

BASELINE SURVEY: PHASE VI

DHENKANAL 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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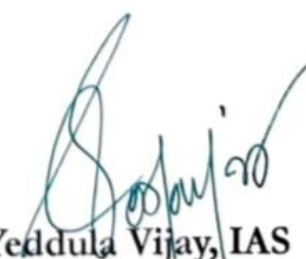
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FOREWORD

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 Shee 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, especially the Baseline Study 2022. These surveys, designed to evaluate the status of millet production, marketing, consumption, and processing, represent a critical step towards informed intervention and strategic decision-making.

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



Dr. Yeddula Vijay, IAS
Director, NCDS

ACKNOWLEDGEMENT

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

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

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

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

My sincere gratitude goes out to the Chief District Agricultural Officer (CDAO) of Dhenkanal district, the Scheme Officer, District Programme Coordinator, Block Coordinators, and other block-level officials for their invaluable support in providing crucial information. Once again, thank you all for your invaluable contributions, dedication, and support, especially for the completion of the Baseline Study, 2022. 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

Dhenkanal district is one of the 17 districts where the “Special Programme for the Promotion of Millets in Odisha or (hereafter) Shee Anna Abhiyan (SAA)” Phase VI has begun in the Kharif 2021 in its five blocks, namely, Bhuban, Kamakhyanagar, Kankadahada, Odopada and Hindol. Under Phase VI, total 916 households are identified for the programme, out of which 400 households were selected through the random sampling method and conducted the Baseline Survey in the five blocks.

The survey revealed that about 46 per cent households belong to Other Backward Class or Socio-Economically Backward Class (OBC/SEBC), while STs, SCs, and Others social group households constitute 24.50 per cent, 24.75 percent and 4.75 per cent. The total population of the sample households is 1680, of which 57 per cent are male and 43 per cent are female and all sample HHs belong to Hindu. In addition to that out of 400 sample households, 97 per cent possess ration cards. Significant portion of the population (24.73 per cent) are farmers, followed by housewife at 23.66 per cent, student 23.42 per cent, wage labourers 7.69 per cent while 5.6 per cent are unemployed. Government employees constitute of 0.95 per cent while private employees were 6.14 per cent, pension holders 2.5 per cent and children 1.5 per cent.

As per the findings of the study, out of the total 400 sample households, the district majority of HHs reported that they have Pucca house (44 per cent) while 44.06 per cent have Kutcha houses while 27 per cent have Semi-Pucca house structure. It is also found that all the 400 sample households have cultivated millets in the year 2021 covering a total operational area of 845.32 acres, out of which millet cultivation land is very less i.e. not even one per cent. The average yield of millets production among the sample households was 2.08 quintals per acre and total millets production of 15 quintals.

As observed, all of the millets cultivating households use good seed quality i.e. 5 HHs while 2 HHs remained undecided. The most common method of millets cultivation among the 7 households only 3 HHs practice Line Sowing (LS), whereas 2 HHs practice broadcasting and line transplanting method for cultivation of millet. Out of the total 1680 population of 50 per cent consume millets in different seasons and at different meals of the day.

The Baseline data shows that the consumption of millets is highest during the summer season as 76.92 per cent of sample households consume it during this season, while 11.15 per cent of them consume it during rainy season and winter season. Majority of people consume millets during breakfast, with 50 per cent of the population across the blocks. This is followed by 40 per cent consuming millets during lunch, 6 per cent during dinner, and 4 per cent during evening snacks. *Jau/ Torani* is the popular recipe among the sample households as all of them are found to be consuming this recipe. The other popular recipes are *Tampo/ Pitha*, *Khiri* and *Chhatua* using *Chaki*, *Dhinki*, etc.

As observed, out of the total sample of 400 households sell their millets to about 1.25 per cent of sample households; sell their millets to middlemen and local business. It is also found that 3 HHs out of 5 millet seller HHs sell their produce at lower price in comparison to market price.

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ABBREVIATIONS

AAO	: Assistant Agriculture Officer
AL	: Agricultural Labour
ATMA	: Agricultural Technology Management Agency
AWC	: Anganwadi Centre
CBOs	: Community Based Organisation
CCD	: Centre for Communal Development
CRPs	: Cluster Resource persons
CSOs	: Civil Society Organisations
DAFP	: Directorate of Agriculture and Food Production
DDA	: Deputy Director, Agriculture
FA	: Facilitating Agencies
FGD	: Focused Group Discussion
FPC	: Farmer Producer Company
FPO	: Farmer Producer Organizations
GP	: Gram Panchayat
FAQ	: Fair Average Quality
Ha	: Hectares
HHS	: Households
ICDS	: Integrated Child Development Scheme
ITI	: Industrial Training Institute
LS	: Line Sowing
LT	: Line Transplanting
MDM	: Mid-Day Meal
MFP	: Minor Forest Produce
MGNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act
MGNREGS	: Mahatma Gandhi National Rural Employment Guarantee Scheme
MSP	: Minimum Support Price
NCDS	: Nabakrushna Choudhury Centre for Development Studies
OBC	: Other Backward Class
OMM	: Odisha Millet Mission
PDS	: Public Distribution System
SAA	: Shree Anna Abhiyan
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's essential to understand the significance of millets cultivation and its associated challenges and opportunities.

Millets are cereal grains 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, browntop, fonio, adlay (or Job's tears). Like most cereals, millet is a starchy grain—meaning that it's rich in carbs. Notably, it also packs several vitamins and minerals. Therefore, it may offer multiple health benefits.

The United Nations designating 2023 as the International Year of Millets, it gets further attentions of general public including the farmers. In the Indian state of Odisha, millets have always been an integral part of the traditional diet and have been cultivated for centuries, primarily among the tribal population. However, during last couple of decades, the popularity of millets has declined due to the increasing adoption of modern food habits and the promotion of high-yielding crops like rice and wheat. This shift has led to a decline in soil fertility and an increased vulnerability to climate change. To address these challenges, the Government of Odisha has launched several initiatives to promote the cultivation of millets, including “The Special Programme for Promotion of Millets in Odisha (also known as Shree Anna Abhiyan, SAA) with an organizational structure comprising of Academia and Civil Society was initiated by the Government of Odisha in 2017-18 emphasizing four verticals: production, consumption, processing, and marketing of millets. The program intends 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, Millets constitutes a significant share of about 95 per cent.

The Shree Anna Abhiyan program tried to revive these nutrient-rich millets in the agricultural landscape, which were fading away after its launch in 2017-18 by the Government of Odisha. It set out 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 the year 2021, the implementation of SAA phase VI began in 17 districts, including Dhenkanal district, and this baseline study aims to provide information on the program's dimensions in the district. The profile of the Dhenkanal district is presented below.

1.2 District Profile

Dhenkanal district is one of the 30 districts of the State of Odisha in Eastern India. The district is located in central zone of the state lying between longitude: 85° 58' to 86° 2' East and latitude: 20° 29' to 21° 11' North. The district was initially a princely state before independence and was incorporated in 1949 with Odisha. It has shared boundary with four districts by Keonjhar and Angul districts to the north, Jajpur district to the east, Cuttack district to the south and Angul district to the west. The district is mainly blessed with plain land with minimal number of discontinuous hill ranges in the district and along its southern border. The Brahmani River is the main river of the district which is the main source of water of the district. The district has an area of 4452 sq.kms and 11.93 Lakhs of population as per 2011 census. The district accounts for 2.86 percent of the state territory and shares 2.84 percent of the state population. The density of population of the district is 268 per sq. Kms as against 270 persons per sq.km of the state. It has 1208 villages (including 127 un-inhabited villages) covering 8 blocks, 8 Tahasils and 3 Subdivisions. As per 2011 census the schedule caste population is 234079 (19.6 %) and schedule tribe population 162056 (13.6%). The literacy percentage of the district covers 78.8 against 72.9 of the state.

1.2.1 Geography and Climate

Dhenkanal District, which is at the centre of Odisha's geopolitical map, is encircled by natural scenery and forests. The Cuttack-Sambalpur Road (NH 55) and the Cuttack-Sambalpur or Baranga-Sambalpur Railway both pass through the district. The Savara Chief known as "DHENKA" who originally ruled over this tract is thought to be the reason the "Dhenkanal District" got its name. The Dhenkanal District has 4452 square kilometres. It features a sizable region that is covered in thick forests, as well as a lengthy range of hills. Numerous forests can be found in the Dhenkanal district, making up 42.96% of the district's overall land area. The district is known as the "Home of Elephants and Tigers of the Country" for this reason.

Topography of the district Dhenkanal can be divided in to three natural tracks. First one is a chain of hills which are running along the north-western boundary of the district. Second on is chain of hills running along with south-west boundary of the district, and the last one is natural division is a valley of river Brahmani

The climate of Dhenkanal District is generally moderate. In the months of April and May, the District receives high temperatures and heavy humidity, while December and January bring cold

temperatures. With an average yearly rainfall of 1421.1 mm, the monsoon typically ends in June. In 2020, the district's annual average rainfall was 1644.9 mm, which is more above the average (1428.8 mm).

1.2.2 Economy

Agriculture is the backbone of the district for its contribution to the economy. Recent statistics show that total number of workers in the district is around 11.92 Lakh which is 36.51% of the total population. There are total number of non-workers is 710,365 9. Main worker to total population is 24.5 11%, Cultivators to total worker is 21.7 %, Agricultural labourer to total worker is 18.79 %. Apart from agro-product, Forests products from the district also play an important role in the economy. The principal forest products including Timber, Bamboo, Fire wood and Kendu leaf are majorly found in this region here. There are also some minor forest products like Lac, Honey, Kenduli gum, Wax, Mahua flower, Sunarifark, Siali leaves, Catechus, Tassar cocoons and other raw materials used for medicine. The raw materials derived from agriculture, forest and minerals help to accelerate the economic development in Dhenkanal District. Dhenkanal is well connected with the effective road network supported by National Highways, viz. NH- 55 (formerly NH- 42), NH- 53 (formerly NH- 200) and railway line to other commercial centres of the State; hence this good connectivity serves to the Economy prosperity of the district. This well conducive environment has led to grow and establish several small industries such as Micro, Small and Medium Enterprises, Handicraft Industries, and Handloom Industries

1.2.3 Population and Culture

According to the 2011 Census, there were 11.93 Lakh people. The district makes up 2.86 percent of the state's land area and 2.84 percent of its people. The district's population density is 268 people per square kilometre compared to the state's 270 people per square km. There are 1208 villages total, spread throughout 8 blocks, 8 Tehsils, and 3 subdivisions (127 of which are uninhabited). According to the 2011 Census, there were 162056 Schedule Tribes and 234079 Schedule Castes (or 19.6% and 13.6%, respectively).

The district has a literacy rate of 78.8 compared to the state's 72.9. According to the 2011 Census, 9.9% of the population lives in urban areas, while 90.1% lives in rural ones. Rural areas have a literacy rate of 77.6%, compared to urban areas average of 89.3%. In the Dhenkanal district, the urban to rural sex ratio is 918 for urban regions and 950 for rural.

In the Dhenkanal district, there are 139096 children under the age of six, or 12% of the total population. Between the ages of 0 and 6 years, there are 65003 female children and 74093 male children. Therefore, according to the Census of 2011, Dhenkanal's child sex ratio is 877, which is lower than the district's average sex ratio (947).

The Malhar is a semi-nomadic community of Dhenkanal district. Bhumij, Teli Bhumij, Haladi Pokhria Bhumij, Desi Bhumij, Desia Bhumij, Tamaria Bhumij and Kandha were the dominated tribes in Dhenkanal district.

The fairs and festivals held in the Dhenkanal District are widely recognised. The festival of Gajalaxmi Puja is one of the most famous in the district. This celebration lasts eleven days and starts on Kumar Purnima each year. One of the most popular tourist destinations in Odisha is Kapilash, which is the abode of Lord Chandra Sekhar. “Jagar Yatra” is a tradition that is celebrated annually during Mahashiv Ratri. The Kamakhyaganar Dussehera event is especially significant to the Dhenkanal District's culture. Magha Mela at Joronda is yet another of the “Mahima Dharma's” most well-known festivals. It starts on “Magha Purnima” every year and lasts at Jorondo for four days. The bullock festival in Bhuban is unique. Bullocks compete in races, with awards being given out to the owners.

1.2.4 Administrative Structure

The town of Dhenkanal serves as the district's administrative centre. There are now 3 sub divisions (Dhenkanal, Hindol and Kamakhyaganar), 8 Tehsils, and 8 Community Development Blocks under the administrative structure. There are 198 Gram Panchayats in total, four Urban Local Bodies (Dhenkanal Municipality, Bhuban NAC, Kamakhyaganar NAC, and Hindol NAC), and 15 operational Police Stations in the Dhenkanal District. According to the 2011 Provisional Census, the Dhenkanal District includes 1237 villages with 11,92,948 inhabitants, 6,12,597 of whom are men and 5,80,351 of whom are women. The literacy rate in the Dhenkanal District is 79.41%, with a total of 4, 71,681 males and 370,307 female literates.

During 2019-2020, total 158.62 km of national highway and 10.79 km of state highway. Major district roads, 736.18 km of other district roads, 1246.66 km of village roads, 1891.26 km of inter-village roads, and 272.28 km of forest roads were all constructed in 2016. There are 32 km of internal village roads in the district.

In the district during 2019–2020 Academic Years there were 3 numbers of DHHs, 10 number of CHCs, 38 numbers of PHCs, and 167 numbers Sub Centre level Allopathic Medical Institutions. There were 19 Homoeopathic Dispensaries and 22 Ayurveda Dispensaries in the district.

In the district for the academic year 2019–2020, there were 58 general Colleges, 277 Secondary schools, 679 Upper-primary Schools, and 819 Primary Schools. In addition, the area will host 3 Polytechnic Schools and 3 Engineering colleges in the 2019–20 academic year to provide Technical Education. In the Primary, Upper Primary and Secondary Schools, the teacher-student ratios were 26, 30, and 26 respectively. There are 1081 nos. of villages so far electrified as on 31.03.2020 which is covered 100.0 % to the total villages in the Dhenkanal district. In the district total no. of Job card issued was 1.94 Lakh and total no. of person days generated was 35.30 Lakh during the year 2019-20.

1.2.5 Agriculture and Irrigation

During the year 2019-20, the net area sown was 86 thousand hectares against 4102 thousand hectares of the state. The production of paddy was 3381515 quintals, 2168 quintals maize, 9478 quintals Mung, 8082 quintals Biri, 2955 quintals Kulthi, 137 quintals till, 18416 quintals groundnuts, 216 quintals mustard, 29065 quintals potato and 73973 quintals sugarcane. During 2019-20, the total fertilizers used in Dhenkanal district is about 7075 MT with a breakage of 4147 MT nitrogenous, 2207 MT phosphorous and 721 MT Pottash and the consumption of fertilizer per hectare is 33.74 Kg. During 2019-20, it is reported by District Agricultural Officer, Dhenkanal, that the irrigation potential created during Kharif and Rabi are 85871 hectares and 29795 hectares respectively through different sources. The Dhenkanal district has a lot of forest land, accounting for 42.96% of the district's overall land area.

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

Indicators	Value
Population (in Lakh.) (as per Census 2011)	11.92811
Male	961
Female (female in every thousand male)	947
Scheduled Castes (in Lakh.)	2.34079
Scheduled Tribes (in Lakh.)	1.62056
Others (in Lakh.)	.07269
Total Households (in Lakh.)	2.79364
Average HH Size (in Nos.)	4.26
Sex Ratio	947
Workers	
Total Worker (in Lakh)	4.35533
Main (in Lakh)	2.77338
Marginal (in Lakh)	1.58195
Non-Worker (in Lakh)	7.57278
Work Participation Rate (WPR) (in % age)	38.50
Literacy Rate	78.8
LandUsePattern2018-19 (Area in Hectares)	
Total Geographical Area (sq.km.)	445
Forest (sq.km.)	174
Land Put to Non-Agricultural Use	42
Barren & Non-Cultivable Land	5
Permanent Pasture & Other Agricultural Land	8
Net Area Sown (in '000 ha)	155
Cultivable waste Land	4
Old Fallow	20
Current Fallows	31
Misc. Trees and Groves	NF
Average Fertilizer Consumption per ha(in kg/ha)	33.74
Agriculture2018-19*	
Total Production of Major Crops (In '000MT)	182.11
Total Ragi Production (in'000 MT)	0
Irrigation Potential Created–2017-18*(Area in '000Hectares)	
Kharif (areas in Ha)	85871
Rabi (areas in Ha)	29795
Other Information	
No. of Village Electrified(ason31.03.21)	1081
No. of AWC	2200
No. of PDS centres (2011)	624
No. of Job Card Issued (since inception in Lakh)	1.94
No. of HH demanded employment under MGNREGA during 2019-20 (in Lakh)	0.69
No. Of HHs provided employment under MGNREGS during2019-20 (in Lakh)	0.64
Kisan Credit Card (Households)	143390
Source: District Statistical Handbook, Dhenkanal 2020	

1.3 Objectives

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

- 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.

1.3 Methodology

1.4.1 Sample Design

The SAA programme has been implemented in phased manner. It started in seven districts of the state in Phase I during 2017-18 however, later it has expanded to all the 30 districts in different phases. Under Phase VI of the implementation of the programme, the Government of Odisha's Department of Agriculture and Farmers Empowerment introduced the "Special Programme for Promotion of Millets in Tribal Areas of Odisha" included an additional 58 blocks across 17 districts of the state including five blocks of Dhenkanal, namely, Bhuban, Kamakhyanagar, Kankadahada, Odopada and Hindol.

From the list provided by the SAA Programme Secretariat, there were 2714 beneficiary households in 169 villages less than 39 Gram Panchayats covering five blocks in the Dhenkanal district. For conducting the Baseline Survey 2022, Phase VI, multi-stage sampling methods has been followed. In the first stage, five blocks, namely, Bhuban, Kamakhyanagar, Kankadahada, Odogaon and Hindol 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 13 GPs of Bhuban block, 51GPs of Kamakhyanagar block, 10GPs of Kankadahada block and 18 GPs of Odopada block, 32 GPs of Hindol 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. Mahulapala and Mrudanga GP from Bhubanblock, Bausapala and Badasuala GP from Kamakhyanagar block, Kerajuli and Kantapal GP from Kankadahada block, Kandabindh and Gobindaprasad GP from Odopada and Khuturkote and Gulehi GP from Hindol 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 of 320 households from 16 villages, eight GPs and four blocks have been selected for the study as presented in the Table 1.2.

1.4.2 Data Collection, Compilation and Analysis

A total of 20 villages were selected from five blocks (four villages from each block), two Gram Panchayats from each of five blocks were selected for data collection in the Dhenkanal district for the Baseline Survey of 2022, Phase VI. These villages were selected employing the simple random sampling method based on the list provided by the implementing agencies about the prospective villages to be included under Phase VI across the five blocks of the district.

Table 1.2: Sample Households in Dhenkanal District			
<i>Blocks</i>	<i>Programme HHs</i>	<i>Sample Households (No.)</i>	<i>% HHs Covered under the Survey</i>
Bhuban	125	80	64.00
Kamakhyanagar	82	80	97.56
Kankadahada	165	80	48.48
Odapada	252	80	31.75
Hindol	291	80	27.49
Total	915	400	34.97

Source: Facilitating Agency and Field Survey, 2022

This comprehensive baseline survey report is based on both secondary and primary data. Primary data were collected by using a structured household interview schedule (Annexure II) and Focus Group Discussion (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, Government of India, Odisha Agricultural Statistics and soon.

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 together more information and insights about the villages, especially, the status, problems and opportunities of millets cultivation. This qualitative data helped in providing a more holistic understanding of the local context, which was further used to triangulate and validate the findings of the quantitative data collected through the survey.

The Baseline Survey aimed to collect data on various socio-economic status (such as household demographics, income, livelihoods education, etc.) of the surveyed households, and agricultural pattern corresponding with the mission's four objectives including emphasizing millets production, processing, marketing, and consumption of millets in the intervention blocks. The findings of the survey and FGDs were analyzed and interpreted using appropriate statistical tools and techniques to generate a comprehensive report.

The report provides an in-depth analysis of the current situation of the selected villages and serves as a reference point (base point for the mission) to measure the progress made through intervention of Shree Anna Abhiyan. It also highlights the gaps and challenges in the existing systems and infrastructure. It provides recommendations for improving the overall development indicators of the region.

1.4 Limitations of the Study

The present Baseline Survey focuses solely on five blocks of the Dhenkanal 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.

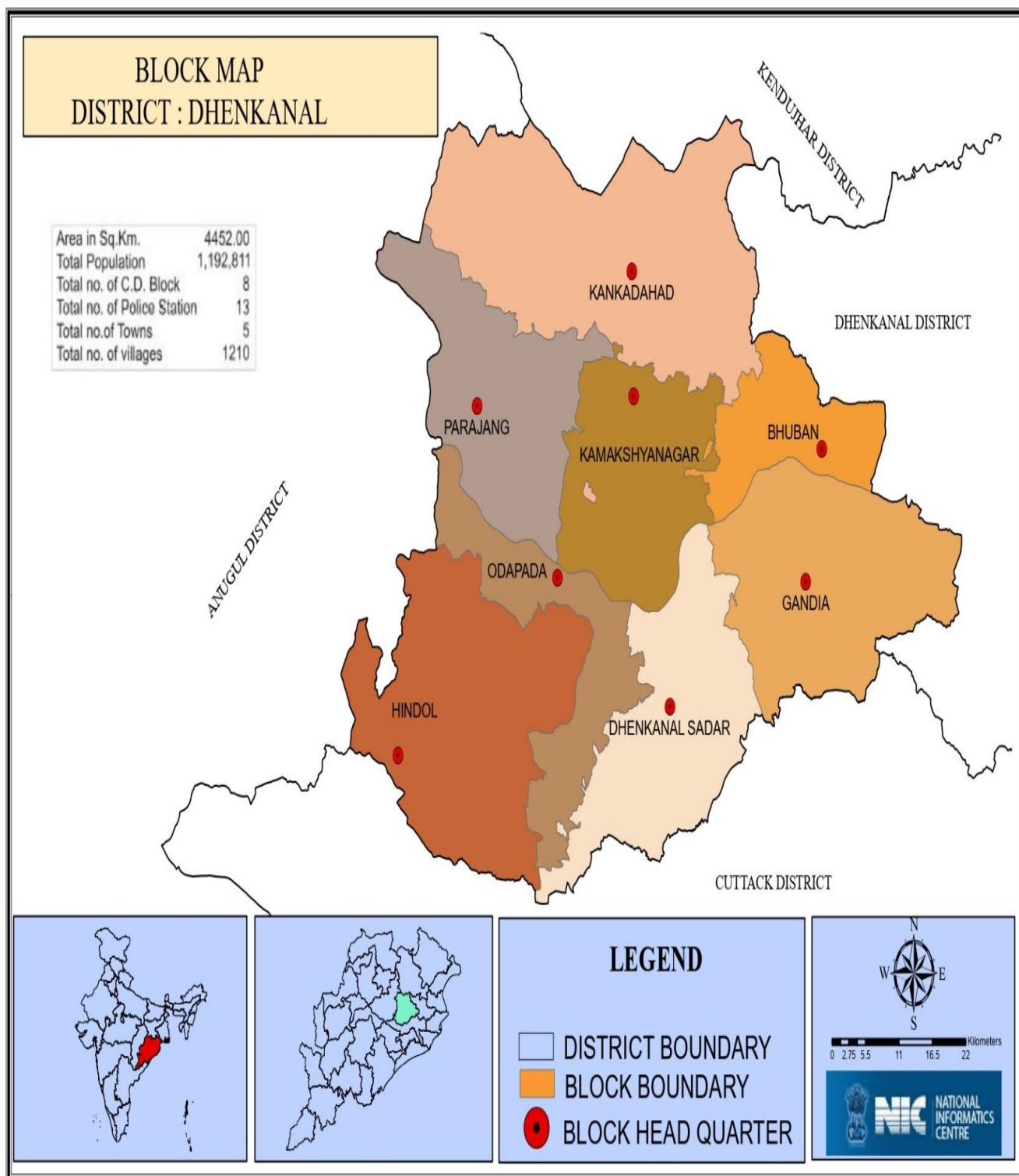
Firstly, due to logistical reasons and other difficulties, such as the non-availability of respondents, the study was limited to random sample of 400 households. Secondly, there is the possibility of recall error, especially in cases involving the actual quantity of consumption and marketing, among others. Lastly, in some instances, sample households, particularly non-participant farmer households, consumed millets without producing them. This was made possible by past stock and acquiring of millets through exchange and barter. Unfortunately, these details were not captured during the survey.

It is essential to consider these limitations while interpreting the findings of the survey. Future studies can address these gaps and improve the accuracy of the data collection process. Despite these limitations, the present survey provides valuable insights into the socio-economic conditions of the selected households and serves as a baseline to measure the progress made in the future.

1.5 Chapterization

Baseline Survey Report 2022, Phase VI has been divided into five Chapters, including the current Introductory Chapter I, which provided a District Profile, Objectives, Methodology and Limitations. Chapter II provides the Socio-economic Profile of Sample Households. Chapter III provides details on the Production and Productivity of Millets. Chapter IV discusses the Consumption Pattern of Millets. Chapter V elucidates the Processing and Marketing of Millets and summarizes the Major Findings.

Figure 1.1: Political Map of Dhenkanal District



Source: <https://gisodisha.nic.in/Block/DHENKANAL.pdf>

Chapter II

SOCIO-ECONOMIC PROFILE

2.1 Introduction

This chapter looks into the social and demographic profile of households surveyed under Baseline Survey 2022, Phase VI, which includes the distribution of the composition of social groups, the distribution of the population by gender, across the five blocks in Dhenkanal district. It also provides information about the poverty distribution of households following the governments' indicators viz. Below the Poverty Line (BPL) and the Above Poverty Line (APL), the distribution of households by economic activities (which may not be mutually exclusive, as a HH can have multiple economic activities), and distribution households by their house structure.

2.2 Social and Demographic Profile

Under the Baseline Survey 2022, Phase VI in Dhenkanal district, 20 selected villages were surveyed (for selection methodology, see section 1.4.1) across the five blocks of Dhenkanal district. This section discussed the social composition of the surveyed households', their economic activities, poverty status and housing structures.

2.3 Social Compositions

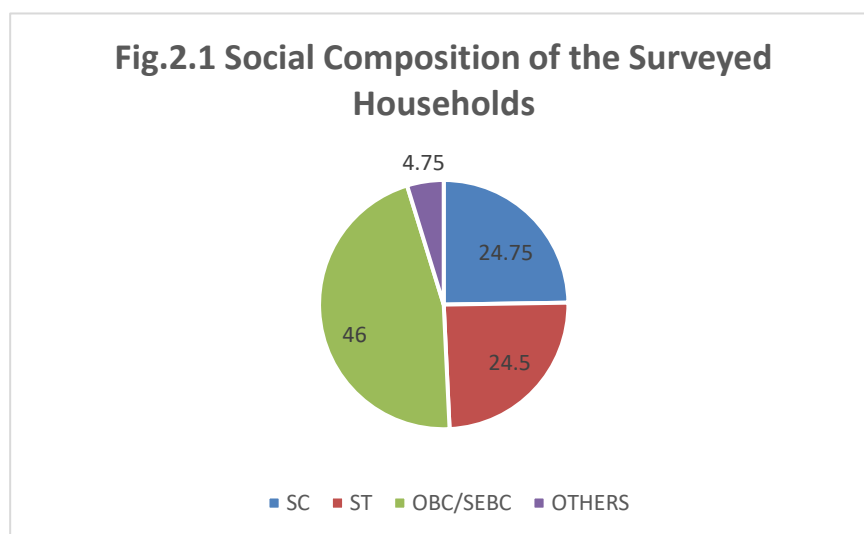
The analysis of social composition of sample households under the Baseline Survey 2022, Phase VI in Dhenkanal district shows that out of total of 400 surveyed households, with a significant majority about 46 per cent households belongs to Other Backward Class or Socio-Economically Backward Class (OBC/SEBC), while STs, SCs, and Others social groups households constitute about 24.50 per cent, 24.75 percent and 4.75 per cent of total households (Table 2.1).

Table 2.1: Social Composition of Surveyed Villages										
Blocks	SC		ST		OBC/SEBC		OTHERS		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Bhuban	10	12.50	0	0.00	70	87.50	0	0.00	80	100
Hindol	23	28.75	14	17.50	39	48.75	4	5.00	80	100
Kamakhyanagar	17	21.25	44	55.00	15	18.75	4	5.00	80	100
Kankadahada	34	42.50	34	42.50	12	15.00	0	0.00	80	100
Odapada	15	18.75	6	7.50	48	60.00	11	13.75	80	100
Total	99	24.75	98	24.50	184	46.00	19	4.75	400	100

Source: Baseline Survey, 2022

Similarly, block-wise distribution of households in Bhuban block reveals that 87.50 per cent households belong to OBC/ SEBC category, and 12.5 per cent of households belong to Scheduled Castes (SCs). No other class found in the block. Similarly, in Hindol block, 48.00 per cent of total households OBC/ SEBC, 28 per cent of them belong to SCs, and 17.50percentbelong to ST. In the similar vein, in Kamakhyanagar block, about 55 per cent belong to STs, 21.25 per cent belong to SCs,18.75 per cent of them belong to OBC/ SEBCs and 5 per cent of households belong Others social

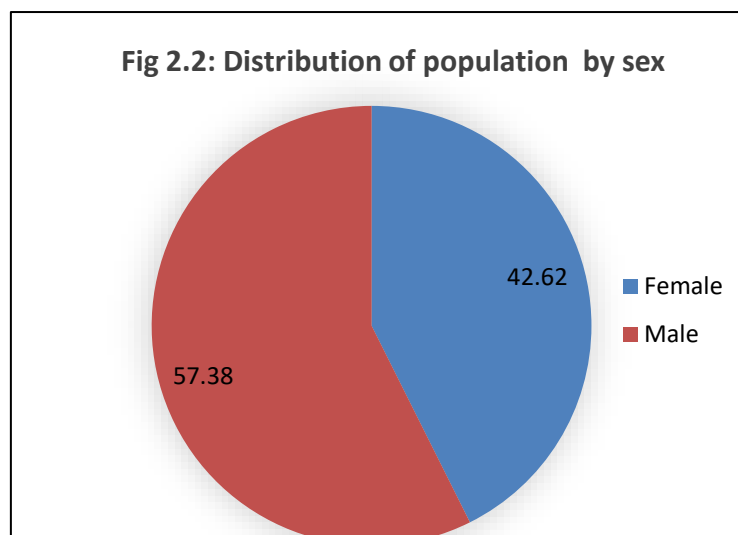
categories. Social composition of surveyed households in Kankadahada block shows that 42 per cent of households belong to STs, 42 per cent of them belong to SCs, and 15 per cent belong OBC/SEBCs. In the Odapada block, there are about 7.5 per cent of households belongs to STs, 18.75 per cent belong to SCs, 60 per cent belong OBC/SEBCs



2.4 Sex Distribution

The survey data reveal that out of total 1680 population (of surveyed households) 57per cent are male and 43 per cent are female population (Figure 2.2 and Table 2.2). As per the gender distribution of each block is presented in Table2.2, in Bhuban block, the total population of surveyed households, around 60 per cent are male and 40 per cent are female. Likewise, in Hindol block, 55 per cent are male and 45 per cent are female. In Kamakhyanagar block, around 57 per cent are male and around 43 per cent are female. In the same vein, in Kankadahada block, around 56 per cent are male and 44 per cent are female. Odapada block has 58 per cent male and 42 per cent female.

Table 2.2: Gender Distribution of Population in Sample HHs					
Blocks	Female		Male		Total
	No	%	No	%	No
Bhuban	150	39.68	228	60.32	378
Hindol	143	44.97	175	55.03	318
Kamakhyanagar	148	42.90	197	57.10	345
Kankadahada	139	44.13	176	55.87	315
Odapada	136	41.98	188	58.02	324
Total	716	42.62	964	57.38	1680

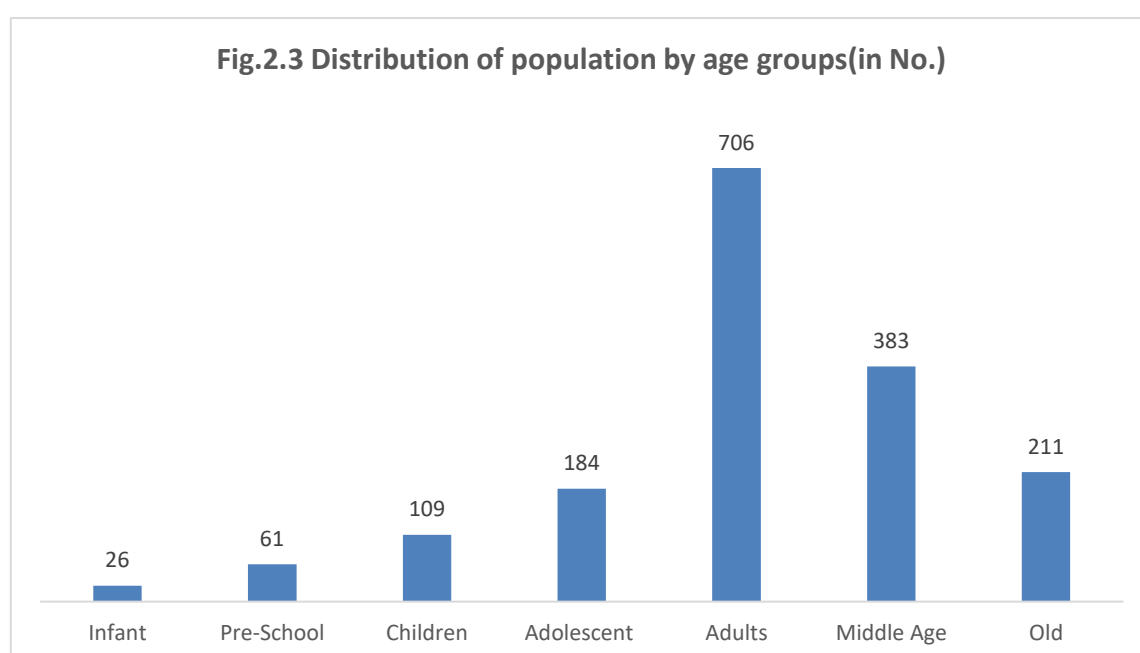


2.5 Religious Distribution

The religious distribution of the surveyed HHs across the five selected blocks reveals the overwhelming presence of Hindu HHs across the blocks. Out of total 400 surveyed households all are Hindu.

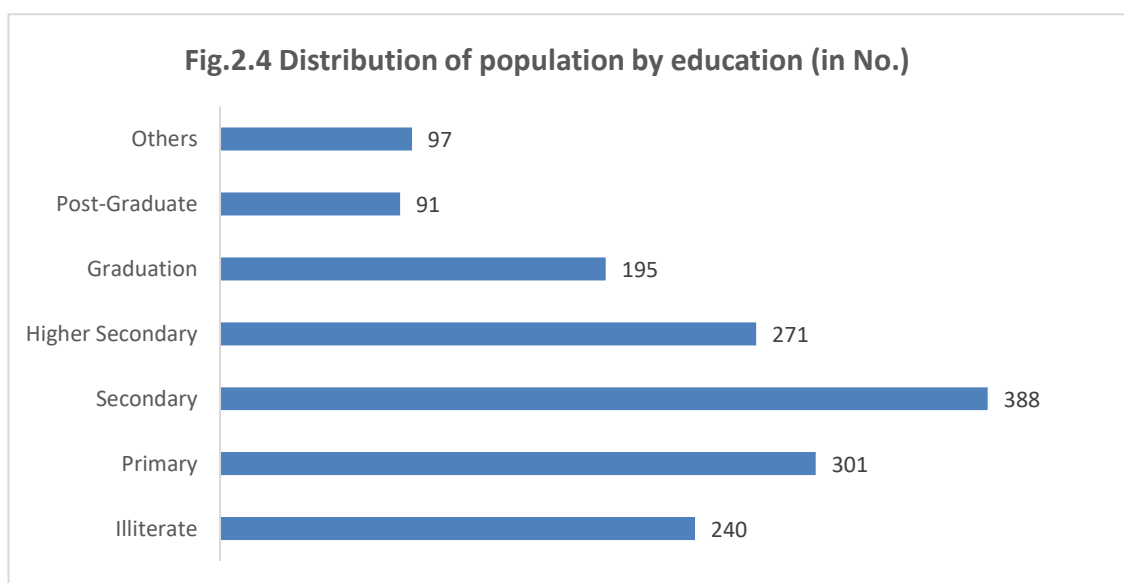
2.6 Population Distribution by Age Groups

Fig 2.3 shows the age-wise distribution of the surveyed population across the five blocks of Bhuban, Hindol, Kamakhyanagar, Kankadahada and Odapada reveals that adults (19–44 years) constitute the largest proportion, with 706 individuals, followed by those in the middle-aged group (45–59 years) numbering 383 and the elderly population (60 years and above) comprising 211 individuals. Among the younger age groups, infants (0–2 years) and children (6–12 years) account for 26 and 26 individuals respectively, while the pre-school age group (3–5 years) includes 61 individuals. Adolescents (13–18 years) make up 184 individuals of the total population. Altogether, the surveyed population comprises 1680 individuals.



2.7 Educational Status

The field survey reveals the educational profile of 1680 individuals across the five blocks of Bhuban, Hindol, Kamakhyanagar, Kankadahada and Odapada. The educational profile of the population indicates a significant portion of individuals have attained education up to the primary level, accounting for 301 persons out of the total 1583. This is followed by 388 individuals educated up to the secondary level. A considerable number of people, 240 in total, are illiterate, indicating limited access to or continuation in formal education. The number of individuals who have completed higher secondary and postgraduate education stands at 271 and 91 respectively, while 195 persons have attained graduation. Additionally, 97 individuals fall under the “others”, which may include those with vocational or technical education.



2.8 Ration Card Holders

Table 2.3 shows the distribution of sample households by their possession of ration card across the five selected blocks of Dhenkanal district. It shows that out of total 400 sample households a very significant majority, i.e., 97 per cent households possess ration card.

Table 2.3: Distribution of HHs by Incidence of Poverty across the Blocks						
	No Ration Card		Ration Card		Total	
	No	%	No	%	No	%
Bhuban	0	0	80	100	80	100
Hindol	1	1.25	77	96.25	80	100
Kamakhyanagar	4	5	76	95	80	100
Kankadahada	4	5	76	95	80	100
Odopada	3	3.75	79	98.75	80	100
Total	12	3	388	97	400	100

Source: Baseline Survey 2022

The block wise distribution of sample households by their ration card possession reveals that in the Bhuban block all the sample households have ration card, while in Hindol block, around 96 per cent. In Kamakhyanagar block also all the sample households have ration card, while in Kankadahada block, 95 per cent of sample households possess ration and around 99 per cent of sample households possess ration card in the Odapada block.

2.9 House Structure of the Surveyed HHs

The structure of the house often considered as an important indicator of the social and economic status of the family. Data collected under the Baseline Survey 2022, Phase VI shows that out of 400 surveyed HHs across the five selected blocks in Dhenkanal district majority of HHs reported that they have Pucca houses which constitute about 44 per cent of total HHs (and Table 2.5). While 117 HHs has Kutcha house which constitute 29.25 per cent and 107 has Semi-Pucca houses which constitute about 26.75 per cent of the total surveyed HHs.

Table 2.4: Block-wise Distribution of HHs by their House Structure							
Blocks	Kutcha		Pucca		Semi-Pucca		Total
	No	%	No	%	No	%	
Bhuban	7	8.75	64	80	9	11.25	80
Hindol	17	21.25	44	55	19	23.75	80
Kamakhyanagar	33	41.25	15	18.75	32	40	80
Kankadahada	35	43.75	16	20	29	36.25	80
Odopada	25	31.25	37	46.25	18	22.5	80
Total	117	29.25	176	44	107	26.75	400

Similarly, the Block-wise distribution of HHs' house structure shows that in Kankadahada block majority of HHs has Kutcha houses. Out of total 80 sample households 43 per cent have *Kutcha* houses, 36 per cent of households have *Semi-Pucca* and while 20 per cent of households have *Pucca* houses. Likewise, in Kamakhyanagar block 41.25 per cent of households have *Kutcha* houses, 40 per cent of households have *Semi-Pucca* and 18.75 per cent of households have *Pucca* houses. While in Bhuban block, majority of households, i.e. 80 per cent of households have *Pucca* houses, 11.25 per cent of households have *Semi-Pucca* houses and only 8.75 per cent of households have *Kutcha* houses. In Hindol block, 55 per cent *Pucca* houses, 23.75 per cent of households have *Semi-Pucca* houses and 21.25 per cent of households have *Kutcha* houses, and in Odapada block, 46.25 per cent have *Pucca* houses, 22.5 per cent have *Semi-Pucca* houses while 31.25 have *Kutcha* houses.

2.10 Annual Income

The annual income distribution of sample households of five blocks in Dhenkanal dist. reveals that a majority of households (162 out of 400) fall within the income range of ₹80,001 to ₹1,20,000. This is followed by 129 households earning between ₹40,001 and ₹80,000. About 65 households have an annual income between ₹1,20,001 and ₹1,60,000, while 20 and 9 households fall within the income

ranges of ₹1,60,001–₹1,80,000 and ₹1,80,001–₹2,00,000, respectively. Only 15 households reported an income below ₹40,000 annually.

Overall, the pattern indicates that most households belong to the middle-income category, with relatively fewer in the higher-income group, reflecting a moderate economic condition in the study area.

2.11 Land Ownership Pattern

The landholding pattern of the surveyed households indicates that the majority are small farmers, owning between 2.5 and 5 acres of land, accounting for 195 households. This is followed by 158 marginal farmers with holdings of less than 2.5 acres. About 28 households fall under the medium category (5–10 acres), while 7 households are large farmers, possessing more than 10 acres of land. Additionally, 12 households are landless.

Overall, the data reveal a predominance of small and marginal farmers in the study area, highlighting a land distribution pattern skewed toward lower landholding sizes.

2.12 Conclusion

Majority of the surveyed households across the five selected blocks belong to Other Backward Class/ SEBC. Agriculture is the primary occupation for most of the people. From the various social and economic indicators mentioned in this chapter (including Tables and Figures) and corresponding analysis indicates that out of all 400 surveyed HHs across the five blocks of Dhenkanal district majority of them possess ration cards and most of them have Pucca houses.

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 five selected blocks of Dhenkanal district, namely Bhuban, Hindol, Kamakhyanagar, Kankadahada, and Odopada. The analysis focuses on the distribution of area under millets and other crops, the usage of seeds and agronomic practices, as well as the production and yield of millets in the sampled villages. The chapter also highlights the challenges and opportunities for promoting millets in the district.

3.2 Area, Production and Yield

The distribution of operational area under millets and other crops across the five surveyed blocks in the Dhenkanal district reveals that major portion of the operational area in the district is under paddy. Out of the total 845.32 acres of operational areas, more than 80 per cent is under paddy cultivation, and the next majority cropping area is others crops (Kaju, Lemon tree) representing 13 per cent. Area under millets cultivation is very less than one per cent (Fig. 3.1).

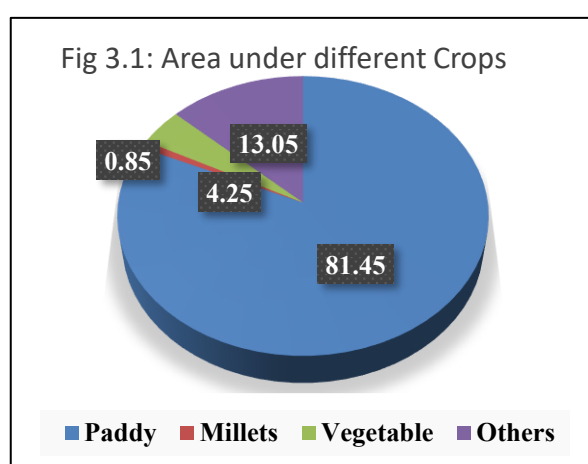


Table 3.1: Area under Millets and Other Crops

Blocks	Paddy		Millets		Vegetable		Others		Total	
	Acre	%	Acre	%	Acre	%	Acre	%	Acre	%
Bhuban	135.9	76.39	0	0	5.5	3.09	36.5	20.52	177.9	21.05
Hindol	149.5	87.35	0.5	0.29	10.66	6.23	10.5	6.13	171.16	20.25
Kamakhyanagar	120.64	91.78	0	0	2.5	1.90	8.3	6.31	131.44	15.55
Kankadahada	126.15	80.91	0.5	0.32	13.77	8.83	15.5	9.94	155.92	18.45
Odopada	159.7	76.45	6.2	2.97	3.5	1.68	39.5	18.91	208.9	24.71
Total	691.89	81.85	7.2	0.85	35.93	4.25	110.3	13.05	845.32	100

Source: Field Survey 2022

The block-wise distribution of the operational area under millets and other crops (Table 3.1) shows that area under millets is very less in each block of this district whereas area under paddy and other crops is more. In Bhuban block, out of total 177.9 acres of operational area, area under millet cultivation is null, whereas area under paddy cultivation is 135.9 acres constituting 21.05 per cent of total operational land, and vegetable shares only 5.5-acre land but area under other crops is 36.5 acre. Similarly, in Hindol block, total Cultivation area is 171.16 acre which constitutes 20.25 per cent of the total operational land. Again, area under paddy cultivation is more sharing 149.5 acre (87.35 per

cent).

In this block, area under millet cultivation is found, which is 0.5 acre, whereas other crops have 10.5 acre. In Kamakhyanagar block, paddy is the major crop which has 120.64 acre of land (91.78 per cent) while millet is completely absent from the block. In Kankadahada block, again paddy is the major crop representing 126.15 acre of land (80.91 per cent), while millet has only 0.5 acre of land which is very minimal. In this block, vegetable is the second major crop wherein 13.77 acre of land is under this. Odapada block shares 159.7 acre of land under paddy cultivation. Among the five blocks, this block has highest area under millet though it is very less in comparison with other crops which 6.2 acre per cent is under other crops.

Table 3.2 presents the distribution of areas under millets cultivation, production and average yield in the Dhenkanal district. The analysis of surveyed data from the 400 sample households across the five blocks of Dhenkanal districts shows that there is only 7.2 acres land. It reveals that the total production of millets among the 400 surveyed households across the five blocks is only 14.3 quintals, and the average yield in the district is 1.98 quintals per acre.

Table 3.2: Area, Production and Yield of Millets			
<i>Blocks</i>	<i>Millets Land in Acre</i>	<i>Production (Qtls)</i>	<i>Yield (Qtls)</i>
Bhuban	0	0	0
Hindol	2.5	0.4	0.16
Kamakhyanagar	0	0	0
Kankadahada	0	0	0
Odopada	4.7	13.9	2.96
Total	7.2	14.3	1.98

Source: Field Survey 2022

The block-wise analysis of production and yields reveals that there are no area and production of millets completely in the three blocks including Bhuban, Hindol and Kankadahada block. Only two blocks, Hindol and Odopada have very minimal area and production of millets. Between these two blocks, Odopada block shares highest millet cultivation area which is 4.7 acre and total production of millet 13.9 during the surveyed period, and yield rate is around three quintals per acre. Hindol block has only 2.5 acre of millet cultivation area, and production of millet is 0.4 quintals with 0.16 yield rate.

3.3 Perception on Quality of Seeds Used

As per the field survey data, millet farming households in Dhenkanal district believe that seed quality is a crucial component of cultivation and crop production. Most of the time, the quality of seeds used determines the volume of production. High-quality seeds are preserved for the next crop to reap the benefits. It was attempted to understand the general perception of millet farmers, whether they are satisfied with the quality of seeds they use for millets cultivation. Since the five surveyed blocks are not majorly cultivating millets, out of the 400 surveyed households, we found only 21 HHs are cultivated millets. Seven HHs have opined that seed quality is good and the rest two remained undecided.

3.4 Types of Millets Seeds Used by Households

From the field data it reveals that the majority of the sample households across all the district predominantly rely on both varieties of seeds for millet cultivation. Out of total of 21 households, 10 HHs are reported that they using local or *Desi* seeds and 11 HHs are reported that they using HYV seeds.

3.5 Package of Practices

In agriculture, methods of cultivation play a vital role in the growth than production of crops. Therefore, different agronomic practices are 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 district. The distribution of agronomic practices among the surveyed HHs reveals that out of the twenty one millet cultivating farmers, ten HHs follows SMI method of cultivation whereas eight HHs are practicing line transplanting method and three HHs are use the line sowing method for cultivation.

3.6 Use of Pesticides and Fertilizer

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

It reveals that out of total twenty one millet cultivating households, only ten households are using organic manure/bio-fertilizers, and the remaining eleven HHs use neither organic nor chemical fertilizers. Inter block comparison shows that, four HHs from Odapada block are using organic manure and one HH from Hindol use organic manure.

3.7 Conclusion

Dhenkanal district could be called non millets district given the facts of millets production farmers in the five selected blocks. Out of the total 400 surveyed HHs, only twenty one HHs cultivated millets covering only 7.2 acres area whereas area under paddy cultivation has highest share among the others crops in these five blocks. Average yield rate is around 3 quintals and among the five blocks, majority of farmers is found in Odopada block, and rest of these blocks are found zero cultivating HHs or say minimal farming Households

CONSUMPTION OF MILLETS

4.1 Introduction

The Baseline Survey, 2022 was conducted to assess the trend and patterns of millets consumption in the target villages before implementing the programme in the selected blocks of Dhenkanal district, namely Bhuban, Hindol, Kamakhyanagar, Kankadahada, and Odopada. The main objective of this chapter is to analyse how the households that participated in the survey vary in their millets intake across different seasons, meals, times of the day and generations. The chapter 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 millets consumption patterns and preferences among the sample households in Dhenkanal district.

4.2 Millets Consumption across seasons

The seasonal pattern of millet consumption across the surveyed households in Dhenkanal district indicates variation in consumption habits throughout the year. During the summer season, millet consumption is relatively higher, reported by 21 households (5.25% of the total), followed by winter, with 3 households (14.28%), 10 households (47.61%) rainy season, and with 20 households (95.23%). Among the blocks, Odopada shows a slightly higher number of households consuming millets across all seasons compared to other. The avg. millets consumption in this dist. Is 10.84 5k.g.

4.3 Millets Consumption during different Meals of the Day

The distribution of millets consumption during different meals of the day across seasons among the sample households of five selected blocks in Dhenkanal District. Across block it reveals that most of them consume millets during breakfast followed by Lunch, evening snacks and dinner representing 21HHs, 20HHs, 2HHs and 3 HHs respectively. In inter block comparison, Odopada block, out of the total millet consuming 14 HHs, shares highest consumption of millets constituting 66.66 per cent during breakfast, and Hindol block, 23.8 per cent consumes millets both in breakfast and lunch. Similar trend also found in Kankadahada block representing 9.54 per cent consuming at breakfast and lunch time

4,4 Millet Recipes Consumed

From the field study we discuss about distribution of households who consumes millets in different recipes. In Hindol block, all the households consume millets in the form of Jau/Torani, 21 households consumed millets in the form of Tampo/Pitha, 20 HHs consumes in form of Jau (Porridge), 10 HHs consumes millets as Chhatua and 4 HHS consume in the form of Khiri, Idli, Lassi etc. It is found that most of the HHs: a total of 50 HHs out of 400 surveyed households consumes millets in the form of Tampo/Pitha and Jau (Porridge)

4.5 Conclusion

Major findings of the Baseline Survey 2022 on the pattern of millets consumption among the sample households across the five blocks of Dhenkanal district shows that Millet consumption is higher during

the summer season. Most of the respondents, except for infants and preschool children, reported consuming millets. The lower rate of millet consumption among infants may be due to the dietary restrictions for new-born or young children. Most of the respondents consume millets during lunch time. Jau/Torani is the most common millet recipe across the five blocks in the district, followed by *Tampo/Pitha and Khiri*.

PROCESSING AND MARKETING OF MILLETS

5.1. Introduction

Baseline Survey, 2022 aimed at recording the processing and marketing practiced by the sample households in Dhenkanal districts across the five selected blocks namely, Bhuban, Hindol, Kankadahada, Kamakhyanagar, and Odapada. This chapter explores the various practice for processing of millets, such as de-hulling, 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

Millets grains have a thin husk and small stone particles that need to be removed before consumption. This is a drudgery and tedious task that requires a lot of manual labour. Women are usually engaged for processing millets using as one 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. Millet processing units can reduce the drudgery of women and increase the availability of nutritious millet products for food security and income generation.

Across all the five blocks of Dhenkanal district, all the cultivating HHs i.e., totals twenty one households; 3 of them use traditional method of processing of millets and rest fourteen HHs use machinery process. Inter block, Odapada has highest number of households which process millet in traditional method using *Chakra, Dhinki*, etc

5.3 Marketing

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 neighbour. Here from total millet cultivating HHs only five of them sells millet through the middlemen/local businessman.

5.4. Conclusion

The processing and marketing of millets in the sample households across the five blocks of Dhenkanal district under Baseline Survey, 2022, Phase VI reveals that majority of households processes their millets using traditional methods. Further, majority of households sell their surplus produce of millets. Among whom majority of them sells their millets to middleman.

Annexure: Baseline Survey 2022 Findings in Dhenkanal District

Indicator	Unit	Bhuban	Hindol	Kamakhyanagar	Kankadahada	Odopada	Total
% of Sample households Cultivating Millets	%	0	2.5	0	0	6.25	1.75
Types of Millets Cultivated (2021)							
a) Mandia	%	0	100	0	0	100	100
Avg. Area under Millets/HH (Acre)	Acre	0	1.25	0	0	.94	1.02
% per of millets area to total cultivated area	%	0	0.29	0	0	0.55	0.85
Average Production Millets HHs	Qtls.		2	0	0	2.4	2.22
Package of Practice							
a) Broadcasting	%	0	100	0	100	16.67	37.50
b) LS	%	0	0	0	0	50	37.502
c) LT	%	0	0	0	0	33.33	25.00
d) SMI	%	0	0	0	0	0	0
e) NA	%	0	0	0	0	0	0
Yield Rate (Qtls./Acre)	Qtls.		1.6	0	0	2.55	2.22
Percentage of Population Consuming Millets	%	0	15.41	4.35	0	19.75	46.46
a) Breakfast	%	0	50	50	38.46	55.55	50.00
b) Lunch	%	0	50	50	38.46	37.03	40.00
c) Evening Snacks	%	0	0	0	7.69	3.70	4.00
d) Dinner	%	0	0	0	15.38	3.70	6.00
Popular Millets Recipes (% of HHs)							
a) <i>Tampo/Pitha</i>	%	0	33.33	50	0	50	42
b) <i>Jau/Torani</i>	%	0	50	37.50	0	50	46
c) <i>Khiri</i>	%	0	16.67	12.50	0	0	8
d) <i>Idli/ Upma</i>	%	0	0	0	0	0	0
Percentage of HH using Processing Ragi							
a) Manually	%	0	100	0	0	100	100
b) Machines	%	0	0	0	0	0	0
c) Both	%	0	0	0	0	0	0
Percentage of HH Selling Millets/Ragi							
a) Mandi	%	0	0	0	0	0	0
b) Mill owners	%	0	0	0	0	0	0
c) Middleman	%	0	100	0	0	100	100
d) Sahukar/Moneylenders	%	0	0	0	0	0	0
Distress sale (% of HHs)	%	0	0	0	0	60	42.75



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

31. Do you sell millets?

1. Yes 2. No

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

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

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

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

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

32. Types of Millets, you Sell and Quantity

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

1. Yes 2. No

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

35. What are the marketing processes followed by you?

a) Barter

b) Money

c) Others (specify)

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

1. Yes 2. No

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

38. Remarks

Contact no of Respondent

Signature of the Researcher/Field Investigator

STUDY TEAM

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