BASELINE SURVEY: PHASE VI

BARGARH 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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Citation: "Baseline Survey: Bargarh District 2022, Phase VI, Special Programme for Promotion of Millets in Odisha (Shree Anna Abhiyan, SAA" Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.

STUDY TEAM

Dr. Sandhya R. Mahapatro
Project Director, SAA

Dr Biswabas Patra
Associate Project Director, SAA

Ms. Subhashree Paital
Project Associate

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FOREWORD

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

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

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

Dr. Yeddula Vijay, IAS
Director, NCDS

ACKNOWLEDGEMENT

It gives me immense pleasure to extend my heartfelt gratitude to all those who contributed to the successful completion of the “Baseline Survey Report of Phase 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 Bargarh district, the Scheme Officer, District Programme Coordinator, Block Coordinators, and other block-level officials for their invaluable support in providing crucial information. Once again, thank you all for your invaluable contributions, dedication, and support. It has been a privilege to work alongside each of you, and I look forward to continued collaboration in our future endeavours. I extend my best wishes for the success of the publication.

Dr. Sandhya R. Mahapatro
Project Director

EXECUTIVE SUMMARY

Under Phase VI, the "Special Programme for Promotion of Millets in Odisha" or Shee Anna Abhiyan, SAA was extended to 58 blocks of 17 districts. In this phase, the programme was also extended to Bhatli and Sohela Blocks of Bargarh district. The survey findings (2022) indicate that the majority of households are male-headed, while a smaller proportion are female-headed. The distribution of sample HHs by social category reflects that more than half (57.50 per cent) of them belong to OBC/SEBC category. The other social groups found in the sample are Scheduled Tribes (31.25 per cent), Scheduled Caste (8.75 per cent) and others/ General Caste (2.50 per cent).

It is also observed that agriculture is the main occupation of the people in both Bhatli and Sohela blocks, 61.54 per cent of them depend on it for their livelihood. Only one type of millet has been cultivated in Bhatli and Sohela blocks, i.e., Ragi. It is found that around one-fifth of the sample farmers cultivate ragi in 12.9 acres of land. The number of Ragi farmers and the area under ragi per farmer is more in Sohela block (24HHs, 9.8 ac) compared to Bhatli block (9HHs, 3.1 Ac). In the year 2021, only 23.15 quintal of Ragi was produced in these blocks with yield rate of 1.79 quintals/ac. Block-wise it is revealed that the yield rate is marginally higher in Bhatli Block (1.84 Qtls/ Ac) as compare to Sohela block (1.78 Qtls/ ac).

Regarding package of practices used, it is found from the field survey that out of the 33 sample households, who have cultivated ragi in the year 2021, 42.42 per cent have used broadcasting methods of sowing, 45.46 per cent have adapted line sowing method and the rest have adopted SMI/Line Transplanting and other methods of sowing. The study concludes that 84.84 per cent HHs used Local seeds, and 15.15 per cent used hybrid seeds. Overall, 66.67 per cent of households used their own seed for Ragi cultivation. In terms of using fertilizer, in the year 2021, out of the total sample households 84.85 per cent have used organic fertilizers. Another household have used both Organic and Chemical fertiliser.

The average consumption of millets i.e Ragi in the district is 22.03 Kg. The consumption of millet is more in the summer season (88.10 per cent) compared to rainy (27.52 per cent) and no consumption in winter seasons. In the district, around 60.55 per cent of people consume millet items in their breakfast, 71`.56 per cent consume them in their lunch, 71.56 per cent consume them during their evening snacks and 19.27 per cent people consume them during dinner. Overall, a most (82.6 per cent) people consume millets in the form of *Khiri*, following this, 64.2 per cent of Tampo/Pitha and 43.1 per cent of the population in the form of Jau/Torani in the study area. Concerning the processing of millets, all the 33 millet cultivating sample HHs process their millets. Among of them 30 HHs do it manually, 3 HHs use machines. Out of the total millet cultivating HHs only 6 HHs had sold millets, 3 HHs sold to middlemen/ local businessmen and 3 HHs in daily market/ haat.

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ABBREVIATIONS

AAO	**:**	**Assistant Agriculture Officer**
AL	:	Agricultural Labour
ATMA	:	Agricultural Technology Management Agency
AWC	:	Anganwadi Centre
CBOs	:	Community Based Organisation
CCD	:	Centre for Community Development
CRPs	:	Cluster Resource Persons
CSOs	:	Civil Society Organisations
DAFP	:	Directorate of Agriculture and Food Production
DDA	:	Deputy Director, Agriculture
FA	:	Facilitating Agencies
FGD	:	Focused Group Discussion
FPC	:	Farmer Producer Company
FPO	:	Farmer Producer Organizations
GP	:	Gram Panchayat
Ha	:	Hectares
HHs	:	Households
ICDS	:	Integrated Child Development Scheme
LS	:	Line Sowing
LT	:	Line Transplanting
MDM	:	Mid-Day Meal
MFP	:	Minor Forest Produce
MGNREGA	:	Mahatma Gandhi National Rural Employment Guarantee Act
MSP	:	Minimum Support Price
NCDS	:	Nabakrushna Choudhury Centre for Development Studies
OBC	:	Other Backward Classes
OC	:	Other Castes
OFS	:	Odisha Finance Service
MOM	:	Odisha Millet Mission
PDS	:	Public Distribution System
SC	:	Scheduled Caste
SMI	:	System of Millet Intensification
SP	:	Sale Price
ST	:	Scheduled Tribe
WASSAN	:	Watershed Support Service and Activities Network

Chapter I

INTRODUCTION

1.1. Background

Millets are indigenous to many parts of the world. The most widely grown millets are sorghum and pearl millets, which are important crops in India and parts of Africa. Millets may have been consumed by humans for about 7,000 years and potentially had a pivotal role in the rise of multi-crop agriculture and settled farming societies.

Millet is a cereal grain that belongs to the *Poaceae* family, commonly known as the grass family. Millet is a small, round whole grain grown in India, Nigeria, and other Asian and African countries. Considered an ancient grain, it's used both for human consumption and livestock and bird feed. It has 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 nutrient-rich millets that fast fading away from the agricultural landscape, climate resilient crops that means it can survive in long dry spells. The 'Special Programme for Promotion of Millets in Odisha' (hereafter, Shee 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. Cultivation of millets such as R*agi, Gurji* and *Kosla* (small millet), Kodo, Kangu (foxtail millet) and Jowars are found to be encouraging. All these crops are also known as age-old traditional food of the hill dwellers have been taken up.

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 two blocks of Bargarh district. This baseline survey report aims to provide status of millets production, consumption, processing and marketing in these two blocks before the implementation of the programme.

This baseline study attempts to provide necessary information on the above-mentioned dimensions in the Bhatli and Sohela blocks of Bargarh district. The profile of the Bargarh district is provided below.

1.2. District Profile

Bargarh District is an administrative district of Odisha state in eastern India. The city of Bargarh is its district headquarters. The district was carved out of the erstwhile district of Sambalpur on 1 April 1993. Bargarh district lies in the western part of Odisha bordering Chhattisgarh. It borders Mahasamund and Raigarh districts of Chhattisgarh on the northwest, Jharsuguda district to the north, Sambalpur district to the east, Subarnapur and Bolangir districts to the south and Nuapada district to the west. Bargarh is mainly an open plain, with several small hill ranges. The district has a population of 1481255. Out of the total 50.58 per cent of the district is male and 49.42 per cent female. The literacy rate is 66.42 per cent. Scheduled Castes and Scheduled Tribes make up 20.17 per cent and 18.98 per cent of the population respectively. The key indicator of Bargarh district has been presented in Table-1.1.

All-season irrigation from the Hirakud dam on the Mahanadi makes the northern half of Bargarh District rich in agriculture, mostly paddy. Bargarh district comprises of two Sub–Divisions, 12 Tehsil and 12 Blocks. The district is coming under Agro–Climatic zone- Western Central Table Land and is divided into five Agro-Ecological Situations (AES). The district experiences an extreme type of climate with hot & dry summer followed by humid monsoons and severe cold. The temperature varies between 10^0C to 48^0C. The district receives rainfall from South–West monsoon. The average annual rainfall in the district is 1367mm. But the rainfall is not well distributed. The erratic distribution of rainfall very often hampers the Kharif crop production particularly.

Fig.1.1. Map of Bargarh District with Blocks

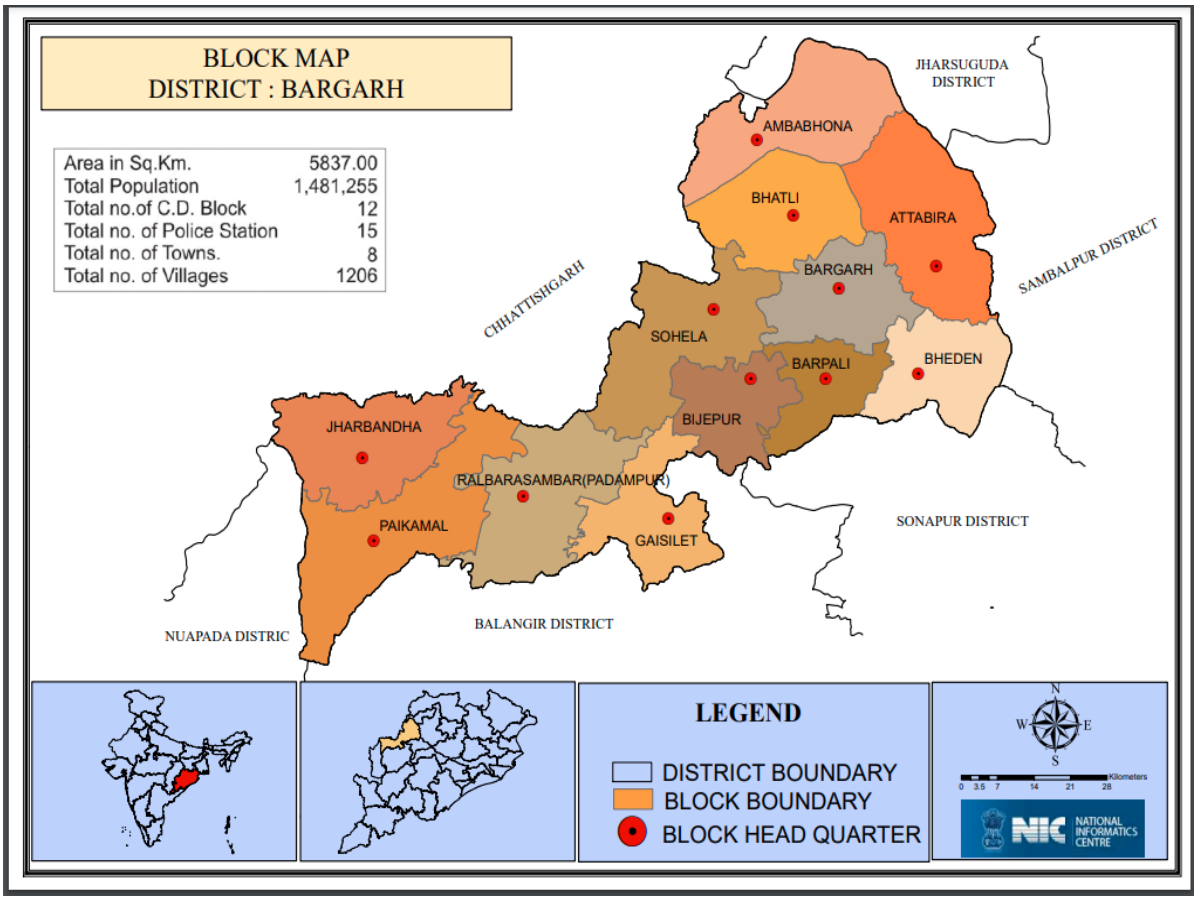


Table 0.1 Socio-economic and Demographic Features of Bargarh District	
Indicators	Value
Population (in Lakh) [a]	14.81
Male (in Lakh)	7.49
Female (in Lakh)	7.32
Scheduled Caste (in Lakh)	2.98
Scheduled Tribe (in Lakh)	2.81
No of HHs (in Lakh)	3.7
Average HH Size	4.0
Sex Ratio	977
Total Worker (in Lakh)	7.62
Main Worker (in Lakh)	4.74
Marginal Worker (in Lakh)	2.87
Non-Worker (in Lakh)	7.19
Work Participation Rate (WPR)	62.2
Literacy rate (%)	74.62
Land Use Pattern (Area in '000 ha) [b]	
Forest	1216
Land put to non-agricultural use	47
Barren and non-cultivable land	20
Permanent pasture	20
Net Area Sown	305
Cultivable waste Land	18
Other Fallow	6
Misc. Trees and Groves	5
Rainfall (in MM) [b]	
(i) Normal Rainfall	1367.3
(ii) Actual Avg. Rainfall	1357
Agricultural Production ('000MT) [b]	
(i) Paddy	890.37
(ii) Wheat	0.13
(iii) Maize	4.62
(iv) Ragi	0.13
(v) Moong	15.14
(vi) Biri	3.15
(vii) Kulthi	0.73
(viii) Ground Nut	27.43
(ix) Mustard	2.19
(x) Potato	9.61
(xi) Sugarcane	7.48

Source: a. Census 2011 Odisha, Series-22, Part XII-B District Census Handbook Bargarh.

It has a variety of soil i.e., vertisol, inceptisols and alfisols. It has a geographic area of 583700 ha with a cropping intensity of 133 per cent. Spatial variability exists in the amount and distribution of rainfall, water resource development, land topography and soil types. Land topography shows wide variation among different blocks in the Bargarh district. Inceptions are the predominant soil order and cover a large area in the district. Tremendous scope exists in the district for the construction of many minor irrigation schemes with reservoirs or diversion structures for providing gravity irrigation due to the presence of undulating land. The total surface water requirement for 100 per cent utilization of the presently installed irrigation structure is about 1.67424 BCM. Similarly, the groundwater resources of the district constitute about 0.46054 BCM. A lot of variation exists among different blocks of the Bargarh district of Odisha in the net irrigated area. Some blocks have a net irrigated area of more than 60 per cent whereas some other blocks have less than 35 per cent.[1] The detailed agricultural scenario of Bargarh district has been presented in Table 1.2.

Table-1.2 Agricultural Scenario of the District

Geographical Area	5,83,700
Forest Area	71,302
Misc. Tree crops groves	4,570
Permanent pasture and Grazing land	20,163
Cultivated wasteland	15,392
Land put to non-agricultural Use	24197
Barren and uncultivable Wasteland	20,300
Other fallow	6,105
Cultivated area	3,48,747
a. High Land **b. Medium Land**	1,83,318 (53%) 89,395 (26%)
c. Low Land	76,034 (21%)
Paddy area	1,99,75
a. High land **b. Medium Land** **c. Low Land**	37496 (19%) 86,220 (43%) 76034 (38 %)
Irrigated Area	
a. Irrigated Area (in Kharif) **b. Irrigated Area (in Rabi)**	1,53,920 (44%) 95,640 (27%)
Non-Irrigated Area	2,03,233 (58%)
Farm Families (in nos.)	1,94,827
a. Small Farmers **b. Marginal Farmers** **c. Big farmers**	73,819 (36%) 76,639 (38%) 53,092 (26%)
Agricultural Labourers (in nos.)	2,47,022

Source: https://bargarh.nic.in/agriculture/, accessed on 25th August 2022Brahmanand, P.S., and et.al. 2019. Agricultural Water Management Plan for Bargarh District of Odisha, *International Journal of Tropical Agriculture,* Vol. 37, No. 3, pp. 359-371.

The agricultural productivity of the district can be enhanced from its present level. To accurately implement the same, sound planning for the agricultural sector is required based on the existing natural resources. Keeping the above points in considers at agricultural management plan in general and promotion of millets has been prepared for Bargarh district, Odisha.

1.3. Objectives

The objectives of the baseline survey were to obtain information on production, consumption, processing and marketing of millets before the implementation. It is also pertinent to have some background information on the HHs surveyed. The objectives are:

- To assess the socio-economic condition of the people;
- To outline production, productivity and package of practices used for cultivation of millets;
- To examine the consumption pattern of millets and
- To elucidate the method of processing and mode of marketing of millets.

1.4. Methodology

1.4.1. Sample Design

The SAA program has been implemented in phased manner. It started with 7 districts of the state in Phase I during 2017-18. However, later it has expanded to all 30 districts in different phases. Under Phase VI of the implementation of the programme, an additional 58 blocks across 17 districts of the state including two blocks of Bargarh district, namely, Bhatli and Sohela Blocks are included under the programme.

For conducting the Baseline Survey 2022, Phase VI, multi-stage sampling method has been followed. In the first stage, two blocks, namely, Bhatli and Sohela Blocks have been purposively selected for the study as SAA is going to be implemented in these blocks in Phase VI. 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. Hatisar and Narangpur GP from Bhatli block, and Kanapali and Sarankand GP form Sohela 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 160 households from 8 villages, four GPs and two blocks have been selected for the study (Table 1.3).

Table 1.3: Sample HHs in Bargarh District

Blocks	Programme HHs (no)	Sample HHs	% of HHs covered under the survey
Bhatli	351	80	22.79
Sohela	344	80	23.25
Total	695	160	23.02

Source: Facilitating Agency and Field Survey, 2022

1.4.2. Data Collection, Compilation and Analysis

A total of eight villages were selected from two blocks, where four Gram Panchayats across two blocks were selected for data collection in the Bargarh district for the Baseline Survey of 2022, Phase VI. These villages were selected using the simple random sampling method based on the list provided by the implementing agency about the prospective villages to be included under Phase VI across the two blocks of the district. Four Gram Panchayats were randomly selected from each block, and two villages were selected from each of these Panchayats.

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 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. Besides these, the other indicators on production, consumption processing and marketing of millets at household level are also collected through structured schedules. The findings of the survey and FGDs were analysed using appropriate statistical tools and techniques to generate a comprehensive report.

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

1.5. Limitations of the Study

The present Baseline Survey focuses solely on two Blocks of the Bargarh 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. Future studies can address these gaps and improve the accuracy of the data collection process. Despite these limitations, the present survey provides valuable insights into the socio-economic conditions of the selected households and serves as a baseline to measure the progress made in the future.

1.6. Chapters

The baseline survey has been divided into six chapters including the current introductory Chapter I, which provided a District Profile, Objectives, Methodology and Limitations. Chapter II provides the Socio-economic Profile of surveyed 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 also summarizes the Findings.

Chapter II

SOCIO-ECONOMIC PROFILE

2.1. Introduction

A socio-economic profile is regarded as one of the most important indicators on household expenditure and income as well as other data on the status of housing, individual and household characteristics and living conditions. This Chapter looks into the social and demographic profile of HHs surveyed through their distribution by social group, religion, and gender. The Chapter provides information on the distribution of respondents by poverty status (proportion below and above poverty line), distribution by economic activities and distribution by house structure. Before going to analyse the surveyed household profiles, let's discuss briefly about the surveyed blocks of the district. Two blocks namely Bhatli and Sohela has been surveyed for study purpose.

2.2 Social Category

The distributions across social groups in Table 2.1 indicate 31.25 per cent of Sample HHs belong to STs, 8.75 per cent belong to SCs, 57.50 per cent belong to Other Backward Caste (OBC) and 2.50 per cent are belonging to others. This reflects that the highest number of respondents belongs to OBC i.e., 57.50 percent out of total sample HHs.

Table-2.1: Distribution of the Sample HHs by Social category

Social Category	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
ST	18	22.50	32	40.00	50	31.25
SC	12	15.00	2	2.50	14	8.75
OBC/SEBC	48	60.00	44	55.00	92	57.50
Others/ General	2	2.50	2	2.50	4	2.50
Total	80	100.00	80	100.00	160	100.00

Source: Baseline Survey, 2022

2.3 Sex

The total population covered under the surveyed households is 746, as shown in Table 2.2. Out of this, 52.68 per cent are males and 47.32 per cent are females. The proportion of male population is

Table-2.2: Distribution of the Sample Population by Sex

Sex	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Male	198	52.38	195	52.99	393	52.68
Female	180	47.62	173	47.01	353	47.32
Total	378	100	368	100.00	746	100

Source: Baseline Survey, 2022

slightly higher than that of females in both Bhatli and Sohela blocks. In Bhatli, males constitute 52.38 per cent of the population, while females account for 47.62 per cent. Similarly, in Sohela, males make up 52.99 per cent compared to 47.01 per cent females.

2.4 Age Group

The distribution of the sample population by age group across the two blocks, Bhatili and Sohela is presented in Table 2.3. The data reveal that the majority of the surveyed population belongs to the adult age group (19–44 years), accounting for 43.57 per cent of the total sample. The middle-aged adults (45–59 years) constitute 18.76 per cent, while the old adults (60 years and above) make up 13.67 per cent of the total population. The adolescent group (13–18 years) and children (6–12 years) together form about 18.63 per cent. The proportion of infants (0-2 years) and pre-school children (3-5 years) is relatively low, together representing only 5.36 per cent of the total population. Between the two blocks, the distribution pattern is fairly similar. However, Bhatili shows a slightly higher share of children (6–12 years), whereas Sohela has a relatively higher proportion of middle-aged and older adults.

Table 2.3: Distribution of the Sample Population by Age group

Age Groups	Blocks				Total	
	Bhatili		Sohela			
	No	%	No	%	No	%
Infant (0-2 Years)	09	2.38	08	2.17	17	2.28
Pre-School (3-5Years)	08	2.11	15	4.07	23	3.08
Children (6-12 years)	46	12.16	23	6.25	69	9.25
Adolescent (13-18 years)	37	9.78	33	8.96	70	9.38
Adults (19-44 years)	163	43.12	162	44.02	325	43.57
Middle Age Adults (45-59 years)	68	17.98	72	19.56	140	18.76
Old Adults (60 years above)	47	12.43	55	14.94	102	13.67
Total	378	100	368	100	746	100.00

Source: Baseline Survey, 2022

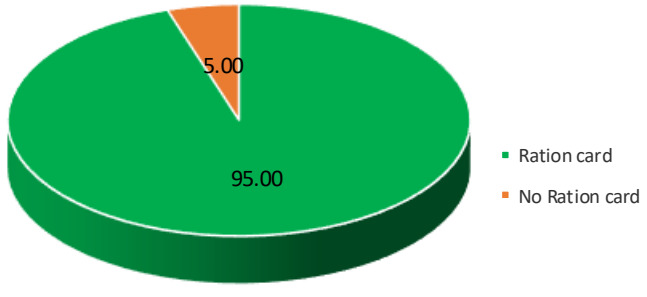
2.5 Religion

All the surveyed households in the study area belong to the Hindu religion. There is no representation from any other religious groups

2.6 Possession of Ration card

The field survey data reveals that more than four-fifths of the households (95.00 per cent) possess ration cards, indicating that the majority of the population falls under the Below Poverty Line (BPL) category. This shows a significant level of economic vulnerability among the surveyed households. Fig 2.1 presents the blocks-wise distribution of households by

Fig 2.1 : Sample HHs by Possession of Ration card (in %)



possession of Ration card. In Bhatli block, 93.75 per cent of households have ration cards, while in Sohela block, it is slightly higher at 96.25 per cent. Only a small proportion of households—6.25 per cent in Bhatli and 3.75 per cent in Sohela—do not have ration cards. Overall, out of 160 households surveyed, 152 possess ration cards, highlighting the widespread prevalence of BPL status among the population (Table 2.4).

Table 2.4: Distribution of the Sample HHs by Possession of Ration card

Particulars	Blocks				Total	
	Bhatili		Sohela			
	No	%	No	%	No	%
Ration card	75	93.75	77	96.25	152	95.00
No Ration card	5	6.25	3	3.75	8	5.00
Total	80	100	80	100	160	100

Source: Baseline Survey, 2022

2.7. House structure

Table 2.5 presents the distribution of sample households by house type across the Bhatli and Sohela blocks. The data shows that the majority of households live in pucca and semi-pucca houses, indicating a relatively stable housing condition among the surveyed population. In total, 45.00 per cent of households reside in pucca houses, with 46.25 per cent in Bhatli and 43.75 per cent in Sohela. Semi-pucca houses account for 40.63 per cent of the total, with 45 per cent in Bhatli and 36.25 per cent in Sohela. Kutcha houses are comparatively fewer, comprising 14.37 per cent of the total households, with a higher proportion in Sohela 20 per cent compared to Bhatli 8.75 per cent.

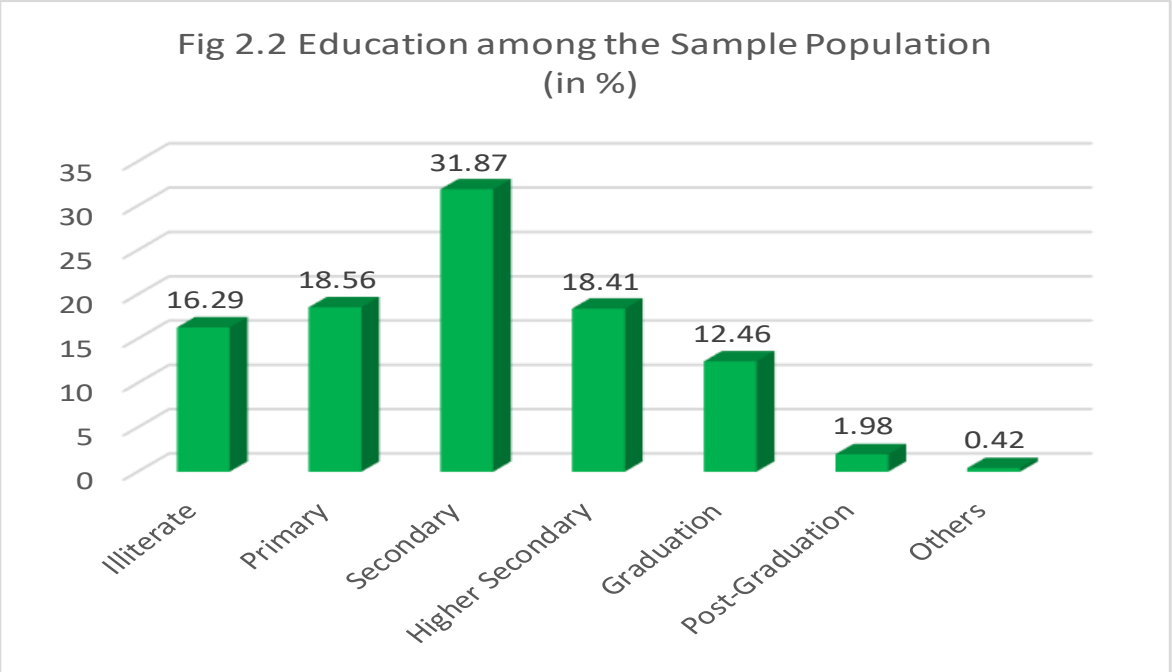
Table 2.5: Distribution of the Sample HHs by House Structure

House Structure	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Kutcha	7	8.75	16	20.00	23	14.37
Pucca	37	46.25	35	43.75	72	45.00
Semi-pucca	36	45.00	29	36.25	65	40.63
Total	80	100.00	80	100.00	160	100.00

Source: Baseline Survey, 2022

2.8 Education

Fig 2.2 presents the educational status of the population surveyed. It shows that the highest proportion of individuals have attained secondary education are 31.87 per cent (225), followed by those with primary education 18.56 per cent (131) and higher secondary education 18.41 per cent (130). A considerable share of the population is illiterate, accounting for 16.29 per cent (115). About 12.46 per cent (88) of the respondents have completed graduation, while only 1.98 per cent (14) hold post-graduate qualifications. A small fraction, 0.42 per cent, (3) falls under the category of others. This indicates that while a significant portion of the population has at least some level of schooling, higher education attainment remains relatively low.



2.9 Occupation

The occupational profile of the surveyed households is presented in Table 2.6. Out of the total 533 eligible sample population, Agriculture is the primary occupation among of them engaging, 61.54 per cent of the household members across both blocks. Specifically, 61.50 per cent in Bhatli and 61.56 per cent in Sohela are involved in agriculture, indicating that farming remains the major livelihood source in the study area. A small proportion of household members are engaged in wage earning (1.31 per cent), business activities (0.94 per cent), government sector jobs (1.31 per cent), and private sector employment (3.56 per cent). Dairy, poultry, or goat farming is practiced by only 0.19 per cent of the population. There are no respondents reported under bonded labour or artisan categories. A significant number of household members are housewives, constituting 24.76 per cent of the total. Additionally, 6.38 per cent are engaged in other activities.

Table 2.6: Distribution of Sample Population by their Occupation

Particulars	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Agriculture	163	61.59	165	62.5	328	61.54
Wage earning	6	2.23	1	0.39	7	1.31
Dairy/poultry/goat farming	1	0.37	0	0	1	0.19
Business	2	0.74	3	1.13	5	0.94
Govt. Sector	3	1.11	4	1.51	7	1.31
Private sector	10	3.71	9	3.4	19	3.56
Housewife	64	23.79	68	25.75	132	24.76
Unemployed	14	5.2	10	3.79	24	4.5
Others	6	2.23	4	1.51	10	1.88
Total	269	100	264	100	533	100

Source: Baseline Survey, 2022

2.10 Annual income

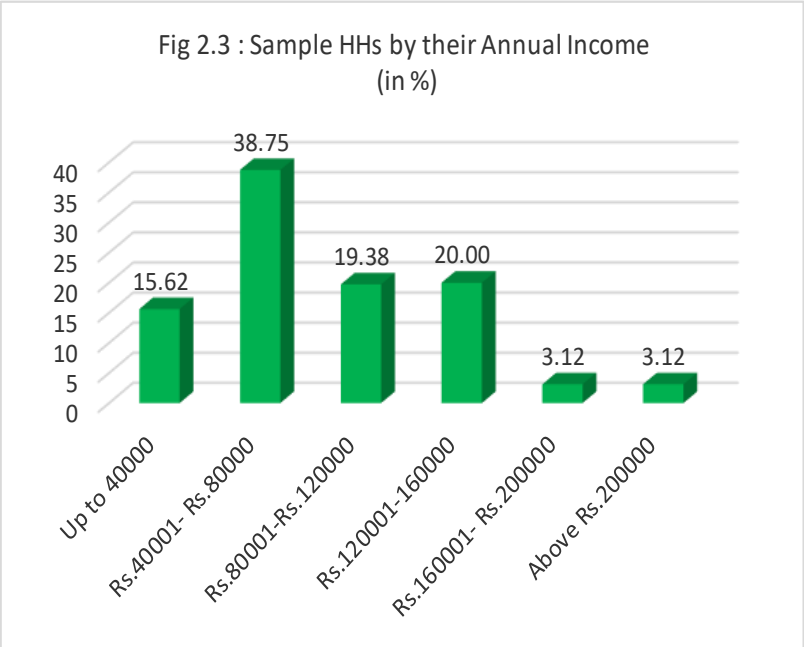


Fig 2.3 shows the income distribution of 160 sample households in Bargarh district. Out of these, 25 households (15.63 per cent) have an annual income of up to Rs.40,000, while the largest group of 62 households (38.75 per cent) earn between Rs.40,001 and Rs.80,000. A total of 31 households (19.38 per cent) fall in the income range of Rs.80,001 to Rs.1,20,000, and 32 households (20 per cent) earn between Rs.1,20,001 and Rs.1,60,000. Only 5 households (3.13 per cent) earn between Rs.1,60,001–Rs.2,00,000 and above Rs.2,00,00 each. This distribution highlights that most households have a modest income, with a very small proportion earning higher incomes.

2.11 Landownership

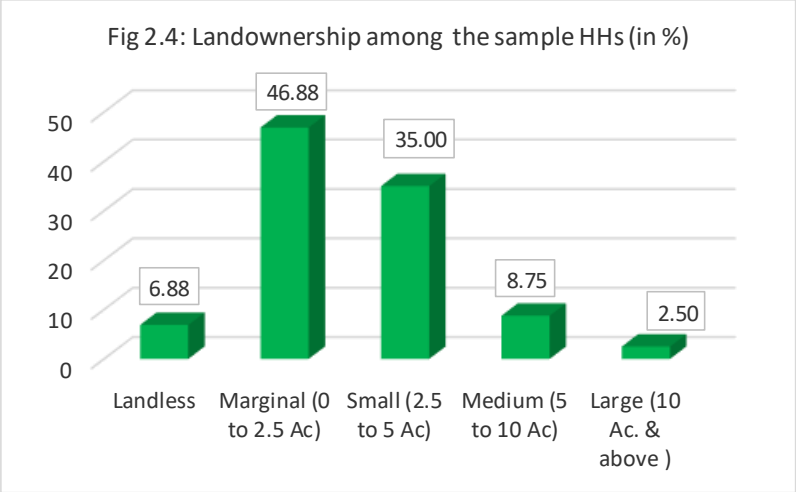


Fig 2.4 shows the distribution of Sample households in Bargarh district based on their landholding size. Out of 160 households, 11 (6.88 per cent) are landless. The majority, 75 households (46.88 per cent), belong to the marginal farmer category having up to 2.5 acres of land. Small farmers with 2.5 to 5 acres constitute 56 households (35.00 per cent), while 14 households (8.75 per cent) have medium landholdings ranging from 5 to 10 acres. Only 4 households (2.5 per cent) have large landholdings of 10 acres and above. This indicates that marginal and small farmers dominate the area, while medium and large farmers form a very small proportion.

2.12 Conclusion

The study of the socio-economic profile shows that most households belong to OBC, followed by ST and SC families. The population is almost equally divided between males and females, with a large share in the working-age group. Most households depend on agriculture for their livelihood, while only a few are engaged in other occupations. Housing conditions are fairly stable as many families live in pucca or semi-pucca houses, though some kutcha houses still exist. Education levels are improving with more people completing primary and secondary education, but higher education is very limited. The majority of households have ration cards and belong to the BPL category. Landholding is mostly small and marginal, with only a few medium and large farmers

Chapter III

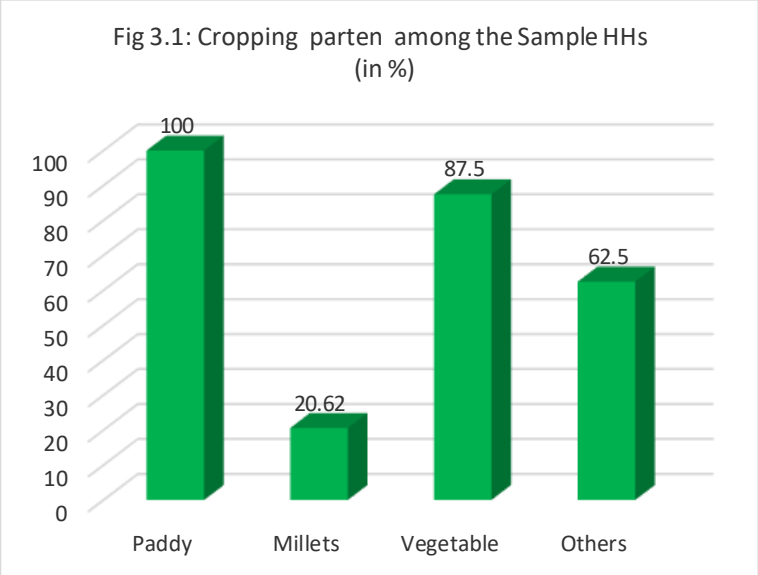
PRODUCTION OF MILLETS

3.1. Introduction

One of the main objectives of SAA is to improve the Production and Productivity of Millets in the state. In this chapter, an attempt has been made to throw some light on the status of production and productivity of millets before the implementation of the programme. It also reveals the information on block-wise and crop-wise area, production, productivity (yield), seed use and package of practices, which have been discussed lucidly.

3.2: Cropping Parten

Fig 3.1 shows the cropping pattern of 160 sample households in Bargarh. All households (100 per cent) cultivate paddy, making it the primary crop of the area. Millets are cultivated by 33 households (20.62 per cent), while vegetable cultivation is significant, with 140 households (87.50 per cent) engaged in it. Additionally, 100 households (62.5 per cent) grow other crops. This indicates a strong dominance of paddy farming, with vegetables and other crops also forming an important part of the agricultural practices, whereas millet cultivation is comparatively less common.



3.3 Area, Production and Yield of Millets

The area, production and yield of millets in the Bargarh district across blocks are shown in Table 3.1. In the year 2021-22 a total number of 33 households cultivated ragi (Finger millet). No other type of millet has been cultivated by the surveyed households in the district around. 9 Households have cultivated in Bhatli block and 24 HHs have cultivated in Sohela block.

Table 3.1: Area, production and yield of Millets

Blocks	Households	Area in Acre	Production (in Qtls.)	Yield
	No	Acre	Qtls	Qtls/Ac
Bhatli	9	3.1	5.7	1.84
Sohela	24	9.8	17.45	1.78
Total	33	12.9	23.15	1.79

Source: Baseline Survey, 2022

The total area cultivated under millets was 12.9 acre in which only Ragi was cultivated. The total production of *Ragi* was 23.15 quintals. The yield of millets is higher in Bhatili compared to Sohela block. The yield was 1.8 Qtls/ac for the Bhatli Block and 1.7 Qtls/Ac in the Sohela block.

3.4 Type of Millet Seeds used

Seed is an important input that determines the production and yield of millets. The HHs surveyed in Bargarh mainly used local varieties of seeds. All the sample HHs who cultivate millets in 2021 have reported the type of seed used in their fields for millet cultivation, Table 3.2. It shows that 84.84 percent HHs used local seeds, and 15.15 percent used Hybrid seeds.

Table 3.2: Distribution of the Sample HHs by type of Millet seeds used for Cultivation

Type of Seeds	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Hybrid	1	11.11	4	16.67	5	15.15
Local	8	88.89	20	83.33	28	84.85
Total	9	100	24	100	33	100

Source: Baseline Survey, 2022

3.5 Sources of seed

Table 3.3 reveals about the sources of seed. The farmer collects their seeds from various sources such as relatives, market, NGOs, Govt and their own seeds. 77.77 percent and 62.5 percent of households use their own seed in Bhatli and Sohela blocks respectively. Overall, 66.66 percent of households use their own seed for millet's cultivation. However, 3.03 per cent, 12.12 per cent, 9.09 per cent and 9.09 per cent of households brought the seeds from relatives, markets, NGOs and Govt. department respectively.

Table 3.3: Distribution of the Sample HHs by Source of seeds used

Sources of Seeds	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Own seed	7	77.78	15	62.50	22	66.67
Relatives	0	0	1	4.16	1	3.03
Market	1	1.11	3	12.50	4	12.12
Ngo	1	1.11	2	8.33	3	9.09
Govt.	0	0	3	12.50	3	9.09
Total	9	100	24	100	33	100

Source: Baseline Survey, 2022

3.6 Use of fertilizer

Fertilizer is an important production input for optimum yields. The use of manures as compost is presumably as old as agriculture itself. With the help of fertilizers, plants become resilient against harmful plant pathogens, pests, and weeds. Table 3.4 represent the information on the use of fertilizer among farmers in the study area for millet cultivation. 84.85 percent of households said that they have used organic fertilizers and no one is used chemicals in their product exclusively. However, 15.15 percent of households said that they have used both chemical and organic fertilizers in their Millets field.

Table 3.4: Distribution of the Sample HHs by use of fertilizer						
Fertilizers	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Organic	9	100	19	79.17	28	84.85
Organic and Chemical	0	0	5	20.83	5	15.15
Total	9	100	24	100	33	100

Source: Baseline Survey, 2022

3.7 Package of Practices

Table 3.5 reveals the different agronomic practices (broadcasting, line sowing, and line transplanting) used by the Sample HHs. Out of the total 33 Sample HHs cultivating *ragi*, 14 HHs had adopted the broadcasting method covering an area of 5.8 acres of land producing 13 quintals with a yield of 2.24 qtls/ha, 15 HHs had used line showing method in 5.45 acres of land producing 6.1 quintals with a yield of 1.11 qtls/ha, and 4 HHs had adopted transplanting method in 1.65 acres producing 4.05 quintal with a yield of 2.45qtls/ha. No Sample Households has adopted SMI method of sowing.

Table 3.5: Distribution of Sample HHs by package of practices							
Package of Practices	HHs		Area		Production (in Qtls)		Yield
	No	%	No	%	No	%	Qtls/ac
LT	4	12.12	1.65	12.79	4.05	17.49	2.45
LS	15	45.46	5.45	42.25	6.10	26.35	1.12
Broad casting	14	42.42	5.80	44.96	13	56.16	2.24
Total	33	100	12.90	100	23.15	100	1.79

Source: Baseline Survey, 2022

3.8 Reasons for not Cultivating Millets

There are several factors responsible for the non-cultivation of millets among the sample HHs. The major constraint faced by farmers is shortage of land reported by 51 HHs (40.2 per cent), followed by 47 HHs (37.0 per cent) citing the crop is not profitable, and 22 HHs (17.3 per cent) reported Non-availability of Seeds. A smaller proportion, 7 HHs (5.5 per cent), mentioned that lack of irrigation facility affecting their agricultural practices.

3.9 Conclusion

The survey findings reveal that millet cultivation in the district is limited compared to other major crops such as paddy and vegetables, which dominate the local farming system. Millets, mainly ragi, are cultivated by a small proportion of households using traditional methods and inputs. Most farmers rely on locally available seeds, primarily from their own saved stock, with limited access to improved varieties. Organic fertilizers are predominantly used, while only a few farmers apply a mix of organic and chemical fertilizers. Traditional practices like broadcasting remain common, though methods such as line sowing and transplanting show better yield potential. Overall, millet cultivation in the area is still traditional and small-scale.

Chapter IV

CONSUMPTION OF MILLETS

4.1. Introduction

Millets have traditionally been an important part of the Indian diet, especially in rural and tribal areas. These coarse grains are known for their high nutritional value, climate resilience, and suitability for dryland farming. The consumption pattern of millets, however, has declined over time due to changing food preferences, increased availability of rice and wheat through the Public Distribution System (PDS), and lack of awareness among consumers. Despite these challenges, millets continue to be consumed in several regions, particularly among tribal communities, where traditional food habits are still followed. This study focuses on understanding the current status of millet consumption among rural households. It aims to assess the frequency, purpose, and quantity of millet consumption, along with factors influencing household preferences. By analyzing the consumption pattern, the study also seeks to identify the potential for promoting millet-based diets for better health and sustainable agriculture.

4.2. Consumption of Millets by Sample HHs

The sample households in Bargarh district are habituated in consuming millets; however, ragi is the only millet consumed by them. Table 4.1 presents that out of the 160 sample households, 109 (68.13 per cent) are used to consume millets. In the case of the Bhatli block, 52 households (47.71 per cent) consume millets and 57 households (52.29 per cent) consume millets in the Sohela block. However, the frequency of consumption varies among sample households. The average consumption of millets is 22.03 Kg. Millets consumption pattern of the households has been discussed in the next section.

Table 4.1: Distribution of Sample HHs by Consumption of Millets

Block	No of HHs	%	Total HHs	%
Bhatli	52	65.00	80	100
Sohela	57	71.25	80	100
Total	109	68.12	160	100

Source: Baseline Survey, 2022

4.3. Consumption of Millets across Seasons

Table 4.2 presents the season-wise consumption pattern of millets across the Bhatli and Sohela blocks. The data shows that millet consumption is highly concentrated during the summer season, with 87.65 per cent of households consuming millets in this period. The table also reveals that 87.29 per cent of households in Bhatli and 88.00 per cent in Sohela reported consuming millets during summer. However, only 27.52 per cent of the total households consume millets during the rainy season**,** with comparatively equal shares from both blocks (28.84 per cent in Bhatli and 26.31 per cent in Sohela). Notably, there is no millet consumption reported by the sample HHs during the winter season in either block. This pattern indicates that in Bargarh district ragi are largely a seasonal food, primarily consumed during the summer month.

Table 4.2: Distribution of Sample HHs by Consumption of Millets across the Seasons						
Seasons	Blocks				Total	
	Bhatli		Sohela			
	No of HHs	%	No of HHs	%	No of HHs	%
Rainy	15	28.84	15	26.31	30	27.52
Summer	46	88.46	50	87.71	96	88.07

Source: baseline survey, 2022

4.4. Consumption of Millets during different meals of a day

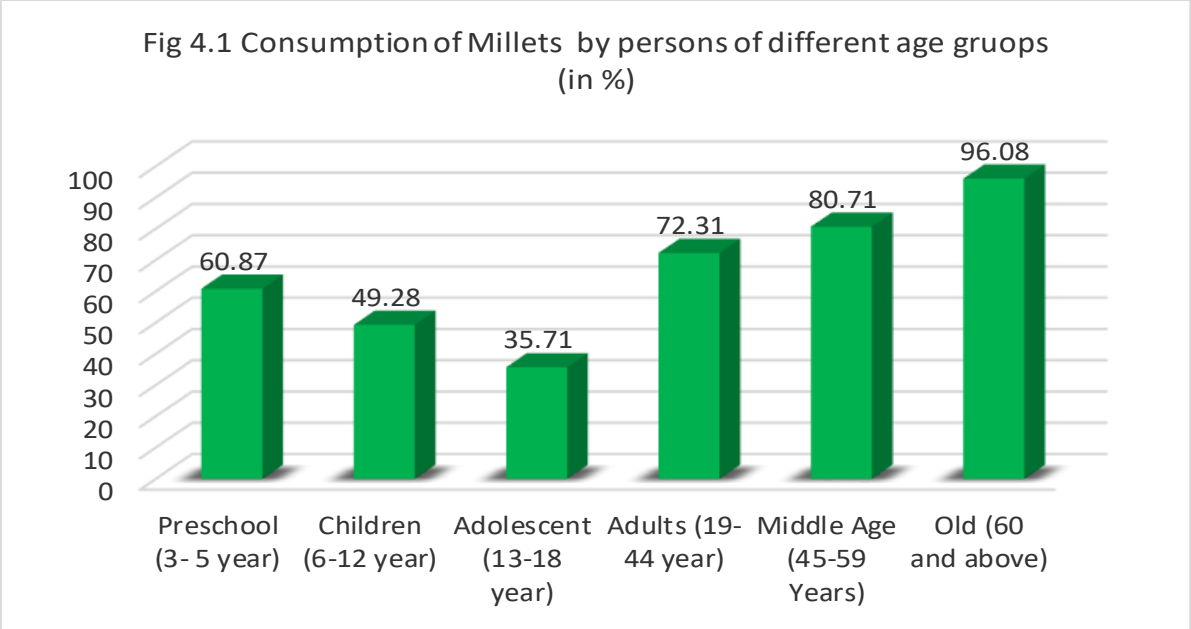
The field data reveals that out of the total millets consuming sample HHs 60.55 per cent consume ragi items in their breakfast, 71.55 percent of them consume it in their lunch, 71.55 per cent consume it during their evening snacks and 19.26 per cent consume during dinner (Table 4.3). In Bhatli block, a large number of people consume millets during lunch (76.92 per cent) whereas in Sohela, (75.43 per cent) maximum people consume millets as evening snacks.

Table 4.3: Distribution of Sample HHs by Consumption of Millets during different meals in a day						
Meals	Blocks				Total	
	Bhatli		Sohela			
	No of HHs	%	No	%	No	%
Breakfast	29	55.76	37	64.91	66	60.55
Lunch	40	76.92	38	66.66	78	71.55
Evening Snacks	35	67.30	43	75.43	78	71.55
Dinner	14	26.92	7	12.28	21	19.26

Source: Baseline Survey, 2022

4.5 Consumption of Millets by persons of different age groups

The age-wise distribution of millet consumption in two blocks of Bargarh district shows in fig 4.1, that none of the infants (0–2 years of age) has consumed millets. In the preschool group (3–5 years), 14 out of 23 individuals consumed millets, accounting for 60.87 per cent. Among children (6–12



years), 34 out of 69 consumed millets (49.28 per cent), whereas in the adolescent group (13–18 years), 25 out of 70 consumed millets (35.71 per cent). Millet consumption is relatively more in older age groups, with 235 out of 325 adults (19–44 years) consuming millets (72.31 per cent) and 113 out of 140 middle-aged individuals (45–59 years) consuming millets (80.71 per cent). The highest consumption rate is observed among the elderly people (60 years and above), where 98 out of 102 individuals consumed millets (96.08 per cent). Overall, 568 out of 746 individuals consumed millets, reflecting an overall consumption rate of 69.57 per cent in the surveyed population.

4.6 Consumption of Millet recipes

The consumption of millets in Bargarh district is a year-old ancient traditional practice by which millets cultivation is still alive as it is consumed as a major food in their daily diet. People are consuming ragi in several ways in the form of *Tampo/Pitha, Chhatua, Jau/ Torani,* Cake/ Mixture/ Biscuit, *Handia, Khiri, Idli/ Upma*, Sweet items, Lassi/ Sarbat and others.

Table 4.4: Distribution of Sample HHs by consumption of different Millet recipes

Recipes	Blocks				Total	
	Bhatli		Sohela			
	No	%	No	%	No	%
Tampo / Pitha	34	65.38	36	63.15	70	64.22
Jau /Torani	17	32.69	30	52.63	47	43.11
Cake/ Mixture/ Biscuit	1	1.92	1	1.75	2	1.83
Khiri	41	78.84	49	85.96	90	82.56
Sweet Item	1	1.92	0	0	1	0.92
Lassi / Sarbat	12	23.07	11	19.29	23	21.10
Others (Specify)	10	19.23	0	0	10	4.12

Source: Baseline Survey, 2022

Table 4.4 reveals the different recipes wise consumption of millets. In Bargarh district, out of the total surveyed millets consume surveyed HHs, 65.38 per cent of people of Bhatli and 63.15 per cent of people of Sohela eat Tampo/ Pitha. 32.69 per cent of the people of Bhatli and 52.63 per cent of Sohela eat millets in the form of *Jau/ Torani*. 78.84 per cent of people of Bhatli and 85.96 percent of Sohela block eat millets in the form of *Khiri.* Overall, 82.56 per cent eat millets in the form of *Khiri*, following this, 64.22 per cent *Tampo/ Pitha* and 43.11 per cent of the population millets in the form of *Jau/Torani* in the study area. However, people also intake millets in the form of *Lassi/Sarbat* (21.10 per cent), Sweet Items (0.92 per cent), Cake/Mixture/ Biscuit (1.82 per cent) and in other forms (4.12 per cent).

4.5. Conclusion

The survey findings reveal that the consumption of millets is more in the summer season compared to rainy and no consumption in winter season. Age-wise distribution shows that millet consumption is more common among adults, middle-aged, and elderly populations, while relatively lower among children and adolescents. This indicates that millet remains embedded in the diets of older generations, while younger groups are gradually moving away from it. The study also reveals that ragi is consumed in multiple forms, with Khiri, Tampo/Pitha, and Jau/Torani being the most common preparation. Millet consumption is prevalent in Bargarh but it continues to face challenges related to seasonality, changing food preferences, and lower adoption among younger age groups.

Chapter V

PROCESSING AND MARKETING OF MILLETS

5.1. Introduction

This chapter examines the various methods of millet processing, the availability and accessibility of processing units, and the distance households must travel to access these facilities. It also explores the different modes of marketing millets and the household-level trends in millet utilization. Additionally, the chapter highlights the use of both traditional manual methods and modern machine-based techniques for processing millets, along with the different channels through which millets are sold in the study area.

5.2. Processing of Millets

Processing of millet grains is necessary for the storage and preparation of different recipes. The survey shows that millet processing is predominantly done through traditional methods in both Bhatli and Sohela blocks. In Bhatli, all the millet-cultivating sample households depend entirely on manual processing. Similarly, in Sohela, the majority of millet-cultivating households (87.5 per cent) use traditional methods, while a small proportion (12.5 per cent) use machines (Table 5.1).

Table 5.1: Distribution of Sample HHs by Methods of Millets processing

Blocks	Millets Processing	Traditional		Machine	
	No	No	%	No	%
Bhatli	9	9	100	0	0
Sohela	24	21	87.5	3	12.5
Total	33	30	90.91	3	9.9

Source: Baseline Survey, 2022

5.3. Marketing of Millets

The survey reveals that millet marketing is not a common practice among most cultivating households (Table 5.2). In Bhatli block, 55.55 per cent of the households have reported selling their

Table 5.2: Distribution of Sample HHs by Marketing of Millets

Blocks	No of HH Cultivate Millets	No of HH Sell Millets	%
Bhatli	9	5	55.55
Sohela	24	1	4.17
Total	33	6	18.18

Source: Baseline Survey, 2022

produce, whereas in Sohela, only 4.17 per cent of the households are involved in millet sales. Overall, only 18.18 per cent of the total surveyed households sell millets. This indicates that millet cultivation in the region is largely focused on self-consumption rather than commercial sales. The

findings suggest the need to improve market access, storage facilities, and awareness to encourage farmers to participate in millet marketing and enhance their income.

5.4 Mode of Selling Millets

Table 5.3 illustrates about the information on the mode of selling millets in the surveyed area. In Bhatli Block**,** 3 households (60.00 percent) sell their produce through the daily market**,** while 2 households (40.00 per cent**)** rely on middlemen or local businessmen**.** In Sohela Block**,** none of the households sell through the daily market, whereas 1 household depends on middlemen or local businessmen. Overall, across both blocks**,** 3 households (50.00 per cent) use daily markets, and an equal number (3 households, 50.00 per cent) depend on middlemen or local businessmen for marketing their produce.

Table 5.3: Distribution of HHs by their mode of Selling Millets

Blocks	Daily Market		Middleman/ Local Businessman	
	No of HHs	%	No of HHs	%
Bhatli	3	60.00	2	40.00
Sohela	0	0	1	100
Total	3	50.00	3	50.00

Source: Baseline Survey, 2022

5.4. Conclusion

The survey findings indicate that millet processing in the study area is predominantly carried out using traditional manual methods, with only a few households adopting machine-based techniques. This indicates that households mainly depend on traditional practices due to limited access to modern processing facilities. Millet marketing is not widely practiced, as most households primarily grow millets for self-consumption rather than sale. Where sales occur, both local markets and middlemen serve as channels for marketing, but market access and linkages remain weak.

Annexure: Mapping of Baseline Values of Bargarh District
Phase VI, 2022

Sl.	Indicators	Unit	Baseline Value		
			Bhatli	Sohela	Total
1	Percentage of Sample households Cultivating Millets (N- 33)	%	11.25	30.00	20.63
2	Types of Millets Cultivated (2021)				
	a) Ragi	%	11.25	30.00	20.63
3	Avg. Area under Millets/HH (Acre)	Acre	0.34	0.41	0.39
4	Percentage of Millets cultivated area to the total cultivated area	%	0.34	2.49	1.17
5	Average Production of Millets by Sample Households	Qtls.	0.56	0.72	0.70
6	Package of Practice (N -33)				
	a) Broadcasting	%	44.44	41.66	42.42
	b) LS	%	55.55	41.66	45.46
	c) LT	%	0	16.66	12.12
7	Yield Rate (Qtls./Acre)	Qtls.	1.8	1.7	1.79
8	Percentage of Sample Households Consuming Ragi (N- 109)	%			
	a) Breakfast	%	55.76	64.91	60.55
	b) Lunch	%	76.92	66.67	71.55
	c) Evening Snacks	%	67.30	75.43	71.55
	d) Dinner	%	26.92	12.28	19.27
9	Percentage of Sample Households Consuming Popular Ragi Recipes (N- 109)				
	a) Tampo/Pitha	%	65.38	63.15	64.22
	b) Jau/Torani	%	32.69	52.63	43.12
	c) Khiri	%	78.84	85.96	82.56
10	Percentage of use Sample Households different methods for Processing Millets (N-33)				
	a) Manually/ Traditional	%	100.00	87.5	90.9
	b) Machines	%	0	12.5	9.1
11	Percentage of Sample Households selling Millets/ Ragi (N- 6)				
	a) Mandi	%	0	0	0
	b) Daily Market	%	60.00	0	50.00
	c) Middleman	%	40.00	100	50.00

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, pleases elaborate the methods of processing.

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

Part-V: Marketing of Millets

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

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

Sources of Millets You Sell: 1. Own Produced, 2. Purchase from Farmers, 3. Others (Specify)
Where Sold Your Millets: 1. Govt. *Mandi, 2.* Middlemen/ Local Businessman, 3. Moneylender/ *Sahukar, 4.* Daily market/ Haat 5. Others (pl. specify)
Mode of Transportation: 1. Headload, 2. Cycle, 3. Cart, 4. Own Vehicle, 5. Hired Vehicle, 6. Public Transport, 7. Others (Specify)
Reason for Sale: 1.Better Price, 2.Immediate Need of Cash, 3. Loan Repayment, 4. Non-Availability of Market, 5.Any Others (specify)

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

Contact no of Respondent ..... **Signature of the Researcher/Field Investigator**

CONTRIBUTORS

Dr. Doleswar Bhoi
Dr. Kishor Kumar Podh
Dr. Dolagobinda Kumbhar

Ms. Subhashree Lenka
Mr. Jitendra Sahoo
Mr. Md. Saidul Islam
Mr. Linus Lakra
Ms. Sandhyarani Dora
Ms. Kajal Pradhan

Ms. Gayatri Nayak
Mr. SmrutiRanjan Sahu
Ms. Swayamprajan Pattanaik
Ms. Pusapanjali Lenka
Mr. Hemanta Mahanandia
Mr. Prasanta Kumar Sahu
Mr. Sukant Kumar Pradhan
Ms. Madhusmita Choudhury

About NCDS, Bhubaneswar

The Nabakrushna Choudhury Centre for Development Studies (NCDS), established in March 1987, is registered under the Societies Registration Act, 1860. It is being jointly funded by the Indian Council of Social Science Research (ICSSR), Ministry of Human Resource Development, Government of India and Planning & Convergence Department, Government of Odisha. Focussing on socio-economic research, this institute is the only one of its kind that serves as a policy think tank in the state of Odisha.

Nabakrushna Choudhury Centre for Development Studies (NCDS)

An Indian Council of Social Science Research (ICSSR) Institute in Collaboration with Government of Odisha, Bhubaneswar - 751013, Odisha, India

+91-674-2301094, 2300471 ncdsbbsr1987@gmail.com htttp://ncds.nic.in

@ncdsbhubaneswar @ncds_