

BASELINE SURVEY: PHASE VII

NAYAGARH 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
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STUDY TEAM

Dr. Sandhya R. Mahapatro
Project Director, SAA

Dr Biswabas Patra
Associate Project Director, SAA

Research Associates
Dr. Kishor Kumar Podh
Dr. Sitakanta Sethy

Research Assistant
Mr. Ankit Moharana



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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 want to acknowledge the contributions of Research team (Research Associates, Project Associates, Research Assistants) 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 Nayagarh 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, SAA

EXECUTIVE SUMMARY

Nayagarh district is one of the seventeen 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 one block, namely Bhapur. Under the Baseline Study, in Bhapur Block out of total 579 program households, only 80 households were selected through multi-stage sampling method. The survey revealed that among the sample households, 73.75 percent belonged to Other Backward Class (OBC)/Socially and Educationally Backward Class (SEBC), 1.25 per cent belong to ST category. While 23.75 per cent belonged to Scheduled Caste (SC) and only 1.25 per cent belongs to others category. Out of the total population, 41.35 per cent are male and 58.65 per cent are female.

It is also found that out of the total sample households about 66.25 per cent are nuclear family and 33.75 per cent of them are joint family. Out of the total population, 68.59 per cent are married and 30.45 per cent are unmarried, and about one per cent is widow and widower. Around 75 per cent of the total sample population have completed up to class five followed by 15.06 per cent are illiterate and all sample households belong to Hindu religion. Out of total sample households, 93.75 per cent possess Ration Cards.

As observed in the Baseline Survey a significant portion of the population (40.38 per cent) is farmers, followed by the housewife (24.36 per cent). The share of wage laborers is 6.73 per cent, while business owners account for 0.32 per cent, no Government employees, private employees 3.53 per cent. In addition to that it is also found that students comprise 15.71 per cent, and 6.73 per cent working age group are unemployed. Out of the total sample population, 50 per cent HH's annual income is between Rs.40001/- to Rs.80000/- and 23.75 per cent HH's annual income is up to Rs.40000/-. In the same way, 63.75 per cent HHs have land between two acres to five acres followed by 33.75 per cent less than two acres. Out of the total 52.5 per cent have Semi-Pucca houses, 41.25 per cent have Pucca houses, and 6.25 per cent have Kutcha houses.

It is found that all the 95 per cent households have cultivated paddy but none of the sample HHs have cultivated millets, and 37.5 per cent HHs have cultivated other vegetables. Out of the total sample population, 43.15 per cent HHs found cultivation millets is not profitable and 42.5 per cent HHs reported that millet seeds are not available. Even if the sample population are not cultivating millets, but as found 46.25 per cent HHs consume millets in different seasons and at different meals of the day with an average household consumption of 12.97 Kg. Out of the total sample population, 27.24 per cent adults consume millets whereas among the young it is about one per cent. As observed, consumption of millets is 46.25 per cent in the summer season, 46.25 per cent consume millets only in their breakfast. *Jau/Torani* is the most popular recipe among the surveyed households and *Tampo/Pitha comes next*. As there is no production, there is no processing and marketing of millets during Kharif 2023.

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ABBREVIATIONS

APL	: Above Poverty Line
BPL	: Below Poverty Line
CBO	: Community Based Organisation
CRP	: Community Resource Person
FGD	: Focused Group Discussion
FPO	: Farmer Producers Organization
Ha	: Hectare
HHs	: Households
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 Prices
NAL	: Non-Agricultural Labour
NCDS	: Nabakrushna Choudhury Centre for Development Studies
NSSO	: National Sample Survey Organization
OBC	: Other Backward Classes
SAA	: Shree Anna Abhiyan
PDS	: Public Distribution System
PVT	: Participatory Variety Trial
Qtls.	: Quintals
SC	: Scheduled Caste
SMI	: System of Millet 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 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 belonging 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 birdfeed. Millets have multiple advantages over other crops, including drought and pest resistance. It's also able to survive in harsh environment sandless 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 and different stakeholders. 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 organizational structure was initiated by the Government of Odisha in 2017-18 emphasizing 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 Millets Mission program tried to revive these nutrient-rich millets in the agricultural landscapes, which were fading away in many parts of Odisha prior to its launching 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 VII began in 17 districts, including Nayagarh district, and this baseline study aims to provide information on the program's dimensions in the district. The profile of the Nayagarh district is presented below.

1.2 District Profile

Nayagarh is a new district carved out of Puri in 1993. Puri was divided into Puri, Khurda and Nayagarh. The Nayagarh District lies between 20° 5'to 20° 10'N latitude and 85° 5'to 85° 10'E longitude. It is bounded by districts of Angul and Cuttack in northwest Kandhamal in West, Ganjam in South and Khurda in the East having a geographical cover area of 4,242sq.km (3,94,110 ha). There are eight Community Development Blocks in the district with its Headquarter at Nayagarh town. The Population of the district as per 2001 Census is 864,000 which is 2.35 per cent of the total population of the state. The male and female population of the district is 446,000 and 418,000 respectively. The density of the population is 222 per Sq. Km. Major portion of the district is covered with hilly terrain and high land dense forest. The district is well known for its fertile soil and agricultural productivity. A large variety of crops are grown here including Paddy, Groundnut, Sugarcane, Oilseeds, Ragi, Green gram and Black gram. Because of the agro-climatic condition suitable to grow millets, Nayagarh has been included as a Program district.

Figure 1.1: Map of Nayagarh District with Blocks



Table1.1: Socio-Economic and Demographic Features of Nayagarh District

Indicator Census 2011	Values
Population	9,62,789
Male	5,02,636
Female	4,60,153
Scheduled Caste	1,36,399
Scheduled Tribe	58,691
HHs	227927
Sex Ratio	915
Total Workers	3,43,633
Main Workers	2,29,076
Marginal Workers	1,14,557
Non-Workers	6,19,156
Work Participation Rate (WPR, %)	NA
Cultivator as % of Total Worker	83,022
Agricultural Laborers as % of Total Workers	1,20,129
Literacy rate (%)	80.42
Total Geographical area(sq.km)	4242
Land Use Pattern (Area in '000ha) (2014-15)	
Forest	38341
Land put to Non-agricultural use	25,000
Barren and Non-Cultivable Land	6,000
Permanent Pasture and Other Agricultural Land	4,000
Net Area Shown	980/1,310
Cultivable Waste Land	5,000
Current Fellows	13,000
Miscellaneous Trees and Groves	6,000
Agriculture, 2014-2015	
Fertilizer Consumption (Kg/ Ha)	26.21
Irrigation, Kharif ('000ha)	260.02
Irrigation, Rabi ('000ha)	550.38
Other Information	
No. of Village Electrified (as of March 2014)	1,702
No. of GPs	194
No. of Banks	19

Source: District Statistical Handbook, Nayagarh, 2011 and District at a Glance 2016

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:

- a. To assess the socio-economic condition of the HHs.
- b. To outline millet production, productivity, and package of practices.
- c. To examine the consumption pattern of millets and
- d. 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, Nayagarh 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, one block namely Bhapur has been selected purposively. In the third stage, two GPs from the block have been randomly selected, and in the last stage, 20 HHs from each four villages have been randomly selected. There for the total number of 80 HHs from 4 villages, two GPs and one block have been randomly selected from this study. The details have been presented in the following Table 1.2.

Table 1.2: Sample Households under Baseline Survey, 2023 - Nayagarh District (Bhapur Block)		
Total Programme Households (N)	Sample HHs Covered under the Survey (N)	%
579	80	13.81

Source: Programme Secretariat and Baseline Survey 2023

1.4.2 Data Collection, Compilation and Analysis

A total of four villages were selected from one block, where two Gram Panchayats from the block were selected for data collection in the Nayagarh district for the Baseline Survey of 2023, Phase VII. These villages were selected using the simple random sampling method based on the list provided by the implementing agency about the prospective villages to be included under Phase VII. Two Gram Panchayats were randomly selected from the block, and two villages were selected from each of these two Panchayats.

This baseline survey report is based on both the 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 the Bhapur block of the Nayagarh 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, due to logistical reasons and other difficulties, such as the non-availability of respondents, the study was limited to a random sample of 80 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 has been divided into six Chapters including the current introductory Chapter, which provides District Profile, Objectives, Methodology and Limitations. Chapter II provides Socio-economic Profile of the surveyed HHs. Chapter III provides details on Production and Productivity of Millets. Chapter IV discusses Consumption Pattern of Millets. Chapter V annotates on Processing and Marketing of Millets.

CHAPTER II

SOCIO-ECONOMIC PROFILE

2.1 Introduction

This chapter investigates social and demographic profile of sample HHs. It discusses in detail about the distribution of social group, religion, and gender etc. In addition, it discusses the economic status of households, their occupational distribution, annual income etc., as well as their house structure. It also provides information about the distribution of households by their landownership and operational holdings.

2.2 Social and Demographic Profile

Under the Baseline Survey 2023, Phase VII in Nayagarh district, 04 villages were selected for conducting the primary survey (for sampling and methodology see Section 1.4.1) in the one block of Nayagarh District. This section discussed the social composition of the surveyed households', their economic activities, poverty status and housing structures.

2.3 Social Composition

The analysis of social composition of sample households under the Baseline Survey 2023, Phase VII in Nayagarh district shows that out of the total 80 households, with a significant majority of them, i.e., about 73.75 per cent households belong to Other Backward Class/Socio-Economically Backward Class (OBC/SEBC), while both STs and SCs constitute about only 1.25 per cent each while the share of households belong to Others category constitute about 23.75 per cent of total sample households Table 2.1.

Table 2.1 Distribution of Sample HHs by their Social Group		
Block: Bhapur		
Category	N	%
Scheduled Caste	19	23.75
Scheduled Tribe	1	1.25
OBC/SEBC	59	73.75
Others	1	1.25
Total	80	100

Source: Baseline Survey 2023

2.4 Distribution of Sample Population by their Sex

The Baseline survey data reveals that out of total 312 populations from 80 sample households, around 41 per cent of them are male and 59 per cent of them are found to be female population as shown in (Fig. 2.1 and Table 2.2). Thereby, the share of female population is higher than male in the Bhapur block of Nayagarh district.

Fig.2.1: Sample Population by their Sex

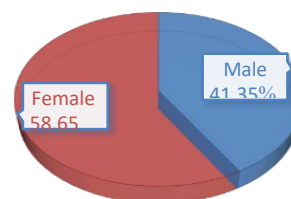


Table 2.2: Distribution of Sample HHs by their Sex across the Bhapur Block

Sex	N	%
Male	129	41.35
Female	183	58.65
Total	312	100

Source: Baseline Survey 2023

2.5 Type of Family

Table 2.3 shows the type of family of the surveyed households over the two blocks. It is found that majority of the household are nuclear family constituting more than 66.25 per cent households whereas joint family is found only 33.75 per cent in the block. No other family type such as extended, or others family is found in the surveyed households.

Table 2.3: Type of Family among the Sample HHs in Bhapur Block

Family Type	N	%
Nuclear	53	66.25
Joint	27	33.75

Source: Baseline Survey 2023

2.6 Marital Status

As per the findings of the Baseline Survey, the marital status of the total population of the sample households in the Bhapur block. Out of the total 312 populations from 80 HHs, it is observed that 68.59 per cent population is married and 30.45 per cent are unmarried in the block. It is also found that there are almost one per cent population is widow and widower as shown in table 2.4

Table 2.4: Marital Status among the Sample Population

Block: Bhapur		
Social Category	N	%
Married	214	68.59
Unmarried	95	30.45
Widow	2	0.64
Widower	1	0.32
Total	312	100

Source: Baseline Survey 2023

2.7 Distribution of Sample Population by their Age Group

Given the age range of the population, age by year has been categorized into seven groups namely, Infant, Pre-school Children, Adolescent, Adults, Middle Age, and old age. Based on these seven categories, it is found that out of the total 312 populations in the block, majority of the population falls in the adult group ranging from 19 years to 44 years. Adult population makes the per cent out of the total population 46. Second majority group makes middle age ranging 45 years to 59 years of age. Around 30 per cent population falls in this middle age group. Old age group defined those are 60 and above years of age. In this group, around nine per cent population are there in the block. Children and Adolescent group of population constitutes around 12 per cent. Both Infant and Preschool children make around three per cent out the total population shown in the Table 2.5.

Table 2.5 Distribution of the Sample Population by their Age Group		
Age Groups	N	%
Infant (0-2 year)	6	1.92
Preschool (3-5 year)	2	0.64
Children (6-12 year)	9	2.88
Adolescent (13-18 year)	31	9.94
Adults (19-44 year)	145	46.47
Middle Age (45-59 Years)	91	29.17
Old (60 and above)	28	8.97
Total	312	100

Source: Baseline Survey 2023

2.8 Religion of the Sample HHs

As found, the distribution of the sample population by their religion in Bhapur block reveals that 100 per cent belongs to Hindu religion. No other religion found in the block, among the sample HHs

2.9 Educational Qualification

In Table 2.6 the educational qualification of population of the sample households, there are 312 populations from 80 households in the block. It is observed that majority of the population representing 75 per cent have completed their education up to the class 5 followed by 15 per cent population illiterate. Only six per cent population has completed class 6 to class 10. Out of the total population only three per cent have completed higher education.

Table 2.6: Distribution of Sample Population by their Education in Bhapur Block		
Category	N	%
Illiterate	47	15.06
Up to Class 5	234	75.00
Class 6-10	19	6.09
Higher Secondary	8	2.56
Graduation	4	1.28
Post-Graduate	0	0.00
Technical	0	0.00
Professional/Management	0	0.00
Any other	0	0.00
Total	312	100

Source: Baseline Survey 2023

2.10 Possession of Ration Card

Table 2.7 shows out 80 sample households, very significant majority of households, i.e., about 93.75 per cent of the total sample households possess ration card, about 3.75 per cent of them possess Antodaya Card. Out of the total households, 2.5 per cent households do not have any type of ration card. As shared, all samples HHs (having the Card) are utilizing the Card for taking rations including Millets whenever it is distributed by the Department.

Table 2.7: Surveyed Sample HHs by their Ration Card		
Block: Bhapur		
Card Type	N	%
Ration Card	75	93.75
Antodaya Card	3	3.75
Other	0	0
No Ration Card	2	2.5
Total	80	100

Source: Baseline Survey, 2023

2.11 Occupation among the Sample HHs

Fig. 2.2 and Table 2.8 represent the occupation of the sample HHs in the Bhapur block. It shows that out of the total population of 312 populations, 40.38 per cent are farmers, followed by housewife 24.36 per cent. While only 6.73 per cent worked as a daily laborer, and nobody is engaged in government sector, only 0.32 per cent engaged in business sectors, private employees were 3.53 per cent. Others category represents 1.28 per cent.

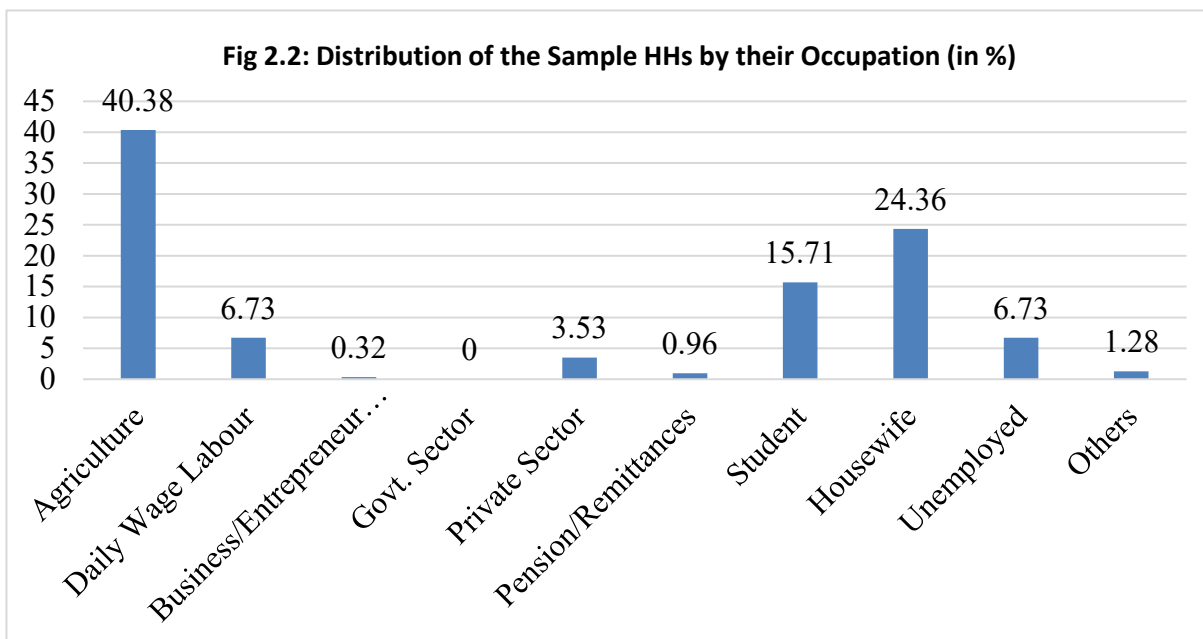


Table 2.8: Distribution of the Sample HHs by their Occupation in Bhapur Block		
Occupations	N	%
Agriculture	126	40.38
Daily Wage Labour	21	6.73
Business/ Entrepreneurship	1	0.32
Govt. Sector	0	0
Private Sector	11	3.53
Pension/ Remittances	3	0.96
Student	49	15.71
Housewife	76	24.36
Unemployed	21	6.73
Others	4	1.28
Total	312	100

Source: Baseline Survey 2023

2.12 Annual Income of Households

Annual income is the earnings of a household received in a year. To understand and analyze the annual income of households, six groups of annual income with an interval of Rs.40000/- has been categorized as depicted in Table 2.9. Majority of the households e.g., 50 per cent of the sample households out of the total 80 HHs falls in the range of Rs.40001/- to Rs.80000/-. Second majority of income group falls in Up to Rs.40000/- groups, and between Rs.80001/- to Rs.120000/-. In these two groups, 24 per cent households of the total HHs come in this group respectively. Only two per cent households belong to the income group of Rs.200000/-

Table 2.9: Distribution of the Sample HHs by their Annual Income (in Rs.)		
Block: Bhapur		
Category	N	%
Up to Rs.40000/-	19	23.75
Rs.40001/- to Rs.80000/-	40	50
Rs.80001/- to Rs.120000/-	19	23.75
Rs.120001/- to Rs.160000/-	0	0
Rs.160001/- to Rs.200000/-	0	0
Above Rs.200000/-	2	2.5
Total	80	100

Source: Baseline Survey 2023

2.13 Type of House among the Sample HHs

The type of the house often considered as an important indicator of the social and economic status of the family. Data collected under the Baseline Survey 2023, Phase VII shows that out of 80 sample HHs in the block in Nayagarh district, majority of HHs i.e., 52.50 per cent population have reported that they have Semi-Pucca houses followed by 41.25 per cent population have Pucca house and rest 6.25 per cent population have Kutcha house (Table 2.10).

Table 2.10: Distribution of Household by their Type of House		
Type of House	N	%
Kutcha	5	6.25
Semi-Pucca	42	52.50
Pucca	33	41.25
Total	80	100

Source: Baseline Survey 2023

2.14 Land Holding Pattern among the Sample HHs

Table 2.11 describes the landholding pattern of the sample households in the Bhapur block. It reveals that majority of the sample households are small and marginal farmers. About 63.75 per cent out of the total sample households possess land between two acres to five acres of land; about 33.75 percent of them possess land less than two acres of land. The rest 2.5 per cent possess between 5 to 10 acres of land in the block

Table 2.11: Land Ownership among the Sample HHs		
Category	N	%
HHs having no land	0	0
Less than 2 Acres	27	33.75
2 Acres to 5 Acres	51	63.75
5 Acres to 10 Acres	2	2.5
More than 10 Acres	0	0
Total	80	100

2.15 Conclusion

This chapter discussed different aspects of socio-economic condition of sample households in the Bhapur block of Nayagarh district. Majority of the sample households in the block belong to Other Backward Classes followed by Schedule Castes and Scheduled Tribes. While all the households are Hindu. Sex ratio of the population among the sample household is better than the State Ratio and 69 per cent of the total population are married. Almost all the families are nuclear in both the blocks. Majority of the population (46 per cent) falls in the age group of adults followed by Middle age. Majority of the population have completed class up to Class 5. In Odisha, agriculture is the primary occupation of most of the people. Most of the households have Pucca and semi Pucca house, and annual income of the surveyed households falls between Rs.40000/- to Rs.80000/- indicating their poor economic condition. Though every household does have land but majority of the HHs possesses between two acres to five acres of land which signal they all are small and marginal farmers.

CHAPTER III

PRODUCTION OF MILLETS

3.1 Introduction

Baseline Survey, 2023 was conducted to assess millets production in the sample villages before the implementation of the programme interventions. This chapter analyses the data collected from the Bhapur block of Nayagarh district. 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 sample villages. The chapter also highlights the challenges and opportunities for promoting millets in the district. To do so, it is found that no production of millets was found in the block. Only paddy has been cultivated along with some varieties of vegetables and other crops.

3.2 Operational Land Holding and Crops among the Sample HHs

Table 3.1 represents that each and every household cultivates different crops except millets in the block. Among the crops, paddy was the predominant crop cultivated by almost every household (95 per cent). About 37.5 per cent out of the total 80 households cultivate different types of vegetables (fig 3.1). Some of the households cultivate some other crops like lemon cultivation, Cashew etc. This constitutes second majority crops in the block. About 43.75 per cent households are cultivating these crops.

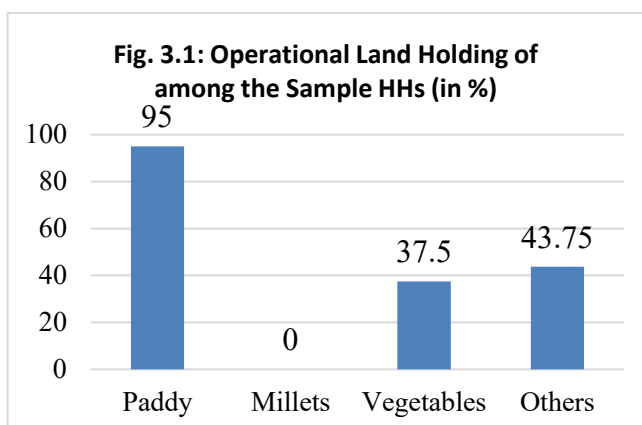


Table 3.1: Distribution of Sample HHs by their Crops		
Block: Bhapur		
Crops	N	%
Paddy	76	95
Millets	0	0
Vegetables	30	37.5
Others	35	43.75

Source: Baseline survey 2023

3.3 Area, Production and Yield

The distribution of operational area under millets and other crops in the Bhapur block of Nayagarh district reveals that major portion of the operational area in the district is under paddy cultivation. Out of the total 214.35 acres of operational areas, about 71.08 % land is under paddy cultivation, and

the next majority cropping area is under others crops like lemon, cashew etc., followed by different vegetables such as Brinjal, Spinach, Ladies finger, etc., representing 14.74 per cent and 14.18 per cent respectively (as shown in Table 3.2). In the earlier section, it was found not a single HHs is cultivating millets, so no area under cultivation of millets is found in this block.

Table 3.2: Operational Land Holding (Av.) under Different Crops (in Acre)		
Crops	Area (in Acres)	%
Paddy	152.35	71.08
Millets	0	0.00
Vegetables	30.4	14.18
Others	31.6	14.74
Total	214.35	100

Source: Baseline survey 2023

3.4 Reasons for Not Cultivating of Millets

Reasons for not cultivating of millets could be multitudes. In the sample block, under this Baseline Survey 2023, the sample 80 HHs has reported many reasons too. Out of the 80 HHs, 43.15 per cent have reported that they are not cultivating millets because of millets cultivation no longer remains profitable. About 14.38 per cent households have reported that because of shortage of land, they are not cultivating millets. Another major reason is the unavailability of millets seeds that lead to hampering of millets cultivation. As observed in the Baseline Survey, about 42.5 per cent of the sample HHs reported non availability of seed for another reason (Table 3.3)

Table 3.3 Reasons for not cultivating of millets										
Block	Not Profitable		Shortage of Land		Non availability of seed		Lack of irrigation		Others (specify)	
	N	%	N	%	N	%	N	%	N	%
Bhapur	63	43.15	21	14.38	62	42.5	0	0	0	0

Source: Baseline Survey 2023

3.5 Conclusion

Agriculture continues to be the mainstay of economy in the study area of Nayagarh. The sample households reported that they used to cultivate millets before two-three decades, and it was an integral part of their farming system as well as their food basket. However, presently all the sample households study area is cultivating paddy, some of them cultivating vegetables and other crops as well while none of the sample households are cultivating millets. Owing to different reasons such as

non-availability of millets seeds, low demand, and supply of millets, encouraging paddy cultivation, and millets production have disappeared from food basket. Nevertheless, Nayagarh district is a potential district for millets cultivation as all the sample farmers reported that they are interested to cultivate millets under the Shree Anna Abhiyan programme.

CHAPTER IV

CONSUMPTION OF MILLETS

4.1 Introduction

Demand for any product arises due to consumption. Hence, consumption plays a vital role in production and marketing. The Baseline Survey 2023 was conducted to assess the trend and patterns of millets consumption in the target villages before implementing the programme in the Bhapur block of Nayagarh district. The main objective of this chapter is to analyze trends and patterns of millets consumption among the sample households in the Bhapur block of the district. The chapter also explores the types of millet varieties, recipes and dishes that are consumed by the sample households and how they prepare them. By doing so, the chapter aims to provide a comprehensive picture about the patterns of millets consumption and preferences among the sample households in Nayagarh district, which is one of the focus areas of SAA.

4.2 Millets Consumption among the Sample HHs

Table 4.1 shows the distribution of HHs by their millets consumption status. In the earlier section, it was found that there is no production of millets in the Bhapur block of Nayagarh. In the ground of consumption of millets, it is found that only 46.25 per cent HHs consumed millets sourcing from markets or other places and 53.75 per cent HHs don't consume millets. However, the average household consumption is 12.97 Kg per household.

Table 4.1: Distribution of Sample HHs by their Consumption of Millets						
BLOCK	<i>consumed</i>		<i>Did not consumed</i>		<i>Total</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
BHAPUR	37	46.25	43	53.25	80	100

Source: Baseline Survey, 2023

4.3 Sample Population by their Millets Consumption

The patterns of millets consumption in the Bhapur block of Nayagarh district is presented in the Table 4.2. It analyses the distribution of sample population by their millets consumption in the block. Out of the total 312 populations, 50.32 per cent population consumes millets. Table 4.2 shows that the rate of millets consumption is about one per cent among the younger population those are less than 12 years. Adults population within the age group of 19-44 year of old consumed millets more than any other group of population. Out of the total 312 populations, 27.24 percent adult population consume millets followed by middle-aged people 15.38. Consumption of millets among old age is seen comparatively low i.e., 1.6 per cent whereas consumption of millets among adolescent is 4.81 per cent.

Table 4.2: Millets Consumption by the Sample Population

<i>Age Group</i>	<i>Total Population</i>	<i>No. of Population Consumed Millets</i>	<i>% Population Consumed Millets</i>
Infant (0-2 year)	6	1	0.32
Preschool (3-5 year)	2	0	0.00
Children (6-12year)	9	3	0.96
Adolescent (13-18 year)	31	15	4.81
Adults (19-44 year)	145	85	27.24
Middle Age (45-59 years)	91	48	15.38
Old (60 and above)	28	5	1.60
Grand Total	312	157	50.32

Source: Baseline Survey, 2023

4.4 Consumption of Millets by the Sample Population in different meals

From the field survey data it demonstrates the pattern of millets consumption in a day. Out of the total sample households, only 46.25 per cent of them consume millets only during their breakfast.

4.5 Millets Consumption by the Sample Population across Seasons

Table 4.4 shows that the consumption of millets across seasons in Bhapur block, only in summer season people in the block consume millets. Not a single HH is found to be consuming millets during either in rainy or winter season. To be specific, out of the total 80HHs (46.25 per cent) shared that consume millets during only summer season. During the summer, total 4.8 quintal millets is consumed by the sample HHs and the average millets consumption per household during this season is 12.97 Kg. It was also revealed that all millets consuming HHs purchased it from the local market.

Table 4.3: Millet Consumption across Seasons by the Sample HHs (in Quantity)

Block	Total Sample HHs	Summer			Average (in Kg/HHs)
		N	%	Quantity Consumed (in kg)	
Bhapur	80	37	46.25	480	12.97
Total	80	37	46.25	480	12.97

Source: Baseline Survey 2023

4.6 Consumption of Millets Recipes by the Sample Population

From the baseline study, it is found that people were consuming millets in several ways in the form of *Pitha*, *Khiri*, *Jau*, *Lassi* and so on. Table 4.5 shows that 16.25 per cent HHs consumed millets as

Tampo/Pitha. Out of the total HHs, 46.25 HHs consumed millets in form of Jau/Torani. Consumption of millets in no other forms (Table 4.5).

Table 4.4: Consumption of Millets by the Sample Population in different Recipes		
Block: Bhapur		
<i>Millets Items</i>	<i>N</i>	<i>%</i>
Pitha/Tampo	13	16.25
Chhatua	0	0
Jau/Torani	37	46.25
Khiri	0	0
Idli/ Upma	0	0
Sweets Items	0	0
Other Items	0	0

Source: Baseline Survey, 2023

4.7 Conclusion

The baseline survey of Phase VII describes about the pattern of millets consumption among the sample households across the two GPs of Bhapur block in the district shows that they consume millets only in summer season. Most of the respondents, except for infants and preschool children, reported that they are consuming it. Out of the total population of sample about 46.25 per cent of them consuming millets during breakfast While Jau/Torani are the most popular millet recipe across the two GPs of Bhapur block, followed by Tampo/Pitha. The lower rate of millet consumption among infants may be due to the dietary restrictions/ preferences for new-born or young children.

CHAPTER V

PROCESSING AND MARKETING OF MILLETS

5.1 Introduction

Baseline Survey, 2023 aimed at recording the processing and marketing practice by the sample households in Nayagarh districts in the Bhapur block. This chapter intended to explore the various practices of processing of millets, such as dehulling, milling, roasting, and popping and to understand the availability and accessibility of processing units in the sample area, and the factors that influence the choice of processing methods.

In this regard, in the Baseline Survey an attempt has been made to explore information from the sample households on both processing and marketing of millets. However, in the survey as there is no production in the sample Block and among the sample households no data was found on the thematic area of processing and marketing of millets.

5.2. Processing of Millets

Millets grains have a thin husk and small stone particles that need to be removed before consumption. This is a difficult and tedious task that requires a lot of manual labour. This process takes a lot of time and energy, which could be used for other productive activities. Therefore, millet processing units are essential for improving the efficiency and quality of millet production. However, most of the sample HHs are cultivating paddy and vegetables and none of them are cultivating millets. Hence, they do not need further processing. Therefore, the information about gender aspect family members engaged in processing, methods of millets processing, and accessibility to processing units is not present.

5.3 Marketing of Millets

Like other crops, millets can provide income and livelihood support for farming households. This section analyses the modes and marketing practices followed by the millet farming households. However, in the surveyed area, none of the sample households are cultivating millets. Therefore, information about marketing of millets in the study area is not present here.

5.4 Conclusion

Although none of the sample households cultivating millets some of them consuming it. Where all the millets consuming households purchased processed millets from the market. Therefore, there they do not need further process of millets at home. Similarly, as none of sample households are cultivating millets, and do not selling it.

Annexure 1: Mapping of Baseline Survey, 2023 Data of Nayagarh District

Indicators	Unit	Bhapur Block
% of Sample Households Cultivating Millets	%	0
Types of Millets Cultivated (2023)		
a) Mandia		0
Avg. Area under Millets/HH(Acre)	Acre	0
Millets/Ragi Production per HHs	Qtls.	0
% of Millets area to Total Cultivated Area	%	0
Package of Practice	%	0
a) Broadcasting	%	0
b) LS	%	0
c) LT	%	0
d) SMI		0
Yield Rate (Qnt./Acre)	Qtls.	
% of HHs Consuming Millets	%	46.25
a) Breakfast	%	46.25
b) Lunch	%	0
c) Evening Snacks	%	0
d) Dinner	%	0
Popular Millets Recipes(%HHs)		
a) Tampo/Pitha	%	16.25
b) Jau/Torani	%	46.25
c) Khiri	%	0
d) Idli/ Upma	%	0
% of HHs Processing Ragi		
a) Manually	%	0
b) Machines	%	0
c) Both	%	0
% of HH Selling Millets		
a) Middleman	%	0
b) Mandi	%	0
c) Haat	%	0
d) Moneylender/Sahukar	%	0
e) Sahukar	%	0
Distress Sale (% of HHs)	%	0

Source: Baseline Survey, 2023



Households Schedule for
Baseline Survey 2023-24, 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.)
	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

8. 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

9. 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

10. Whether you follow mixed farming or mono farming system?
If mixed, with which are the crops(s)?

1. Mixed 2. Mono

11. 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)

12. Had your seed or grain got damaged during last year?

1. Yes 2. No

13. Have you done weeding for the millets cultivation?

1. Yes 2. No

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

- 1) Manually _____ 2) By Weeder _____ 3) Both _____

15. If By Weeder, Sources of weeder?

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

16. 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)

17. How many years have you not cultivated Millets ?

18. Do you like to cultivate Millets under this programme?

1. Yes 2. No

Part-III: Consumption of Millets

19. Do 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)												

20. 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							

21. 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)								

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

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

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

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

25. 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)

26. 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

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

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

i). Nos. of Male members _____. ii). Nos. of Female members _____

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

30. If traditionally, please elaborate the methods of processing.

31. 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)

32. Do you sell millets?

1. Yes 2. No

33. Types of Millets, you Sell and Quantity

34. Any instance of distress sale (less than the market price) of Millets?

1.Yes 2.No

35. If yes, what is the sale price.....and what is the market price.....

36. What are the marketing processes followed by you?

a) Barter

b) Money

c)

Others (specify)

37. Do you sell any millet based value-added products?

1.Yes 2.No

38. If yes, provide the details about the Millet Based Value Added Products you sale.

39. Remarks

Contact no of Respondent

Signature of the Researcher/Field Investigator

CONTRIBUTORS

Dr Sanghamitra Panda

Dr Rajadarshini Patra

Mrs. Linus Lakra

Md. Sahidul Islam

Ms. M. Sandhyarani Dora

Ms. Subhashree Lenka

Mr. KajalPradhan

Ms Sumitra Rani Pradhan

Mr. Prasanta Kumar Sahu

Ms. Swayamprajna Pattanaik

Ms. Pusapanjali Lenka

Mr. Hemanta Mahananda

Mr. Sukant Kumar Pradhan

Ms. Madhusmita Choudhury

Mrs. Gayatri Nayak

Mr. Smruti Ranjan Sahoo



ନବକୃଷ୍ଣ ଚୌଧୁରୀ ଉନ୍ନୟନ ଗବେଷଣା କେନ୍ଦ୍ର
Nabakrushna Choudhury Centre for Development Studies
ICSSR Institute in Collaboration with Government of Odisha

