

BASELINE SURVEY: PHASE VI

NABARANGPUR DISTRICT

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



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



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

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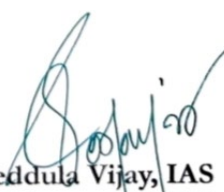
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FOREWORD

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

NCDS took the initiative to submit a proposal to the Government of Odisha, emphasizing the imperative to revive millet production in the state. The resounding impact of this proposal was swiftly acknowledged, evident in the budget speech delivered on 18th March 2016 by the Government of Odisha, which articulated their commitment to reviving millets. This pivotal moment marked the inception of a journey marked by collaboration, dedication, and transformative action. Subsequently, a memorandum of understanding (MoU) was signed on 27th February 2017, bringing together key stakeholders including the Directorate of Agriculture and Food Production (DAFP), NCDS, and the Watershed Support Services and Activities Network (WASSAN). This MoU delineated the framework for concerted efforts towards implementing the SAA, with NCDS assuming the pivotal role of anchoring the research secretariat. NCDS embarked on a comprehensive survey initiative encompassing baseline, midterm, and end-line assessments in the target blocks of the SAA. These surveys, designed to evaluate the status of millet production, marketing, consumption, and processing, represent a critical step towards informed intervention and strategic decision-making.

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



Dr. Yeddula Vijay, IAS
Director, NCDS

ACKNOWLEDGEMENT

It gives me immense pleasure to extend my heartfelt gratitude to all those who contributed to the successful completion of the “Baseline Survey Report of Phase VII, 2022”. This endeavour was truly a collaborative effort, and I am deeply grateful for the unwavering support and dedication demonstrated by each individual and organization involved. First and foremost, I would like to express my sincere appreciation to the research team of Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar, for spearheading the preparation of this report. Your commitments to excellence and tireless efforts have been instrumental in ensuring the quality and accuracy of the findings presented.

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

I would like to extend my sincere appreciation to our esteemed Director, Dr. Yeddula Vijay, Director of Nabakrushna Choudhury Centre for Development Studies (NCDS). Your guidance, wisdom, and valuable suggestions have been invaluable in shaping the direction of this study. Many thanks to NCDS administration for their continuous support for smooth functioning of the research work. I want to acknowledge the contributions of Research team (Research Associates, Project Associates, Research Assistants) for their valuable insights and assistance.

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

My sincere gratitude goes out to the Chief District Agricultural Officer (CDAO) of Nabarangpur district, the Scheme Officer, District Programme Coordinator, Block Coordinators, and other block-level officials for their invaluable support in providing crucial information and in smooth completion of the Baseline Study, Phase VI 2022. Once again, thank you all for your invaluable contributions, dedication, and support. It has been a privilege to work alongside each of you, and I look forward to continued collaboration in our future endeavours. I extend my best wishes for the success of the publication.

Dr. Sandhya R. Mahapatro
Project Director

EXECUTIVE SUMMARY

Nabarangpur district is one of the 17 districts where the “Special Programme for the Promotion of Millets in Odisha”, hereafter SAA Phase VI has begun in the Kharif 2021 in Dabugaon, Nandahandi, Raighar and Tentulikhunti Blocks. The study, conducted by the Nabakrushna Choudhury Centre for Development Studies (NCDS), aims to capture the socio-economic conditions, cropping patterns, and millet production-consumption dynamics among tribal households prior to programmatic interventions in Phase VI of SAA.

A total of 2714 programme households were identified for the SAA intervention in Nabarangpur, from which 320 households were selected through multi-stage stratified random sampling. The socio-economic profile revealed that a dominant share—75.94% of the surveyed households—belonged to Scheduled Tribes (STs), reflecting the demographic priority of the SAA. Scheduled Castes comprised 3.44%, OBC/SEBC 15.94%, and others 4.69%. The population of 1636 individuals were slightly male dominated, with 52.32% male and 47.68% female, and 96.87% of the households identified as Hindu, indicating the homogeneity of religious affiliation in the region.

Economically, 43.52% of the population was engaged in farming, and a considerable segment 27.44% were students. Wage laborers formed only 1.89%, while other employment categories like government, private sector, or self-employed were minimal. The average housing conditions point toward semi-permanence, with 48.44% of homes being semi-pucca, 44.06% kutcha, and only 7.5% pucca. 98.13% of the sample households possessed ration cards, indicating strong integration with government welfare schemes.

The demographic profile of the surveyed households in Nabarangpur shows a predominantly young population, with 39.67 percent in the 19–44 years age group, reflecting a strong working-age base. Children (6–12 years) and adolescents (13–18 years) together account for 26.41 percent, while the elderly (60 years and above) form 9.54 percent of the total population. Educationally, the district reflects modest attainment—27.79 percent of individuals are illiterate, 15.59 percent educated up to primary level, and 13.37 percent up to secondary level. Only 9.33 percent have completed graduation, 1.96 percent post-graduation, and 2.35 percent hold technical qualifications.

The landholding pattern revealed that 49.06% of households owned between 2 and 5 acres, and 31.88% owned less than 2 acres. Only 2.5% had more than 10 acres, while 3.44% were landless. Income levels reflected a low-income agrarian base: 36.88% earned ₹40,001–₹80,000 annually, and 20.31% earned below ₹40,000. Only 5.63% reported income above ₹2 lakhs.

The cropping pattern in Nabarangpur district reveals that millets are the predominant crop, cultivated by 275 households (85.94%) across all four surveyed blocks, followed by paddy (62.5%), while vegetable and other crop cultivation remains negligible. Out of the total operational area of 1,092.14 acres, 22.19 percent is under millets, with Tentulikhunti having the highest share (33.46%). The total millet production stands at 634.8 quintals with an average yield of 2.62 quintals per acre, and all farmers exclusively cultivate Mandia. Nearly all millet growers (96.37%) expressed satisfaction with seed quality, and 96.5 percent continue to rely on local seed varieties.

In terms of agronomic practices, Broadcasting method (38.31%), was the most widely used method, followed by Line Sowing (30.18%), Line Transplantation (22.55%) and System of Millet Intensification

(SMI) at 8.36%. Among the 45 households not cultivating millets, 14.06 percent of the total, the major reason is lack of profitability, along with land shortage and limited seed availability.

The baseline survey in Nabarangpur District shows that 90.31% (289) of the sample households consume millets with an average consumption of 56.65 kg per household per year. In terms of meal distribution, millets were most consumed at lunch (98.62%), followed by evening snacks (96.89%), dinner (94.12%), and breakfast (70.93%). Seasonal consumption is highest in summer (99%), followed by the rainy (91%) and winter seasons (83.4%). In terms of recipes, Jau/Torani is universally consumed across all blocks, while Tampo/Pitha, Khiri, and Idli/Upma are consumed to varying degrees.

Marketing channels, however, remain underdeveloped. 87% of households sold to middlemen, 3.4% to local moneylenders, and only 8.5% used regulated markets (mandis). A troubling finding was that 66.1% of households had resorted to distress sales to meet emergency financial needs.

The demographic profile—largely tribal, young, and dependent on agriculture—offers both a challenge and an opportunity. With the right interventions, SAA in Nabarangpur can boost nutritional security, climate resilience, and tribal livelihoods. The baseline data serves as a vital benchmark to assess future program performance and identify areas for adaptive implementation.

In conclusion, the baseline study for Phase VI of the Shree Anna Abhiyan in Nabarangpur presents a positive picture of millet revival efforts but underscores systemic barriers in production efficiency, marketing, and consumption. With targeted support and institutional convergence, SAA can transform millet into a pillar of sustainable rural development in the district.

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ABBREVIATIONS

AAO	: Assistant Agriculture Officer
AL	: Agricultural Labour
ATMA	: Agricultural Technology Management Agency
AWC	: Anganwadi Centre
CBOs	: Community Based Organisations
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 Agency
FGD	: Focused Group Discussion
FPC	: Farmer Producer Company
FPO	: Farmer Producer Organization
GP	: Gram Panchayat
FAQ	: Fair Average Quality
Ha	: Hectares
HHs	: Households
ICDS	: Integrated Child Development Scheme
ITI	: Industrial Training Institute
LS	: Line Sowing
LT	: Line Transplanting
MDM	: Mid-Day Meal
MFP	: Minor Forest Produce
MGNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	: Mahatma Gandhi National Rural Employment Guarantee Scheme
MSP	: Minimum Support Price
NCDS	: Nabakrushna Choudhury Centre for Development Studies
OBC	: Other Backward Classes
OC	: Other Castes
OFS	: Odisha Finance Service
SAA	: Shree Anna Abhiyan
PDS	: Public Distribution System
SC	: Scheduled Castes
SMI	: System of Millet Intensification
SP	: Sale Price
ST	: Scheduled Tribes
WASSAN	: Watershed Support Service and Activities Network

CHAPTER I

INTRODUCTION

1.1 Background

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

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

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

The SAA program launched in 2017-18 by the govt of odisha tried to revive these nutrient-rich millets in the agricultural landscape. 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 2021-22, the SAA (formerly OMM) was expanded to 58 blocks of 17 districts, including four blocks of Nabarangpur districts. This baseline survey report aims to provide the survey report aims up provide the status of millets production, consumption status of millets production, consumption, processing and marketing in these four blocks before the implementation of the programme.

1.2 District Profile

Nabarangpur district, situated in the lush green forests of southwestern Odisha, is a picturesque district that was established on October 2, 1992, as per State Government Notification No.DRC-44/93/14218/R. Prior to that, it was a sub-division of the undivided Koraput district. The district shares its boundaries with Raipur and Bastar districts of Chhattisgarh in the north and west, Kalahandi and Rayagada districts in the east, and Koraput district in the south. The district covers an area of 5,294 sq. km, with vast forest coverage of 1583.4 sq. km. It lies between 20.3 to 17.5 degrees North latitude and 81.27 to 84.1 East longitude. Nabarangpur town is the administrative headquarters of the district. The district comprises one Sub-division (Nabarangpur), 10 Tehsils and 10 Blocks. As per the 2011 Census, the district has a population of 1220946, with more than ten types of tribes accounting for half of the population. The sex ratio of the district is 1018. The tribes of Nabarangpur district mainly depend on agriculture and forest products for their livelihood.

1.2.1 Geography and Topography

Nabarangpur district, also known as Nabarangpur, is situated at 19.14' latitude and 82.32' longitude, with an average elevation of 572 metres (1877 ft). The district is primarily a flat forested plateau with dense forest coverage in the north and east. In the western part of the district, there are some low hills that rise up to 1000 metres. The southern area of the district is characterized by the plains of the Indrāvati River, which forms a significant part of the border with Koraput district. The easternmost boundary, which is close to Rayagada, lies in the Eastern Ghats. In the northeast of the district, there is a region named Panabeda Mutta around Chandahandi, situated around 150 metres above sea level. Nabarangpur district shares its borders with Kalahandi and Koraput districts in Odisha and Raipur districts in the north, and Dhamtari and Bastar districts in the west of the neighbouring state of Chhattisgarh.

1.2.2 Economy

The majority of people in Nabarangpur depend on agriculture for their livelihood, and 40% of the total land in the district is under cultivation. This district is predominantly an agricultural area, with more than 90 % of its inhabitants relying on farming. However, the farming community largely depends on rainfall due to the lack of irrigation facilities. To improve the cultivation of fruits and vegetables, the National Horticulture Mission is taking various steps in the district.

In addition to agriculture, some industries have been established in recent years. Nabarangpur district is rich in natural resources such as iron, chlorite, mica, and quartz. The village of Heeraput near Umerkote has a considerable deposit of hematite and limonite, each containing approximately 60 irons. Similarly, the Tentulikhunti area of Nabarangpur has fairly large deposits of granite. The north of Nabarangpur district, up to the border of Kalahandi, has rock beds covering layers of coarse white quartz. Although industrial penetration in Nabarangpur district is limited, these minerals found in the district sustain various industries in other parts of the country. Although the economy of Nabarangpur is primarily focused on agriculture, the district has huge potential for the growth of other industries, especially in the mining sector.

1.2.3 People and Culture

According to the 2011 census, the total population of Nabarangpur district was 1,220,946 with 1,133,321 living in rural areas and 87,625 in urban areas. Scheduled Tribe (ST) and Scheduled Caste (SC) populations comprise 55.80 % and 14.50 % of the district population, respectively. The district is mainly inhabited by tribes such as Kandha, Paraja, and Soura. The population density is 231 people per sq.km with a decadal growth rate of 18.81 %, compared to the state's population density of 270 people per sq.km and decadal growth rate of 14.0 %. The district has 891 census villages (including 23 uninhabited villages) spread across 10 Blocks. The literacy rate in the district is 46.4%, compared to the state's rate of 72.9 %. The level of urbanisation is 7.18 % of the total district population, compared to the state's level of 0.21 %. As per the 2011 Census, the most spoken language in the district was Odia, with 68.64 % of the population speaking it. Other languages spoken in the district include Bhatri, Gondi, Bengali, Chhattisgarhi, Desia, Halbi, Kui and Kuvi. Major Odia dialects of the region include Desia and Bhatri. In addition, the language of Chhattisgarh in the west influences the border area of the district.

Nabarangpur district, with its 885 villages and 169 Gram Panchayats, is a composite of various religions, with a majority of Hindus, followed by Christians and Muslims. The tribal population, which constitutes half of the district's population, worships Hindu gods, while other tribes like Bhumias and Dombs also reside here. Mirganis, Sankharis, Malis, and Sundhi are some of the tribes found in the district. However, the district has a relatively low literacy rate, with only 38.53 % of the population being literate. The district has several educational institutions, including the a Women I.T.I, Umerkote, Govt. Secondary Training School in Nabarangpur, and Govt. Secondary Training School in Umerkote, to cater to the educational needs of the people.

The district is well-known for its tribal culture, with some of the largest tribes being the Bhottadas and Gonds. Each of these tribes has their language, customs, and folk dances, although they all understand and speak Odia. The Chherchhera dance is well-known among the Bhottadas. The tribal in the district still follow their traditional religion, although it has been heavily influenced by Hindu customs. Generally, the tribes have certain similarities, such as totemistic clans, similar settlement patterns, and the usage of Mahua. Some major festivals unique to the tribal of Nabarangpur include Pus Parab (Pousha Parba), Magha Parab, and Chaitra Parab.

The Mondei Festival is one of the most widely celebrated festivals in the district, and it marks the end of the harvest season. The district experiences rainfall much earlier than the rest of the state due to its location, receiving rain directly from the Arabian Sea through the Southwest direction. The district enjoys a total annual rainfall of 16912.57 mm, with the plateau areas remaining cool throughout the

year, located between 2,000 and 3,000 feet. The district's diverse religious and cultural background is reflected in its various festivals and traditions. Along with Mondei, other popular festivals celebrated in Nabarangpur include Dussehra, Diwali, Holi, and Christmas. The district is also known for its unique handicrafts, such as bamboo craft, terracotta, and stone carving.

Despite the challenges of low literacy rates and limited access to education, there are efforts to improve the situation. The government and various NGOs are working towards increasing literacy rates and providing better educational facilities to the people of Nabarangpur. Additionally, initiatives to promote traditional art and culture are also being taken up, to preserve and promote the rich cultural heritage of the district. Overall, Nabarangpur district's people and culture are diverse and vibrant, with a unique blend of traditional practices and modern influences. Despite facing various challenges, the people of the district have managed to preserve their cultural heritage and maintain a strong sense of community.

1.2.4 Administrative Structure

Nabarangpur town serves as the administrative headquarters of Nabarangpur district, encompassing one sub-division, 10 Tehsils, and 10 blocks. According to the provisional 2011 Census, the district has a population of 1,220,946, with over 10 different tribes making up half of the population. The sex ratio of the district is 1018, and the tribes predominantly rely on cultivation and forest products for their livelihoods. The language of Chhattisgarh influences the border area of the district to the west. There are 885 villages in Nabarangpur district, which fall under 169 Gram Panchayats, 1 NAC (Umerkote), and 10 Police Stations. The district's religious makeup is diverse, with Hindus, Christians, and Muslims making up a significant portion of the population and tribal communities who worship Hindu gods. Bhumias, Dombs, Mirganis, Sankharis, Malis, and Sundhis are some of the tribes residing in the district, with the Mirganis considered a sub-caste of the Dombs.

The literacy rate in the tribal-dominated district of Nabarangpur is relatively low, with a total of 490,156 literates constituting 38.53 of the population. Of these, 298,688 are males, and 191,468 are females, representing 61.01 and 38.9, respectively. Despite this, there are several educational institutions in the district, including Women's I.T.I of Umerkote, Govt. Secondary Training School in Nabarangpur and Umerkote, and Jawahar Navodaya Vidyalaya in Khatiguda, which is a Central Government-run special school that serves the educational needs of the district.

Table 1.1 Socio-economic and Demographic Features of Nabarangpur District	
Indicators	Value
Population (in Lakh.) (As per Census 2011)	12.20
Male (in Lakh.)	6.00
Female (in Lakh.)	6.20
Scheduled Castes (in Lakh.)	1.80
Scheduled Tribes (in Lakh.)	6.80
Others (in Lakh.)	3.60
Total Households (in Lakh.)	2.70
Average HH Size (in Nos.)	4.50
Sex Ratio	1019
Workers	
Total Worker (in Lakh)	6.10
Main (in Lakh)	2.80
Marginal (in Lakh)	3.30
Non-Worker (in Lakh)	6.10
Work Participation Rate (WPR)	50.03
Literacy Rate	46.40
Land Use Pattern 2018-19 (Area in Hectares)	
Total Geographical Area (sq.km.)	5294.00
Forest (sq. km.)	1583.40
Land Put to Non-Agricultural Use	31408
Barren & Non-Cultivable Land	13158
Permanent Pasture& Other Agricultural Land	17719
Net Area Sown	151826
Cultivable waste Land	16765
Old Fallow	20694
Current Fallows	32347
Misc. Trees and Groves	27147
Average Fertilizer Consumption per ha (in kg/ha)	151.03
Agriculture 2018-19*	
Total Production of Major Crops (In '000MT)	777.70
Total Ragi Production (in '000 MT)	1.80
Irrigation Potential Created – 2017-18* (Area in '000 Hectares)	
Kharif	54.40
Rabi	34.18
Other Information	
No. of Village Electrified (as on 31.03.21)	820
No. of AWC	2221
No. of PDS centres (2011)	84
No. of Job Card Issued (since inception in Lakh)	2.38
No. of HH demanded employment under MGNREGA during 2017-18 (in Lakh)	0.98
No. of HH provided employment under MGNREGA during 2017- 18 (in Lakh)	0.92
Kisan Credit Card (Households)	102625

Source: District Statistical Handbook, Nabarangpur 2018

1.3 Objectives

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

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

1.4 Methodology

1.4.1 Sample Design

The SAA programme (formerly known as OMM in the state) has been implemented in a phased manner. It started in 28 blocks of 7 districts in Phase I during 2017-18, later it has expanded to 176 blocks of all 30 Districts of the state in different phases. Under Phase VI of the implementation of the programme, the Government of Odisha's Department of Agriculture and Farmers Empowerment introduced the "Special Programme for Promotion of Millets in Odisha" included an additional 58 Blocks across 17 Districts of the state including four blocks of Nabarangpur, namely, Dabugaon, Nandahandi, Raighar and Tentulikhunti.

From the list provided by the SAA Programme Secretariat, there were 2714 beneficiary households in 169 villages less than 39 Gram Panchayats covering 4 blocks in the Nabarangpur district. For conducting the Baseline Survey 2022, Phase VI, multi-stage sampling methods has been followed. In the first stage, four blocks, namely, Dabugaon, Nandahandi, Raighar and Tentulikhunti have been purposively selected for the study as SAA is going to be implemented in these four blocks in Phase VI.

The programme is going to be implemented in 8 GPs of Dabugaon block, 11 GPs of Nandahandi block, 15 GPs of Raighar block and 5 GPs of Tentulikhunti block. In the second stage, two GPs of each block have been selected for the study in consultation with the respective Facilitating Agencies (FAs) and district level officials of the agriculture department. Borigam and Junapani GPs from Dabugaon block, Dohana and Nishanhandi from Nandahandi block, Ganjapara and Naktisimda GPs from Raighar block and Lamtaguda and Pujariguda form Tentulikhunti block have been selected for the study.

In the third stage, two villages from each GP 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, a total number of 320 households from the 16 villages of eight GPs and four blocks have been selected for the study. The block wise number of programme households and sample households have been presented in the following table 1.2.

Table 1.2: Sample Households in Nabarangpur District

Blocks	Programme Households (No)	Sample Households (No)	% HHs Covered under the Survey
Dabugaon	783	80	10.22
Nandahandi	568	80	14.08
Raighar	809	80	9.89
Tentulikhunti	554	80	14.44
Total	2714	320	11.79

Source: Facilitating Agency and Field Survey, 2022

1.4.2 Data Collection, Compilation and Analysis

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

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

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

The report provides information on status of millet production, consumption, processing and marketing in the selected villages and serves as a reference point to measure the progress made due to the implementation of SAA.

1.5 Limitations of the Study

The present Baseline Survey Report focuses solely on four Blocks of the Nabarangpur District. However, due to the onset of the harvesting season, coupled with both in and out-migration, some household heads and female respondents were found to be absent during the data collection process. Despite these challenges, it is important to acknowledge the limitations of the present study.

Firstly, due to logistical reasons and other difficulties, such as the non-availability of respondents, the study was limited to a random sample of 160 households. Secondly, there is the possibility of recall

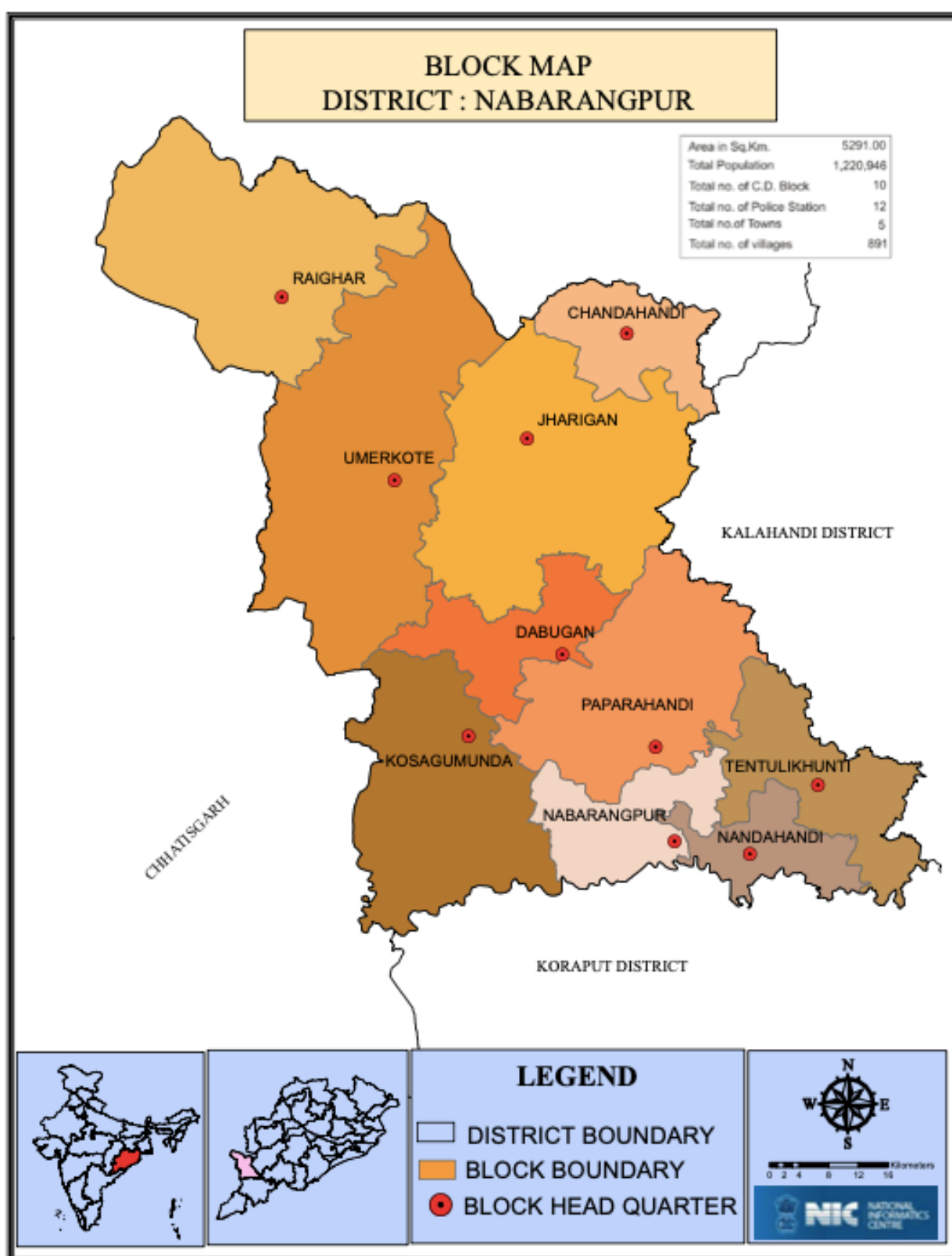
error, especially in cases involving the actual quantity of consumption and marketing, among others. Lastly, in some instances, sample households, particularly non-participant farmer households, consumed millets without producing them. This was made possible by past stock and acquiring of millets through exchange and barter. Unfortunately, these details were not captured during the survey.

It is essential to consider these limitations while interpreting the findings of the survey. Under the programme further 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 evaluate the programme in subsequent periods.

1.6 Chapters

This report, has been divided into six Chapters, including the current introductory Chapter I, which provided the district profile, objectives, methodology and limitations. Chapter II provides the socio-economic Profile of sample households. Chapter III provides details on the production and productivity of Millets. Chapter IV discusses the consumption pattern of millets. Chapter V elucidates the processing and marketing of millets.

Figure 1.1: Map of Nabarangpur District



Source: Nabarangpur District Website

CHAPTER II

SOCIAL AND ECONOMIC PROFILE

2.1 Introduction

This chapter describes the social and demographic profile of households surveyed under Baseline Survey, 2022, Phase VI, which includes the distribution of sample households by their social groups, and the distribution of the sample population, by their sex as well by their education status across the sample four blocks in Nabarangpur district. It also provides information about the distribution of households by their religion. It also provides information regarding occupational distribution of population, possession of Ration Card as well as by their house structure.

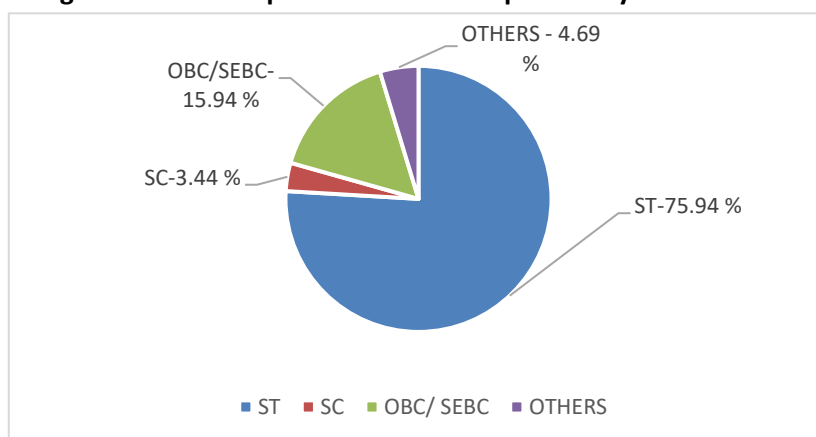
2.2 Social and Demographic Profile

This section discussed the social composition, economic activities, poverty, and housing structures of the sample households.

2.3 Social Composition

The analysis of social composition of sample households under the Baseline Survey, 2022, Phase VI in Nabarangpur district shows that out of total of 320 surveyed households, a majority of about 75.94 % households belongs to the Scheduled Tribes (STs), while SCs, OBCs/SEBCs and Others social groups households constitute 3.44 %, 15.94 %, and 4.7 % of total households respectively. (Table 2.1 and Fig 2.1).

Fig.2.1: Social Composition of the Sample Surveyed Households



Similarly block-wise distribution of households in Dabugaon block reveals that about 72.5 % households belong to the ST, 2.5 % belong to the SC, 23.75 % to the OBC/ SEBC and only 1.25 % of the total sample population belong to others social categories. Similarly, in Nandahandi block, 75 % of total households belong to STs, 3.75

% of them belong to SCs, 13.75 % of them belong OBC/SEBC and 7.5 % of households belong to others social categories. In the similar vein, in Raighar Block, about 97.50 % belong to STs, no one belongs to SCs, 1.25 % of them belongs OBC/ SEBC and 1.20 % of households belong others social categories. Social composition of surveyed households in Tentulikhunti block shows that there are about 58.75 % of households belong to ST, 7.5 % of them belong to SC, 25 % of them belong OBC/ SEBC and 8.75 % of them belong to Others Social Categories.

Table 2.1: Social Composition of the Sample Surveyed Households										
Particulars	Dabugon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
ST	58	72.5	60	75	78	97.5	47	58.75	243	75.94
SC	2	2.5	3	3.75	0	0	6	7.5	11	3.44
OBC/ SEBC	19	23.75	11	13.75	1	1.25	20	25	51	15.94
OTHERS	1	1.25	6	7.5	1	1.25	7	8.75	15	4.69
Total	80	100	80	100	80	100	80	100	320	100

Source: Baseline Survey, 2022

2.4 Distribution of Sample Population by Sex

According to 2011 Census, the total population of Nabarangpur district was 1220946 comprising of 1133321 rural and 87655 urban population. The Scheduled Tribe (ST) and Scheduled Cast (SC) population constituted 55.80 % and 14.50 % of total population of the district. However, survey data reveals that - out of total 1636 population (of surveyed households) 52.32 % of them are males and 47.68 % of them are female population. (Table 2.2)

Table 2.2: Distribution of Sample Population by their Sex						
Blocks	Male		Female		Total	
	No	%	No	%	No	%
Dabugaon	202	49.27	208	50.73	410	100
Nandahandi	235	53.41	205	46.59	440	100
Raighar	213	54.06	181	45.94	394	100
Tentulikhunti	206	52.55	186	47.45	392	100
Total	856	52.32	780	47.68	1636	100

Source: Baseline Survey, 2022

The distribution of population by sex of each block is presented in Table 2.2. In Dabugaon block, the total population of surveyed households are 410 out of which 49.27 % are male and 50.73 % are female. Likewise, in Nandahandi block, out of 440 total population of the surveyed households 53.41 % are male and 46.59 % are female. In Raighar block, out of total 394 populations, 54.06 % are male and 45.94 % are Females. In the same vein, in Tentulikhunti block, out of total 392 populations, 52.55 % are male and 47 % are female. Except Dabugaon block in other three surveyed blocks the share of male presentation is more than that of female population.

2.5 Religious Distribution

The religious distribution of the surveyed HHs across the four selected blocks reveals the overwhelming presence of Hindu HHs across the blocks. Out of total 320 surveyed households 310 are Hindu which constitute about 96.87 % of total households while only 10 households are Christian which constitute only 3.13 % of the sample HHs across the four blocks. Similarly, the composition of HHs by their religion in each block shows that in Dabugaon block, out of total 80 sample households 98.75 % are Hindu and 1.25 per are Christian. Likewise, in Nandahandi block, out of 80 surveyed HHs about 91.25 % households are Hindu and rest 8.75 % are Christian. However, in Raighar block, all the sample households are Hindu. In Tentulikhunti, out of total 80 households 97.50 % are Hindu and 2.5 % are Christian. The Christian

households are present in three blocks i.e Dabugaon, Nandahandi and Tentulikhunti. In all three blocks their presence is very low. (Table 2.3)

Table 2.3: Distribution of the Sample Households by Religion						
Blocks	Hindu		Christian		Total	
	No	%	No	%	No	%
Dabugaon	79	98.75	1	1.25	80	100
Nandahandi	73	91.25	7	8.75	80	100
Raighar	80	100	0	0	80	100
Tentulikhunti	78	97.50	2	2.50	80	100
Total	310	96.87	10	3.13	320	100

Source: Baseline Survey, 2022

2.6 Population Distribution by Age Groups

Table 2.4 shows that the distribution of the population across different age groups in the four blocks of Dabugaon, Nandahandi, Raighar, and Tentulikhunti. The total population of the surveyed households comes to around 1636.

Table 2.4: Distribution of Population by Age Groups										
Age	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
Infant (0-2 Year)	14	3.41	22	5	6	1.52	21	5.36	63	3.85
Preschool (3-5 Year)	20	4.88	19	4.32	22	5.58	26	6.63	87	5.32
Children (6-12 Year)	60	14.63	47	10.68	40	10.15	49	12.50	196	11.98
Adolescent (13-18 Year)	58	14.15	61	13.86	57	14.47	60	15.31	236	14.43
Young Adults (19-44 Year)	163	39.76	177	40.23	171	43.40	138	35.20	649	39.67
Middle Age (45-59 Years)	56	13.66	66	15	70	17.77	57	14.54	249	15.22
Old (60 & above)	39	9.51	48	10.91	28	7.11	41	10.46	156	9.54
Total	410	100	440	100	394	100	392	100	1636	100

Source: Baseline Survey, 2022

The age-wise distribution of population across the study blocks highlights a predominantly young demographic structure. Infants (0–2 years) comprise 3.41 % in Dabugaon, 5.00 % in Nandahandi, 1.52 % in Raighar, and 5.36 % in Tentulikhunti, contributing 3.85 % to the total population. Preschool children (3–5 years) account for 4.88 % in Dabugaon, 4.32 % in Nandahandi, 5.58 % in Raighar, and 6.63 % in

Tentulikhunti, forming 5.32 % overall. Children aged 6–12 years constitute 14.63 % in Dabugaon, 10.68 % in Nandahandi, 10.15 % in Raighar, and 12.50 % in Tentulikhunti, representing 11.98 % of the total. Adolescents (13–18 years) make up 14.15 % in Dabugaon, 13.86 % in Nandahandi, 14.47 % in Raighar, and 15.31 % in Tentulikhunti, with a combined share of 14.43 %. Young adults (19–44 years) dominate the population with 39.76 % in Dabugaon, 40.23 % in Nandahandi, 43.40 % in Raighar, and 35.20 % in Tentulikhunti, together comprising 39.67 %. Middle-aged groups (45–59 years) account for 13.66 %, 15.00 %, 17.77 %, and 14.54 % respectively, totaling 15.22 %. The elderly (60 years and above) form 9.51 % in Dabugaon, 10.91 % in Nandahandi, 7.11 % in Raighar, and 10.46 % in Tentulikhunti, amounting to 9.54 % of the total.

2.7 Education Status

The field survey reveals the educational profile of 1,533 individuals across the four blocks: Dabugaon, Nandahandi, Raighar, and Tentulikhunti. (Table.2.5)

Table 2.5: Distribution of Population by their Education										
Education Status	Blocks									
	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
Illiterate	106	29.53	127	30.02	88	23.16	105	28.30	426	27.79
Up To Class 5	48	13.37	63	14.89	56	14.74	72	19.41	239	15.59
Class 6-10	40	11.14	51	12.06	75	19.74	39	10.51	205	13.37
Higher secondary	35	9.75	32	7.57	37	9.74	29	7.82	133	8.68
Graduation	41	11.42	30	7.09	41	10.79	31	8.36	143	9.33
Post-Graduate	6	1.67	10	2.36	6	1.58	8	2.16	30	1.96
Technical	4	1.11	20	4.73	4	1.05	8	2.16	36	2.35
Professional	14	3.90	9	2.13	15	3.95	8	2.16	46	3
Others	65	18.11	81	19.15	58	15.26	71	19.14	275	17.94
Total	359	100	423	100	380	100	371	100	1533	100

Source: Baseline Survey, 2022

The educational profile of the population indicates a significant share of illiteracy at 27.79 %, ranging from 23.16 % in Raighar to 30.02 % in Nandahandi. Individuals educated up to Class 5 form 15.59 %, highest in Tentulikhunti (19.41%) and lowest in Dabugaon (13.37%). Those with Class 6–10 schooling represents 13.37 %, with Raighar recording the highest (19.74%) and Tentulikhunti the lowest (10.51%). Higher secondary education accounts for 8.68 %, while graduation represents 9.33 %. Post-graduates constitute only 1.96 %, and technical education is held by 2.35 % of the population. Professional qualification holders account for 3.00 %. The category ‘Others’ (which may include informal, or non-conventional education) accounts for 17.94%, with shares ranging from 15.26% in Raighar to 19.15% in

Nandahandi. In summary, while nearly one-third of the population lacks formal education, there is also a notable share with secondary and higher education. However, technical, and professional qualifications remain limited, indicating a potential area for educational and skill development interventions.

2.8 Ration Card

Table 2.6 shows the distribution of sample households by their possession of ration card across the four selected blocks of Nabarangpur. It shows that out of total 320 sample households a very significant majority, i.e., 98.13 % households possess ration card. The block wise distribution of sample households by their ration card possession reveals that in Dabugaon block all the sample households possess ration card. While in Nandahandi block, 95 % of sample household possess rational card and while 5 % do not possess ration card. Like Dabugaon block, in Raighar block also all the sample households possess ration card. While in Tentulikhunti block, 97.50 % of sample households possess ration card but 2.50 % of sample households do not possess ration card.

Table 2.6: Distribution of HHs by Possession of Ration card						
Blocks	HHs' Ration Cards Holding Status				Total	
	HHs without Ration Cards		HHs with Ration Cards			
	No	%	No	%	No	%
Dabugaon	0	0	80	100	80	100
Nandahandi	4	5	76	95	80	100
Raighar	0	0	80	100	80	100
Tentulikhunti	2	2.50	78	97.50	80	100
Total	6	1.88	314	98.13	320	100

Source: Baseline Survey, 2022

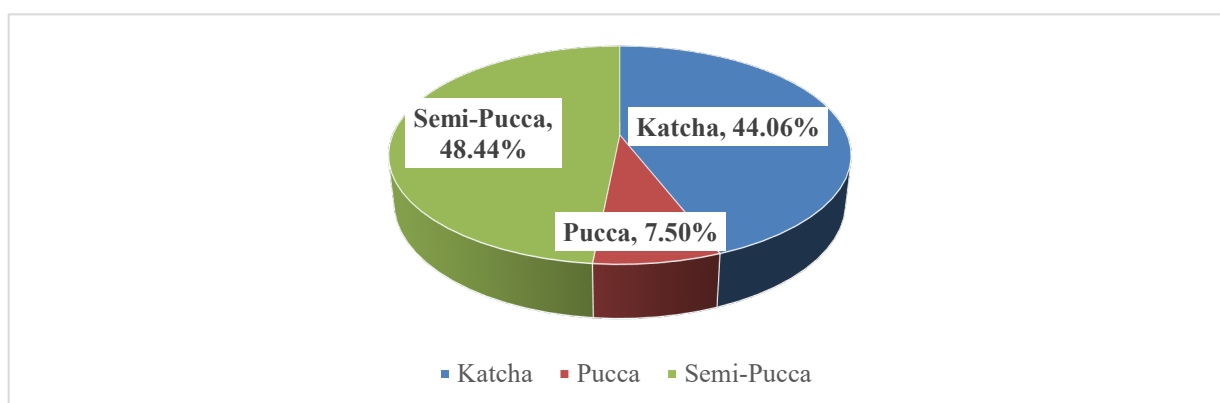
2.9 House Structure

The house structure often considered as an important indicator of the social and economic status of the family. Field data shows that out of 320 surveyed HHs across the four selected blocks in Nabarangpur district majority of 155 (48.44%) HHs reported that they have Semi-Pucca houses which constitute about 48.44 % of total HHs. While 141 (44.06%) HHs has Kutcha house and only 24 has Pucca houses which constitute about 7.50 % of the total surveyed HHs. (Fig 2.2)

Table 2.7: Distribution of HHs by their House Structure								
Blocks	Kutcha		Pucca		Semi-Pucca		Total	
	No	%	No	%	No	%		
Dabugaon	40	50	4	5	36	45	80	100
Nandahandi	46	57.50	9	11.25	25	31.25	80	100
Raighar	33	41.25	2	2.50	45	56.25	80	100
Tentulikhunti	22	27.50	9	11.25	49	61.25	80	100
Total	141	44.06	24	7.50	155	48.44	320	100

Source: Baseline Survey, 2022

Fig 2.2: Distribution of HHs by House Structure



Similarly, the Block-wise distribution of HHs' house structure shows that in Dabugaon block majority of HHs has Kutcha houses. Out of total 80 sample households 50 % have Kutcha houses, 45 % of households have Semi-Pucca and while 5 % of households have Pucca houses. Likewise, in Nandahandi block 57.50 % of households have Kutcha houses, 31.25 % of households have Semi-Pucca and 11.25 % of households have Pucca houses. While in Raighar block, majority of households, i.e., 56.20 % of households have Semi-Pucca houses, 41.25 % of households have Kutcha houses and only 2.50 % of households have Pucca houses. In Tentulikhunti block, 61.25 % Semi-Pucca houses, 27.50 % of households have Kutcha houses and 11.25 % of households have Pucca houses. (Table 2.7)

2.10 Occupation

The survey of households in four selected blocks revealed the distribution of sample population by their occupation across blocks (Table 2.8). It shows that out of the total population of 1636 persons, 43.52%

Table 2.8: Distribution of Population by Occupation										
Occupation	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
Farmer	175	42.68	188	42.73	184	46.70	165	42.09	712	43.52
Wage Labourer	8	1.95	13	2.95	6	1.52	4	1.02	31	1.89
Business	4	0.98	0	0	1	0.25	0	0	5	0.31
Govt. Service	1	0.24	1	0.23	0	0.00	4	1.02	6	0.37
Private Service	11	2.68	2	0.45	4	1.02	4	1.02	21	1.28
Housewife	32	7.80	50	11.36	33	8.38	30	7.65	145	8.86
Student	116	28.29	109	24.77	114	28.93	110	28.06	449	27.44
Pension	8	1.95	24	5.45	10	2.54	15	3.83	57	3.48
Unemployed	22	5.37	20	4.55	27	6.85	19	4.85	88	5.38
Child	21	5.12	31	7.05	12	3.05	35	8.93	99	6.05
Others	12	2.93	2	0.45	3	0.76	6	1.53	23	1.41
Total	410	100	440	100	394	100	392	100	1636	100

Source: Baseline Survey, 2022

are farmers, followed by students 27.44 %. While only 1.89 % of them worked as wage labourers, and 0.31 % each was artisans and business owners. Government employees accounted for 0.37 %, while private employees were 1.28 %. Housewives made up 8.86 % of the population, pension holders 3.48 %, and children 6.36 %. The unemployed and others had 5.38 % and 0.79 % respectively.

Similarly, the block-wise distribution of population by their economic activities is presented in Table 2.5. It shows that in Dabugaon, out of the 410 population, 42.68 % are farmers followed by 28.29 % are students. While only 1.95 % worked as wage labourers, and 0.98 % are business owners. Share of government and private employment to the total population, account for 0.24 % and 2.68 %, respectively. While about 1.95 % is pension holders, 7.80 % housewife. About 5.37 % of population under the working age group are unemployed. Likewise, in Nandahandi out of the total population of 440 persons, 42.73 % are farmers, 24.77 % are students, 2.95 % are wage labourers, 0.23 % is government employees, 0.45 % is private employees, 11.36 % are housewives and 5.45 % are pension holders. While about 7.05 % are children, 4.55 % of population under the working age group are unemployed while only 0.45 % have other occupation. In the same vein in Raighar, out of 394 population 42.09 % are farmer, 28.06 % are students, 1.52 % are wage labourers, and 0.25 % are business owner. While about 1.02 % is private employees, 8.38 % are housewives, 2.54 % pension holders, and 6.85 % of them under the working age group are unemployed.

In Tentulikhunti, out of the total population of 392 persons, 42.09 % are farmer, 28.06 % are students, 1.02 % is wage labourers and 1.02 % is each government and private employee. About 7.65 % are housewives, 3.93 % are pension holders, 8.93 % are children, 4.85 % of population under the working age group are unemployed and 1.53 % has other occupations.

2.11 Annual Income

Table 2.9 shows the distribution of annual income of the sample households. The annual income of households, categorized in six income groups. It shows that majority 36.88 % of the sample households earns between Rs.40,001 to Rs.80,000 rupees annually. It is followed by 25.94 % between Rs.80,001 to Rs.1,20,000, 20.31 % earns up to Rs.40,000 rupees and 7.50 % earns between Rs.1,20,001 to Rs.1,60,000 rupees whereas 5.63 % earns above Rs. 2,00,000 rupees.

Table-2.9 Distribution of Sample HHS by their Annual Income (in lakhs)														
Blocks	Up to 40000		40001-80000		80001-120000		120001-160000		160001-200000		Above 200000		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Dabugaon	19	23.75	32	40	17	21.25	4	5	3	3.75	5	6.25	80	100
Nandahandi	13	16.25	19	23.75	26	32.5	12	15	3	3.75	7	8.75	80	100
Raighar	17	21.25	34	42.50	20	25	3	3.75	3	3.75	3	3.75	80	100
Tentulikhunti	16	20	33	41.25	20	25	5	6.25	3	3.75	3	3.75	80	100
Total	65	20.31	118	36.88	83	25.94	24	7.50	12	3.75	18	5.63	320	100

Source: Baseline Survey, 2022

2.12 Land Ownership Pattern

Table 2.10 present the distribution of sample households by the size of their landownership. It shows majority (49.06 %) of them owns between 2 to 5 acres of land, about 31.88 % owns less than 2 acres, 13.13 % owns between 5 to 10 acres, while about 2.50 % owns more than 10 acres of land and 3.44 % households are landless.

Table 2.10: Sample HHs by their Land Ownership										
Category	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
No Land	3	3.75	3	3.75	2	2.5	3	3.75	11	3.44
Less than 2 Acres	18	22.5	25	31.25	33	41.25	26	32.5	102	31.88
More than 2 to 5 Acres	45	56.25	37	46.25	34	42.5	41	51.25	157	49.06
More than 5 to 10 Acres	13	16.25	11	13.75	10	12.5	8	10	42	13.13
More than 10 Acres	1	1.25	4	5	1	1.25	2	2.5	8	2.50
Total	80	100	80	100	80	100	80	100	320	100

Source: Baseline Survey, 2022

2.13 Conclusion

Majority of the surveyed households across the four selected blocks belongs to Scheduled Tribe (ST). Agriculture is the primary occupation for most of the people. From the various social and economic indicators reveal that out of all 320 surveyed HHs across the four blocks of Nabarangpur district majority of them possess ration cards and have *Semi-Pucca* houses.

CHAPTER III

PRODUCTION OF MILLETS

3.1 Introduction

The Baseline Survey, 2022 was conducted to assess the situation of millets production in the target villages before the implementation of the programme interventions. This chapter analyses the data collected from the four selected blocks of Nabarangpur district, namely Dabugaon, Nandahandi, Raighar and Tentulikhunti. The analysis focuses on the distribution of area under millets and other crops, the usage of seeds and agronomic practices, as well as the production and yield of millets in the sample villages. The chapter also highlights the challenges and opportunities for promoting millets in the study area.

3.2 Cropping Pattern of Households

The distribution of sample households by crop types across the four blocks—Dabugaon, Nandahandi, Raighar, and Tentulikhunti—offers important insights into the cropping patterns in the study area. The data captures the cultivation preferences for paddy, millets, vegetables, and other crops. Millets emerged as the most widely cultivated crop, with 275 households (85.94%) across all blocks engaged in millet farming. Raighar had the highest proportion of millet cultivators (91.25%), followed closely by Tentulikhunti (88.75%), Nandahandi (83.75%), and Dabugaon (80.00%). Paddy is also a prominent crop, cultivated by 200 households (62.5%). Block-wise, paddy cultivation is relatively uniform, with Nandahandi and Tentulikhunti both at 65%, followed by Dabugaon at 62.5%, and Raighar at 57.5%. This indicates that paddy remains a staple component of the cropping system, although slightly less dominant than millets. Notably, no household reported growing vegetables in any of the surveyed blocks. The category of Other Crops was reported by only 4 households (1.25%) in the district. (Table 3.1)

Table 3.1: Distribution of Sample HHs by Cropping Pattern						
Blocks	Paddy		Millets		Other crops	
	No	%	No	%	No	%
Dabugaon	50	62.50	64	80	1	1.25
Nandahandi	52	65	67	83.75	0	0
Raighar	46	57.50	73	91.25	2	2.50
Tentulikhunti	52	65	71	88.75	1	1.25
Total	200	62.50	275	85.94	4	1.25

Source: Baseline Survey, 2022

3.3 Operational Area under Crops

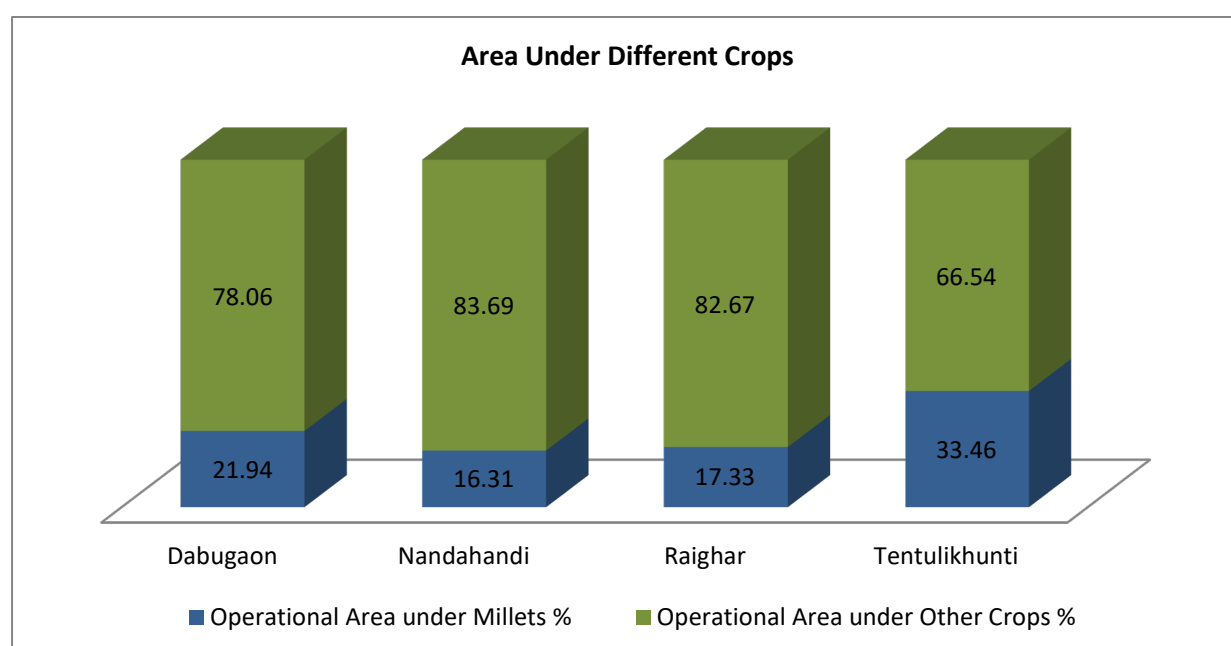
The distribution of operational area under millets and non-millet crops across the four surveyed blocks in the Nabarangpur district reveals that major portion of the operational areas in the district is under others crops. Out of the total 1092.14 acres of operational areas about 242.34 acres (22.19 %) of total

operational land area is under millets cultivation and about 849.8 acres (77.81 %) is under non millet crops. The block-wise distribution of the operational area under millets and other crops shows that in Dabugaon block out of total acres of operational areas 21.94 % is under millets and 78.06 % is under other crops. Similarly, in Nandahandi, out of total 351.29 acres of operational area about 16.31 % is under millets cultivation and 83.69 % is under other crops. In Raighar block, out of total 199.7 acres of operational holdings about 17.33 % is under millets cultivation and 82.67 % is under other crops. In Tentulikhunti block, out of the total 275.4 acres of operational areas about 33.46 % is under millets cultivation and 66.54 % acres is under other crops. (Table 3.2)

Table 3.2 Distribution of Operational Area under Different Crops						
Blocks	Operational Area under Millets		Operational Area under Non- millet Crops		Total Operational Area	
	Area (In acres)	%	Area (In acres)	%	Area (In acres)	%
Dabugaon	58.3	21.94	207.45	78.06	265.75	100
Nandahandi	57.29	16.31	294	83.69	351.29	100
Raighar	34.6	17.33	165.1	82.67	199.7	100
Tentulikhunti	92.15	33.46	183.25	66.54	275.4	100
Total	242.34	22.19	849.8	77.81	1092.14	100

Source: Baseline Survey, 2022

Fig 3.1 Operational area under Different Crops



3.4 Area, Production and Yield of Millets

Table 3.3 presents the distribution of areas under millets cultivation, production, and average yield in the Nabarangpur district. The analysis of surveyed data from the 320 sample households across the four blocks of Nabarangpur district shows that around 85.94% households are cultivating millets. There are about 242.34 acres of operational lands under millets cultivation. It reveals that the total production of millets among the 320 surveyed households across the four Blocks is 634.8 quintals, and the average yield in these four blocks is 2.62 quintals per acre. All the surveyed households are cultivating Mandia not any other types of millets in Nabarangpur district.

The block-wise analysis of production and yields reveals that in Dabugaon, total production of millets is 208 quintals and the average yield is 3.57 quintals per acre. Similarly, in Nandahandi block, the total production of millets by surveyed households is 168.7 quintals and average yield per acre is 2.94 quintals. In Raighar block, total millets production of surveyed households is 82.05 quintals and average yield is 2.37, which is slightly higher than the Dabugaon and Nandahandi block.

Table 3.3: Area, Production and Yield of Millets				
Blocks	No of HHs Cultivating Millets (%)	Millets Area (in Acres)	Millets Production (in Qtls.)	Yield (Qtls. / Acre)
Dabugaon	64(80%)	58.3	208	3.57
Nandahandi	67(83.75%)	57.29	168.7	2.94
Raighar	73(91.25%)	34.6	82.05	2.37
Tentulikhunti	71(88.75%)	92.15	176.05	1.91
Total	275(85.94%)	242.34	634.8	2.62

Source: Baseline Survey, 2022

3.5 Perception on Quality of Seeds Used

The Baseline Survey, 2022 reveals that as per the millets farming households in Nabarangpur district seed quality is a crucial component of cultivation and crop production. Most of the time, the quality of seeds used determines the volume of production. High-quality seeds are preserved for the next crop to reap the benefits. It was attempted to understand the general perception of millet farmers, on the quality of seeds they use for millets cultivation. Out of the 275 millet producing sample households in Nabarangpur district about 265 (96.37%) are satisfied with the quality of seeds they use for millets cultivation.

In Dabugaon block, out of total 62 households about 96.87 % of households are satisfied with the quality of seeds they use and 3.12 % of households did not respond to the question. Similarly, in Nandahandi block out of total 67 millet cultivating households 98.50 % of households are satisfied about the quality of seeds they use for millet cultivation while 1.49 % of households did not respond to the question

asked. Likewise, in Raighar block, out of the total 73 sample households about 95.9 % of households are satisfied with the quality of seeds they use while 4.10 % households did not respond the question. In Tentulikhunti block also out of the total 76 sample households, about 94.36 % households are satisfied with the quality of seeds they use for millets cultivation, while only 4 i.e 5.63 % households did not respond to the question. In all the blocks no sample household mentioned their dissatisfaction over the millets seed used. (Table 3.4)

Table 3.4. Perception of HHs about Millets Seeds Used					
Blocks	Satisfied	%	No Response	%	Total
Dabugaon	62	96.87	2	3.12	64
Nandahandi	66	98.50	1	1.49	67
Raighar	70	95.90	3	4.10	73
Tentulikhunti	67	94.36	4	5.63	71
Total	265	96.37	10	3.63	275

Source: Baseline Survey, 2022

3.6 Types of Millets Seeds Used by Households

The data presented in Table 3.5 reveals that the majority of the sample households across all four blocks predominantly rely on local varieties of seeds for millet cultivation. Out of a total of 275 households, 270 (96.50%) reported using local seeds, while only 5 households (3.33%) were found to be using High Yielding Varieties (HYV). Block-wise analysis shows that in Dabugaon and Nandahandi, all the households (100%) exclusively use local seeds. A slight adoption of HYV seeds is observed in Raighar (4.10%) and Tentulikhunti (2.82%), although the percentage remains marginal.

Table 3.5. Types of Seeds being Used by Sample HHs					
Blocks	Local	%	HYV	%	Total
Dabugaon	64	100	0	0	64
Nandahandi	67	100	0	0	67
Raighar	70	95.90	3	4.10	73
Tentulikhunti	69	97.23	2	2.82	71
Total	270	96.50	5	3.33	275

Source: Baseline Survey, 2022

3.7 Package of Practices

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 HHs. This section discusses the agronomic practices followed by the respondent HHs of the selected Blocks in the Nabarangpur district. The distribution of agronomic practices among the surveyed HHs reveals that most of the HHs (38.91 %) in Nabarangpur is following broadcasting method, while 30.18 % HHs practicing line sowing, the share of Line Transplantation (LT)

and the System of Millets Intensification (SMI) method are followed by 22.55 % and 8.36 % HHs, respectively.

Table 3.6: Package of Practices followed by Households										
Practices	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Grand Total	
	No	%	No	%	No	%	No	%	No	%
Broadcasting	25	39.06	23	34.33	28	38.36	31	43.66	107	38.91
Line Sowing	18	28.13	25	37.31	23	31.51	17	23.94	83	30.18
LT	17	26.56	9	13.43	22	30.14	14	19.72	62	22.55
SMI	4	6.25	10	14.93	0	0.00	9	12.68	23	8.36
Total	64	100	67	100	73	100	71	100	275	100

Source: Baseline Survey, 2022

In Dabugaon block of Nabarangpur district, 28.13 % of households use line sowing (LS) method, 39.06 % of households use broadcasting methods, 26.56 % of households use line transplantation (LT) method, and 6.25 % of households use systematic millets intensification (SMI) method. Similarly, in Nandahandi block, about 37.31 % of them use LS method, 34.33 % of them use broadcasting methods, 13.43 % of them use LT method and 14.13 % did SMI method. Likewise, in Raighar block, 31.51 % of them use LS method, 38.36 % of them use broadcasting methods, and 30.14 % of them use LT methods while not a single household used SMI method. In Tentulikhunti block, about 23.94 % of them use LS methods, 43.66 % of them use broadcasting methods, and 19.72 % of them use LT methods, 12.68 % of the households SMI methods. (Table 3.6)

3.8 Reasons for not Cultivating Millets

Table 3.7 presents the reasons cited by households for not cultivating millets across the four sample blocks. Out of the total 320 households, 45 households (14.06%) are not cultivating millets, while 275 households (85.94%) continue to do so. Among the non-cultivating households, the major reason reported is that millet cultivation is not profitable, followed by shortage of land and non-availability of seeds. The block wise number of households not cultivating millets are shown in the below table.

Table 3.7: Reasons for not Cultivating Millets											
Blocks	Total HHs	Not Profitable		Shortage of Land		Non-Availability of Seed		Lack of Irrigation		Others	
	No	No	%	No	%	No	%	No	%	No	%
Dabugaon	16	7	43.75	4	25	2	12.5	0	0	3	18.75
Nandahandi	13	6	46.15	2	15.38	1	7.69	0	0	4	30.77
Raighar	7	4	57.14	1	14.29	1	14.29	1	14.29	0	0
Tentulikhunti	9	6	66.67	1	11.11	1	11.11	1	11.11	0	0
Total	45	23	51.11	8	17.78	5	11.11	2	4.44	7	15.56

Source: Baseline Survey, 2022

Out of the total 45 households, the majority (51.11%) reported that millet cultivation was not profitable, emerging as the most common constraint across all blocks. Shortage of land was the next major reason (17.78%), followed by non-availability of seeds (11.11%), and lack of irrigation (4.44%). The 'Others' category accounted for 15.56% of responses, indicating varied issues like food preferences, migration, lack of awareness, or government policy gaps play a major role, and these reasons need qualitative exploration beyond the survey data.

3.9 Conclusion

Being a tribal dominated district millet has been an integral part of the food habit of people in Nabarangpur. It is shows that more than 22 % of total operational areas are under millets cultivation. Most of them use own seeds for millets cultivation and are satisfied with the quality of seeds. The most common agronomic practices are line sowing, broadcasting, and line transplantation, while few farmers using SMI methods. At the same time, non-cultivation is largely driven by perceptions of low profitability, shortage of land, and seed unavailability, highlighting systemic and economic challenges.

CHAPTER IV

CONSUMPTION OF MILLETS

4.1 Introduction

The main objective of Baseline Survey, 2022 was to assess the trends and patterns of millets consumption in the target villages before implementing the programme in the selected blocks of Nabarangpur district, namely Dabugaon, Nandahandi, Raighar and Tentulikhunti. The main objective of this chapter is to analyse how the households that participated in the survey vary in their millet's intake across different seasons, meals, times of the day and generations. The chapter also explores the diversity of millet varieties, recipes and dishes that are consumed by these households and how they prepare them. By doing so, the chapter aims to provide a comprehensive picture of the millet's consumption patterns and preferences among the sample households in Nabarangpur district.

4.2 Consumption of Millets by HHs

The baseline survey shows (Table 4.1) the block-wise millet consumption among surveyed households. It is revealed from the table that more than 90 percent of the sample households are consuming millets. Tentulikhunti block recorded the highest number of households consuming millets (77), followed by Raighar (75), Nandahandi (70), and Dabugaon (67). However, in terms of total millet quantity consumed, Dabugaon leads with 4342 kg, followed by marginally higher than Tentulikhunti (4209 kg) and Nandahandi (4189 kg). Average millet consumption per household was also highest in Dabugaon at 64.80 kg, indicating higher per-household intake despite fewer consumers compared to other blocks. Raighar showed the lowest average consumption per household 48.45 kg, which suggests either lower availability or a preference shift in dietary patterns. Overall, a total of 16,374 kg of millets was consumed across 289 households, with an average household consumption of 56.65 kg, reflecting the moderate but significant role of millets in local diets under the study area.

Table 4.1 Consumption of Millets by Households			
Blocks	Total Millets Consumed (in kg)	Average Consumption (in kg)	No of HHS Consuming Millets (%)
Dabugaon	4342	64.80	67(83.75)
Nandahandi	4189	59.84	70(87.5)
Raighar	3634	48.45	75(93.75)
Tentulikhunti	4209	54.66	77(96.25)
Total	16374	56.65	289(90.31)

Source: Baseline Survey, 2022

4.3 Millet Consumption by Different Age Groups

The patterns of millets consumption in four blocks of Nabarangpur district is based on the different seasons of the year. Fig. 4.1 and table 4.2 present the consumption of millet by different age groups of the population in the sample households across four selected blocks in Nabarangpur district, namely, Dabugaon, Nandahandi, Raighar and Tentulikhunti. Figure 4.1 shows that the rate of millets

consumption is lower among the younger population. About half of the total infant population of sample households, i.e., 49.21 % of them consuming millets, and the rate of millets consumption among the preschool children is 70.11 %. Among the children in the age group of 6-12 years, it is 92.86 %, and among the adolescents it is 97.46 %, which is almost similar to the rate of adults, middle aged and older age groups i.e., 97.84 %, 99.2 %, and 98.06 %, respectively. In Nandahandi, infants have the lowest %age of millet consumption, i.e., 54.55 %, while preschool children have 75 % rate of millets consumption. All children in the age group of 6-12, adolescents, and adults in the sample households of Nandahandi block consume millets. The %age for middle-aged and aged people is 98.48 % and 97.92 %, respectively. In Raighar, among the 83.33 % of them consume millets, while about 77.27 % of preschool consume it. Among the children aged 6-12 have 97.50 %, adolescents have 98.25 %, adults have 98.24 %, middle-aged people have 97.14 %, and aged people have 96.43 %. In Tentulikhunti, infants have the lowest %age of millet consumption among all four blocks, i.e., 33.33 %, while among preschool children it is 69.23 %. Among the children aged 6-12 have 91.84 % consume it, among adolescents it is 96.67 %, while among adults and middle-aged it is 97.83 % and 98.25 %, respectively. All aged (60 years and above) in Tentulikhunti consume millets.

Fig. 4.1: Distribution of Millet Consuming Population by their Age Groups

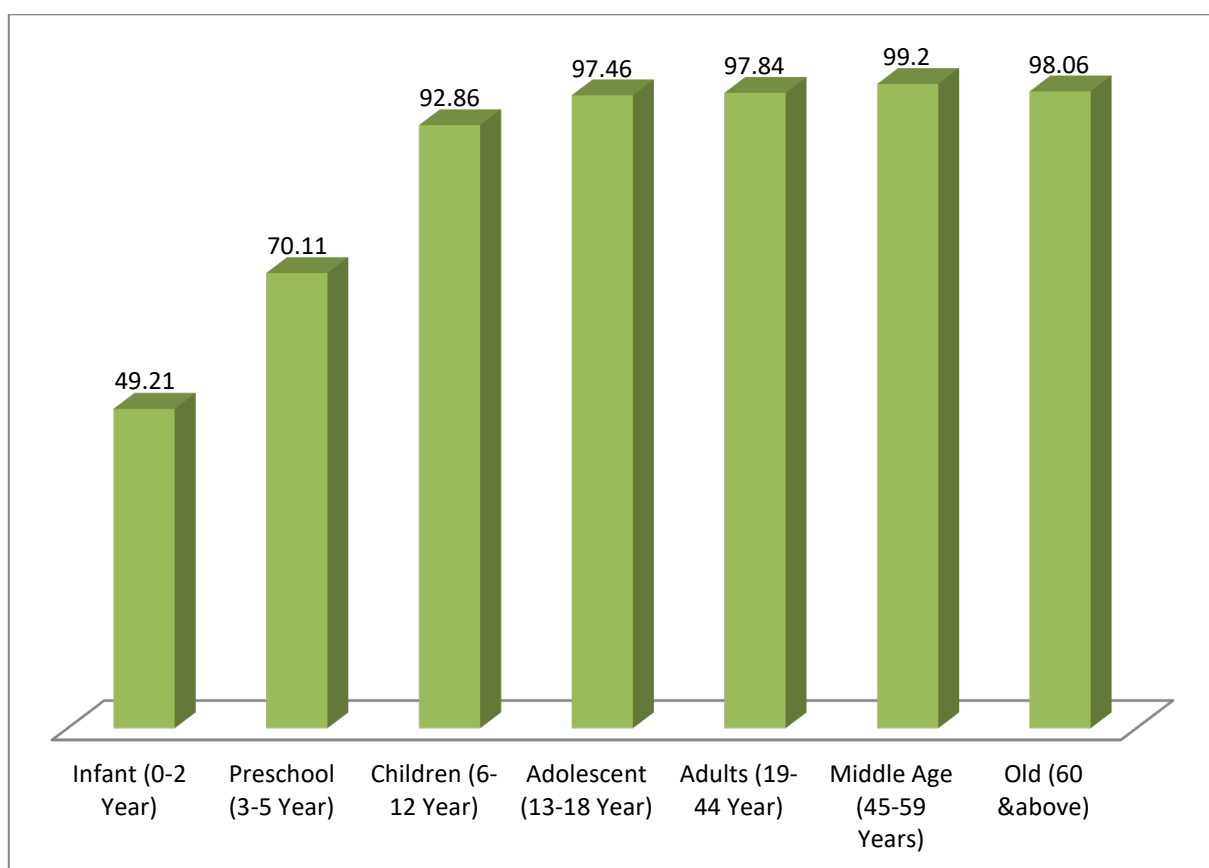


Table 4.2: Distribution of Sample Millet Consuming Population by their Age Groups

Age Groups	Dabugaon			Nandahandi			Raighar			Tentulikhunti			Total		
	Total Person	Persons Consume	% Consume	Total Person	Person Consume	% Consume	Total Person	Person Consume	% Consume	Total Person	Person Consume	% Consume	Total Person	Person Consume	% Consume
Infant (0-2 Year)	14	7	50	22	12	54.55	6	5	83.33	21	7	33.33	63	31	49.21
Preschool (3-5 Year)	20	11	55	19	15	78.95	22	17	77.27	26	18	69.23	87	61	70.11
Children (6-12 Year)	60	49	81.67	47	47	100	40	39	97.50	49	45	91.84	196	182	92.86
Adolescent (13-18 Year)	58	54	94.83	61	61	100	57	56	98.25	60	58	96.67	236	230	97.46
Adults (19-44 Year)	163	154	94.48	177	177	100	171	167	97.66	138	135	97.83	649	635	97.84
Middle Age (45-59 Years)	56	53	94.64	66	65	98.48	70	67	95.71	57	56	98.25	249	247	99.20
Old (60 & above)	39	36	92.31	48	47	97.92	28	27	96	41	41	100	156	152	98.06
Total	410	375	91.46	441	424	96.15	394	379	96.19	392	360	91.84	1636	1538	94.01

Source: Baseline Survey, 2022

4.4 Millets Consumption During Different Meals of the Day

The baseline survey reveals the distribution of millets consumption during different meals of the day across seasons among the sample households of four selected blocks in the Nabarangpur District. In the four blocks total 289 households are consuming millets out of which Tentulikhunti block recorded the highest number of households consuming millets (77), followed by Raighar (75), Nandahandi (70), and Dabugaon (67).

It shows that most of them consume millets during lunch. Lunch remains the most consistent meal for millet consumption, with 98.62% of the population including it in their lunch diet. All four blocks reported exceptionally high figures—100% in Dabugaon and above 97% in the other blocks where millets consumed in lunch. Evening snacks also showed high millet intake, with an overall consumption

rate of 96.89%. Dabugaon again reported 100%, followed closely by Nandahandi (98.57%) and Raighar (96%). Tentulikhunti, while slightly lower, still showed strong consumption at 93.51%. For dinner, 94.12% of the total population consumed millets, with the highest being in Raighar (98.67%) and Nandahandi (95.71%). Tentulikhunti and Dabugaon were slightly lower, though still above 90%. Breakfast remained the least frequent meal for millet consumption, though the usage was relatively strong at 70.93% overall. Dabugaon led slightly with 74.63%, while Raighar reported the lowest at 66.67%. (In table 4.3 percentage is calculated from millets consuming households of the blocks.)

Table 4.3: Millets Consuming Households by their Different Meals in a Day

Particulars	Dabugaon (67)		Nandahandi (70)		Raighar (75)		Tentulikhunti (77)		Total (289)	
	No	%	No	%	No	%	No	%	No	%
Breakfast	50	74.63	50	71.43	50	66.67	55	71.43	205	70.93
Lunch	67	100	69	98.57	73	97.33	76	98.70	285	98.62
Evening Snacks	67	100	69	98.57	72	96.00	72	93.51	280	96.89
Dinner	61	91.04	67	95.71	74	98.67	70	90.91	272	94.12

Source: Baseline Survey, 2022

4.5 Millets Consumption Across Seasons

The seasonal variation in the rate of millets consumption among the population of the sample household across the four selected blocks of Nabarangpur. It reveals that the rate of millets consumption is highest in summer, i.e., 99 %, in rainy season it is 91 % and it is 83.4 % in during the winter season. The block wise distribution of population by millets consumption status is presented in (Table 4.4)

Table 4.4. Millets Consumption Across Seasons

Particulars	Total HH	Winter		Summer		Rainy	
		No	%	No	%	No	%
Dabugaon	67	53	79.1	67	100	63	94
Nandahandi	70	62	88.6	70	100	68	97.1
Raighar	75	63	84	73	97.3	65	86.7
Tentulikhunti	77	63	81.8	76	98.7	67	87
Total	289	241	83.4	286	99	263	91

Source: Baseline Survey, 2022

4.6 Millet Recipes Consumed

Table 4.5 shows distribution of households who consumes millets in different recipes. In Dabugaon block, all the households consume millets in the form of *Jau/ Torani*, 33 households consume in the form of *Tampo/Pitha*, 8 households consume in the form of *Khiri*, 5 households consume as *Idli/Upma*. While in Nandahandi block, 29 households consumed as *Tampo/Pitha*, 12 households as *Khiri*, 3

household as Idli/ Upma and all the households consume in the form of *Jau/Torani*. Similarly, in Raighar block, 71 households consume as *Jau/Torani*, 9 households as *Tampo/Pitha*, and 2 households as *Khiri*. Likewise, in Tentulikhunti block, all the households consume in the form of *Jau/Torani*, 44 households as *Tampo/Pitha*, 17 households as *Khiri*, and 12 households as *Idli/ Upma*. (In table 4.5 percentage is calculated from the millets consuming Households of the blocks .)

Table 4.5: Consumption of Millets in Different Recipes										
Recipes	Dabugaon		Nandahandi		Raighar		Tentulikhunti		Total	
	No	%	No	%	No	%	No	%	No	%
Tampo / Pitha	33	49.3	29	41.4	9	12	44	57.1	115	39.8
Chhatua	4	6	7	10	14	18.7	10	13	35	12.1
Jau / Torani	67	100	70	100	71	94.7	77	100	285	98.6
Cake/ Biscuit	0	0	0	0	0	0	0	0	0	0
Handia	3	4.5	4	5.7	2	2.7	2	2.6	11	3.8
Khiri	8	11.9	12	17.1	2	2.7	17	22.1	39	13.5
Idli / Upma	5	7.5	3	4.3	2	2.7	12	15.6	22	7.6
Sweets Item	0	0	0	0	0	0	0	0	0	0
Lassi / Sarbat	0	0	4	5.7	0	0	3	3.9	7	2.4
Others (Specify)	0	0	2	2.9	0	0	5	6.5	7	2.4

Source: Baseline Survey, 2022

4.7 Conclusion

It is observed that consumption pattern among the sample households across the four blocks of Nabarangpur - millet consumption is higher in the summer season compared to winter and rainy seasons. Most of the respondents, except for infants and preschool children, reported consuming millets. The lower rate of millet consumption among infants may be due to the dietary restrictions for new-borns or young children. Most of the respondents consume millets during lunch time. *Jau/Torani* is the most common millet recipe across followed by *Tampo/Pitha*, *Khiri* and *Idli/ Upma*.

CHAPTER V

PROCESSING AND MARKETING OF MILLETS

5.1. Introduction

Baseline Survey, 2022 aimed at recording the processing and marketing practised by the sample households in Nabarangpur district across the four selected blocks namely, Dabugaon, Nandahandi, Raighar and Tentulikhunti. This chapter explores the various practices for processing of millets, such as Dehulling, milling, roasting, and popping. It also examines the availability and accessibility of processing units in the sample area, 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, according to focused group discussions (FGD). This process takes a lot of time and energy, which could be used for other productive activities. Therefore, millet processing units are essential for improving the efficiency and quality of millet production.

Table 5.1: Methods of Processing Millets								
Blocks	Traditional		Use Machinery		Both		Total	
	No	%	No	%	No	%	No	%
Dabugaon	38	61.29	9	14.52	15	24.19	62	100
Nandahandi	25	39.06	22	34.38	17	26.56	64	100
Raighar	38	57.58	20	30.30	8	12.12	66	100
Tentulikhunti	40	57.14	18	25.71	12	17.14	70	100
Total	141	53.82	69	26.34	52	19.85	262	100

Source: Baseline Survey, 2022

Table 5.1 presents the distribution of sample households across different blocks based on their methods of millet processing. The survey data reveal that out of the total 275 households, 262 households are engaged in millet processing, while 13 households do not undertake any processing activity. Among the processing households, a majority—141 households (53.82%)—continue to rely on traditional methods. Meanwhile, 69 households (26.34%) have adopted machinery-based processing, and 52 households (19.85%) employ a combination of both traditional and modern techniques.

Block-wise analysis indicates notable variations in processing patterns. In Dabugaon, 38 households (61.29%) depend on traditional methods, 9 households (14.52%) use machinery, and 15 households (24.19%) combine both approaches. In Nandahandi, traditional methods are followed by 25 households (39.06%), while machinery-based processing and combined methods are reported by 22 (34.38%) and 17 (26.56%) households respectively. In Raighar, 38 households (57.58%) use traditional methods, 20 (30.30%) machinery, and 8 (12.12%) both. Similarly, in Tentulikhunti, 40 households (57.14%) rely on traditional processing, 18 (25.71%) use machinery, and 12 (17.14%) combine both methods.

5.3. Marketing of Millets

Like other crops, millets can provide income and livelihood support for farming households. This section analyses the modes and marketing practices followed by the millet farming households. However, in the surveyed area, most of the households only grew millets for their own use and sold the surplus to middlemen, local traders, or money lenders. They do not have an organized marketing system for their millets. Some of them sold their millets in the market and a few sold them to their neighbours.

Table 5.2 presents the proportion of households that sell or do not sell millets in the year 2021. It shows that, out of the total 275 sample households across four selected blocks of Nabarangpur, 42.91% sell their millets in different selling points. Analysis of marketing of millets reveals that in Dabugaon block out of the total 40.63% of sample households sell their millets. Similarly, the share of millet selling households in Nandahandi, Raighar and Tentulikhunti block about 41.79%, 24.66% & 64.79% respectively.

Table 5.2: Millet Marketing by the Respondent HHs						
Blocks	Marketing of Millets					
	Sell Millets		Do not Sell Millets		Total	
	No	%	No	%	No	%
Dabugaon	26	40.63	38	59.38	64	100
Nandahandi	28	41.79	39	58.21	67	100
Raighar	18	24.66	55	75.34	73	100
Tentulikhunti	46	64.79	25	35.21	71	100
Total	118	42.91	157	57.09	275	100

Source: Baseline Survey, 2022

5.4 Selling Points of Millets

Table 5.4 provides insights into the various selling points through which millet producers market their produce across the sample blocks. The data clearly reveals that middlemen dominate millet procurement, accounting for 87% of all transactions across the district. This pattern is consistently

observed in all blocks, with Raighar (94.4%), Nandahandi (92.9%), Tentulikhunti (87.0%), and Dabugaon (76.9%) primarily relying on middlemen.

The percentage of households selling through mandi is relatively less, representing just 8.5% of total selling households. Tentulikhunti reported the highest mandi engagement (13.0%), while Raighar had no sales through mandis. Similarly, sales to mill owners were negligible, reported only in Raighar (5.6%) and forming just 0.8% overall. Sales through moneylenders or sahuks were limited to Dabugaon (15.4%), accounting for only 3.4% district wide. No such transactions were reported in the other blocks.

Table 5.3: Selling Points of Millets across the Sample Blocks										
Blocks	Mandi		Mill Owner		Middleman		Moneylender / Sahukar		Total	
	No	%	No	%	No	%	No	%	No	%
Dabugaon	2	7.7	0	0	20	76.9	4	15.4	26	100
Nandahandi	2	7.1	0	0	26	92.9	0	0	28	100
Raighar	0	0	1	5.6	17	94.4	0	0	18	100
Tentulikhunti	6	13	0	0	40	87	0	0	46	100
Total	10	8.5	1	0.8	103	87	4	3.4	118	100

Source: Baseline Survey, 2022

5.5 Distress Sale

In the survey it was found how many households in the across blocks had to sell their millets at a lower price than the official market rate, which is called distress sale. Out 118 households 66.1 % experienced distress sale of their millets. It is revealed that distress sale was widespread among the millet farmers in all the four blocks. In Dabugaon block, 69 % of the sample households experienced distress sale, in Nandahandi block, 57 % of the sample households experienced distress sale in Raighar block, about 77 % of the sample households experienced distress sale, and in Tentulikhunti block 65.2 % of the sample households experienced distress sale. (Table 5.4)

Table 5.4: Incidents of Distress Sale Across the Blocks		
Blocks	Did distress Sale	
	No	%
Dabugaon	18	69.2
Nandahandi	16	57.1
Raighar	14	77.7
Tentulikhunti	30	65.2
Total	78	66.1

Source: Baseline Survey, 2022

5.6 Conclusion

The processing and marketing of millets in the sample households across the four blocks of Nabarangpur district under Baseline Survey, 2022, Phase VI reveals that majority of households processed their millets both methods such as by using machine and using traditional methods. Processing of millets through pulveriser is most used processing units which are situated in nearby villages. Further, majority of households sell their surplus produce of millets. Among whom majority of them sells their millets to middleman. Most of the households reported incidence of distress sale of their millets.

Annexure-1: Mapping of Baseline Survey Data of Nabarangpur District

Sl.	Indicators	Unit	Baseline Value				Total
			Dabugaon	Nandahandi	Raigarh	Tentulikhunti	
1	% Of Sample households Cultivating Millets	%	80	83.75	91.25	88.75	85.94
2	Types of Millets Cultivated (2021)						
	a) Mandia	%	100	100	100	100	100
3	Avg. Area under Millets/HH	Acre	0.91	0.86	0.47	1.30	0.88
4	% Of millets area to total cultivated area	%	21.94	16.31	17.33	33.46	22.19
5	Average Production Millets/HH	Qtls.	3.25	2.52	1.12	2.48	2.31
6	Package of Practice						
	a) Broadcasting	%	39.06	34.33	38.36	43.66	38.91
	b) LS	%	28.13	37.31	31.51	23.94	30.18
	c) LT	%	26.56	13.43	30.14	19.72	22.55
	d) SMI	%	6.25	14.93	0	12.68	8.36
7	Yield Rate (Qnt. /Acre)	Qtls	3.57	2.94	2.37	1.91	2.62
8	% Of Household Consuming Millets						
	a) Breakfast	%	74.63	71.43	66.67	71.43	70.93
	b) Lunch	%	100	98.57	97.33	98.70	98.62
	c) Evening Snacks	%	100	98.57	96	93.51	96.89
	d) Dinner	%	91.04	95.71	98.67	90.91	94.12
9	Popular Millets Recipes (% of HHs)						
	a) Tampo/Pitha	%	49.3	41.4	12	57.1	39.8
	b) Jau/Torani	%	100	100	94.7	100	98.6
	c) Khiri	%	11.9	17.1	2.7	22.1	13.5
	d) Idli/Upma	%	7.5	4.3	2.7	15.6	7.6
10	% Of HH using Processing Millets						
	a) Manually	%	61.29	39.06	57.58	57.14	53.82
	b) Machines	%	14.52	34.38	30.30	25.71	26.34
	c) Both	%	24.19	26.56	12.12	17.14	19.85
11	% Of HH Selling Millets/Ragi						
	a) Mandi	%	7.7	7.1	0	13	8.5
	b) Mill owners	%	0	0	5.6	0	0.8
	c) Middleman	%	76.9	92.9	94.4	87	87
	d) Sahukar/Moneylenders	%	15.4	0	0	0	3.4
12	% Of Distress Sale (% of Households)	%	69.2	57.1	77.7	65.2	66.1



Annexure 2

Confidential and to Be Used for Research Purpose Only

Households Schedule for

Baseline Survey 2022-23, Phase VI of SHREE ANNA ABHIYAN (SAA)

Serial No.....

Date.....

Part-I: Socio-Economic Status

1. Profile of the Households

1.1. Name of the Households' Head:

1.2. Name of the Respondent:

1.3. Name of the (i) Village:

(ii) GP

(iii) Blocks:

(iv) District:

1.4. Category:

(i) SC

(ii) ST

(iii) OBC/SEBC

(iv) Others (specify)

1.5. Religion

(i) Hindu

(ii) Muslim

(iii) Christian

(iv) Animism

(v) Others

1.6. Ration Card Holding:

(i) Ration Card

(ii) Antyodaya Card

(iii) Other

(iv) No

Card

1.7. Type of Family:

(i) Nuclear

(ii) Joint

(iii) Extended

(iv) Others (specify)

1.8. House Structure:

(i) Katcha

(ii) Semi-Pucca

(iii) Pucca

3. HHs' Land ownership in Acre:.....

4. Operational Holdings Under Different Crops (in Acre)

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

5. Annual Expenditure:

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

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

7. Have you taken any agricultural loan?

1-Yes 2-No If yes, please provide details.....

2. Household Particulars:

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

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

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

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

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

Part-II: Production of Millets

8. Do you cultivate millets?

1-Yes 2-No

If yes, give millet-wise production details

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

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

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

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

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

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

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

9. Whether you follow mixed farming or mono farming system?

1. Mixed 2. Mono

If mixed, with which are the crops(s)?

10. How do you store your seed and grain?

(i) Jute Bag (ii) Earthen Pot (iii) Bamboo Basket (iv) Pura (paddy rope)

(v) Open Hanging (vi) Other (Specify)

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

1. Yes 2. No

12. Have you done weeding for the millets cultivation?

1. Yes 2. No

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

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

14. If By Weeder, Sources of weeder?

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

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

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

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

16. How many years have you not cultivated Millets ?

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

1. Yes 2. No

Part-III: Consumption of Millets

18. Does your households consume millets?

1. Yes 2. No

If Yes, Types of millets your HH consumed in different seasons (Put Tick Mark)

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

19. Millets Requirements of the HH:

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

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

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

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

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

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

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

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

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

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

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

Part-IV: Processing of Millets

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

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

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

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

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

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

Part-V: Marketing of Millets

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

Sources of Millets You Sell: 1. Own Produced, 2. Purchase from Farmers, 3. Others (Specify)

Where Sold Your Millets: 1. Govt. *Mandi*, 2. Middlemen/ Local Businessman, 3. Moneylender/ *Sahukar*, 4. Daily market/ Haat 5. Others (pl. specify)

Mode of Transportation: 1. Headload, 2. Cycle, 3. Cart, 4. Own Vehicle, 5. Hired Vehicle, 6. Public Transport, 7. Others (Specify)

Reason for Sale: 1. Better Price, 2. Immediate Need of Cash, 3. Loan Repayment, 4. Non-Availability of Market, 5. Any Others (specify)

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

Contact no of Respondent

Signature of the Researcher/Field Investigator

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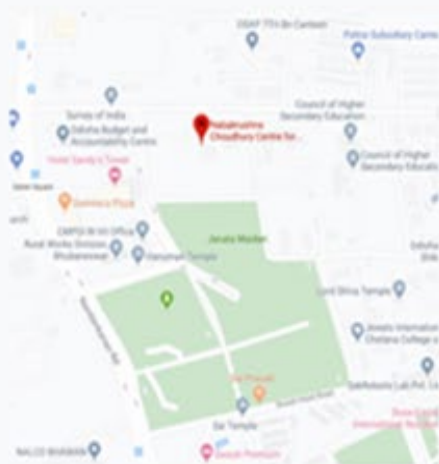


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