BASELINE SURVEY: PHASE VII

CUTTACK 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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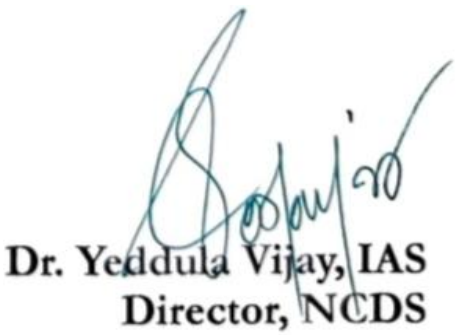
FOREWORD

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

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

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



Dr. Yeddula Vijay, IAS
Director, NCDS

ACKNOWLEDGEMENT

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

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

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

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

My sincere gratitude goes out to the Chief District Agricultural Officer (CDAO) of Cuttack 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

Cuttack district is one of the 17 districts where the 'Special Programme for the Promotion of Millets in Tribal Areas of Odisha or (hereafter) Shree Anna Abhiyan (SAA)', Phase VII has begun in the Kharif 2022 in three blocks (Badamba, Narsinghpur and Tigiria of the district. In each sample Block, two GPs are selected with total 80 samples HHs for the survey. Under the programme, total 1694 HHs are identified, out of which, about 14.17 per cent (total 240 households, 80 HHs per block) were selected through multi-stage sampling and conducted the Baseline Survey 2023. As the survey data reveals, among the sample households, 70 per cent belonged OBC/SEBC, while the SC and others social categories constitute 15 per cent each. Across the three blocks, there are 240 samples HH with a population of 1011, out of which 57.07 per cent are male and 42.93 per cent are female and all belonging to Hindu religion.

As far as possession of Ration Card is concerned, it is revealed that among the sample HHs only 98.33 per cent got the Ration Cards. Majority (34.12 per cent) of them are engaged in agriculture while daily Wage Labourer constitute about 5.54 per cent, jobs in Private 4.65 per cent, Government 0.49 per cent. In addition to that about 0.79 per cent is Business owner, 2.37 per cent are pensioner and 2.67 per cent of them are engaged in other occupations, while only 3.86 per cent being in the working age groups are found to be Unemployed. Further, around a quarter of them (25.44 per cent) are Students, 16.96 per cent of them are Housewives, and another 1.46 per cent of them are pensioner.

Most (50.83 per cent) of the sample households owns land between 2 to 5 acres of land, followed by 42.92 per cent own less than two acres of land, only 4.58 per cent of them owns land between 5 to 10 acres, and about 0.83 per cent of them own more than 10 acres of land while rest of the 0.83 per cent of them are does not own any land. Majority (46.67 per cent) of the sample households, are earning between Rs.40001/- to Rs.80000/- rupees annually, followed by 33.75 per cent are earning between Rs.80001/- to Rs.120000/- rupees, 11.25 per cent of them are earning up to Rs.40000/- rupees, and 5.83 per cent of them earning between Rs.120001/- to Rs.1,60,000/- rupees. Further, about 1.67 per cent of them are earning between Rs.160000/- to Rs.200000/- rupees while only of them are 0.83 cent of them is earning more than two lakhs' rupees per year. Majority (40 per cent) of them have Semi-*Pucca* houses, 38.75 per cent of them have *Pucca* houses while about 21.25 per cent of them have *Kutcha* houses.

The distribution of land types used for millet cultivation across three selected blocks, revealing that millet is grown exclusively during the kharif season, with finger millet (Mandia) being cultivated by 39.17% of the sample households over a total area of 53.98 acres. In Badamba block, the majority of millet cultivation (94.25%) takes place on upper land (33.25 acres), with only 6.49% on slope land (2.29 acres). Similarly, in Narsinghpur block, 88.13% (14.1 acres) is upper land and 11.88% (1.9 acres) is slope land. In Tigiria block, 92.6% (2.5 acres) of the cultivated area is upper land, while 7.4% (0.2 acres) is slope land. The data indicates that upper land is predominantly used for millet cultivation across all three blocks. The average yield of millets in Cuttack district is 1.65 quintal/acre; whereas, it is 1.58 Qntl/acre in Badamba, 1.68 Qntl/acre in Narsinghpur and 2.44 Qntl/acre in Tigiria blocks of Cuttack district.

Out of the total sample households about 39.17 per cent are cultivating millets across the three sample blocks of the district. Among the millets cultivating households, a majority (73.86 per cent) of them following LT methods, followed by Broadcasting (25 per cent) and LS method (1.14 per cent). Non-availability of seeds reported as one of the main reasons for which they are not cultivating millets, as about 75 per cent of them are reported it, while about 37.50 per cent of them reported that they do not cultivate it due to shortage of land for millets cultivation (multiple responses). Among the reasons for not cultivating millets, majority (81.51 per cent) of sample households not cultivating millets because they are not aware about it, about 10.27 per cent of them reported that it is not profitable while 8.22 per cent of them not cultivating it due to shortage of land for millets cultivation.

Out of the total sample households about 55.42 per cent of them consume millets. Majority (55.42 per cent) of the sample households are consuming millets. While the consumption of millets found to be higher during the summer season than rainy (85.72 per cent) and winter season (30.83 per cent). Among the millets consuming households, the rate of millets consumption of is higher during the summer season than rainy (36.09) and winter season. The rate of millets consumption is higher (38 per cent) during the breakfast, followed by evening snacks (23.33 per cent), lunch (12 per cent) and dinner (1.5 per cent).

Pitha/Tampo and Jau/Torani are the most popular millets recipe consumed by most (60.15 per cent) of the millet consuming households consume it, followed by Chhatua (21.05 per cent), Khiri (12.78 per cent), Idli/ Upma (4.51 per cent) and Sweets (1.50 per cent). Majority of the millets producing households (50.2 per cent) process their millets through traditional methods, followed by 12.62 per cent process it using machines and 41.38 per cent process it through both traditional methods as well as machines. Among the millet producing sample households about 71.28 per cent of them are selling their millets while all of them sell it to Middleman/ local Businessman.

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ABBREVIATIONS

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
Households	: 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 Class
SAA	: Shree Anna Abhiyan
PDS	: Public Distribution System
SC	: Scheduled Castes
SMI	: System of Millet Intensification
SP	: Sale Price
ST	: Schedule 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 small, round; cereal grain belongs to the Poaceae family, commonly known as the grass family. It is considered an ancient grain, used both for human consumption and livestock and bird feed. Millets have multiple advantages over other crops, including drought and pest resistance. It's also able to survive in harsh environments and less fertile soil. These benefits stem from its genetic composition and physical structure — for example, its small size and hardness. This crop is also divided into two categories — major and minor millets, with major millets being the most popular or commonly cultivated varieties. Major millets include Pearl, Foxtail, Proso (or White), Finger (or Ragi); Minor millets include Kodo, Barnyard, Little Millet, Guinea, Brown top, Fonio, Adlay (or Jobs Tears). Like most cereals, millet is a starchy grain — meaning that it's rich in carbs. Notably, it also packs several vitamins and minerals. Therefore, it may offer multiple health benefits.

The United Nations designating 2023 as the International Year of Millets, it gets further attentions of general public including the farmers. In the Indian state of Odisha, millets have always been an integral part of the traditional diet and have been cultivated for centuries, primarily among the tribal population. However, during last couple of decades, the popularity of millets has declined due to the increasing adoption of modern food habits and the promotion of high-yielding crops like rice and wheat. This shift has led to a decline in soil fertility and an increased vulnerability to climate change. To address these challenges, the Government of Odisha has launched several initiatives to promote the cultivation of millets, including "The Special Programme for Promotion of Millets in Odisha (also known as Shree Anna Abhiyan, SAA) with a novel organisational structure was initiated by the Government of Odisha in 2017-18 emphasising production, consumption, processing, and marketing of millets. The program aims to increase production, consumption, processing, and marketing of millets in tribal areas, where they have been a staple food for generations. In this context, it is crucial to understand the significance of millets cultivation in Odisha and its potential to promote sustainable agriculture and improve food security. In Odisha *Mandia*/ Ragi, i.e., finger millets constitute a significant share (about 95 per cent) of total millets cultivation and production in the state.

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

1.2 District Profile

Cuttack district is one of the oldest in Odisha, holds historical significance as both a pivotal city and the district headquarters, lending its name to the entire region. The term 'KATAK' is etymologically rooted in the meaning 'army cantonment and capital city,' reflecting its origin as a military cantonment that evolved into the state's capital. The city's history, documented in inscriptions of Ananga Bhimadev III, traces its roots to the original city called 'Abhinab–Baranasi–Cuttack' Situated between the Mahanadi and Kathajodi rivers, Cuttack developed from five villages into a flourishing city. Historically, it served as a well-connected hub, linked by land routes and waterways to medieval ports like Chelitalo, Palur, and Tarmalipti. Although not politically significant before the 8th century A.D., Cuttack gained prominence as the capital during the 10th century under the Somavansi dynasty. The construction of the Barabati Fort in 1229 A.D. marked a crucial historical milestone.

Under Maratha rule, Cuttack thrived as a trade and commerce hub, facilitating exchanges between Marathas and English merchants. British occupation in 1803 led to significant developments, including the establishment of infrastructure and the introduction of railways in the late 19th century. Cuttack played a key role in education, with the founding of Ravenshaw College in 1841, evolving into Ravenshaw University in 2006. The district has seen progress in medical education, municipal governance, and media, with the establishment of the Odisha Medical School, Cuttack Municipality in 1874 and Utkal Dipika, the first Odia newspaper, in 1866. During the freedom struggle, Cuttack witnessed national activities and served as a Gandhian centre at Swaraj Ashram. The district, with its administrative and commercial significance, housed the Commissioner of Odisha until 1936 and became the headquarters of the newly formed province in that year. The ancient maritime heritage of Odia people is celebrated through the Balijatra in Cuttack, revealing the district's rich trade history with Java, Bali, and Sumatra.

Cuttack, known for its filigree work, 'Kataki Sarees,' and as the birthplace of Netaji Subhas Chandra Bose, continues to be a cultural and historical bridge linking the past, present, and future of Odisha. Despite the State Government's selection of Bhubaneswar as the capital in 1948, Cuttack remains an enduring symbol of the region's history and heritage, ranking among the oldest cities in India with a legacy spanning over a thousand years.

1.2.1 Geography and Topography

The district encompasses an expansive area of 3,932 sq. km, situated at approximately 20.4625°N latitude and 85.8830°E longitude. The annual precipitation averages around 1,440 mm, with the

majority occurring during the south-west monsoon period from June to September. Throughout the year, the temperature remains moderate, except during the summer season (March to mid-June), when the average maximum temperature peaks at 41 °C. Conversely, the average minimum temperature in the district is 10°C.

Geographically, the district is divided into two distinctive regions. The Sadar subdivision predominantly comprises the alluvial delta formed by the River Mahanadi and its distributaries. The delta, extending about 60–75 kilometres from the coast, features flat terrain intersected by numerous active and abandoned channels of the Mahanadi system. Isolated hillocks near Cuttack are the sole interruption in the plain landscape. During the monsoon, the land often becomes waterlogged, prompting the use of an intricate system of canals, embankments, and weirs for flood control and irrigation. Paddy cultivation prevails throughout the year, and villages, situated on artificial high ground, are surrounded by clusters of banyan, mango, and other large trees. Most villages boast tanks known as *Pokharis* that cater to their freshwater requirements.

On the other hand, the Athagada and Banki subdivisions consist of broken hill country on either side of the Mahanadi River. These hills, generally of low elevation with a rounded appearance, reach a maximum height of around 2500 feet along the border with Hindol. Fertile, narrow valleys formed by riverine action are sporadically present, particularly near the Khurda district. Small streams flow down these hills to join the Mahanadi. While substantial forested areas remain in the Dampada and Narsinghpur blocks, Athagada, Tigiria, and Badamba blocks are primarily dedicated to agriculture. The subdivisions are underlain by a thick layer of sandstone, with occasional laterite stone outcrops visible in many locations.

1.2.2 Economy

Cuttack district, nestled along the banks of the Mahanadi River, sustains its economy predominantly through agriculture. Over 76 per cent of the population directly or indirectly derives their livelihood from this agrarian pursuit. Paddy stands as a crucial subsistence crop, holding a prominent position in the district's cereal production. The district boasts significant cultivation of groundnut, pulses, horticultural crops (especially vegetables), and various cereals such as wheat, maize, green gram, black gram, and Kulthi. Paddy production, along with commercial crops like jute and sugarcane, has witnessed substantial growth. Rice dominates the kharif season, while pulses and oilseeds thrive in the Rabi season. Prawn culture has emerged as a noteworthy contributor to Cuttack's economic landscape, particularly in brackish water prawn culture.

Cuttack, an ancient industrial hub of Odisha, plays a pivotal role in the district's economic composition. The industrial sector comprises 12,547 micro and small-scale industries, 15 large/medium-scale industries, with more in the process of installation. The medium-scale engineering industry forms the nucleus of Cuttack's industrial economy, leveraging the proximity to economically vital minerals for its operations.

Further, the district boasts a rich legacy of handicraft and cottage industries among its diverse economic sectors. Renowned for its exquisite silver filigree works, the district also showcases expertise in horn works, Patta Chitra, Dokra Casting, Terra Cotta, Wood Carving, Art Leather, and

Brass/Bell Metal works. Substantial revenue is generated through the export of these finely crafted handicraft products. The presence of numerous handicraft cooperatives and training institutes further contributes to the vibrancy of the handicraft industry.

Cuttack city's silver filigree work attracts visitors from both near and far. Wood carving is predominantly practiced in Cuttack town and the Salipur Block. Banki-Dampada and Jilinda, Narsinghpur are known for their cane and bamboo work, while Banki excels in terracotta, and Nischintakoili and Salipur Blocks are renowned for Jute craft. Dhokra casting finds its expertise in Baramba Narsinghpur, Brass and Bell Metal craftsmanship thrives in Bhatimunda of Tangi Choudhary, stone carving is the specialty of Mahanta, and Barangay is known for art leather. Azhagar stands out for Pattachitra work, and the Palm leaf products of Cuttack Sadar Block are celebrated. Cuttack Town witnesses' artisans engaging in Jarmal and horn works, adding to the rich artistic tapestry of the region.

Alongside the flourishing handicraft and cottage industries, the district is home to several large and medium-scale industries. Notable entities include Indian Metals and Ferro Alloys (IMFA), Pradeep Oxygen, and Odisha Magnetics. Micro and small industries, spanning chemical, textile, leather, and various other categories, contribute significantly to the economic landscape. The establishment of industrial estates has been pivotal in fostering industrial growth in the district. Moreover, several upcoming enterprises, including Odisha Cement Ltd, Tata Power, Visa Power, Natacha Power, and Arati Steel, further underscore the district's commitment to industrial expansion.

1.2.3 People and Culture

As per the 2011 census, Cuttack district in Odisha has a population of 2,624,470, roughly equivalent to Kuwait or the U.S. state of Nevada. It holds the 156th rank in India among a total of 640 districts. The population is distributed across 579,170 families, with approximately 10per cent comprising children below the age of 10. The district exhibits a population density of 667 inhabitants per square kilometres. Over the decade from 2001 to 2011, Cuttack experienced a population growth rate of 11.86 per cent. The sex ratio in Cuttack is 940 females for every 1000 males, and the literacy rate stands at 84.2 per cent, surpassing the national average. Urban areas house 28.05 per cent of the population, while Scheduled Castes and Scheduled Tribes make up 19 per cent and 3.57 per cent, respectively. The child sex ratio is slightly lower than the district's overall average.

Out of the total sample population, Hindu religion constitutes the overwhelming majority, with more than 93.65 per cent; Scheduled Caste account for 19 per cent, while Scheduled Tribes make up around 3 per cent. Odia Muslims, forming about 5.38 per cent of the population, are mainly concentrated in Cuttack city and in other areas. A unique feature is their use of Odia Hindustani as their mother tongue, and they predominantly follow the Sunni Hanafi School. Additionally, small communities of Shia, such as Bohra and Ismaili from Gujarat, and Ahmadiyya are present in various areas.

Christians make up about 0.46 per cent of the population, primarily descendants of converts from Hinduism, concentrated in Cuttack city and neighbouring villages. The community includes Roman Catholics and Church of North India adherents, contributing significantly to the educational sector. A

small community of Mahayana Buddhists, numbering around 6,000, survives in Badamba and Tigiria blocks, continuing a legacy that once dominated Odisha for nearly a millennium. Sikhs and Jains, mainly traders, are also found in Cuttack city, maintaining strong connections with their communities across India.

Regarding language, 91.36 per cent of the population speaks Odia, while Urdu, Hindi, Bengali, and Telugu constitute the other major languages. Odia is the predominant language, with the Cuttack dialect being considered the standard form, widely used in various domains such as newspapers, education, cinema, and literature. Odia Hindustani is the language of the Odia Muslims, demonstrating influences from both Odia and standard Hindi/Urdu. Standard Hindi is spoken by recent migrants from North India to Cuttack city, and small communities of Bengali and Telugu speakers, dating back to the late 19th Century, exist with significant Odia influences in their languages.

1.2.4 Administration

Cuttack town serves as the administrative headquarters of the district, encompassing three sub-divisions, i.e., Azhagar, Banki and Cuttack. It has 14 blocks across these three sub-divisions, viz. Azhagar, Badamba, Narasinghpur and Tigiria blocks comes under Azhagar sub-division, Banki and Dampada blocks under Banki subdivision, while Barangay, Cuttack Sadar, Kant pada, Mahanta, Nilai, Nischintakoili, Salepur and Tangi-Choudhary blocks under Cuttack subdivision. Similarly, there are15 tahsils, namely Azhagar, Badamba, Banki, Barangay, Cuttack Sadar, Dampada, Kant pada, Kishannagar, Mahanta, Narasinghpur, Nilai, Nischintakoili, Salepur, Tangi-Choudhary, and Tigiria. Further, there are 1952 villages in Jagatsinghpur district, which fall under 373 Gram Panchayats, one Municipal Corporation (Cuttack), one Municipality (Choudhary), two NACs (Azhagar and Banki) and 38 Police Stations. It has nine Assembly Constituencies (Vidhan Sabha), viz. Azhagar, Badamba, Banki, Barabati-Cuttack, Choudhary-Cuttack, Nilai, Cuttack Sadar, Mahanta and Salepur. While it has one Parliamentary Constituency (Lok Sabha), most part of the Cuttack district comes under it, with the exception of Nilai which is a part of Jagatsinghpur (Lok Sabha constituency) along with Salepur and Mahanta which form a part of Kendrapara Lok Sabha constituency.

Table 1.1: Socio-Economic and Demographic Features of Cuttack District	
Indicators	**Value**
Population (in Lakh.) (as per Census 2011)	26.24
Male (in Lakh.)	13.52
Female (in Lakh.)	12.71
Scheduled Castes (in Lakh.)	4.89
Scheduled Tribes (in Lakh.)	2.54
Total Households (in Lakh.)	5.77
Average HH Size (in Nos.)	4.5
Sex Ratio (per 000 Male)	940
Total Worker (in Lakh)	9.36
Main (in Lakh)	6.96
Marginal (in Lakh)	2.40
Non-Worker (in Lakh)	16.88
Work Participation Rate (WPR in %)	64.32
Literacy Rate (in %)	85.50
Land Use Pattern 2018-19 (Area in '000 Hectares)	
Total Geographical Area	393
Forest	79
Land Put to Non-Agricultural Use	83
Barren and Non-Cultivatable Land	10
Permanent Pasture and Other Agricultural Land	11
Net Area Sown	106
Cultivable Waste Land	10
Other Fallow	1
Current Fallows	82
Misc. Trees and Groves	1
Agriculture 2018-19*	
Average Fertilizer Consumption per ha (in kg/ha)	77.24
Total Production of Major Crops (In '000 MT)	265.77
Total Ragi Production (in '000 MT)	0.04
Irrigation Potential Created – 2017-18* (Area in '000 Hectares)	
Kharif	201.792
Rabi	111.263
Other Information	
No. of Village Electrified (as on 31.03.21)	3318
No. of Banks (as on 31.03.21)	40
No. of AWC (2021)	318
No. of PDS Centres (2011)	958
No. of Job Card Issued (since inception in Lakh)	2.05
No. of Person days provided employment through MGNREGA 2019-20 (in Lakh)	21.12
Sources: 1. Cuttack District Census Handbook. *2. Odisha Agricultural Statistics, Directorate of Agriculture and Farmers' Welfare, Government of Odisha, Bhubaneswar*	

1.3 Objectives

The Baseline Survey 2023 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 a whole as well as it will be useful for evaluation of the programme in the future. The objectives are as follows:

- To assess the socio-economic condition of the Households;
- 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 8 districts of the state in Phase I during 2017-18 however, later it has expanded to all 30 districts in different phases. Under Phase VII 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 34 blocks across 17 districts of the state including Badamba, Narsinghpur and Tigiria blocks of Cuttack district.

From the list provided by the SAA Programme Secretariat, there were 1248 beneficiary/programme households across three Phase VII blocks: Badamba, Narsinghpur and Tigiria blocks of Cuttack district. For conducting the Baseline Survey 2023, Phase VII, multi-stage sampling methods has been followed.

In the first stage, three blocks, i.e., Badamba, Narasinghpur and Tigiriahave been purposively selected for the study as SAA is going to implement in the district during Phase VII. In the second stage, two GPs form each sampled blocks have been selected for the study in consultation with the respective facilitating agencies (FAs) and district level officials of the agriculture department two GPs were selected from each block for the study.

In the third stage, a total of 12 villages from the six 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, as a total of 240 households from four villages, six GPs from three blocks have been selected for the study as presented in the Table 1.2.

Table 1.2: Sample Households in Cuttack District			
Blocks	Programme Households (N)	Sample Households (N)	% of HHs covered under the Survey to Programme HH
Badamba	665	80	8.31
Narsinghpur	661	80	8.26
Tigiria	368	80	21.74
Total	1694	240	14.17

Source: Facilitating Agency and Field Survey, 2023

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, informal discussion was held with the key respondents, officials of both facilitating agencies including other village level officials in each sample village as well as block level officials 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 in-depth discussions 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 (Phase VII) focused solely on Badamba, Narsinghpur and Tigiria blocks in Cuttack district mainly to assess the situation of millets production, consumption, processing, and marketing. However, due to the onset of the ongoing agricultural activities during the survey, 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, necessary steps were

taken to overcome such challenges without compromising the quality of during data. However, it is important to acknowledge the limitations of the present study.

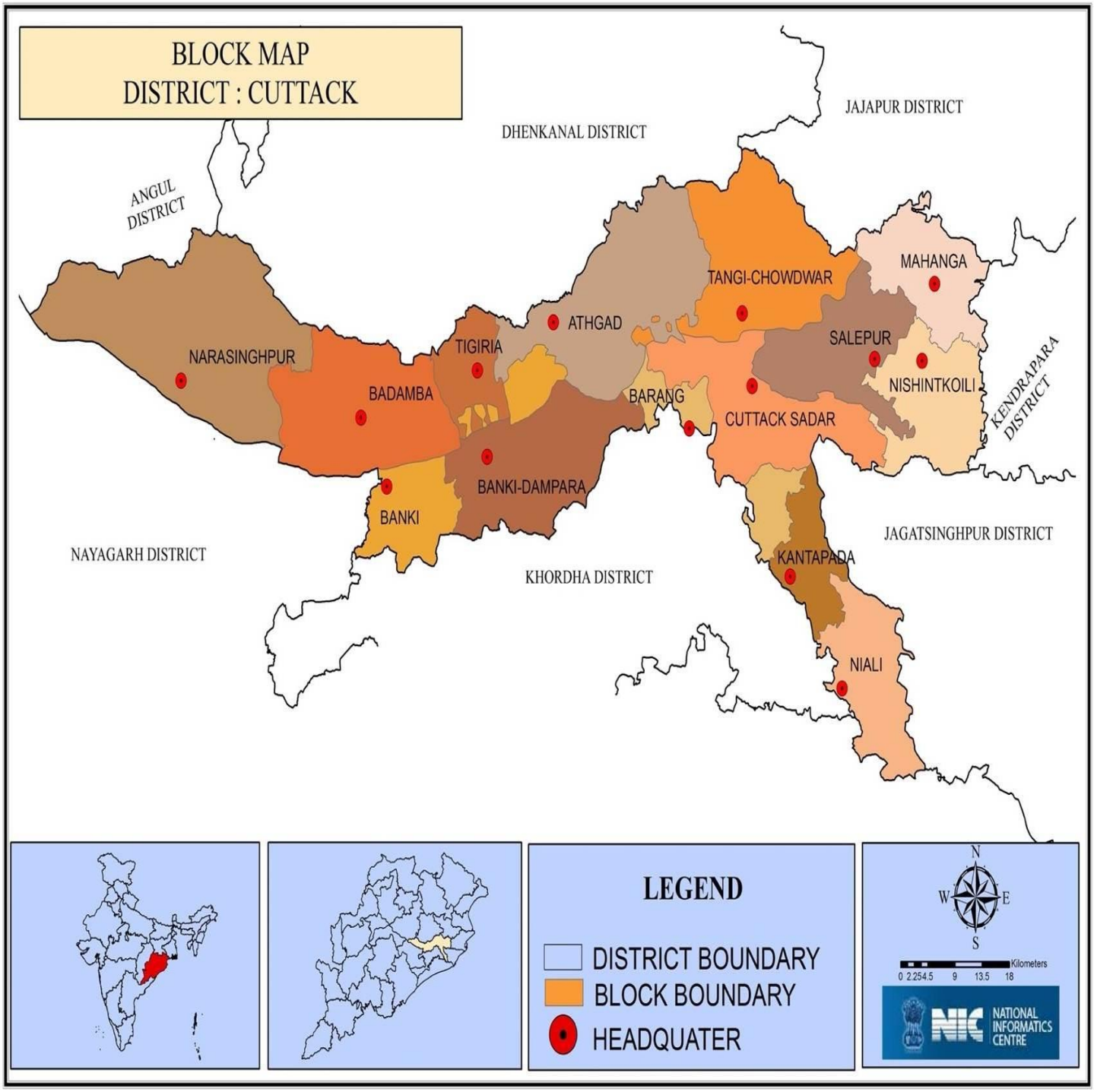
Firstly, due to logistical reasons and other difficulties, such as the non-availability of respondents, the study was limited to a random sample of 80 households. Secondly, there is the possibility of recall error, especially in cases involving the actual quantity of consumption and marketing, among 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

Baseline Survey Report 2023, Phase VII is divided into six chapters, including the current introductory Chapter 1, which provided a District Profile, Objectives, Methodology and Limitations. Chapter 2 provides the Socio-economic Profile of the Sample Households. Chapter 3 provides details on the Production and Productivity of millets. Chapter 4 discusses the Consumption pattern of Millets. Chapter 5 elucidates the Processing and Marketing of Millets.

Fig. 1.1: Map of Cuttack District



Source: https://tinyurl.com/yc82kfpz

CHAPTER II

SOCIO-ECONOMIC PROFILE

2.1 Introduction

This chapter looks into the social and demographic profile of households surveyed under the Baseline Survey 2023 Phase VII, which includes the distribution of sample households by their social categories, and the distribution of the population by gender as well as the distribution of population, by their education status in Badamba, Narsinghpur and Tigiria blocks of Cuttack district. Further it provides information about the religious composition of sample households across three blocks of the district. It also provides information regarding occupational distribution of population in the sample households. Additionally, it provides information about possession of ration card by the sample households and distribution households by their house structure.

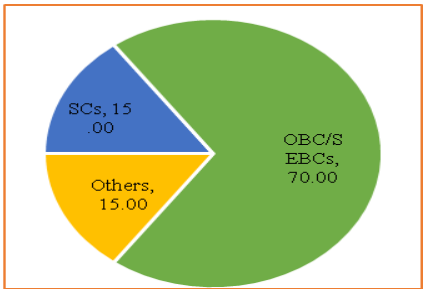
2.2 Social and Demographic Profile

Under the Baseline Survey 2023, Phase VII four selected GPs were surveyed in Badamba, Narsinghpur and Tigiria blocks of Cuttack district (for selection methodology, see section 1.4.1). This section discussed the social composition of the sample households, their economic activities, poverty status and housing structures.

2.3 Social Compositions

The analysis of surveyed data shows about the social composition of sample households under the Baseline Survey 2023, Phase VII in Cuttack district presented in the 2.1 and Table 2.1. It shows that out of total of 240 sample households, a significant majority of households, i.e., about 70 per cent them belongs to Other Backward Class (OBC)/ Socially and Educationally Backward Class (SEBC), about 15 per cent each of them belongs to Scheduled Castes (SCs), and other social groups.

Fig.2.1 Distribution of Sample HHs by their Social Category



Source: Field Survey 2023

The block-wise distribution of sample households reveals the numerical preponderance (78.75 per cent) of OBS/SEBCs in Badamba block, followed by Tigiria (66.25 per cent) and Narsinghpur (65 per cent) blocks. The share of households belongs to others social groups are higher (16.25 per cent) in Badamba block, followed by Tigiria (20 per cent) and Narsinghpur (8.75 per cent) blocks. While the share of SCs households is higher (13.75 per cent) in Tigiria block, followed by Badamba (5 per cent) and Narsinghpur (2.25 per cent) blocks.

Table 2.1: Distribution of Sample Households by their Social Category								
Blocks	SC		OBC/SEBC		Others		Total	
	N	%	N	%	N	%	N	%
Badamba	4	5.00	63	78.75	13	16.25	80	100
Narsinghpur	21	2.25	52	65.00	7	8.75	80	100
Tigiria	11	13.75	53	66.25	16	20	80	100
Total	36	15.00	168	70.00	36	15	240	100

Source: Field Survey, 2023

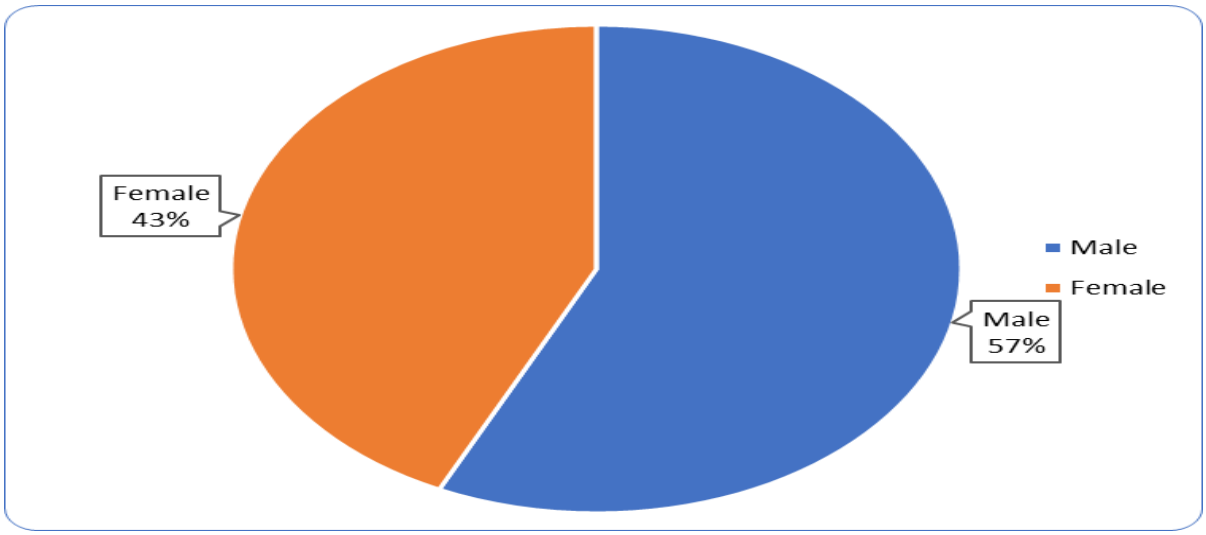
2.4 Distribution of Sample Population by their Gender

As revealed in the Baseline Survey (Table 2.2), the gender distribution of population across the sample households in the district. As observed in the Survey, Female constitute 42.93 per cent, whereas the male which is about 57. 70 per cent of the total sample population.

Table 2.2: Distribution of Sample Population by their Gender						
Blocks	Male		Female		Total	
	N	%	N	%	N	%
Badamba	203	65.08	159	43.92	362	100
Narsinghpur	180	58.63	127	41.37	307	100
Tigiria	194	56.73	148	43.27	342	100
Total	577	57.07	434	42.93	1011	100

Source: Field Survey, 2023

Fig. 2.2: Sample Population by their Gender



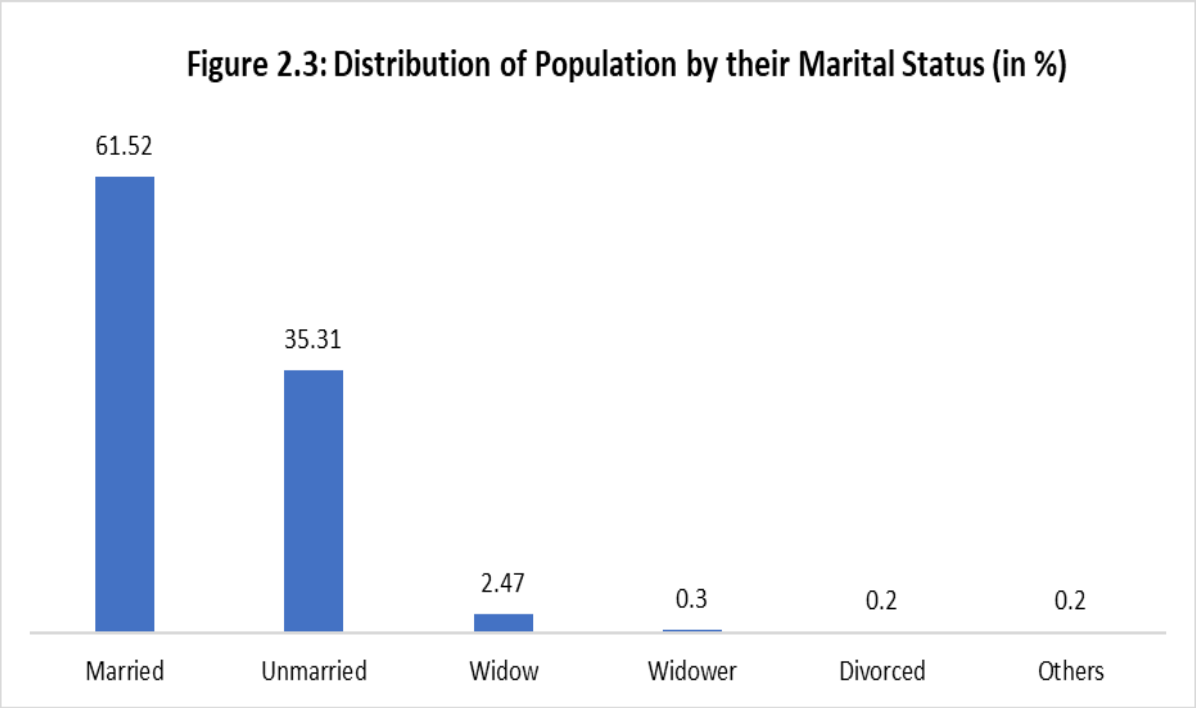
Source: Field Survey, 2023

Likewise, the block-wise distribution of population among the sample households shows similar picture in both blocks. The share of male and female population in Badamba block is 65.08 per cent and 43.92 per cent, respectively. Further, in Narsinghpur block the share of male and female is 58.63

per cent and 41.37 per cent. In Tigiria block, the share of male and female population is 56.73 per cent and 43.27 per cent.

2.5 Marital Status

As found in the Survey, (Fig. 2.3) the distribution of population across the sample households of SAA phase VII blocks of Cuttack district. It shows that majority 622 (61.52 per cent) of the population are married and about 357 (35.31 per cent) of them are unmarried which also includes younger population like children and students. Further the share of population belongs to widow, widower and divorced categories constitute about 25 (2.47 per cent), 3 (0.3 per cent), and 2 (0.2 per cent), respectively, while rest of the 2 (0.2 per cent) of them have other marital status, including single and separated and so on.



Source: Field Survey, 2023

The block-wise distribution of population among sample households shows that about half (49.50 per cent) of the population in Badamba blocks are unmarried followed by married population (46.88 per cent) and 3.62 per cent of them are widows. Similarly, out of the total population of the sample households in Narsinghpur block about 45.88 per cent are unmarried, and 42.54 per cent of them are married. While the share of widows, widowers, divorced and other category are 5.35 per cent, 0.89 per cent, 2.23 per cent and 3.12 per cent of them, respectively. Further, in Tigiria block more than half (52.30 per cent) of the total population among sample households are unmarried, followed by 39.52 per cent of them are married, about 6.59 per cent are widows, and rest of the 1.60 per cent of them are widowers.

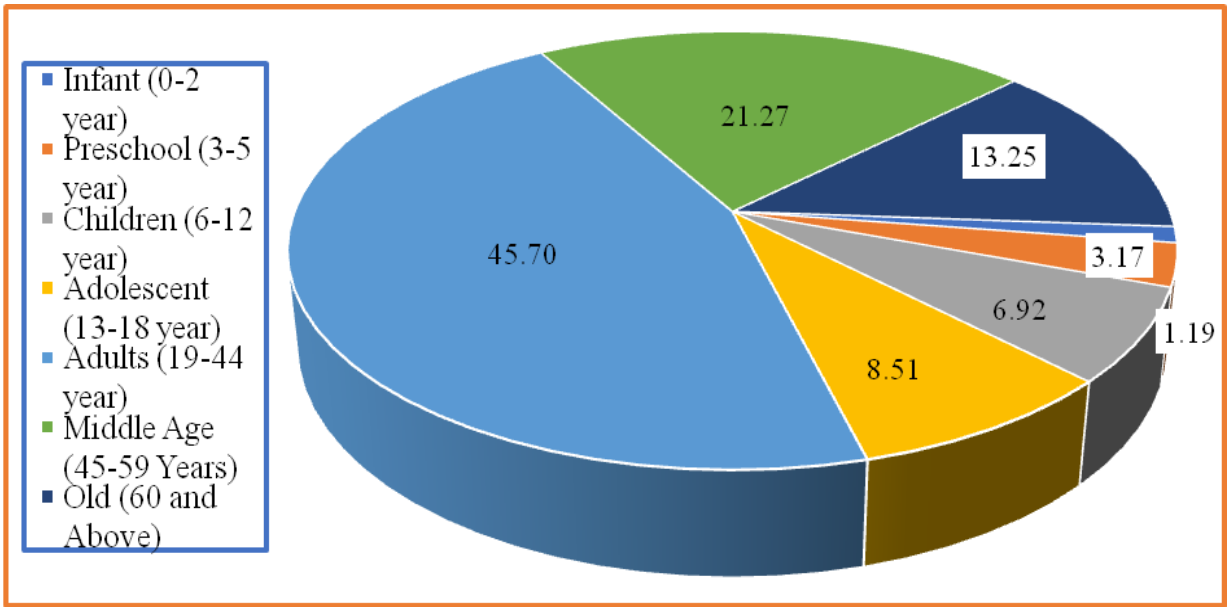
Table 2.3: Distribution of Sample Population by their Marital Status														
Blocks	Unmarried		Married		Widow		Widower		Divorced		Others		Total	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Badamba	123	49.50	233	46.88	18	3.62	0	0	0	0	0	0	362	35.8
Narsinghpur	103	45.88	191	42.54	24	5.35	4	0.89	10	0.2	2	0.65	307	30.4
Tigiria	131	52.30	198	39.52	33	6.59	8	1.60	0	0.00	0	0	342	33.8
Total	357	35.31	622	61.52	25	2.47	3	0.3	2	0.2	2	0.2	1011	100

Source: Field Survey, 2023

2.6 Sample Population by their Age Group across Blocks

Figure 2.4 and Table 2. present the distribution of population by age group among the sample households across the three blocks of Cuttack district. It reveals that, a significant majority 462 (45.70 per cent) of them are adult population between the age group of 19-44 which is also the working age group followed by about 21.27 per cent of them are middle-aged (45-59 years), while about 13.25 per cent of them are aged (above 60 years of age). Further, about 8.15 per cent of them are adolescents (13-18 years), 6.92 per cent of them are children between 6-12 years of age, about 3.17 per cent of them are preschool children between 3-5 years of age and only 1.19 per cent of them are infants.

Fig. 2.4: Distribution of Sample Population by their Age Group



Source: Field Survey 2023

The block-wise distribution of the population among the sample households is presented in the Table 2.4. It shows that in Tigiria block about a significant majority of population among the sample households are adults, followed by the middle aged (45-59 years) population with 21. 82 per cent, and about 14.36 per cent of the population are aged (above 60 years). Further, about 7.73 per cent of them are children between 6-12 years of age, again 7.18 per cent of them are adolescent, about 2.76 per cent of them are preschool children between 2-5 years of age while rest of the 1.10 per

cent of them are infants. Similarly, in Narsinghpur block, majority (41.67 per cent) of population of the sample households are adults followed by 22.80 per cent of them are middle aged groups, and 13.68 per cent of them are aged (above 60 years of age).

About 8.79 per cent of them are adolescent, 6.51 per cent are children between 6-12 years of age, 3.58 per cent of them are preschool children (2-5 years of age) and rest of the 1.95 per cent of them are infants. Likewise, in Tigiria block also majority (49.12 per cent) of them are adults (19-44 years of age), followed by middle aged (45-59 years of age) which constitute about 19.30 per cent, while the aged population is 11.70 per cent. Further, about 9.65 per cent of them are adolescent, 6.43 per cent are children between 6-12 years of age, about 3.22 per cent are preschool children (3-5 years) and rest of the 0.58 per cent of them are infants.

Table 2.4: Distribution of Sample Population by their Age Group

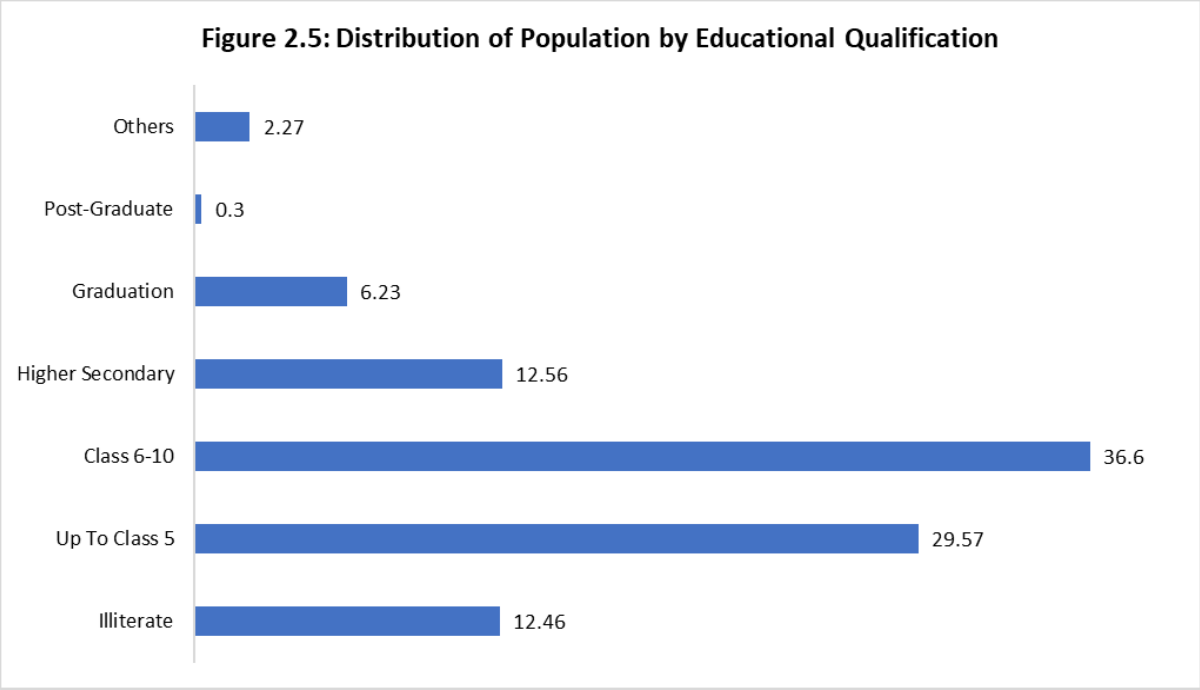
Age Group	Blocks						Total	
	Badamba		Narsinghpur		Tigiria			
	N	%	N	%	N	%	N	%
Infant (0-2 Year)	4	1.10	6	1.95	2	0.58	12	1.19
Preschool (3-5 Year)	10	2.76	11	3.58	11	3.22	32	3.17
Children (6-12 Year)	28	7.73	20	6.51	22	6.43	70	6.92
Adolescent (13-18 Year)	26	7.18	27	8.79	33	9.65	86	8.51
Adults (19-44 Year)	163	45.03	131	42.67	168	49.12	462	45.70
Middle Age (45-59 Years)	79	21.82	70	22.80	66	19.30	215	21.27
Old (60 Years & Above)	52	14.36	42	13.68	40	11.70	134	13.25
Total	362	100	307	100	342	100	1011	100

Source: Field Survey 2023

2.7 Educational Qualification of Population

Fig. 2.5 and Table 2.5 present the distribution of population among sample households by their educational qualification. It reveals that a significant 370 (36.6) percentage of them have educational qualification between class 6 to 10, followed by 299 (29.57 per cent) of them have up to class five level, and 127 (12.56 per cent) of share of Graduates them have up to higher secondary level of education. Further, the, and post-graduates, are 63 (6.23 per cent), 3 (0.30 per cent) of the total population among the sample households. Again, about 23 (2.27 per cent) of them possess other educational qualification, including nursing. While only 12.46 per cent of them are illiterate.

The block-wise distribution of population among the sample households by their educational status presented in Table 2.5. It shows that the share of illiterate population in Tigiria block is higher (13.16 per cent) than Badamba (11.60 per cent) and Narsinghpur block (10.10 per cent). In Tigiria block majority (38.12 per cent) of the population have education between class 6 to 10, followed by 35.08 per cent of them have up to class level of education, 9.39 per cent of them have higher secondary level of education, 4.70 per cent of them are graduates, only 0.28 per cent of them are post-graduates, while 0.83 per cent have other educational qualifications.



Source: Field Survey, 2023

Similarly, in Narsinghpur also majority (37.79) of the population among the sample households have educational qualification between class 6 to 10, followed by 28.66 per cent of them have educational qualification up to class five, 7.49 per cent are graduate and only 0.33 per cent are post-graduates. Further, about 1.95 per cent of them have technical degrees and about 3.58 per cent of the have others educational qualification, including nursing, and other skill development education. Likewise, in Tigiria block as well majority of the population have educational qualification between class 6 to 10, followed by 24.56 per cent have less than five class education, 18.13 per cent have up to higher secondary education, 6.73 per cent are graduates, only 0.29 per cent of them are post-graduates, 0.58 per cent of them have technical degrees, 0.29 per cent of them have professional degrees while about 2.34 per cent of them have other degrees.

Table 2.5: Distribution of Population by Educational Qualification

Qualification	Blocks						Total	
	Badamba		Narsinghpur		Tigiria			
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Illiterate	42	11.60	31	10.10	45	13.16	126	12.46
Up To Class 5	127	35.08	88	28.66	84	24.56	299	29.57
Class 6-10	138	38.12	116	37.79	116	33.92	370	36.60
Higher Secondary	34	9.39	31	10.10	62	18.13	127	12.56
Graduation	17	4.70	23	7.49	23	6.73	63	6.23
Post-Graduate	1	0.28	1	0.33	1	0.29	3	0.30
Others	3	0.83	11	3.58	8	2.34	23	2.27
Total	362	100	307	100	342	100	1011	100

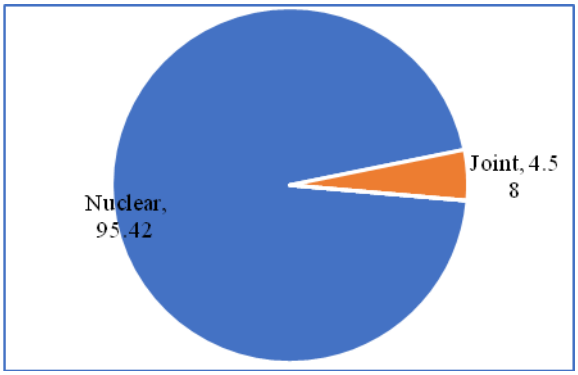
Source: Field Survey, 2023

2.8 Sample HHs by their Religion

Although, there are various religious communities in Cuttack district, however survey data from sample households across three blocks reveals that all the sample households belong to Hindu religion.

2.9 Type of Family among the Sample HHs

Fig. 2.6: Distribution of Sample HHs by their Type of Family



As found (Fig. 2.6 and Table 2.6) the distribution of sample households by their family type. It reveals that almost out of the total sample households there is an overwhelming presence of nuclear family with 229 HHs (95.42 per cent) while only 11 HHs (4.58 per cent) of them are joint family.

Similarly, the block-wise distribution of sample households by type of family (presented in Table 2.) reveals the overwhelming presence of nuclear family, i.e. in Narsinghpur block all the sample households are nuclear family, further about 97.50 per cent of them in Tigiria block and 88.75 per cent in Badamba block. While about 11.25 per cent of the total sample households about 11.25 per cent and only 2.50 per cent of them are joint families.

Table 2.6: Distribution of Sample Households by their Family Type

Blocks	Type of Family					
	Nuclear		Joint		Total	
	N	*%*	*N*	*%*	*N*	*%*
Badamba	71	88.75	9	11.25	80	100
Narsinghpur	80	100	0	0	80	100
Tigiria	78	97.50	2	2.50	80	100
Total	229	95.42	11	4.58	240	100

Source: Field Survey 2023

2.10 Possession Ration Card by the Sample HHs

Table 2.7 present the distribution of sample households by their ration card possession status. It reveals that a very significant majority, 236 HHS (98.33) per cent of households possesses ration card, while rest of the 2 HHs (1.67 per cent) of them do not possess any ration card. The block-wise distribution of sample households by their ration card holding possession shows that all of the sample households in Narsinghpur block possess ration card while about 78 HHs (97.50 per cent) of them each in Badamba and Tigiria block possesses ration card.

Table 2.7: Distribution of Sample HHs by their Possession of Ration Card								
Ration Card	Badamba		Narsinghpur		Tigiria		Total	
	N	%	N	%	N	%	N	%
Ration Card	78	97.50	80	100	78	97.50	236	98.33
No Ration Card	2	2.50	0	0	2	2.5	4	1.67
Total	80	100	80	100	80	100	240	100

Source: Field Survey 2023

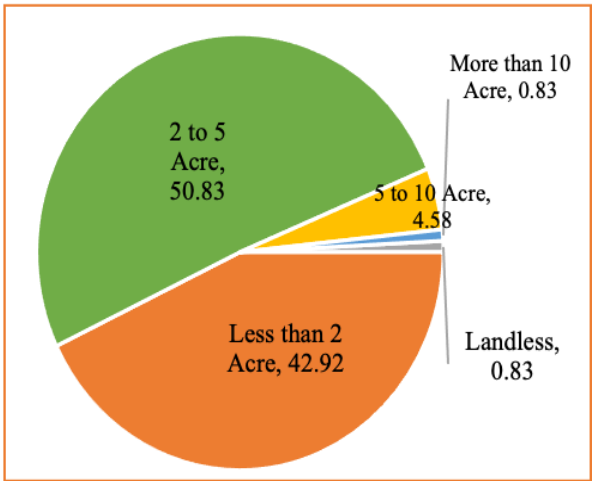
2.11 Occupations

Majority (34.12 per cent) of them are engaged in agriculture while daily Wage Labourer constitute about 5.54 per cent, jobs in Private 4.65 per cent, Government 0.49 per cent. In addition to that about 0.79 per cent is Business owner, 2.37 per cent are pensioner and 2.67 per cent of them are engaged in other occupations, while only 3.86 per cent being in the working age groups are found to be Unemployed. Further, around a quarter of them (25.44 per cent) are Students, 16.96 per cent of them are Housewives, and another 1.46 per cent of them are pensioner.

2.12 Pattern of Landownership

Fig. 2.7 presents the distribution of sample households by their landownership status across three sample blocks of the district, namely, Badamba, Narsinghpur and Tigiria. It reveals that, about half 122 HHs (50.83 per cent) of the total sample households are small holders who owns between 2 to 5 acres of land, followed by 103 HHs (42.92 per cent) of them are marginal holders (owns less than two acres of land), about 11 HHs (4.58 per cent) of them own between 5 to 10 acres of land, and only 2 HHs (0.83 per cent) of them own more than 10 acres of land while rest of the 2 HHs (0.83 per cent) of them are landless. The block wise distribution of households by their land ownerships status is presented in Table 2.8. It shows that the share of small landowners in Badamba is 48.75 per cent of the total sample households of the block, followed by 45 per cent marginal landowners, further about 3.75 per cent of them owns between 5 to 10 acres, and 1.25 per cent of them owns more than ten acres of land while only 1.25 per cent of them are landless.

Fig. 2.7: Distribution of Sample HHs by their Land ownership (in %)



Source: Field Survey 2023

Similarly, in Narsinghpur 48.75 per cent of them are small landowners (2-5 acres), followed by 46.25 per cent marginal landowners (less than 2 acres), again 3.75 per cent of them owns between five to ten acres of land, and only 1.25 of them own more than ten acres of land. Likewise, in Tigiria more than half (55 per cent) of them are small landowners (2-5 acres), followed by 37.50 per cent marginal landowners (less than 2 acres), again 2.25 per cent of them owns between five to ten acres of land, while rest of the 1.25 of them are landless.

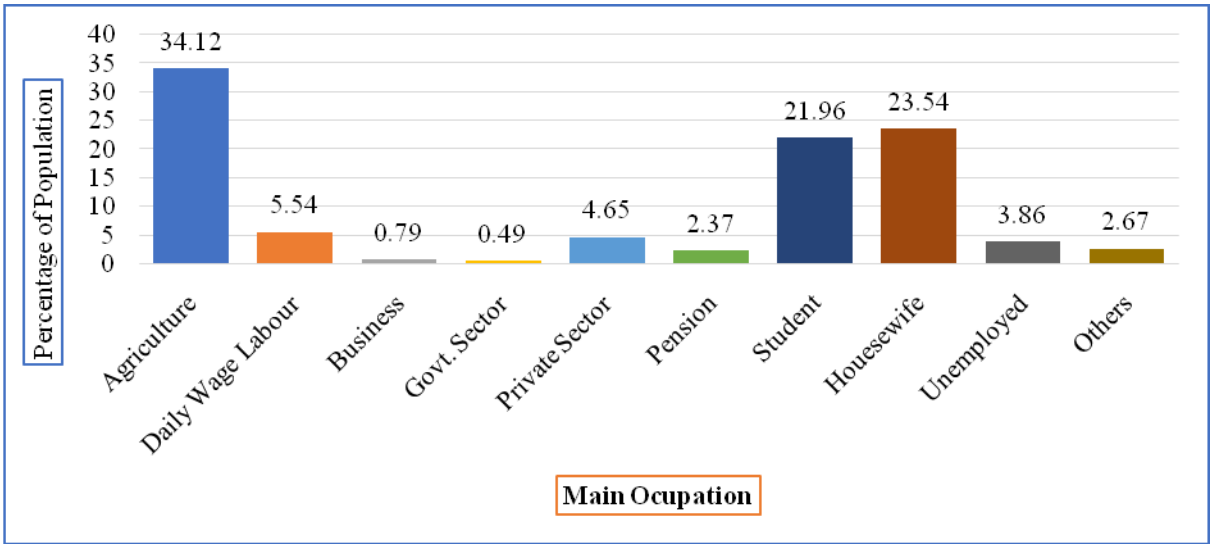
Table 2.8: Distribution of Sample HHs by their Land Ownership (in Acres)								
Landownerships Category	Badamba		Narsinghpur		Tigiria		Total	
	N	%	N	%	N	%	N	%
Landless	1	1.25	0	0	1	1.25	2	0.83
Less than 2 Acre	36	45.00	37	46.25	30	37.50	103	42.92
2 to 5 Acre	39	48.75	39	48.75	44	55.00	122	50.83
5 to 10 Acre	3	3.75	3	3.75	5	6.25	11	4.58
More than 10 Acre	1	1.25	1	1.25	0	0	2	0.83
Total	80	100	80	100	80	100	240	100

Source: Field Survey 2023-24.

2.13 Occupational Distribution of the Sample Population

Fig. 2.8 and Table 2.9 present the distribution of population among the sample households by their main occupation. It reveals that out of the total population in the sample households across three blocks about 345 HHs (34.12 per cent) of them are engaged in agriculture as their main occupation, about 56 HHs (5.54 per cent) of them are wage labour while the government and private sector employees constitute about 5 HHs (0.49 per cent) and 47 HHs (4.65 per cent), respectively.

Fig. 2.8: Distribution of Sample Population by their Occupation (in %)



Source: Field Source 2023

Further, about 8 HHs (0.79 per cent) of them are business owners, 24 HHs (2.37 per cent) of them are pensioner and another 27 HHs (2.67 per cent) of them are engaged in others occupations. Again, the share of housewives and student within the population is 238 HHs (23.54 per cent) and 222 HHs (21.96 per cent), respectively. While rest of the 39 HHs (3.86 per cent) of population in the working age groups are unemployed.

The block-wise distribution of population among the sample households across both the block is presented in Table 2.9. It shows that in Badamba block majority 122 HHs (33.70 per cent) of them are engaged in agriculture as their main occupation, 8.56 per cent of them are wage labourer, 0.83 per cent of them are each business owners and government employee, and about 4.14 per cent of them are private sector employees while about 3.31 per cent of them are pensioner. Further, about 80 HHs (22.10 per cent) of them are housewives, 72 HHs (19.89 per cent) of them are students while among the working age group about 15 HHs (4.14 per cent of them are unemployed.

Table 2.9: Distribution of Sample Population by their Occupation

Occupation	Blocks						Total	
	Badamba		Narsinghpur		Tigiria			
	N	%	N	%	N	%	N	%
Agriculture	122	33.70	118	38.44	105	30.70	345	34.12
Wage Labour	31	8.56	10	3.26	15	4.39	56	5.54
Business	3	0.83	2	0.65	3	0.88	8	0.79
Govt. Sector	3	0.83	1	0.33	1	0.29	5	0.49
Private Sector	15	4.14	15	4.89	17	4.97	47	4.65
Pension/Remittance	12	3.31	8	2.61	4	1.17	24	2.37
Student	72	19.89	70	22.80	80	23.39	222	21.96
Housewife	80	22.10	69	22.48	89	26.02	238	23.54
Unemployed	15	4.14	7	2.28	17	4.97	39	3.86
Others	9	2.49	7	2.28	11	3.22	27	2.67
Total	362	100	307	100	342	100	1011	100

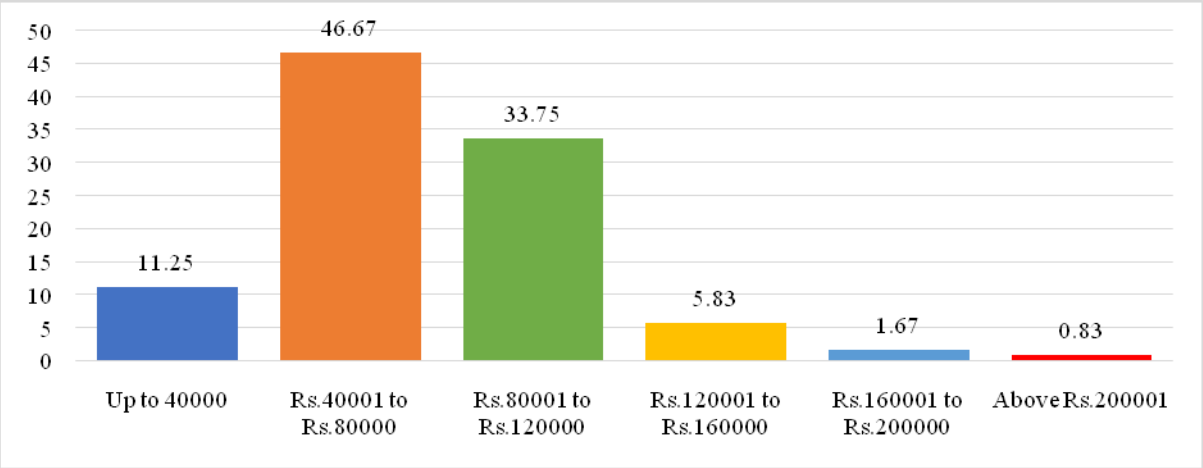
Source: Field Survey 2023

Likewise, in Narsinghpur district 38.44 per cent of them are engaged in agriculture as their primary occupation, while only 3.26 per cent of them are wage labour. The share of business owners, government and private sector employee and pensioner constitute about 0.65 per cent, 0.33 per cent, 4.89 per cent, and 2.61 respectively. Further, the share of students and housewives are 22.80 per cent and 22.48 per cent of the total population of sample households in the block and rest of the 2.28per cent of them who belong to working age-groups are unemployed. Similarly, in Tigiria block out of the total population of sample households about 30.70 per cent of them are associated with agriculture as their main occupation and about 4.39 per cent of them are wage labour. Further, the share of business owners, pension holder, government and private employees in the block is 0.88 per cent, 1.17 per cent, 0.29 per cent and 4.97 per cent, respectively. Again, 26.02 per cent of them are students and 23.39 per cent are housewives, and 3.22 per cent of the total population of the sample households are associated with others occupation. While rest of the 3.22 per cent of them who belong to working age-groups are unemployed.

2.14 Annual Income

Figure 2.9 and Table 2.30 show the distribution of sample households by their annual income. It reveals that a majority 112 HHs (46.67 per cent) of them earns between Rs.40001/- to Rs.80000/- rupees annually, followed by 81 HHs (33.75 per cent) of them earns between Rs.80001/- to Rs. 120000/- rupees, 27 HHs (11.25 per cent) of them earning less than Rs.40000/- rupees. Further, about 14 HHs (5.83 per cent) of them earn between Rs.120001/- to Rs.160001/- rupees, 4 HHs (1.67 per cent) of them are earning between Rs.160001/- to Rs.200000/- rupees annually while rest of the 2 HHs (0.83 per cent) of them earn more than Rs.200001/- rupees per year.

Fig. 2.9: Distribution of Sample HHs by their Annual Income (in %)



Source: Field Survey, 2023

The block-wise distribution of sample households by their annual income is presented in Table 2.30. It shows that in Badamba block majority (40 per cent) of them earning between Rs.40001/- to Rs.80000/- rupees per year, followed by 23.75 per cent are earning between Rs.80001/- to Rs.120000/- rupees per year, further 16.25 per cent of them are earning less than Rs.40,000 rupees per year. Again, about 7.50 per cent of them are earning between Rs.120001/- to Rs.160000/- rupees, 2.50 per cent of them earning between Rs.160001/- to Rs.200000/- rupees per year.

Similarly, in Narsinghpur block majority (42.50 per cent) of them earning between Rs.40001/- to Rs.80000/- rupees per year, followed by 30 per cent of them are earning between Rs.80001/- to Rs.120000/- rupees per year, further 8.75 per cent of them are earning less than Rs.40000/- rupees per year. Again, about 6.25 per cent of them are earning between Rs.120001/- to Rs.160000/- rupees while only a small size (2.50 per cent) of population are earning more than Rs.200001/- rupees per year.

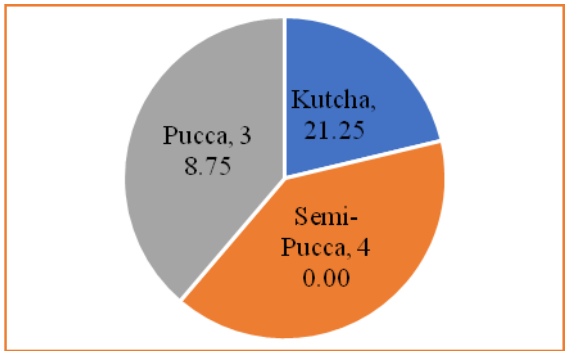
Further, in Tigiria block majority (47.50 per cent) of them earning between Rs.40,001 to Rs.80000/- rupees per year, followed by 37.50 per cent of them are earning between Rs.80001/- to Rs.120000/- rupees per year, further 8.75 per cent of them are earning less than Rs.40000/- rupees per year. Again, about 3.75 per cent of them are earning between Rs.120001/- to Rs.160000/- rupees while only a small size (2.50 per cent) of population are earning between Rs.160001/- to Rs.200000/- rupees per year.

Table 2.30: Distribution of Sample Households by Annual Income (in Rs.)														
Blocks	Up to 40000		Rs.40001 to Rs.80000		Rs.80001 to Rs.120000		Rs.120001 to Rs.160000		Rs.160001 to Rs.200000		Rs.200001 and above		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Badamba	13	16.25	40	40.00	19	23.75	6	7.50	2	2.50	0	0	80	100
Narsinghpur	7	8.75	34	42.50	32	30	5	6.25	0	0	2	2.50	80	100
Tigiria	7	8.75	38	47.50	30	37.50	3	3.75	2	2.50	0	0	80	100
Total	27	11.25	112	46.47	81	33.75	14	5.83	4	1.67	2	0.83	240	100

Source: Field Survey 2023

2.15 Type of House

Fig. 2.10: Distribution of Sample HHs by their Type of House



Source: Field Survey 2023-24.

Fig. 2.10 and Table 2.11 present the distribution of sample households by the structure of their house. It reveals that half of the sample households have P*ucca* houses. While about 40 per cent of them have *Semi-pucca* houses followed by 38.75 per cent of them have pucca houses, and about 21.25 percent of them have *Kutcha* house. The block-wise distribution of sample households shows that in Badamba block majority (50 per cent) of them have pucca houses, followed by 32.50 per cent of them have semi-pucca houses while 17.50 per cent of them have *Kutcha* houses. While in Narsinghpur block majority (43.75 per cent) of them have semi-*pucca* houses, 28.75 per cent of them have *pucca* houses and another 27.50 per cent of them have *Kutcha* houses. Similarly, in Tigiria block as well majority (43.75 per cent) of them have semi-*pucca* houses, followed by 37.50 per cent of them have *pucca* houses, and 18.75 per cent of them have *Kutcha* houses.

Table 2.11: Distribution of Sample Households by their Type of House								
Blocks	Type of House							
	Kutcha		Semi-Pucca		Pucca		Total	
	N	%	N	%	N	%	N	%
Badamba	14	17.50	26	32.50	40	50.00	80	100
Narsinghpur	22	27.50	35	43.75	23	28.75	80	100
Tigiria	15	18.75	35	43.75	30	37.50	80	100
Total	51	21.25	96	40.00	93	38.75	240	100

Source: Field Survey 2023

2.16 Agricultural Credit by the Sample HHs

Table 2.12 presents the distribution of sample households by their agricultural loan availing status. It reveals that only 2.5 per cent of them in Narsinghpur block have availed agricultural loan during last

year which constitute about 0.83 per cent of the total sample households across three blocks of the district.

Table 2.12: Distribution of Sample HHs by their Agricultural Credit						
Block	Households with Agricultural Credit		Households without Agricultural Credit		Total	
	N	%	N	%	N	%
Badamba	0	0	80	100	80	100
Narsinghpur	2	2.5	78	97.5	80	100
Tigiria	0	0	80	100	80	100
Total	2	0.83	238	99.17	240	100

Source: Field Survey 2023

2.17 Conclusion

The socio-economic background of population and sample households shows that there is numerical preponderance of OBC/SEBCs among social groups. While the share of adult population is comparatively higher than other age-groups and majority of them are working in agriculture sector as their main occupation. Further, majority of population in the sample households are literate, among them majority of them have educational qualification between class 6-10. Majority of the households are nuclear family and possesses ration card. Again, about half of the sample households have *pucca* houses which is an indicator of better socio-economic condition of the households.

CHAPTER III

PRODUCTION OF MILLETS

3.1 Introduction

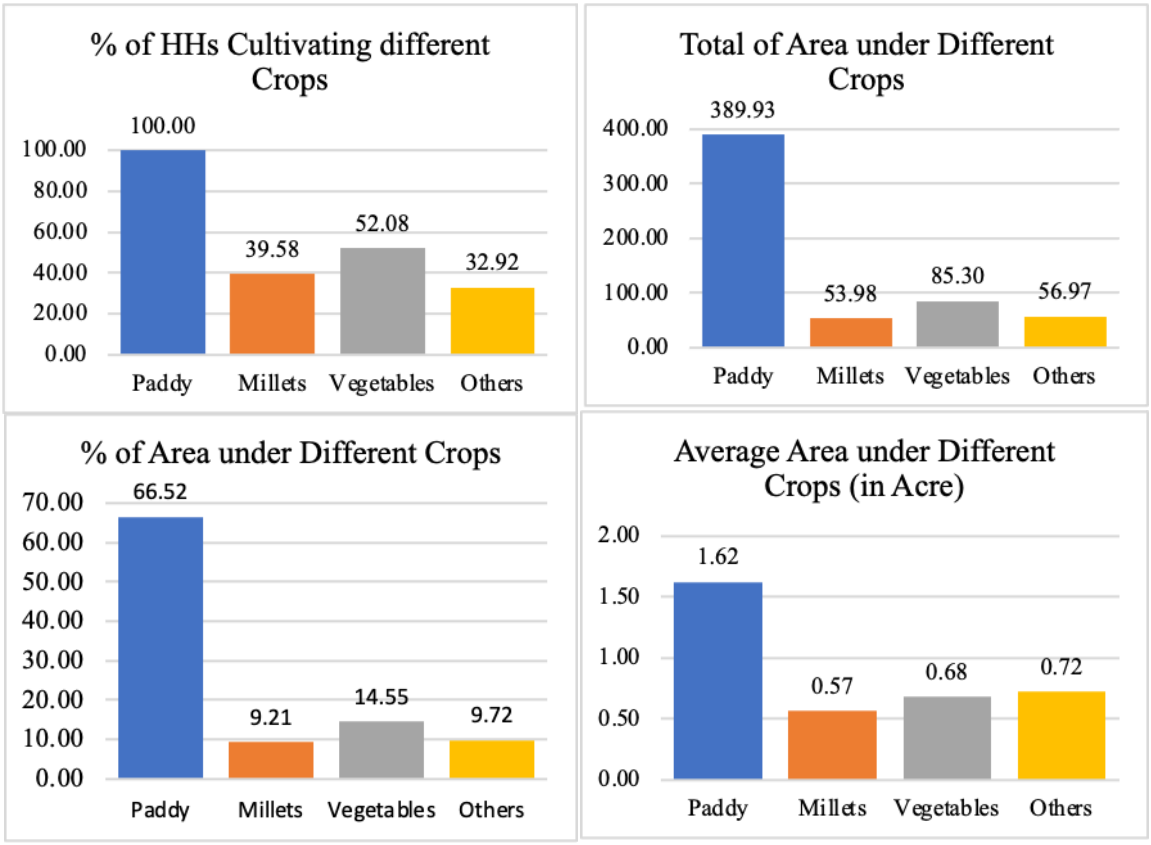
The Baseline Survey 2023 was conducted to assess the situation of production, consumption, processing, and marketing of millets in targeted villages before the programme interventions. However, this chapter deals with the millets' production by analysing the data collected from three sample blocks of Cuttack district, namely, Badamba, Narsinghpur and Tigiria. The analysis mainly 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.

3.2 Area, Production and Yield

Fig. **3.**1 presents the distribution of households cultivating different crops, area under different crops, their percentage as well as average area under different crops. Like other districts of the state, majority of the population in Cuttack district earns their livelihoods from agriculture. The Baseline Study **Fig. 3.1** reveals paddy is the dominant crops as it is cultivated by all sample household. In addition to paddy cultivation, a significant majority (52.08 per cent) of them are cultivating vegetables, again 32.92 per cent of them cultivating others crops including, Cashew, Lemon Tree, Maize, Sunflower, Greengram, Blackgram while about 39.27 per cent of them are cultivating millets.

The distribution of total operational area under among the sample households shows that absolute area under paddy cultivation is significant higher (389.93 acres) followed by vegetables (85.30 acres), are under other crops is 56.97 acres while area under millets is lesser than other crops with 53.98 acres only. Similarly, percentage of area under different crops reveals that the percentage of area under paddy cultivation to total operational area is significantly higher (66.52 per cent), followed by vegetable (14.55 per cent), others crops (9.72 per cent and millets (only 9.21 per cent).Further, distribution of average area under different crops per households depicts a similar pattern, the average area under paddy is higher with 1.62 acre per households, followed by other crops with 0.72 acres, in case of vegetables it is 0.68 acres and for millets it is 0.57 acres per households.

Fig. 3.1: Operational Area under Different Crops



Source: Field Survey 2023-24.

** Multiple Responses*

Block-wise distribution of sample households by their operational areas under different crops is presented in table 3.1. It shows all the sample households across three blocks are cultivating paddy, while millets are cultivated by all the sample households in both the Badamba and Tigiria blocks. In Badamba block total area under paddy is higher (138.4 acres) followed by Tigiria with 126.9 acre and in Narsinghpur it is 124.4 acres. Which constitute about 66.91 per cent of total operational area under the sample households of Badamba block, further it is 66.27 per cent in Narsinghpur and 66.30 per cent in Tigiria block. The average area under paddy cultivation among the sample households of Badamba block is 1.73 acres, followed by 1.59 acre and 1.56 acres in Tigiria and Narsinghpur blocks, respectively. Similarly, it shows that percentage of households cultivating millets is significantly higher (73.75 per cent) in Badamba block, followed by 38.75 per cent in Narsinghpur while in Tigiria only five per cent of them are cultivating it. Where in Badamba block total area under millets is higher (35.28 acres) followed by Narsinghpur block with 16 acre and it is 2.70 acres in Tigiria block. It constitutes about 17.06 per cent of total operational area under the sample households in Badamba block, further it is 8.52 per cent in Narsinghpur and 1.41 per cent in Tigiria block. The average area under millets cultivation among the sample households of Tigiria block is 0.68 acres, followed by 0.60 acre and 0.52 acres in Badamba and Narsinghpur blocks, respectively.

Likewise, percentage of households cultivating vegetables is significantly higher (71.25 per cent) in Tigiria block, followed by 45 per cent in Badamba and 40 per cent in Narsinghpur block. Further, in Tigiria block total area under vegetables is higher (46.1 acres) followed by Narsinghpur block with 21 acre and it is 18.2 acres in Badamba block. It constitutes about 24.09 per cent of total operational

area under the sample households in Tigiria block; it is 11.19 per cent in Narsinghpur and 8.80 per cent in Badamba block. The average area under vegetables cultivation among the sample households of Tigiria block is 0.81 acres, followed by 0.66 acre in Narsinghpur and 0.51 acres in Badamba blocks. Households cultivating other crops are higher (43.57 per cent) in Narsinghpur block, followed by 32.50 per cent in Badamba and 22.50 per cent in Tigiria block.

Further, in Narsinghpur block total area under other crops is higher (26.32 acres) followed by Tigiria block with 15.70 acre and it is 14.95 acres in Badamba block. It constitutes about 14.2 per cent of total operational area under the sample households in Narsinghpur block; it is 8.20 per cent in Tigiria and 7.23 per cent in Badamba block. The average area under other crops cultivation among the sample households of Tigiria block is 0.87 acres; followed by 0.75 acre in Narsinghpur and 0.58 acres in Badamba blocks.

Table 3.1: Operational Area under Different Crops (Area in Acre)

Crops	Blocks	Badamba	Narsinghpur	Tigiria	Total
Paddy	Households (N)	80	80	80	240
	%	100	100	100	100
	Area (in Acre)	138.4	124.4	126.9	389.93
	%	66.91	66.27	66.3	66.52
	Average	1.73	1.56	1.59	1.62
Millets	Households (N)	59	31	4	94
	%	73.75	38.75	5	39.17
	Area (in Acre)	35.28	16	2.7	53.98
	%	17.06	8.52	1.41	9.21
	Average	0.6	0.52	0.68	0.57
Vegetables	Households (N)	36	32	57	125
	%	45	40	71.25	52.08
	Area (in Acre)	18.2	21	46.1	85.3
	%	8.8	11.19	24.09	14.55
	Average	0.51	0.66	0.81	0.68
Other Crops	Households (N)	26	35	18	79
	%	32.5	43.75	22.5	32.92
	Area (in Acre)	14.95	26.32	15.7	56.97
	%	7.23	14.02	8.2	9.72
	Average	0.58	0.75	0.87	0.72
Total Area		206.83	187.72	191.4	586.18

Source: Field Survey 2023

3.3 Sample HH's Expenditure on different Crops

Fig. 3.2 and Table 3.2 presents the crop-wise distribution of average expenditure per acre among the sample households across three blocks under the study. It reveals that average expenditure in others crops (which include some cash crops as well, like cashew, sunflower, maize etc.) is higher (Rs.17948 rupees) than other crops among the sample households, followed by paddy with Rs.13520 rupees per acre, for vegetables it is Rs.17948 rupees per acre while it is Rs.8687/- per acre for millets cultivation. The average expenditure of all the crops per acre is Rs.13349 rupees. The block-wise distribution of average expenditure for different crops is presented in table 3.3.

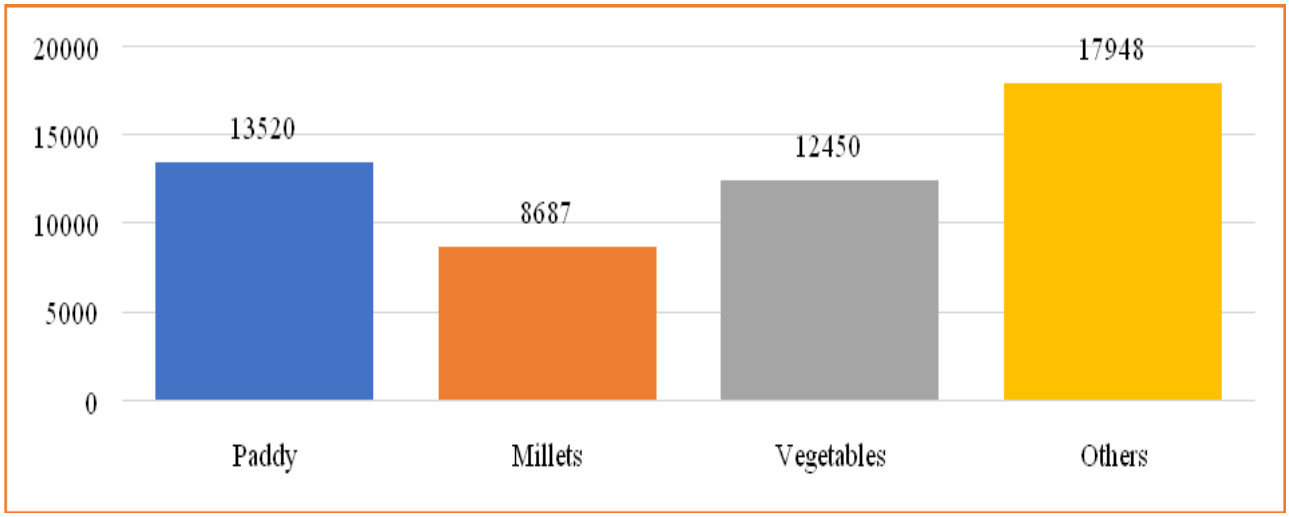
It reveals that in Tigiria block the average expenditure in paddy is higher (Rs.15138 rupees per acres) followed by Narsinghpur (Rs.13245 rupees per acres) and Badamba block (Rs.12305 rupees per acres). Similarly, the average expenditure on millets cultivation is also higher in Tigiria than Narsinghpur and Badamba block with Rs.16111 rupees, Rs.8300 rupees and Rs.8294 rupees per acres. Further, the average expenditure of vegetables is also higher (Rs.14024 rupees per acres) in Narsinghpur block followed by Tigiria (Rs.12061 rupees per acres) and Badamba (Rs.11621 rupees per acres). The average expenditure on other crops is higher (Rs.21178 rupees per acres) in N block, than Badamba (Rs.19365 rupees per acres) and Badamba (Rs.15217 rupees per acres).

Table 3.2: Sample HH's Expenditure in Different Crops (in Rs.)

Crops/ Blocks		Badamba	Narsinghpur	Tigiria	Total
Paddy	Area (in Acre)	138.4	124.4	126.9	389.93
	Total Expenditure (Rs)	1703000	1647700	1921000	5256700
	Expenses/Acre	12305	13245	15138	13520
Millets	Area (in Acre)	35.28	16	2.7	53.98
	Total Expenditure (Rs)	2926600	132800	43500	522900
	Expenses/Acre	8294	8388	16111	8687
Vegetables	Area (in Acre)	18.2	21	46.1	85.3
	Total Expenditure (Rs)	211500	294500	556000	1062000
	Expenses/Acre	11621	14024	12061	12450
Other Crops	Area (in Acre)	14.95	26.32	15.7	56.97
	Total Expenditure (Rs)	289500	400500	332500	1022500
	Expenses/Acre	19365	15217	21178	17948
Total	Area (in Acre)	206.83	187.72	191.4	586.18
	Total Expenditure (Rs)	2496600	2475500	2853000	7825100
	Expenses/Acre	12071	13187	14906	13349

Source: Field Survey 2023

Fig. 3.2: Average Expenditure in Different Crops among the Sample HHs (in Rs)



Source: Field Survey, 2023

3.4 Production of Millets by the Sample HHs: Area, Production and Yields of Millets

Table 3.3 presents the distribution of millets cultivation in terms of area, production and yield. It is found that only *Mandia* or finger millets have been cultivated only in the kharif season by the sample households across the three blocks of Cuttack district. The total area under millets cultivation among the sample households across the three blocks is about 58.94 acres, total amount of millets production is 89.3 quintals which account for 1.65 quintals per acres.

Further, the block-wise distribution area, production, and yield show that total area under millets among the sample households is higher (40.14 acres) in Badamba block, followed by 15.1 acres in Narsinghpur and it is only 3.7 acres in Tigiria block. Similarly, the total production of millets cultivating sample households is also higher (55.8 quintals) in Badamba block followed by 26.9 quintals in Narsinghpur block and 6.6 quintals in Tigiria block. While, the yield of millets production in Narsinghpur and Tigiria (each 1.78 quintals per acre) and it is 1.39 quintals per acre.

Table 3.3: Area Production and Yield of Millets (Mandia)

Blocks	Millets Area (in Acre)	Millets Production (in Qtls.)	Yield (Qtls. /Acre)
Badamba	35.28	55.8	1.58
Narsinghpur	16	26.9	1.68
Tigiria	2.7	6.6	2.44
Total	53.98	89.3	1.65

Source: Field Survey, 2023

3.5 Types of Land Used for Millets Cultivation

Table 3.4 shows distribution of land type used for millets cultivation among the sample households across three selected blocks. It is found that millets cultivation found only in kharif season while only finger millets or *Mandia* is being cultivated by 39.17 per cent of the total sample households cultivating it in an area of 58.94 acres. Out of the total area under millets cultivation in Badamba block majority area (54.55 acres) is upper land which constitute about 92.55 per cent of the total area under millets cultivation while only 2.29 acres is slope land which constitute about 5.80 per cent. In Narsinghpur, about 9 acres of land under millets cultivation is upper land (82.56 per cent) and 1.9 acres is sloping land (17.34 per cent). In Tigiria block out of the total millets cultivated area majority (2.50 acres) is upper land which constitute about 92.060 per cent while about 0.20 acres are slope land (7.40 per cent).

Table 3.4: Distribution of Sample HHs by their Type of Land (Area in Acre)

Blocks	Type of Land used Area				Total	
	Upper Land	%	Slope Land	%	Area	%
Badamba	37.25	94.20	2.29	5.80	39.54	100
Narsinghpur	9.00	82.56	1.9	17.34	10.90	100
Tigiria	2.50	92.60	0.20	7.40	2.70	100
Total	54.55	92.55	4.39	7.45	58.94	100

3.6 Sources, Type and Quality of Millets Seeds Used

All the millets cultivating sample households are using own seeds which are local variety. Out of the total millets cultivating sample households a significant majority (87.23 per cent) of them reported (Table 3.5) that the quality of seeds they used for millets cultivation is good, while only 6.38 per cent of them reported it as average quality. Similarly Table 3.6 share the block-wise distributions of households by their perception in quality of seeds they used shows that in Badamba block majority (92.45 per cent) of them reported it is good, while about 7.55 per cent of them reported it as average. Likewise, in Narsinghpur block, about 96.67 per cent of them reported it as good while only 3.33 per cent of them reported it as average. Further, in Tigiria block, 80 per cent of them reported as good, and 20 per cent of them reported it as average.

Table 3.5: Millets Cultivating HHs by their Perception on Seeds being used

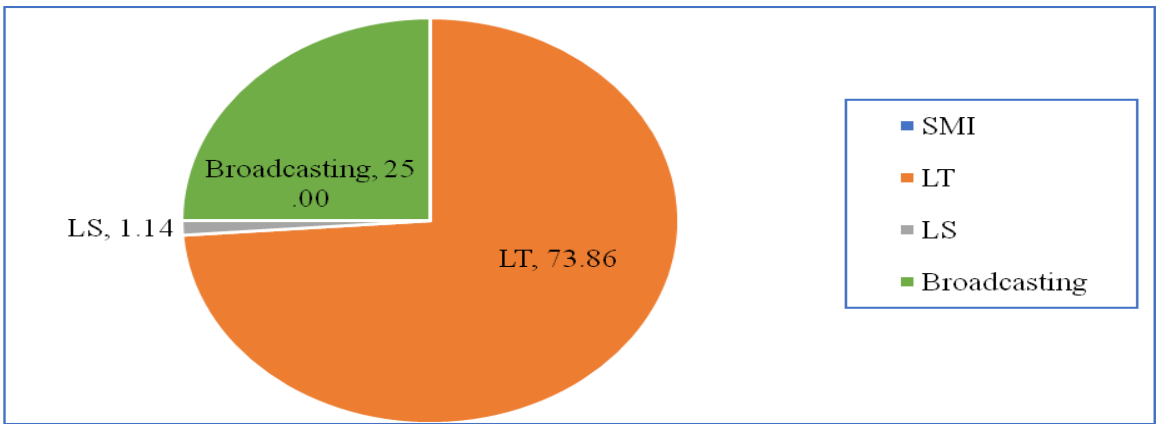
Blocks	Quality of the Seeds is being used							
	Good		Average		Bad			
	N	%	N	%	N	%	N	%
Badamba	49	92.45	4	7.55	0	0	53	100
Narsinghpur	29	96.67	1	3.33	0	0	30	100
Tigiria	4	80	1	20	0	0	5	100
Total	82	87.23	6	6.38	6	6.38	94	100

Source: Field Survey 2023

3.7 Package of Practices by the Sample HHs

In agriculture the methods of cultivation play a vital role in the growth and production of crops. Therefore, different agronomic practices being followed by the farmers suited to their land and socio-economic condition of the households. This section discusses the agronomic practices followed by the respondent households of the selected Blocks in the Cuttack district. The distribution (Table 3.6) of households by their use of agronomic practices reveals that most of them, i.e., 65 sample HHs (73.86 per cent) are following line transplantation (LT) method, followed by 22 HHs (22.41 per cent) of them use Broadcasting method, while Line Sowing (LS) is used by only 1 HH (1.14 per cent) see figure 3.3.

Fig. 3.3: Millets Cultivating HHs by their Package of Practices (in %



The block-wise distribution of households by the package of practices they followed is presented in Table 3.6. In Badamba block out of the total millets cultivating household's majority (66.04 per cent) of them cultivate by LT method, followed by 32.08 per cent of them following broadcasting methods, while only 1.89 per cent of them are following LS methods. Similarly, in Narsinghpur block majority (83.33 per cent) of them following LT method, while rest of the 12.75 per cent of them are following broadcasting methods. Further, in Tigiria block all of millets cultivating households are following LT method.

Table 3.6: Millets Cultivating HH' Perception on the Seeds being Used

Blocks	Package of Practices by the Sample HHs						Total	
	LT		LS		Broadcasting			
	N	%	N	%	N	%	N	%
Badamba	35	66.04	1	1.89	17	32.08	53	100
Narsinghpur	25	83.33	0	0	5	12.75	30	100
Tigiria	5	100	0	0	0	0	5	100
Total	65	73.86	1	1.89	22	25	88	100

Source: Field Survey, 2023

3.8 Use of Fertilisers and Pesticides by the Sample HHs

Land fertility and pest control are crucial part of the agricultural practice, especially for the growth and production of the crops. Farmers use various methods to increase their land fertility and crop protection, these methods are mainly divided in to two categories, viz. organic and (inorganic or) chemical methods. Organic methods of fertilizers include organic manure includes cow dung, goat and sheep manure while organic methods of pest control include different oils, for example neem oil and pesticides made from organic ingredients such as cow urine, extract of different plants etc. Although, millets cultivation requires minimum fertilisers input and pest control unlike other major crops like rice, wheat and maize, this section try to capture the trends and patterns about the use of fertiliser and pesticides in the sample households of the district.

Table 3.7 presented the pattern of fertilisers use among the millets cultivating households in the three selected blocks of Cuttack district. It reveals that out of total millets cultivating sample households across the three selected blocks in the district, a majority of them 30.85 per cent of them use only organic manure and 19.5 percent use chemical fertiliser. Only 23.42 percent HHs use both organic and chemicals, where as 26.6 percent do not use any fertilizers. While, the distribution of households by pesticides uses shows that a significant majority (56.38 per cent) use only bio-pesticides, followed by nearly 13 per cent of them use only chemical pesticides and only 5.32 per cent of them uses both bio-pesticides as well as chemical pesticides while rest of the 25.54 per cent of them do not use any pesticides.

The block-wise distribution households by their use of fertilisers in the selected block are presented in table 3.8. It shows that in Badamba block, majority (27.11 per cent) of them are using organic manure followed by 23.73 per cent of them using both organic/bio as well as chemical fertilisers for their millets cultivation, and 20.33 per cent of them use chemical fertilisers, while rest of the 28.81 per cent of the do not use any fertilisers. Similarly, in Narsinghpur block majority (40 per cent) of them are using only organic manure, followed by 26.67 per cent are using both organic as well as

chemical fertilisers, and about 16.67 per cent of them are using only chemical fertiliser while rest of 16.67 per cent of them do not use any fertilisers. Likewise, in Tigiria block a significant majority (60 per cent) of them using both organic as well as chemical fertilisers, and each 20 per cent of them are using organic and another 20 percent are using chemical fertilisers.

It presents the block-wise distribution of millets cultivating sample households by pesticides use. It shows that in Badamba block majority (41.49 per cent) of them are using bio-pesticides in millets cultivation, and about 3.19 per cent of them using both bio-pesticides as well as chemical pesticides while rest of the 28.81 per cent of them are not using any pesticides. Similarly, in Narsinghpur block as well majority (13.81 per cent) of them using bio-pesticides, followed by chemical pesticides (8.51 per cent) and 2.13 of them using both bio-pesticides as well as chemical pesticides, while about 7.45 per cent of them do not use any pesticides. Further, in Tigiria block majority (80 per cent) of them using chemical pesticides while rest of the 20 per cent of them are using bio-pesticides.

Table 3.7: Millets Cultivating HHs by their use of Fertilisers and Pesticides

Blocks	Badamba		Narsinghpur		Tigiria		Total	
Types of Fertilisers	**Use of Fertilisers**							
	N	%	N	%	N	%	N	%
Organic Manure	16	27.11	12	40	1	20	29	30.85
Chemical Fertilizers	12	20.33	5	16.67	1	20	18	19.15
Both	14	23.73	8	26.67	3	60	22	23.41
No Use	17	18.09	5	16.67	0	0	25	26.6
Total	59	62.77	30	31.91	5	5.32	94	100
Types of Pesticides	**Use of Pesticides**							
Bio-Pesticides	39	41.49	13	13.83	1	20	53	56.38
Chemical Pesticides	0	0	8	8.51	4	80	12	12.76
Both	3	3.19	2	2.13	0	0	5	5.32
No Use	17	28.81	7	7.45	0	0	24	25.54
Total	59	62.77	30	31.91	5	5.32	94	100

3.9 Storage of Seeds

As observed in the Baseline Study (Table 3.8) in Badamba Block 32 sample HHs (54.24 per cent) used jute bag, 12 samples HHs (20.34 per cent) used open hanging and another 15 sample HHs (25.42 per cent) followed other methods to store their seeds. In the same way, in Narsinghpur Block 25 HHs used Jute Bag (83.33 per cent) and another 5 sample HHs (16.67 per cent) followed other methods to store their seeds. In Tigiria Block, 3 samples HHs (60 per cent) used Jute Bag, 1 sample HH (20 per cent) used open hanging and another 1 sample HHs (20 per cent) followed other methods to store their seeds.

Table 3.8: Distribution of Sample HHs by their Seed Storage								
Storage of Seeds by the Sample HHs	Badamba		Narsinghpur		Tigiria		Total	
	No	%	No	%	No	%	No	%
Jute Bag	32	54.24	25	83.33	3	60	60	63.83
Earthen Pot	0	0.00	0	0.00	0	0	0	0.00
Bamboo Basket	0	0.00	0	0.00	0	0	0	0.00
Pura (Paddy rope)	0	0.00	0	0.00	0	0	0	0.00
Open Hanging	12	20.34	0	0.00	1	20	13	13.83
Other	15	25.42	5	16.67	1	20	21	23.40
Total	59	100	30	100	4	100	94	100

Source: Field Survey 2023

3.10 Instances of Seeds Damage

Table 3.9 presents the distribution of millets consuming sample households by incidence of crop damage. It shows that in Badamba and Tigiria block none of the millet cultivating households' experienced crop or seeds damage. While in Narsinghpur block only 5 sample HHs (16.13 per cent) of them experienced seeds damage.

Table 3.9: Distribution of Sample HHs by their Damage of Seeds						
Block	Yes		No		Total	
	N	%	N	%	N	%
Badamba	0	0	59	0	59	100
Narsinghpur	5	16.13	26	83.87	31	100
Tigiria	0	0	4	100	4	00
Total	5	5.32	89	94.68	94	100

Source: Field Survey 2023

3.11 Weeding Practices

It depicts the distribution of millets cultivating sample households by their weeding status. It reveals that all of them do weeding in their millets fields. Table3.10 presents the distribution of millets cultivating sample households. It shows that in Badamba block all most all (98.31 per cent) of them weeding it manually while only 1.69 per cent of them weeding by using machine. However, in Narsinghpur and Tigiria block all the millets cultivating sample households do weeding manually.

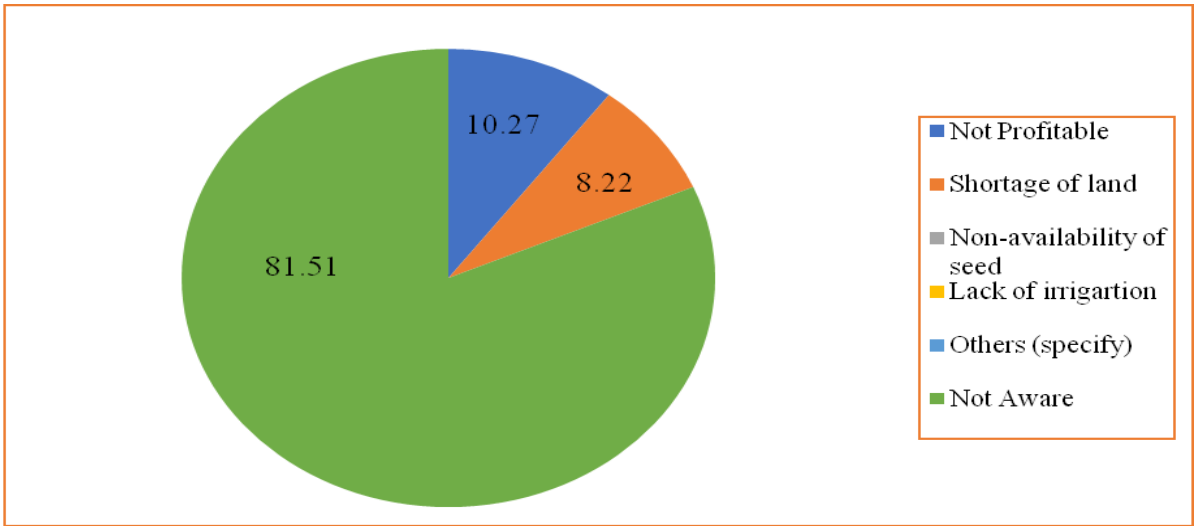
Table 3.10: Weeding Practices by the Sample HHs								
Block	Manually		By Weeder		Both		Total	
	N	%	N	%	N	%	N	%
Badamba	58	98.31	1	1.69	0	0	59	62.77
Narsinghpur	30	100	0	0	0	0	30	31.91
Tigiria	5	100	0	0	0	0	5	5.32
Total	93	100	1	100	0	0	94	100

Source: Field Survey 2023

3.12 Reasons for Not Cultivating Millets

Fig. 3.4 presents the distribution of sample households who are not cultivating millets by the reasons responsible for it. It reveals that a significant majority 119 Sample HHs (81.51 per cent) of them not cultivating millets because they are not aware about it, followed by 15 sample HHs (10.27 per cent) of them reported that it not profitable while only 12 sample HHs (8.22 per cent) of them not cultivating it due to shortage of land for millets cultivation.

Fig. 3.4: Sample HHs by their Reasons for Not Cultivating Millets (in %)



Source: Field Survey 2023

Table 3 presented the block-wise distribution of sample households who do not cultivate millets by the reasons for not cultivating it. It shows that in Badamba majority (66.67 per cent) of them are aware about it, followed by 28.57 of them not cultivating due to non-availability of land for millets cultivation while only 4.76 per cent of the not cultivating it because it is not profitable. Similarly, in Narsinghpur block also majority (60 per cent) of them are not cultivating it because they are not aware about it, followed by 28 per cent of them it is not profitable while 12 per cent reported due to lack of land. Whereas in Tigiria block all of them reported that they are not aware about it. Furthermore, all the non-cultivation sample households reported that they are not cultivating it since last 10-15 year.

Table 3.11: Distribution of Sample HHs by the Reason of Not Cultivating Millets

Reasons for Not Cultivating millets	Blocks							
	Badamba		Narsinghpur		Tigiria		Total	
	N	%	N	%	N	%	N	%
Not Profitable	1	4.76	14	28.00	0	0.00	15	10.3
Shortage of Land	6	28.57	6	12.00	0	0.00	12	8.22
Non-availability of Seed	0	0.00	0	0.00	0	0.00	0	0.00
Lack of Irrigation	0	0.00	0	0.00	0	0.00	0	0.00
Not Aware	14	66.67	30	60.00	75	100	119	81.51
Total	21	100	50	100	75	100	146	100

Source: Field Survey 2023

3.6 Conclusion

Agriculture is the primary occupation for majority of the people of Cuttack district. Paddy is found to be the dominant crop in the district also among the sample households and cultivated by all of them. Whereas, about 94 sample households are cultivating millets which constitute about 39.16 per cent. They spend an average of Rs.8687 rupees per acre annually on millets cultivation and average yield of millets production is 1.65 quintal per acre. Majority of them used upper land for millets cultivation while few of them used slope land. Among the sample households who are not cultivating millets, majority of them cited lack of awareness, followed by non-profitability of millets cultivation and shortage of land for millets cultivation of millets as the major reasons for not cultivating it. Majority of them reported that they have not cultivated millets since last 10 to 15 years.

CHAPTER IV

CONSUMPTION OF MILETS

4.1 Introduction

Baseline Survey 2023 was conducted to assess the trends and patterns of millets consumption in the target villages before implementing the programme in the Badamba, Narsinghpur and Tigiria blocks of Cuttack district. The main objective of this chapter is to analyse trends and patterns of millets consumption among the sample households across the sample GPs in 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 Cuttack district, which is one of the focus areas of SAA.

4.2 Millets Consumption by Sample HHs

The trends and patterns of millets consumption among the sample households of three blocks of Cuttack district is presented in Table 4.1. It shows that, out of the total only about majority 133 samples HHs (55.42 per cent) are consuming millets.

Table 4.1: Sample Households by their Millets Consumption across Blocks

Blocks	Consuming millets		Not Consuming	
	No	%	No	%
Badamba	63	78.75	17	21.25
Narsinghpur	51	63.75	29	36.25
Tigiria	19	23.75	61	76.25
Total	133	55.42	107	44.58

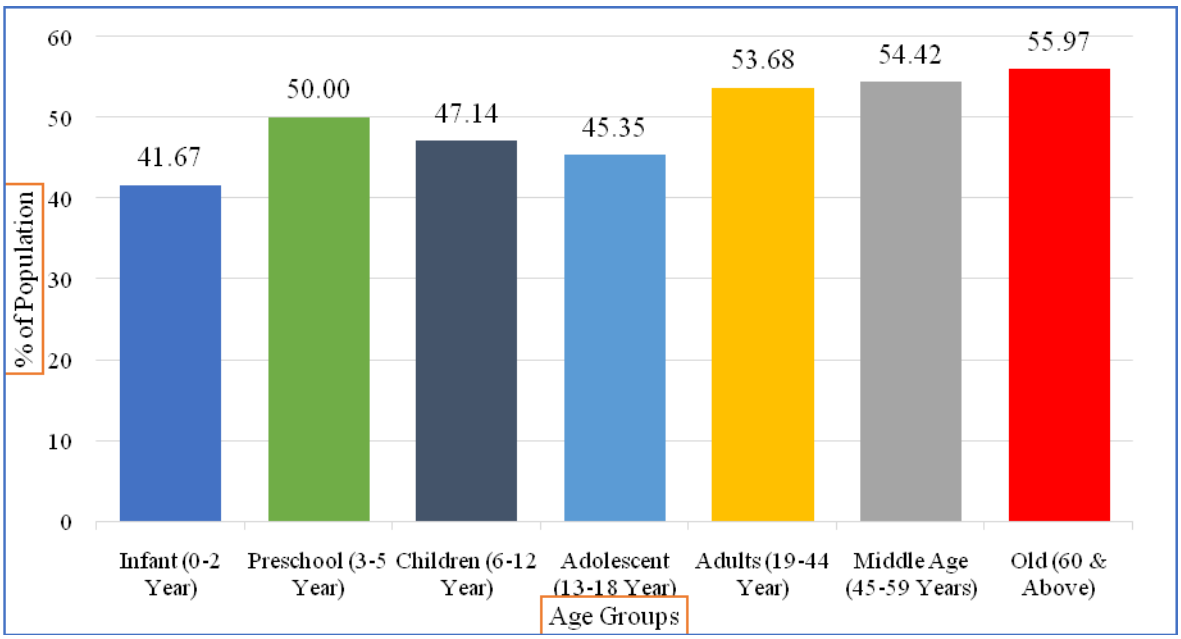
Source: Field Survey 2023

The block-wise distribution of sample household by their millets consumption status shows that in the rate of millets consumption in Badamba block is higher (78.75 per cent) followed by Narsinghpur with 63.75 per cent and it is 23.75 per cent in Tigiria.

4.3 Millets Consumption of the Sample HHs by their Age Groups

The distribution of population among the sample households by their millets consumption - the rate of millets consumption has positive related with age. In fig.4.1 it is not less in the 60 and above age group i.e. out of total 134 sample population 75 (55.97 per cent) are taking millets based food items, followed by middle aged or 45 to 59 years age group out of total 215 sample population 117 (54.42 per cent), Adults or 19 to 44 years age group out of total 462 sample population, 248 (53.68 per cent), preschool children 3 to 5 years age group out of 32, total 16 are taking (50 per cent), children between 6-12 year out of 70 sample population 33 (47.14 per cent) and among adolescent it is out of total 86 sample population, 39 are taking (45.35 per cent), whereas out of the total 12 infants, 5 are taking millets based food items (41.67 per cent).

Fig. 4.1: Millets Consumption by the Sample Population by their Age Group



Source: Field Survey 2023

The block-wise distribution of population by millets consumption is presented in Table 4.2. It shows that in Badamba block the rate of millets consumption is higher (77.22 per cent) among middle-aged, followed by aged (76.92 per cent), adults (74.23 per cent), preschool children (70 per cent), adolescent (69.23 per cent), children (60.71 per cent) and 50 per cent among infants. In Narsinghpur block it is higher (65.65 per cent among adults, followed by old (64.29 per cent), middle-aged (61.43 per cent), infant (50 per cent), adolescent (44.44 per cent), preschool children (36.36 per cent), and among children it is 35 per cent. In Tigiria block, it is higher (45.45 per cent) among preschool children, followed by children (40.91 per cent), adolescent (27.27 per cent), and 19.70 per cent among middle-aged population.

Table 4.2: Sample Population by their Millets Consumptions												
Age Group/ Block	Badamba			Narsinghpur			Tigiria			Total		
	Total Person	Person consume Millets	% of Person consume	Total person	Person consume Millets	% of Person consume	Total person	Person consume Millets	% of Person consume	Total person	Person consume Millets	% of Person consume
Infant (0-2 Year)	4	2	50.00	6	3	50	2	0	0	12	5	41.67
Preschool (3-5 Year)	10	7	70.00	11	4	36.36	11	5	45.45	32	16	50
Children (6-12 Year)	28	17	60.71	20	7	35	22	9	40.91	70	33	47.14
Adolescent (13-18 Year)	26	18	69.23	27	12	44.44	33	9	27.27	86	39	45.35
Adults (19-44 Year)	163	121	74.23	131	86	65.65	168	41	24.40	462	248	53.68
Middle Age (45-59 Years)	79	61	77.22	70	43	61.43	66	13	19.70	215	117	54.42
Old (60 and above)	52	40	76.92	42	27	64.29	40	8	20	134	75	55.97
Grand Total	362	266	73.48	307	182	59.28	342	85	24.85	1011	533	52.72

Source: Field Survey 2023

4.4 Millets Consumption across Seasons

Table 4.3 show the distribution of millets consuming sample households by millets consumption during different seasons in the study area of district. It reveals that millets consumption is higher 114 sample population (85.72 per cent) during summer season, followed by rainy season 48 sample population (36.09 per cent) while the rate is less in winter 41 sample population (30.83 per cent). The block-wise distribution of millets consumption during different seasons among the millets consuming sample households shows that in Badamba block it is higher (96.61 per cent) during summer, followed by winter season (26.98 per cent) while it is only 16.78 per cent in rainy season. Similarly, in Narsinghpur block also it is higher (98.04 per cent) in summer, followed and 33.09 per cent each during both rainy and winter season. Further, in Tigiria block about 36.84 per cent of them consume it during each summer as well as winter season while only 31.58 per cent consume it during rainy season.

Table 4.3: Distribution of Sample HHs by their Millet Consumption across Seasons								
Seasons/ Blocks	Badamba		Narsinghpur		Tigiria		Total	
	N	%	N	%	N	%	N	%
Millets Consuming Households	63	45.11	51	38.35	19	14.29	133	100
Winter	17	26.98	17	33.33	7	36.84	41	30.83
Summer	57	96.61	50	98.04	7	36.84	114	85.72
Rainy	25	16.78	17	33.33	6	31.58	48	36.09

Source: Field Survey 2023

4.5 Consumption of Millets by the Sample HHs in Different Meals of a Day

Table 4.4 presents the distribution of millets consuming households by their millets consumption in different meals of the day. The block-wise distribution of millets consumption during different meals of the days shows that in Badamba block the rate of millets consumption is higher during breakfast (84.13 per cent), followed by evening snacks (55.56 per cent), lunch (30.16 per cent), and lowest in dinner (3.17 per cent). Similarly, in Narsinghpur block all the millets consuming sample households are consuming it during breakfast, while 56.86 per cent of them consuming it during evening snacks and 27.45 per cent of them consuming it during lunch. Likewise, in Tigiria block majority (52.63 per cent) of them consuming it during breakfast, followed by evening snacks (31.58 per cent), lunch (15.79 per cent) and dinner (5.26 per cent).

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

Meals	Badamba		Narsinghpur		Tigiria		Total	
	No	%	No	%	No	%	No	%
Breakfast	53	84.13	51	100	10	52.63	114	38
Lunch	19	30.16	14	27.45	3	15.79	36	12
Evening Snacks	35	55.56	29	56.86	6	31.58	70	23.33
Dinner	2	3.17	0	0	1	5.26	3	1.5

Source: Field Survey 2023

** Percentage drawn from millets consuming households only.*

4.6 Number of Millets being consumed across Seasons

The average amount of millets consumption by millets consuming sample households during summer higher (26.50 kg. per households), rainy season (6.71 kg. per households) while it less in winter (3.08 kg. per households). Table 4.5 presents the season-wise trend and patterns of total millets consumption by sample households. It shows that in Badamba block the average millets consumption in summer higher (22.47 kg. per households), rainy season (6.72 kg. per household) while it is less in winter (2.11 kg. per households). Similarly, in Narasinghpur block in the average millets consumption in summer higher (40.29 kg. per households), while it less in winter (6.18 kg. per households). Likewise, in Tigiria block the average millets consumption in summer higher (12.14 kg. per households), rainy season (6.67 kg. per household) while it is less in winter (2.86 kg. per households).

Table 4.5: Millets Consumption by the Sample HHs across Seasons												
Block	Winter			Summer			Rainy			Total		
	No of Households	Total Volume (kg)	Average (kg)	No of Households	Total Volume (kg)	Average (kg)	No of Households	Total Volume (kg)	Average (kg)	No of Households	Total Volume (kg)	Average (kg)
Badamba	53	112	2.11	17	1191	22.47	25	168	6.72	63	1471	23.35
Narasinghpur	17	105	6.18	50	685	40.29	0	0	0.00	51	790	15.49
Tigiria	7	20	2.86	7	85	12.14	6	40	6.67	19	145	7.63
Total	77	237	3.08	74	1961	26.50	31	208	6.71	133	2406	18.09

Source: Field Survey, 2023

4.7 Sources of Millets

As found (Table 4.6) the distribution of households by the sources of millets they consumed. It revealed that out of the total millets consuming sample household's majority 121 sample HHs (90.98 per cent) of them reported that the source of the millets they consume as own production, followed by purchased 10 sample HHs (7.52 per cent) while very few of them 2 sample HHs (1.50 per cent) are borrowed/exchanged. Similarly, the block wise distribution of sources of millets they consumed shows that, in Badamba block majority of them 58 sample HHs (92.06 per cent) of them consumes it from their own production while only 5 samples HHs (7.94 per cent) of them purchase it from market. Likewise, in Narasinghpur block majority 50 sample HHS (98.04 per cent) of them consume it from their own production while only 1.39 per cent of them purchase it from market. Further, in Tigiria block majority 13 sample HHS (68.42 per cent) of them consume it form own production, followed by 21.05 per cent purchase it from markets, while about 2 HHs (10.53 per cent) of them exchanged it with neighbours and relatives.

Table 4.6: Distribution of Sample HHs by their Sources of Millets for Consumption								
Sources	Badamba		Narasinghpur		Tigiria		Total	
	No	%	No	%	No	%	No	%
Own Production	58	92.06	50	98.04	13	68.42	121	90.98
Purchased	5	7.94	1	1.39	4	21.05	10	7.52
Borrowed/ Exchanged	0	0.00	0	0	2	10.53	2	1.50
Others	0	0.00	0	0	0	0.00	0	0.00

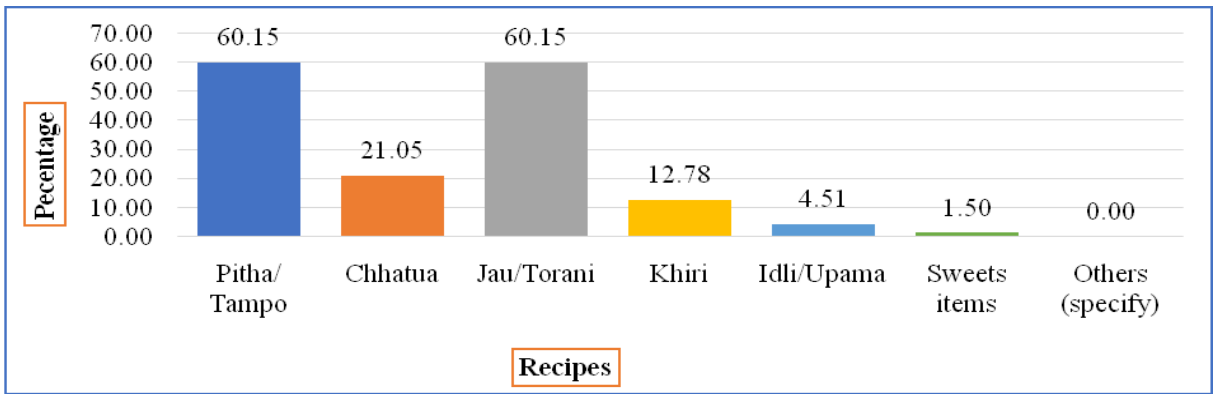
Source: Field Survey 2023

** Percentage calculated from only millets consuming Households*

4.8 Millet Recipes being consumed by the Sample HHs

As observed in the Baseline Survey (Table 4.7 & Fig. 4.2) the distribution of millets consuming sample households by types of millets recipe they consumed. It shows that *Tampo/Pitha* and *Khiri* are the most important millets recipes as a majority 80 sample HHs (60.15 per cent) of them consuming it, followed by Chhatua 28 sample HHs (21.05 per cent), Khiri 17 sample HHs (12.78 per cent), Idli/Upma 6 sample HHs (4.51 per cent) and sweets 2 sample HHs (1.50 per cent) of them consuming it.

Fig. 4.2: Distribution of Sample HHs by their consumption of Millets Recipes



Source: Field Survey 2023

The block-wise distribution of millets consuming households by recipe they consumed shows that in Badamba block majority 50 sample HHs 50 sample HHs (79.37 per cent) of them consume *Jau/Torani*, followed by *Pitha/Tampo* 48 sample HHs (76.19 per cent), Chhatua 14 sample HHs (22.22 per cent) and Khiri 12 sample HHs (19.05 per cent). Similarly, in Narasinghpur block majority 29 sample HHS (56.86 per cent) of them consume *Pitha/Tampo*, followed by *Jau/Torani* 26 sample HHS (50.98 per cent), *Chhatua* 13 sample HHs (25.49 per cent), *Idli/Upma* 5 sample HHs (9.80 per cent), *Khiri 3 sample HHS* (5.88 per cent) and sweet items 1 sample HH (1.96 per cent). Likewise, in Tigiria block majority 4 sample HHs (21.05 per cent) of them *Jau/Torani*, followed by *Pitha/Tampo* 3 sample HHs (15.79 per cent), *Khiri* 2 sample HHs (10.53 per cent), *Idli/Upma* 1 sample HH (5.26 per cent), and sweet items 1 sample HH (5.26 per cent).

Table 4.7: Distribution of Millets Consuming Sample HHs by the Recipes

Recipes/ Blocks	Badamba		Narasinghpur		Tigiria		Total	
	N	%	N	%	N	%	N	%
Pitha/ Tampo	48	76.19	29	56.86	3	15.79	80	60.15
Chhatua	14	22.22	13	25.49	1	5.26	28	21.05
Jau/Torani	50	79.37	26	50.98	4	21.05	80	60.15
Khiri	12	19.05	3	5.88	2	10.53	17	12.78
Idli/ Upma	0	0.00	5	9.80	1	5.26	6	4.51
Sweets items	0	0.00	1	1.96	1	5.26	2	1.50
Others	0	0.00	0	0.00	0	0.00	0	0.00

Source: Field Survey 2023

4.9 Conclusion

The patterns of millets consumption among the sample households in both blocks of Cuttack district reveals that about 55.42 per cent of them in Tigiria block are consuming millets. The intergenerational analysis in the rate of millets consumption shows that it is higher among the older generation, i.e., among adults and middle aged is higher than other age groups. Further, season-wise difference in the amount of millets consumption indicates that they consume it only during the summer season. While majority of the millets consuming households consume it from their own production and consume it only during breakfast. *Pitha/Tampo and Jau/Torani* is the most common millet recipe among the millets consuming households as all of them consume it. Moreover, it is also found that none of the sample HHs is consuming millets-based value-added products by purchasing from the market.

CHAPTER V

PROCESSING AND MARKETING OF MILLETS

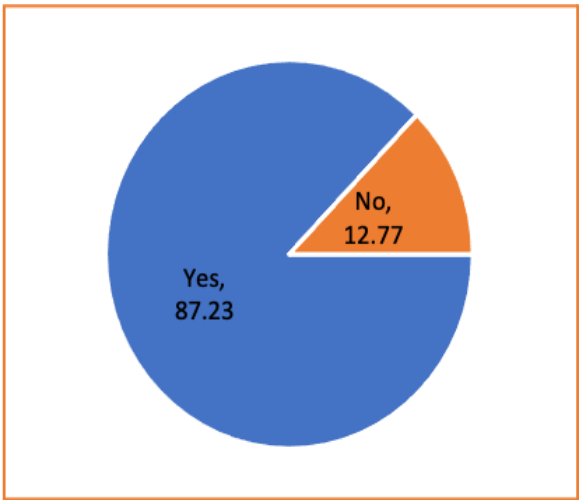
5.1 Introduction

Baseline Survey 2023 aimed at recording the processing and marketing practised by the sample households in both Badamba and Tigiria block of the Cuttack district. This chapter explores the different practices used by the sampled for processing of their millets, such as milling, roasting, and popping. It also examines the availability and accessibility of processing units in the study areas, and the factors that influence the choice of processing methods. Furthermore, this chapter analyses the different modes of selling millets, such as direct sales, cooperatives, middlemen, and online platforms. It also evaluates the distance to selling points and the transportation costs involved. 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

Millet 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. Women are usually responsible for processing millets using a stone grinder to make flour. This process takes a lot of time and energy, which could be used for other productive activities.

Fig. 5.1: Sample Millets Cultivating Sample HHs by their Processing (in %)



Source: Field Survey 2023

Therefore, millet processing units are essential for improving the efficiency and quality of millet production. Millet processing units can reduce the drudgery of women and increase the availability of nutritious millet products for food security and income generation. The distribution of sample households by processing of millets processing shows that out the total millets cultivating households about 87.23 per cent of them are processing it. The block-wise distribution millets cultivating sample households presented in Table5.1. It shows that in Badamba block 84.75 per cent of them are processing it. Narasinghpur block about 93.55 per cent of them processing it and in Tigiria block about 75 per cent of them are processing.

Table 5.1: Distribution of Sample HHs by their Millets Processing						
Block/ Processing	Processing millets		Not processing		Total	
	N	%	N	%	N	%
Badamba	50	84.75	9	15.25	59	100
Narasinghpur	29	93.55	2	6.45	31	100
Tigiria	3	75.00	1	25.00	4	100
Total	82	87.23	12	12.77	94	100

Source: Field Survey 2023

5.3 Methods of Processing Millets

As found (Fig. 5.2), the distribution of millets cultivating households by the methods of processing thy used. It shows that majority 36 sample HHS (50.20 per cent) of them process it traditionally and only 9sample HHs (12.62 per cent) of them process it by using machine, while about 37 sample HHS (41.39 per cent) of them process it both traditionally as well as using machines.

The block-wise distribution of millets processing sample households shows that in Badamba block about 23 sample HHS (46 per cent) of them each processing it traditionally and using machines while only 4 sample HHS (8 per cent) of them processing it by using machines. Similarly, in Narasinghpur block majority of them processing it through both traditional methods and by using machines, about 11 sample HHS (37.93 per cent) of them processing it traditionally, while only 5 sample HHs (17.24 per cent) of them processing it using machine. Likewise, in Tigiria block majority 2 sample HHS (66.67 per cent) of them processing it traditionally, while another 1 HH (33.33 per cent) of them processing using both traditional methods as well as using machines.

Fig. 5.2: Sample HHs by their Methods of Processing millets

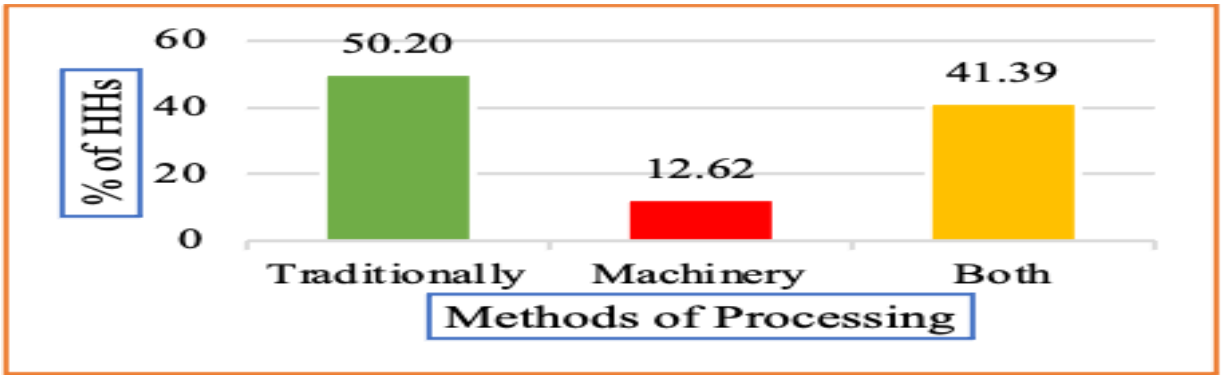


Table 5.2: Methods of Processing Millets								
Block/ Methods	Traditional		Use Machinery		Both		Total	
	No	%	No	%	No	%	No	%
Badamba	23	46	4	8	23	46	50	100
Narasinghpur	11	37.93	5	17.24	13	44.83	29	100
Tigiria	2	66.67	0	0	1	33.33	3	100
Total	36	50.2	9	12.62	37	41.39	82	100

Source: Field Survey 2023

5.4 Marketing of Millets

Distribution of millets cultivating sample households by marketing of millets; it shows that majority (71.28 per cent) of millets cultivating households selling their produce. The block-wise distribution of households by marketing of millets shows that in Narasinghpur block majority (73.33 per cent) of them selling it, followed by Badamba (71.19 per cent) and Tigiria (60 per cent) block (Table 5.3).

Table 5.3: Sample HHs by their Millets Selling Status

Block	Sample Households	Millets Cultivating HHs		Yes		No		Total	
		N	%	N	%	N	%	N	%
Badamba	80	59	73.75	42	71.19	17	28.81	59	100
Narasinghpur	80	31	38.75	22	73.33	8	25.81	30	97
Tigiria	80	5	6.25	3	60.00	2	50.00	5	125
Total	240	95	39.58	67	71.28	27	28.72	94	100

Source: Field Survey 2023

5.5 Marketing of Millets by Selling Point

Table5.4 the distribution of millets selling households by point of their sell. It shows that all of them are selling their millets to middleman or local business man across the three sample blocks. While of the sample households who are selling millets across the three blocks, they are selling millets from their own production.

Table 5.4: Distribution Selling Points of Millets across the Blocks

Selling Points/ Blocks	Badamba		Narasinghpur		Tigiria		Total	
	No	%	No	%	No	%	No	%
Middlemen/ Local Businessman	42	100	22	100	3	100	67	100
Total	42	100	22	100	3	100	67	100

Source: Field Survey 2023

5.6 Mode of Transportation

Table 5.5 presents the distribution of households by the mode of transportation they use for selling their millets. It shows that majority (61.19 per cent) of them use cycle for transporting their millets to the selling points, followed by own vehicle (13.43 per cent), and 10.45 per cent of them carry it on their head (head load) while 14.93 per cent of them use other means of communication for transporting their millets to selling points.

Table 5.5: Sample HHs by their Mode of Transportation of millets								
Mode of Transportation	Badamba		Narasinghpur		Tigiria		Total	
	No	%	No	%	No	%	No	%
Headload	7	16.67	0	0.00	0	0.00	7	10.45
Cycle	23	54.76	15	68.18	3	100.00	41	61.19
Cart	0	0.00	0	0.00	0	0.00	0	0
Own Vehicle	6	14.29	3	13.64	0	0.00	9	13.43
Others	6	14.29	4	18.18	0	0.00	10	14.93
Total	42	100	22	100	3	100.00	67	100

Source: Field Survey, 2023

The block-wise distribution of millets selling households by the mode transportation shows that they use for millets selling presented in Table 5.. It shows that in Badamba block majority (54.76 per cent) of them use cycle, followed by head load (16.67 per cent), and own vehicle (14.29 per cent) while about 14.29 per cent of them use others means of transportation. Similarly, in Narasinghpur block majority (68.18 per cent) of them use cycle, followed by own vehicle (13.64 per cent) while a8.18 per cent of them use other means of transportation. In Tigiria block all the use cycle for transporting their millets for selling it.

5.7 Conclusion

The analysis of the survey data about processing and marketing of millets reveals that majority of them processing. While majority of them use both traditional methods as well as machine for their millets processing. Further, about 72.28 per cent of them selling it. All of them sell it to the middlemen or local business men. 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 of Cuttack District, Phase VII

Sl.	Indicator	Unit	Baseline Value			
			Badamba	Narasinghpur	Tigiria	Total
1	**Millets Production**					
	a) % of Sample Households Cultivating Millets	%	73.75	38.75	5.00	39.17
2	b) Avg. Area under Millets Cultivation/HH	Acre	0.06	0.52	0.68	0.57
3	c) % of Millets area to total Cultivated Area	%	17.06	8.52	1.41	9.21
4	d) Yield of Millets/Acre	Qnt.	1.58	1.68	2.44	1.65
5	**Package of Practice**					
	a) System of Millets Intensification (SMI)	%	0	0	0	0
	b) Line Transplantation (LT)	%	66.04	83.33	100	73.86
	c) Line Sowing (LS)	%	1.89	0	0	1.89
	d) Broadcasting (BC)	%	32.08	12.75	0	22.41
6	**Millets Consumption**					
	% of sample HH Consume Millets	%	78.75	63.75	23.75	55.42
	a) Breakfast	%	84.13	100	52.63	38.00
	b) Lunch	%	30.16	27.45	15.79	12.00
	c) Evening Snacks	%	55.56	56.86	31.58	23.33
	d) Dinner	%	3.17	0	5.26	1.50
7	**Popular Millets Recipes** (% of Households)	%	78.75	63.75	23.75	55.42
	a) Pitha/ Tampo	%	76.19	56.86	15.79	60.15
	b) Chhatua	%	22.22	25.49	5.26	21.05
	c) Jau/Torani	%	79.37	50.98	21.05	60.15
	d) Khiri	%	19.05	5.88	10.53	12.78
	e) Idli/Upma	%	0.00	9.80	5.26	4.51
	f) Sweets items	%	0.00	1.96	5.26	1.50
10	**Processing of Millets**					
	% of Millets Producing Households Process it	%	84.75	93.55	75.00	87.23
	a) Traditionally	%	50.20	37.93	66.67	50.20
	b) Machines	%	8.00	17.24	0	12.62
	c) Both	%	46.00	44.83	33.33	41.38
	Marketing of Millets					
11	% of Cultivating Households Selling Millets	%	71.19	73.33	60.00	71.19
	a) Middlemen/ Local Businessman (% of Millets Selling HH)	%	100	100	100	100

Annexure 2

Confidential and to Be Used for Research Purpose Only

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.)
1	Agriculture	Land Preparation	Transplantation/ Sowing	Weeding	Fertilizers/ Pesticides	Harvesting	Others	
	a) Millet							
	b) Paddy							
	c) Vegetables							
	d) Any Other Crops (Specify)							
3	Households Expenses							
4	Other HH Expenses							
	Total							

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

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

If yes, please provide details……

2. Household Particulars:

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

Codes: Marital Status: 1- Married, 2- Unmarried, 3- Widow, 4- Widower, 5- Divorced, 6- Separated, 7- Any Others (pl specify)
Relationship: 1-Self, 2- Spouse, 3- Son, 4- Daughter, 5- Daughter-in-Law, 6- Son-in-Law, 7- Father, 8-Mother, 9-Brother, 10-Sister, 11- Grandson, 12- Granddaughter, 13- Father- in-Law, 14- Mother-in-Law, 15- Any Other (Specify)
Education: 1- Illiterate, 2- Up to Class 5, 3- Class 6-10, 4- Higher Secondary, 5- Graduate, 6- Post-Graduate, 7- Technical (Diploma/Degree), 8- Professional/Management, 9- Any Other (Specify)
Occupation: 1- Agriculture, 2- Daily Wage Labour, 3- Business/Entrepreneurship, 4- Govt sector, 5- Private Sector, 6- Pension/Remittances 7- Student 8- Housewife, 9- Unemployed, 10- Others (pl. specify)

Part-II: Production of Millets

8. **Do you cultivate millets?** 1-Yes 2- No If yes, give millet-wise production details

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

Land Type Used: 1-Upperland, 2-Slope Land, 3-Middle Land, 4-Low Land.
Sources of Irrigation: 1. Rain, 2. Farm Pond, 3- Stream, 4- MIP/WS, 5-River, 6- Canal, 7- Bore well, 8-Others(Specify).
Type of Seed Used: 1-Local, 2- Certified, 3-HYV. Source of Seeds: 1-Own Seed, 2- Relatives, 3-Market, 4- NGO, 5- Govt./ Community Seed Centre, 6-Others (pl. specify)
Quality of Seeds: 1. Good, 2. Average, 3. Bad
Method of Cultivation: 1) SMI- System of Millets Intensification, 2) LT- Line Transplantation, 3) LS- Line Showing, 4) Broadcasting, 5) Others (specify)
Use of Fertilizer: 1) Organic Manure, 2) Chemical Fertilizers, 3) Both, 4) No Use. Pest Control: 1) Bio-Pesticides, 2) Chemical Pesticides, 3) Both, 4) No Use

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

10. How do you store your seed and grain?

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

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

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

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

    1) Manually_____ 2) By Weeder_____3) Both_____

14. If By Weeder, Sources of weeder?

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

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

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

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

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

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

Part-III: Consumption of Millets

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Part-IV: Processing of Millets

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

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

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

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

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

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

Part-V: Marketing of Millets

31. Do you sell millets? 1. Yes 2 . No
32. Types of Millets, you Sell and Quantity

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)

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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