cake/ Mixture/ Biscuit	%	6.85	2.50	4.58
Sweet item	%	0	1.25	0.65
Others	%	28.77	6.25	16.99
Percentage of HHs Processing Ragi				
Traditionally	%	21.92	18.84	20.42
Machines	%	67.12	73.91	70.42
Both	%	10.96	7.25	9.15
Percentage of HH Selling Millets/Ragi				
Local Businessman	%	41.38	37.5	39.13
Middleman	%	24.14	17.5	20.29
Sahukar/Moneylenders	%	10.34	35	24.64
Others	%	13.79	0	5.80
Distress sale (% of Households)	%	60	89.74	76.81

Source: Baseline Survey 2022

Households Schedule for

Baseline Survey 2022-23, Phase VI 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.)
	Agriculture	Land Preparation	Transplantation/ Sowing	Weeding	Fertilizers/ Pesticides	Harvesting	Others	
1	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, please 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

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)

31. Do you sell millets?

1. Yes 2. No

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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