BASELINE SURVEY:

MAYURBHANJ DISTRICT 2018-19, Phase 2

(Special Programme for Promotion of Millets in Tribal Areas of Odisha or Odisha Millets Mission, OMM)

Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, Odisha
(an ICSSR Institute in Collaboration with Government of Odisha)

August 2020

BASELINE SURVEY:

MAYURBHANJ DISTRICT 2018-19, Phase 2

(Special Programme for Promotion of Millets in Tribal Areas of Odisha or Odisha Millets Mission, OMM)

Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, Odisha
(an ICSSR Institute in Collaboration with Government of Odisha)

August 2020

Citation: NCDS Study Team*, “Baseline Survey: Mayurbhanj District 2018-19, Phase 2 (Special Programme for Promotion of Millets in Tribal Areas of Odisha or Odisha Millets Mission, OMM)” Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar August 2020.

(* See next page for details of NCDS study team)

NCDS STUDY TEAM

Lead Author
Dr Narayani Rajashree Kanungo

With research support from
Mr Guru Prasad Khuntia
Mr Sanket Mishra

Project Coordinators
Dr Chita Ranjan Das
Dr Biswabas Patra

Post-Doctoral Fellows
Dr Abhisek Mishra
Dr Sitakanta Sethy

Research Assistants
Mr Siba Shankar Bibhar
Mr Dharamjit Biswal
Ms Roma Choudhury
Ms Anuja Biswobala Dash
Mr Nitin Kumar Hotha
Mr Ajay Kumar Padra
Mr Arakshit Patra (till May 2020)
Mr Bikash Pradhan

PhD Scholars
Ms Diptimayee Jena
Ms Rashmi Rekha Samal

Field Investigators
Green India Consultancy Farm

Principal Investigator
Professor Srijit Mishra

FOREWORD

The seeds for the "Special Programme for Promotion of Millets in Tribal Areas of Odisha" (Odisha Millets Mission, OMM) were sown at a consultation meeting held on 27 January 2016 at Nabakrushna Choudhury Centre for Development Studies (NCDS) under the Chairmanship of the then Development Commissioner-cum-Additional Chief Secretary (DC-cum-ACS), Government of Odisha, and Chairperson, NCDS, Mr. R. Balakrishnan (currently, Chief Advisor, Government of Odisha). The consultation meeting had representatives from different line departments of the Government of Odisha, members of different civil society groups from across the country and from within the state (which, among others, included the Alliance for Sustainable and Holistic Agriculture (ASHA), the Millets Network of India (MINI), the Revitalizing Rainfed Agriculture (RRA) Network of India), that brought in their experiences, and the academia that included among others the then Chairperson of Karnataka Agricultural Price Commission, Dr T. Prakash. As per the decision taken at the consultation meeting, NCDS submitted a proposal to the Government of Odisha on the revival of millets. Lo and behold, there was an announcement in the budget speech of 18 March 2016 conveying that the Government of Odisha intends to revive millets. This led to a series of interactions and a memorandum of understanding (MoU) was signed on 27 February 2017 between the Directorate of Agriculture and Food Production (DAFP) as the state level nodal agency that would monitor and implement the programme, NCDS as the state secretariat that would also anchor the research secretariat, and Watershed Support Services and Activities Network (WASSAN) that would anchor the programme secretariat as part of the state secretariat.

It was in 2017-18 that budget was apportioned for 30 selected blocks, the phase 1 blocks. In principle decision was taken to extend the programme to another 25 blocks in 2018-19, the phase 2 blocks, a further 17 blocks in 2019-20 (that includes 10 under the state plan and seven under District Mineral Fund (DMF), Keonjhar), the phase 3 blocks, and an additional 4 blocks under DMF, Sundargarh in Kharif 2021, the phase 4 blocks. The MoU with NCDS for 7 blocks under DMF Keonjhar was signed on 13 December 2018 and for 35 phase 2 and phase 3 blocks under state plan were signed on 25 February 2019. The current set of 10 baseline reports are based on surveys conducted during August 2019 February 2020 where the programme intervention had already started.

In each of the blocks, from the list provided by the facilitating agency through the programme secretariat that had names of participating farmer, village and gram panchayat. We first selected two of the gram panchayats randomly, and then, from each of the selected gram panchayat we selected two villages randomly. From each selected village, 15 farmer households were selected randomly and from a listing of non-participating farming households, five farmer households were selected. If a village did not have 15 participants then the sample size of non-participating households was increased so that the total number of sample households from each village was 20. As per this design, each block would have a sample of 80 farmer households. All respondent households were asked question regarding the scenario before the intervention of the

programme, and hence, they were canvassed the same schedule. The survey was conducted by a third party. A sample of the surveyed households were re-visited by the research secretariat team for scrutiny and validation of data. Besides, during this visit, focus group discussions were also conducted in some villages by the research secretariat team.

The lead author for the current baseline report on Mayurbhanj is Dr Narayani Rajashree Kanungo with research support from Mr Guru Prasad Khuntia and Mr Sanket Mishra along with other members of the study team. As Principal Investigator of the team, I compliment all the members for their effort.

The Odisha Millets Mission, as per a recent report that I authored, comparing first year outcome with the baseline report of the phase 1 blocks indicate that the yield has more than doubled and the value of produce has more than trebled in the year one of its intervention. In 2019, mandia procurement in *swabhiman anchal* of Malkangiri district was the first ever procurement of any grain in the region even after 70+ years of independence. In 2020, in spite of the pandemic, ragi ladoos are being piloted as a consumption awareness campaign through Integrated Child Development Scheme in Keonjhar and Sundargarh under respective DMF. These expansions are also brining in opportunities of convergence across line departments, which is an important development for any pro people public policy engagement.

On the research front there have been engagements with a consortium of universities and institutes led by University of Cambridge through TIGR^{2}ESS (Transforming India's Green Revolution by Research and Empowerment for Sustainable food Supplies). Agreements have been signed with Indian Institute of Millets Research (IIMR), Hyderabad, and Central Food Technological Research Institute (CFTRI), Mysuru, Fobenius Institute at Goethe University, Frankfurt and also exploring a research collaboration with them that includes scholars from Groningen University among others.

There has been interest in Odisha Millets Mission from the central as also other state governments. The unique institutional architecture that brings together the Government, civil society and the Academia led by NCDS to complement and supplement each other has been appreciated by policy makers (including National Institution for Transforming India, NITI Aayog), civil society and the Academia. So, the chant of OMM continues to reverberate.

Srijit Mishra
Director, NCDS

ACKNOWLEDGEMENTS

Baseline Survey- Mayurbhanj is an outcome of dedicated team work. Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar, prepared the report with support from related government departments, organizations, and related stakeholders including farmers' associations.

First and foremost, we express our sincere gratitude to Mr. R. Balakrishnan, Indian Administrative Service (IAS), former Development Commissioner-cum-Additional Chief Secretary (DC-cum-ACS) and former Chairman, Nabakrushna Choudhury Centre for Development Studies (NCDS); Mr. Suresh Chandra Mahapatra, IAS, DC-cum-ACS, Government of Odisha and Chairman, NCDS; Dr. Saurabh Garg, IAS, Principal Secretary, DAFE; Mr. Bhaskar Jyoti Sarma, IAS, former Special Secretary, DAFE; Mr. Suresh Vashishth, Special Secretary, DAFE ; Dr. M. Muthukumar, IAS, Director, DAFP; Mr. Viineet Bhardwaj, IAS, Collector-cum-District Magistrate, Mayurbhanj; Mr. Kashinath Khuntia, former Joint Director Agriculture (JDA), Millets & Integrated Farming, DAFP; Mr. Pradeep Rath, JDA, Millets and IF; Dr. Ananda Chandra Sasmal, former Agronomist, DAFE; Mr. Ansuman Pattnayak, former Assistant Agriculture Officer (AAO), Farm, Millets, DAFP; Mr. Sanjay Kumar Pani, former AAO, DAFP, and Ms. Kalpana Pradhan, AAO, DAFP.

Our heartfelt thanks to District Level Officials of Mayurbhanj, Particularly to Mr. Damodar Sethi CDAO, Mayurbhanj; Mr. Krushna Chandra Singh, DAO, Jashipur; Mr. Kiisun Murmu, DAO, Bisoi; Mr. Sanjay Mohanty, DAO, Bangiriposi; Assistant Agriculture Officers (AAO); Mr. Subhalaxmi Das and Bighnaraj Sethi (Jashipur), Ms. Lisha Priyadarshini and Gayatri Tudu (Bisoi), Mr. Anirudha Tarei (Polosara), Mr. Trilochan Rout and Alaka Shahu (Bangiriposi) for their support in providing information.

We also extend our gratefulness to the NCDS office bearers including Mrs Sumati Jani, OFS, Secretary, NCDS; Mrs. S. M. Pani, Computer Programmer; Mr. D. B. Sahoo, PA to Director; Mr. P. K. Mishra, Sr. Asst.; Mr. P. K. Mohanty, Jr. Accountant; Mr. N. K. Mishra, Stenographer; Mr. P. K. Mallia, Computer Typist; Mr. Niranjan Mohapatra, Librarian; Mr. S. B. Sahoo, Xerox Operator for their support, help and cooperation.

A special mention to the entire team of the Programme Secretariat (WASSAN), who were instrumental during the time of field work including Mr. Ashima Choudhary, State

Coordinator, and Mr. Aswini Kumar Das, District Coordinator (OMM), Mayurbhanj and also the staff of Facilitating agencies CREFTDA and Gram Swaraj for the support during data collection.

We would like to sincerely thank all farmer respondents without their cooperation collection of data could not have been possible.

Narayani Rajashree Kanungo
Post Doctoral Fellow, NCDS

EXECUTIVE SUMMARY

$1 Study Area

$1.1 Mayurbhanj is one of the seven second phase districts where the flagship programme "Special Programme for Promotion of Millets in Tribal Areas of Odisha (hereafter, Odisha Millets Mission, OMM)" has been launched by Department of Agriculture and Farmers' Empowerment, Government of Odisha in order to revive millets in rainfed farming systems and household consumption. It was started in kharif 2016-17 in three blocks of the district namely *Bangiriposi*, *Bisoi* and *Jashipur*.

$1.2 In order to gather preliminary information, a baseline study was conducted in the district by Nabakrushna Choudhury Centre for Development Studies (NCDS) during the preliminary stage of the state driven programme in order to assess the demographic and socio economic profile of the programme participants and their existing status related to production, processing, marketing and consumption of millets.

$1.3 Out of 240 Households (HHs) covered under baseline study 59 HHs are programme participants and 181 HHs are non-participants in OMM intervention. Out of the total participants under study, 80 HHs each are from Bangiriposi, Bisoi and Jashipur Blocks. It may be highlighted that none of the HHs covered under the study had cultivated millets before OMM intervention in the said blocks. It may also be emphasized that millet is not a part of HH consumption in the intervened areas. Respondents were found unaware of this cereal and barring few respondents from older generation who recalled production of *suan* (little millets) and *kodo* millets in some pockets during their childhood, majority denied any experience with millets as a food crop as a part of their past agricultural practice and in their consumption pattern. However, in some pockets, instances of millet consumption was found Data related to millets has been largely derived from Focused Group Discussion (FGD) with the communities that throw insight into respondents' perception towards OMM.

$2 Socio-economic profile

$2.1 From the surveyed HHs, 14.16 per cent are from Scheduled Caste (SC) social category, whereas 75.42 per cent are Scheduled Tribe (ST), 8.75 per cent are other backward classes (OBC) and remaining 1.66 per cent are from SEBC.

$2.2 Distribution of HHs on the basis of religious category suggests the majority to be Hindu (99.2%) whereas 0.4 per cent are Christian and 0.4per cent are from other categories.

$2.3 economic status of the respondents indicates that 3.33per cent are above poverty line (APL) and 96.66 per cent are categorized as below poverty line (BPL).

$2.4 A look at the dwelling characteristics of the respondents suggests that 62.91per cent HHs dwell in kucha houses whereas 30.9 per cent resides in semi pucca houses and 6.2 per cent in pucca houses.

$3 Field Insight

$3.1 Detailed estimation of land possessed by the respondents suggests that 267.9ha land is owned by the respondents out of which 9.7ha is leased in and 2 are leased out. 7.3 are encroached land, 9.8ha are FRA land, and 4.1 are others. Out of the total land 199ha are cultivable. None of the respondents recognized availability of irrigation facilities for their farm land.

$3.2 Lack of irrigation facility is posed as one of the single most problems encountered by the respondents. Very few farmers have access to modern irrigation facilities and most of the agricultural activities were found to be rain fed. Farmers restrict agriculture activities to only khariff season. During rabi season, the lands remain barren and villagers are found to be engaged in daily wage labour activities**.**

$3.3 Cropping system followed by the respondents as documented from the field information indicate that almost all the respondents follow mono cropping system (237 HHs) whereas only 1 followed mixed cropping system. None of the HHs were found to have followed intercropping system in the study area.

$3.4 Agriculture activities are carried out by both male and female members of the household. Paddy is the main crop produced in the district. However, farmers were found to be cultivating maize and vegetables in some cases as well**.**

$3.5 It was found out from the field information that the total seed (for paddy cultivation) used by the respondents turn out to be 9151.1 kg per 240 HHs amounting to average of 38.12 kg per HH. Respondents are quite satisfied with the seed quality. Data indicate that 76.67 per cent marked it as good quality whereas 22.92 per cent called it average and only .005 per cent identified it as bad. Mostly seeds are preserved from the previous year's cultivation whereas some purchase it from local market.

$3.6 Processing unit for paddy is available within close proximity in the studied villages. People used to process paddy manually a decade back which was a tedious affair. Use of machine has reduced the workload on the farmers manifold**.**

$ 3.7 People find marketing their surplus crop through middlemen to be easier than in government mandi though the rate in the mandi is higher. The money transaction is identified to be complicated and not as user friendly for the farmers in the case of the latter. Surplus vegetables and pulses (in rare cases) are sold in the village weekly market(haat).

$3.8 people eat food on the basis of availability, accessibility and affordability. Awareness about the nutrition component of the food is limited and based on traditional belief system. Though some of the informed knowledge base may be considered as reliable, respondents did not prioritize nutrition as a major factor influencing their consumption pattern.

$3.9 Main diet consists of rice and vegetables in the district. Flesh food especially chicken and mutton are consumed in a weekly basis. Puffed rice is included in regular diet and is considered to have possessed digestive elements. Millet is consumed by 38 out of 240 respondents, though as an occasional option.

$3.10 Millet production is not a part of agricultural practice in the district and there is not much of evidence of millet consumption in the study area as well. There is limited awareness about millet among respondents. Few respondents from older generation recalled consuming it during their childhood. However, data indicates that in some pockets, millet is consumed, though sparingly. Approximately 16 (15.83%) per cent HHs are found consuming millets. These HHs purchase millets from nearby markets and mentioned that millet is produced in some remote areas of the district and is mostly for HH consumption. These farmers occasionally sell surplus produce in the local market for these HHs, millet is consumed mostly as a breakfast option especially in summer season.

$3.11 Ragi, Suan (little millets) and kodo millets were cited as millets produced in the past. These crops were cultivated in the highlands or forest lands using broadcasting method as they did not need much care and water. These crops were preserved mostly to serve as backup food to be used during lean period (August- September). New forest Acts and constant animal attacks were cited as two major reasons why farmers withdrew from cultivating these crops. Government incentive for paddy cultivation using modern methods increased paddy cultivation manifold and farmers no more confront lack of food in the villages anymore. Supplement availability of rice in a minimal rate as government public distribution system has addressed accessibility to food even further. These were cited as reasons why farmers' attention from millet production got diverted.

$3.12 Respondents identify millet as poor man's food and generally do not add much value to it because of this cultural stigma attached to it.

$3.13 Processing of millet is a tedious affair, which was cited as yet another factor responsible for the poor response to the crop.

$3.14 Women collectives in form of SHGs are a powerful platform to voice social issues of concern and may be used as a potential group to enhance interventions in terms of outreach and efficiency.

$3.15 Hygienic condition of the study area gives the following impression. Open defecation is a common practice. Though government has provided toilets to some HHs, they were found

unused. Source of drinking water is mostly from community borewell/tubewell facilities. Water is never treated before consumption.

$3.16 Health is not a priority issue of the respondents. Water borne and related communicable diseases are rampant in the area. Respondents avail government facilities available in the vicinity. Some cases of preferring quack for certain ailments were also cited. Private health facilities, though available, are found to be expensive and not affordable in most cases.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

APL	Above Poverty Line
BPL	Below Poverty Line
CBO	Community Based Organisation
CRP	Community Resource Person
FGD	Focused Group Discussion
FPO	Farmer Producers Organization
ha	Hectare
HH(s)	Household(s)
ICDS	Integrated Child Development Scheme
LS	Line sowing
LT	Line Transplant
ITDA	Integrated Tribal Development Agency
MDM	Mid-Day Meal
MFP	Minor Forest Produce
MSP	Minimum Support Prices
NAL	Non AgriculturalLabour
NCDS	Nabakrushna Choudhury Centre for Development Studies
NSSO	National Sample Survey Organization
OBC	Other Backward Classes
OMM	Odisha Millets Mission
PDS	Public Distribution System
PVT	Participatory Variety Trial
qtl	quintal
SC	Scheduled Caste
SRI	System of Rice Intensification
ST	Scheduled Tribe
WASSAN	Watershed Support Services and Activities Network

1

INTRODUCTION

1.1. Background

"Special Programme for Promotion of Millets in Tribal Areas of Odisha" is a flagship mission, popularly known as Odisha Millets Mission (OMM), launched by Department of Agriculture and Farmers Empowerment, Odisha in the year 2016. The broad aim of the Programme is to revive millets, widely consumed in tribal belt and other parts of the state traditionally, in farm and plates, after observing a changing pattern in agronomic practices and consumption pattern owing to government schemes and programmes inclined towards paddy cultivation. The intent to revive millets came from the environment sensitive approach that realizes millet as a climate resilient crop and has higher survival rate in rain fed areas. Comparatively higher nutrition value of the produce is also an added factor contributing to the movement.

Programme intends to revive millets in rainfed farming systems and HH consumption with specific objectives that include

i) inclusion of millets in State Nutrition Programmes such as ICDS, MDM, ITDA, Welfare Hostels and in PDS;

ii) increasing HH consumption by setting up decentralized processing units at Panchayat and Block level;

iii) improving productivity through improved agronomic practices and organic inputs;

iv) increased availability of millet seeds through community managed/community owned seed centres with focus on local varieties;

v) Strengthening of farmer Cooperatives/Farmer Producers Organizations (FPO) for better marketing of millets.

This Baseline Survey limits its scope to three Blocks of Mayurbhanj District, one of the second phase Programme Districts of the Mission.

1.2 District Profile

Mayurbhanj is one of the Eastern districts of Odisha and is considered the third most populous district of the state as per Census 2011. Mayurbhanj is landlocked with a geographical

in the northeast Jhargram district of West Bengal, West Singhbhum district of Jharkhand in the northwest, Balasore district in the southeast and by Keonjhar district in the southwest.

Fig 1.1 Map of Mayurbhanj District with Blocks

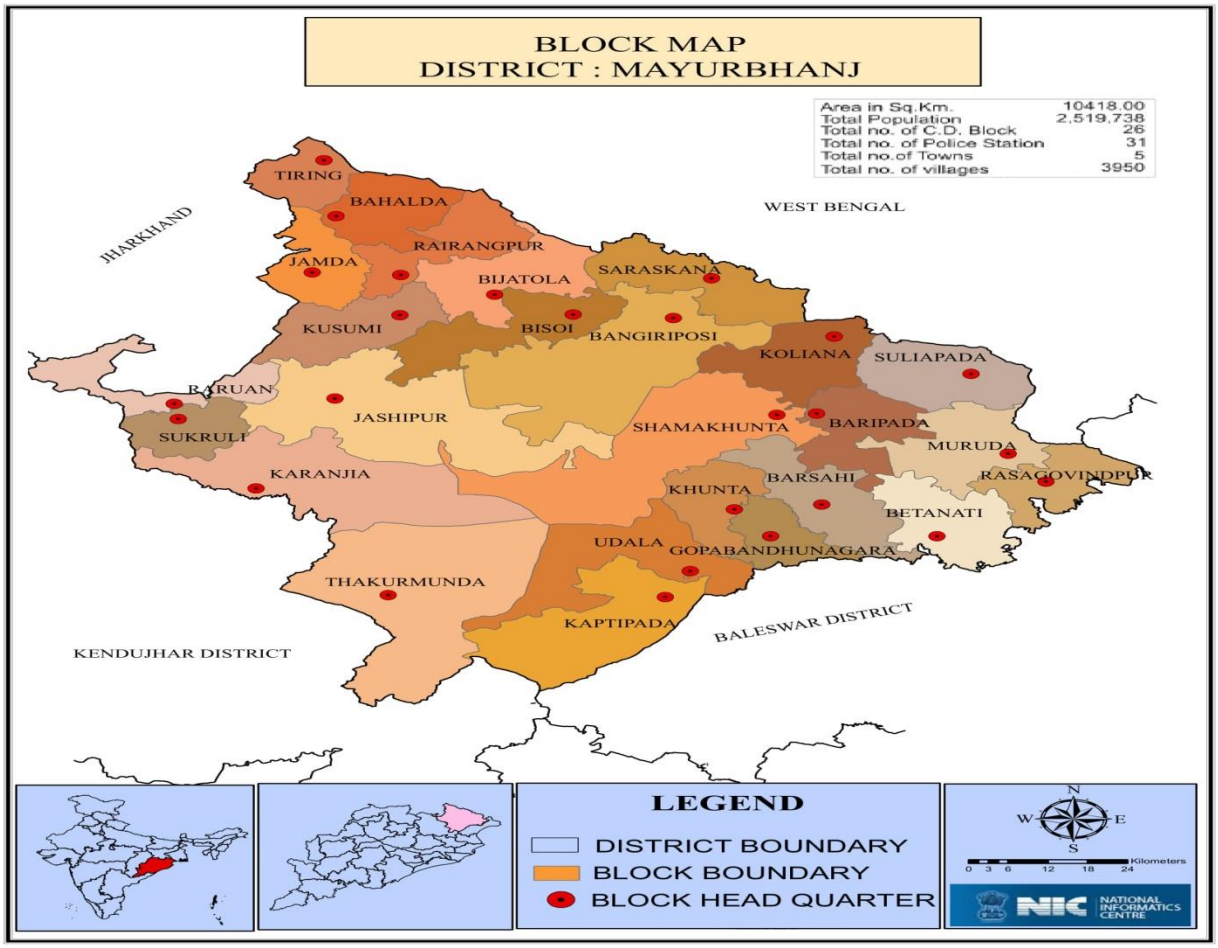


Table 1.1: Key Indicators of Mayurbhanj District

Indicator	Values
Census2011	
Population (in Lakh)	25.19
Males (in Lakh)	12.56
Females (in Lakh)	12.63
Scheduled caste (in Lakh)	1.84
Scheduled Tribe (in Lakh)	14.79
HHs (in Lakh)	4.72
Average HH Size	45.31
Sex Ratio	1006

Workers	
Total Workers (in Lakh)	12.23
Main Workers (in Lakh)	5.48
Marginal Workers (in Lakh)	6.75
Non Workers (in Lakh)	12.96
Work Participation Rate (WPR, %)	48.55
Cultivator as % of Total Worker	19.51
Agricultural Labourers as % of Total Workers	46.48
Literacy rate (%)	63.17
Total Geographical area (sq. km)	10418
Land Use Pattern (Area in '000 ha)(2014-15)	
Forest	72.33
Land put to Non-agricultural use	71.46
Barren and Non-Cultivable Land	18.12
Permanent Pasture and Other Agricultural Land	34.41
Net Area Shown	31.81
Cultivable Waste Land	50.35
Old Fellow	50.23
Current Fellows	57.56
Miscellaneous Trees and Groves	25.99
Agriculture, 2014-15	
Fertilizer Consumption (kg/ha)	41.39
Irrigation, Kharif ('000 ha)	24.07
Irrigation, Rabi ('000 ha)	14.44
Other Information	
No. of Village Electrified (as on march 2014)	3601
No. of banks	247
No. of AWC	4637
No. of BPL families	89030
No. of Job Card Issued (cumulative, March 2015)	388598
No. of beneficiaries provided employment through MGNREGS	175962
Source:District Statistical Hand book, Mayurbhanj ,2011 *District at a glance 2016 Note MGNREGS is Mahatma Gandhi National Rural Employment Guarantee Scheme	

Mayurbhanj district is proposed as one of the programme districts for promotion of Millets. The climatic condition is convenient for millets cultivation. Three Programme intervened Blocks namely Bangiriposi, Bisoi and Jashipur in the district have been taken for the Survey**.**

The district has an area of 10418.00 sq.kms and 25,19 lakh population. The district shares 6.00 percent of the state's population. The density of population of the district is 241 per sq.km against 270 persons per sq.km of the state. The district has 3950 villages covering 26 Blocks. The sex ratio of the district is estimated to be 1006 females per 1000 males. The literacy percentage of the district is 63.17 against 72.9 of the state. The languages spoken by the people of this district are Bengali, English, Hindi, Odia and tribal.

1.3 Objectives

The objectives of the baseline survey was to obtain information on proposed interventions under OMM around production, consumption, processing and marketing. It is also pertinent to have some background information of the HHs surveyed. The objectives are as follows.

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

To elucidate the method of processing and mode of marketing

1.4 Methodology

1.4.1 Sample Design

From the list provided by Programme Secretariat there were 550 participant farmer households spread across 83 villages 22 gram panchayats. From these, first stage sampling selected two gram panchayats randomly from each block, second stage sampling was to select two villages from each of the selected gram panchayat. The third stage sampling had two parts, one was to select 15 households randomly from each selected village from the list of participating farmer households, the other part was to prepare a village listing of non-participating farmer households and then select five households randomly and if the participating households in the village is less than 15 then increase the number of non-participating households in the sample so that the total sample in the village is 20. By design, 80 households have been surveyed from each block. From the 240 surveyed households, 59 were participant households and 181 were non-participant households.

It may be pointed out that out of total HHs, none of the HHs cultivate millet crops during 2018-19 (Table-1.2).

Table 1.2: Households Surveyed in Mayurbhanj District

Block	*Participant HHs*	*Surveyed HHs*	*Participant HHs 2018-19*	*Non-participant HHs 2018-19*
	(No.)	(No.)	(No.)	(No.)
Bangiriposi	169	80	15	65
Bisoi	126	80	17	63
Jashipur	255	80	27	53
Total	550	240	59	181

Source: Programme Secretariat & Field Survey
Note: HHs denotes households

However, as the information pertained to 2018-19 when the programme was not implemented a common schedule was canvassed to all the surveyed households and the following analysis does not distinguish between the two categories of households.

4.2 Research Tool

The Survey is primarily based on primary data. The primary data was collected from the respondents in the concerned district by utilizing pre-tested Interview Schedule. Two types of schedules have been used to collect the information. The basic information from all the intervened HHs was collected through structured Interview Schedule. Focused Group Discussions (FGD) were also conducted in each Block to get qualitative information related to the locality. Additionally, secondary data was also used to get the geographical information, population detail, agricultural and food practices through a comprehensive desk review of literature.

1.5 Limitations of the Survey

The Survey is limited to three Blocks of Mayurbhanj District and may not be generalised to understand the socio economic status of the people, geo-climatic condition of the region and the agronomic practices of the district as it may vary from region to region. Also, some of the

data are purely based on respondents' perception, and researchers had no scope to validate the information.

2

SOCIO ECONOMIC PROFILE OF HOUSEHOLD SURVEYED

2.1 Introduction

This chapter looks into social and demographic profile of HHs surveyed that is their distribution by social group and religion and distribution of population by gender. In addition, for the HHs surveyed, it provides the distribution by poverty status (proportion below poverty line and proportion above), distribution by economic activities (not mutually exclusive, as a HH can have multiple economic activities), and distribution by house structure.

2.2 Social and Demographic Profile

Out of 26 blocks in Mayurbhanj district, OMM is functional in three blocks, viz,.Bangiriposi, Bisoiand Jashipur. Out of which, 240 HHs have been surveyed from the intervened blocks. The distributions across social groups, Table 2.1 and Fig 2.1, indicate that 181 HHs (75.4%) belong to STs, 34 HHs (14.2%) belong to SCs, 21 HHs (8.7%) belong to Other Backward Caste (OBC) and 4 HHs (1.7%) belong to Socially and Economically Backward Castes (SEBC).

Table 2.1: Distribution of Households by Social Groups across Blocks

Block	OBC		SC		SEBC		ST		Total	
	No	%	No	%	No	%	No	%	No	%
Bangiriposi	**11**	**13.8**	**8**	**10.0**	**1**	**1.2**	**60**	**75.0**	**80**	**100.0**
Bisoi	**10**	**12.5**	**6**	**7.5**	**3**	**3.7**	**61**	**76.3**	**80**	**100.0**
Jashipur	**0**	**0.0**	**20**	**25.0**	**0**	**0.0**	**60**	**75.0**	**80**	**100.0**
Total	**21**	**8.7**	**34**	**14.2**	**4**	**1.7**	**181**	**75.4**	**240**	**100.0**

The total population from surveyed HHs is 1040, Table 2.2. The share of male population is higher than the female population. From the total population, 61.4 per cent are male respondents where as 48.6 per cent belong to female population.

Table 2.2: Distribution of Population by Gender across blocks

Block	Male		Female		Total	
	No	%	No	%	No	%
Bangiriposi	**172**	**52.9**	**153**	**47.1**	**325**	**100**
Bisoi	**176**	**52.4**	**160**	**47.6**	**336**	**100**
Jashipur	**187**	**49.3**	**192**	**50.7**	**379**	**100**
Total	**535**	**51.4**	**505**	**48.6**	**1040**	**100**

The respondents of the survey belong to two religious communities such as Hindus (99.5%) and Christians (0.5%), Table 2.3 indicating a predominantly Hindu farmer population in the intervened area.

Table 2.3: Distribution of households by Religion across blocks

Blocks	Christian		Hindu		Others		Total	
	No	%	No	%	No	%	No	%
Bangiriposi	1	1.2	79	98.8	0	0.0	80	100.0
Bisoi	0	0.0	79	98.8	1	1.3	80	100.0
Jashipur	0	0.0	80	100.0	0	0	80	100.0
Total	1	0.4	238.0	99.2	1.0	0.4	240.0	100.0

2.3 Poverty Status

The information obtained from the field indicates a clear incline of respondents belonging to below poverty line (BPL) category. It suggests that 232 (96.6%) farmer HHs belong to BPL category whereas remaining eight (3.4%) HHs come within APL category.

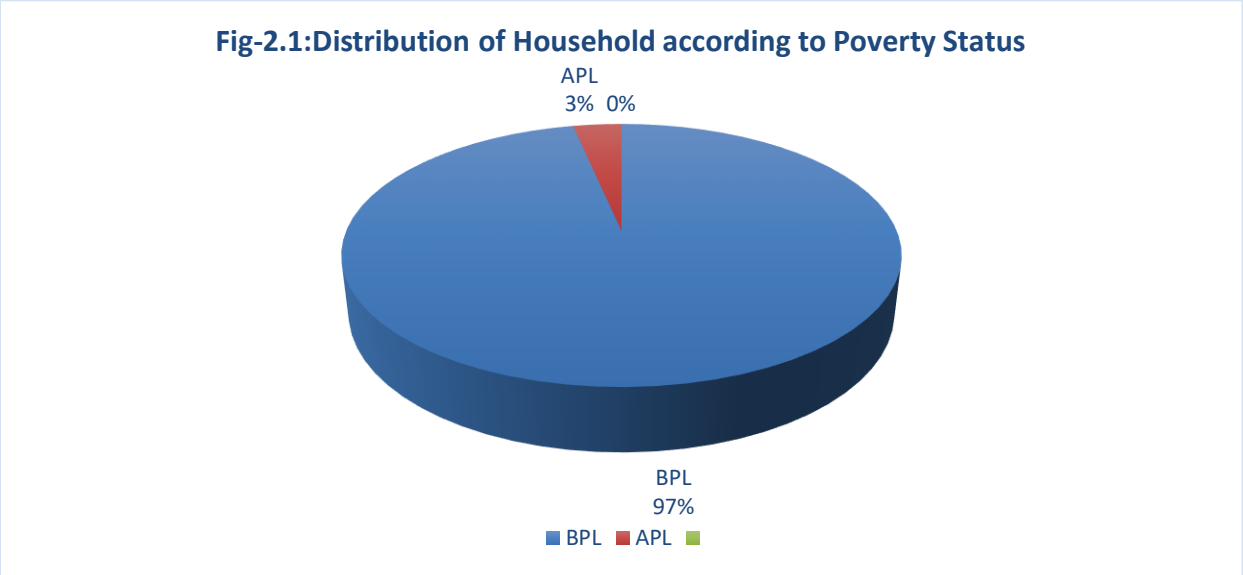


Table 2.4: Distribution of Households by Poverty status across block

Blocks	BPL		APL		Total	
	No	%	No	%	No	%
Bangiriposi	78	97.5	2	2.5	80	100
Bisoi	75	93.7	5	6.3	80	100
Jashipur	79	98.7	1	1.3	80	100
Total	232	96.6	8	3.4	240	100

2.4 Economic Activities

Economic activities of surveyed HHs, Table 2.5, show that agriculture remains the primary economic activities among the respondents. Data suggests that 99.6 per cent respondents are engaged in agriculture activities whereas 51.3 per cent HHs depend on forest for their economic requirement. It also indicates that 69.6 per cent are engaged as agricultural labourers, 13.3 per cent are salaried persons, 20.5 per cent are pension holders or dependant on remittance, and 55.0 percent engage themselves in livestock activities. However, it may be clarified that economic activities are overlapping and one respondent may be found engaged in two or more economic activities. For example, most of the farmers engaged in agricultural activities also work as agricultural or other forms of labourers during lean period.

Table 2.5: Distribution of Households by Economic Activities across blocks

Economic Activities	Bangiriposi		Bisoi		Jashipur		Total	
	No.	%	No.	%	No.	%	No	%
Agriculture	80	100.0	80	100.0	79	98.8	239	99.6
Horticulture	1	1.3	0	0.0	0	0.0	1	0.4
Forest	37	46.3	48	60.0	38	47.5	123	51.3
Ag. Labour	55	68.8	54	67.5	58	72.5	167	69.6
Salary	8	10.0	8	10.0	16	20.0	32	13.3
Pension	9	11.3	13	16.3	22	27.5	44	18.3
Remittance	3	3.8	1	1.3	2	2.5	6	2.5
Livestock	42	52.5	50	62.5	40	50.0	132	55.0
Others	10	12.5	22	27.5	26	32.5	58	24.2
Grand Total	245	306.25	276	345	281	351.25	802	334.2

2.5 Structure of House

Dwelling characteristic is another important indicator to access the economic condition of HHs, Table 2.6 and Fig 2.2. Out of the total HHs surveyed, 15 HHs (6.2%) reside in kutcha houses, 151 HHs (62.9%) have kutcha houses and remaining 74 HHs (30.9%) have pucca houses.

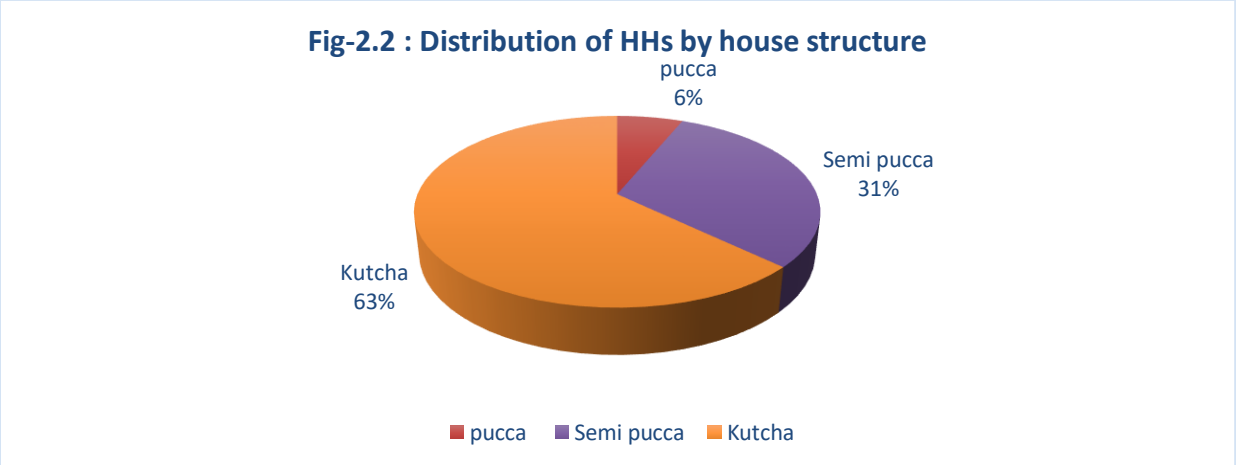


Table 2.6: Distribution of Households by Structure of House across Blocks

Blocks	Pucca		Kutcha		Semi-Pucca		Total	
	No	%	No	%	No	%	No	%
Bangiriposi	1	1.3	50	62.5	29	36.2	80	100.0
Bisoi	7	8.7	53	66.3	20	25.0	80	100.0
Jashipur	7	8.7	48	60.0	25	31.3	80	100.0
Total	15	6.2	151	62.9	74	30.9	240	100.0

An estimation of individual level information indicates that agriculture is the main occupation constituting 29.6 per cent whereas 10.0 per cent are engaged in labour activities. There may be an overlap seen in this case as some of the farmers work as labourers during lean period. Out of total respondents 0.8 per cent are business persons, 0.4 per cent are engaged in government services, 2.3 per cent work in private sectors, 1.0 per cent are migrants, 0.2 per cent are artisans, 32.4 per cent are students, 17.0 per cent are housewives, 1.9 per cent are children below three years and 4. 4 per cent are engaged in other occupations.

Table 2.7: Distribution of members of Households by occupational status across blocks

Occupation	Bangiriposi		Bisoi		Jashipur		Total	
	No.	%	No.	%	No.	%	No	%
Agriculture	99	30.5	105	31.3	104	27.5	308	29.6
Labour	45	13.8	32	9.5	27	7.1	104	10.0
Business	0	0.0	3	0.9	5	1.3	8	0.8
Govt. service	1	0.3	0	0.0	3	0.8	4	0.4
Private service	5	1.5	6	1.8	13	3.4	24	2.3
Migrants	8	2.5	1	0.3	1	0.3	10	1.0
Artisans	0	0.0	0	0.0	2	0.5	2	0.2
Student	102	31.4	109	32.4	126	33.3	337	32.4
Housewife	53	16.3	61	18.2	62	16.4	177	17.0
Other	10	3.1	10	3.0	26	6.9	46	4.4
Child	2	0.6	9	2.7	9	2.4	20	1.9
Grand total	325	100.0	336	100.0	378	100.0	1040	100.0

2.6 Conclusion

This chapter provides a broad overview of the demographic information of the respondents covered under Baseline Study. It discusses in specific details about the socio economic status of the respondents. The next chapter will focus on the agricultural activities undertaken by the respondents in the said blocks of the Study district.

3

PRODUCTION

3.1 Introduction

Agriculture activities are carried out by both male and female members of the household. Paddy is the main crop produced in the district. However, farmers were found to be cultivating maize and vegetables in some cases as well**.**

3.2 Land Details

Detailed estimation of land possessed by the respondents suggests that 661.96 ha land is owned by the respondents out of which 24.07 ha is leased in and 4.85 ha are leased out. 17.9 ha are encroached land, 24.21 ha are FRA land, and 10.12 ha are others. Out of the total land 491.66 ha are cultivable. None of the respondents recognized availability of irrigation facilities for their farm land.

Table 3.1:Land details of Mayurbhanj District across Blocks

Blocks	Owned	leased in	Leased out	Encroach	FRA	Other	Cultivable Land
Bangiriposi	**180.86**	**11.4**	**3.35**	**4.45**	**5.73**	**6**	**155.41**
Bisoi	**303.97**	**2.47**	**0**	**12.5**	**6.56**	**2**	**180.03**
Jashipur	**177.13**	**10.2**	**1.5**	**0.95**	**11.92**	**2.12**	**156.15**
Grand Total	**661.96**	**24.07**	**4.85**	**17.9**	**24.21**	**10.12**	**491.59**

3.3 Cropping System

Cropping system followed by the respondents as documented from the field information indicate that almost all the respondents follow mono cropping system (237 HHs) whereas only 1 followed mixed cropping system. None of the HHs were found to have followed intercropping system in the study area.

Table 3.2: Distribution of households by Cropping system across blocks

Blocks	Mono		Mixed		Intercropping		Total	
	No	%	No	%	No	%	No	%
Bangiriposi	**80**	**100.0**	**0**	**0.0**	**0**	**0.0**	**80**	**100.0**
Bisoi	**79**	**98.8**	**0**	**0.0**	**0**	**0.0**	**79**	**98.8**
Jashipur	**78**	**97.5**	**1**	**1.3**	**0**	**0.0**	**78**	**97.5**
Total	**237**	**98.8**	**1.0**	**0.4**	**0.0**	**0.0**	**237.0**	**98.8**

3.4 Area, Production and Yield

As has been pointed out before, millet cultivation is not witnessed in the studied areas of Mayurbhanj district. The main crop cultivated in the district is paddy. Data obtained from field indicate that in the year 2017-18 total paddy cultivated area amounted to 193.7 hectare by 240 HHs. As per the recall of the respondents, 5885 quintal paddy was produced from the given land amounting to yield rate at 96.57 quintal per hectare and 0.41 quintal per HHs.

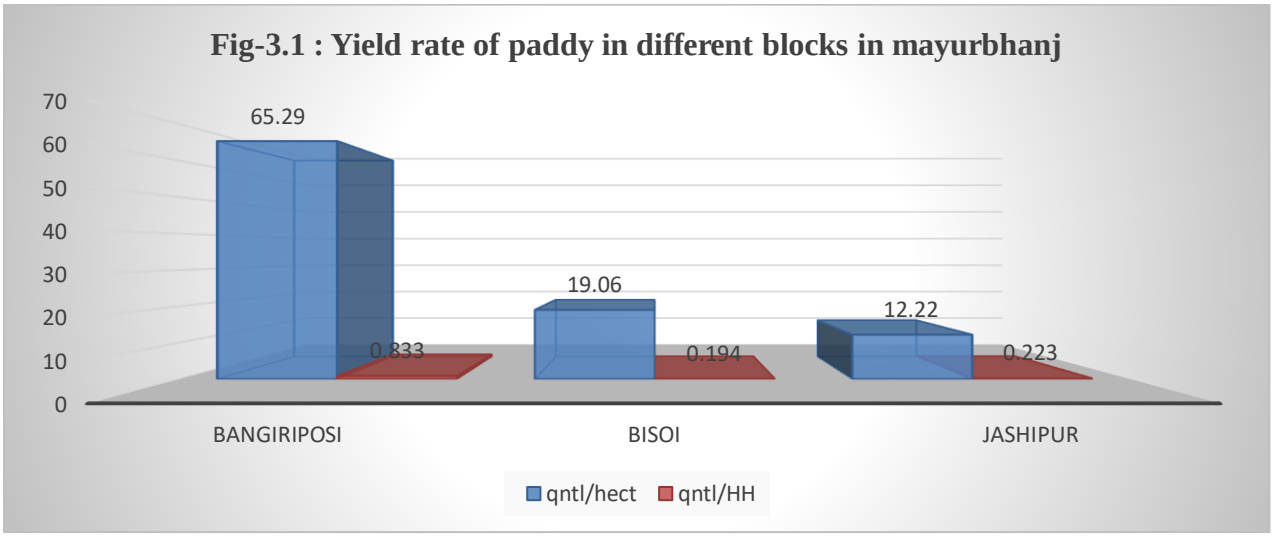


Table 3.3: Area, Production and Yield of Paddy in across blocks

Blocks	HHs		Area		Production		Yield	
	No.	%	ha	%	qntl	%	qntl/ha	qntl/HH
Bangiriposi	**80**	**33.3**	**60.1**	**31.0**	**3924**	**66.7**	**65.29**	**0.833**
Bisoi	**80**	**33.3**	**47.9**	**24.7**	**913**	**15.5**	**19.06**	**0.194**
Jashipur	**80**	**33.3**	**85.7**	**44.2**	**1048**	**17.8**	**12.22**	**0.223**
Total	**240**	**100.0**	**193.7**	**100.0**	**5885**	**100.0**	**96.57**	**0.417**

3.5 Perception on Quality of Seeds

It was found out from the field information that the total seed (for paddy cultivation) used by the respondents turn out to be 9151.1 kg per 240 HHs amounting to average of 38.12 kg per HH. Respondents are quite satisfied with the seed quality. Data indicate that 76.7 per cent marked it as good quality whereas 22.9 per cent called it average and only 0.4 per cent identified it as bad. Mostly seeds are preserved from the previous year's cultivation whereas some purchase it from local market.

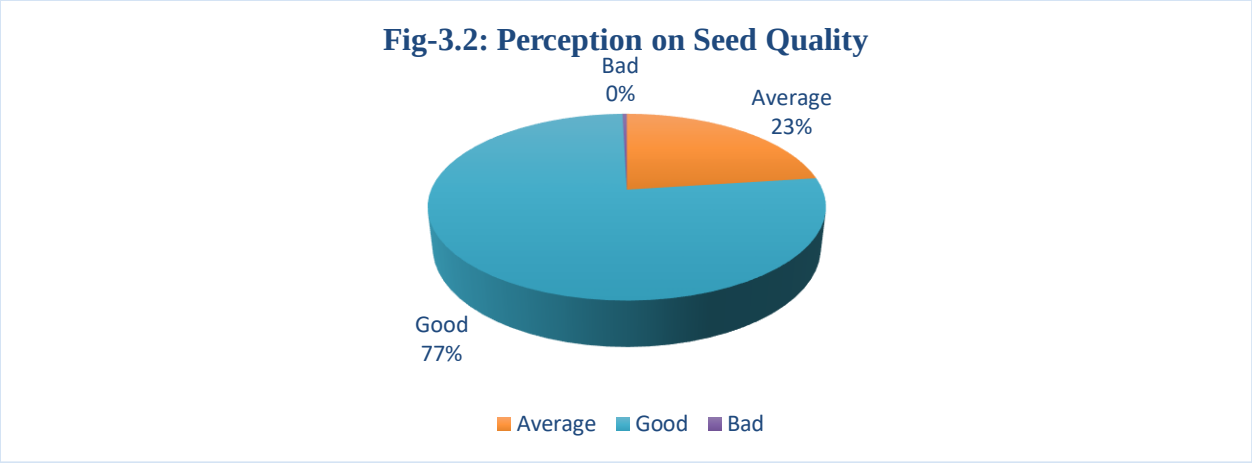


Table 3.4:Perception of Respondent regarding quality of seeds used

Blocks	Good		Average		Bad		Total	
	No	%	HHs	%	No	%	No	%
Bangiriposi	**50**	**62.5**	**30**	**37.5**	**0**	**0**	**80**	**100**
Bisoi	**77**	**96.3**	**3**	**3.8**	**0**	**0**	**80**	**100**
Jashipur	**57**	**71.3**	**22**	**27.5**	**1**	**1.3**	**80**	**100**
Total	**184**	**76.7**	**55**	**22.9**	**1**	**0.4**	**240**	**100**

3.6 Package of practices

The different agronomic practices (broadcasting, line sowing (LS) and line transplanting (LT), and Systemic Rice Intensification, SRI) used by surveyed HHs are presented in Table 3.2. According to the obtained information available for the field data, 1466.25 qtl paddy has been produced from 82.96 hectare of land using traditionally popular broadcasting method, whereas 3638.5 qtl paddy has been produced from 103.65 ha using LS or LT method. However, there is evidence of adaptation of SRI method in 7.16 ha land where 779.9 qtl paddy has been produced. Though use of SRI, LT, LS methods yield better result, farmer HHs opt for broadcasting method to avoid drudgery involved in former methods. Awareness among farmer HHs regarding LS and LT methods was evident from the FGD findings.

Table 3.5: Methods of production of Paddy in across blocks

Blocks	SRI		LT/LS		Broadcasting	
	Area	Production	Area	Production	Area	Production
Bangiriposi	**4.25**	**767.6**	**50.10**	**2344.5**	**5.73**	**812**
Bisoi	**0.81**	**0**	**32.78**	**720**	**14.36**	**193**
Jashipur	**2.10**	**12.3**	**20.77**	**574**	**62.87**	**461.25**
Total	**7.16**	**779.9**	**103.65**	**3638.5**	**82.96**	**1466.25**

Additional information from FGD throws some insight into the processing and marketing facilities available for paddy crops.

It is found out that processing unit for paddy is available within close proximity in the studied villages. People used to process paddy manually a decade back which was a tedious affair. Use of machine has reduced the workload on the farmers manifold**.**

Though government procurement system is in place and farmers are aware of the existing facilities, they find marketing their surplus paddy crop through middlemen to be easier than in government *mandi* though the rate in the *mandi* is higher. The money transaction is identified to be complicated and not as user friendly for the farmers in the case of the latter. Also, middlemen provide doorstep service, saving the ordeal of transport cost.

Surplus vegetables and pulses (in rare cases) are sold in the village weekly market (haat).

3.7 Conclusion

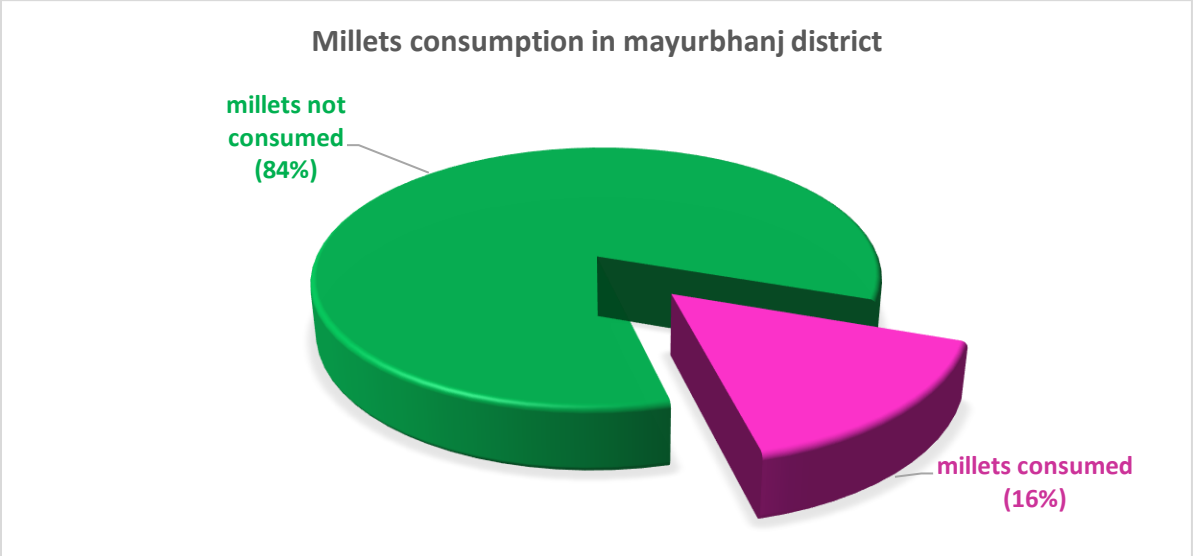
Farmer HHs in Mayurbhanj district were found to be engaged largely in mono cropping. Paddy is the main crop produced in the area and they restrict their cultivation to one season (Kharrif) only. Quality of seed used for cultivation is perceived as good by most HHs. Method used for paddy cultivation is largely broadcasting, though there are instances of LT/LS method in some cases. SRI method, though miniscule, is also present. Lack of irrigation facilities is perceived to be the major road block in agricultural activities. Some farmer HHs produced maize and vegetables along with paddy. However, there is no evidence of millet cultivation in the district. Thus, no information could be obtained from filed regarding processing and marketing of millets. In the next chapter, we will discuss consumption pattern of the respondents. We will also try and explore marketing and processing facilities available in the district for the produced crop.

4

CONSUMPTION

4.1 Introduction

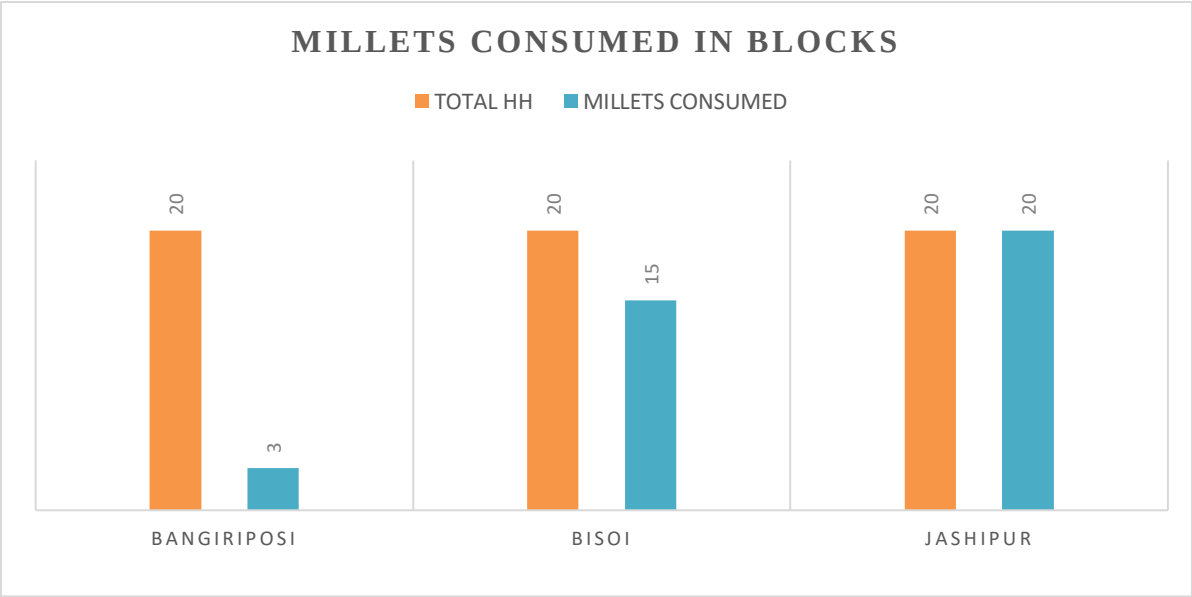
Though paddy is the main cereal consumed in Mayurbhanj district in different forms as a consequence of paddy production, some evidences of millets consumption is found in the district mostly purchased from the local market. This chapter discusses consumption of millets in some broad details regarding consumption pattern across seasons, during different meals of the day, and different types of millet recipes consumed by the respondents.



Information obtained from field indicates that out of 240 HHs, 38 HHs are consuming millets, though sparingly. Data gathered from FGD further clarifies that there is limited awareness about millet in the area. Those who consume millets reveal that in some remote parts of Mayurbhanj district, millet in forms of ragi is produced in forest lands and the local tribes consume it exclusively for HH consumption. However, sometimes, they sell the surplus produce in the village market from where the respondents purchase it, especially in summer season. They find ragi porridge a cooling drink that saves them from dehydration.

It may also be noted that maximum percentage of HHS (25%) consuming millets are found in Jashipur block where as in Bisoi it is 18.75 per cent and in Bangiriposi it is 3.75 per

cent. One of the factors attributing to maximum millet consumption in Jashipur may attribute to the fact that in remote regions of Similipal reserve forest, there are evidences of millet cultivation in forest lands by some tribes (information obtained from FA).



Data also confirms that all the above HHs consuming millets purchase it from nearby village markets on the basis of availability.

4.2 Season-wise Consumption

From the HHs surveyed, 15.8 per cent consumed millets during summer, 5.4 per cent consumed millets during winter and 6.7 per cent consumed millets during rainy season, Table 4.1. Greater consumption during summer is due to their perception that consumption of millet reduces the chances of feeling thirsty and hungry. Most of the surveyed HHs (85%) do not consume millets in any of the seasons.

Table 4.1: Season-wise Consumption of Millets

Food Pattern	BANGIRIPOSI		BISOI		JASHIPUR		Total	
	No.	%	No.	%	No.	%	No.	%
Summer	3	3.8	15	18.8	20	25.0	38	15.8
Rainy	0	0.0	14	17.5	2	2.5	16	6.7
Winter	0	0.0	11	13.8	2	2.5	13	5.4

Total	3	3.8	15	18.8	20	25.0	38	15.8

Note: Column values are not additive because same HHs may consumed millets across the season

4.3 Consumption during Different Meals of the Day

Consumption of millets by HHs during different meals of the day revealed that 15.4 per cent HHs consume it as breakfast, 5.4 per cent HHs consume it in evening snacks and less than one per cent HHs (0.8%) consume it in dinner. There is no evidence of millet consumption during lunch time. Table 4.2 confirms that approximately 85 per cent HHs do not consume millets during any of the meals of a day.

Table 4.2: Millets Consumption during different Meals of the Day

Food Pattern	Bangiriposi		Bisoi		Jashipur		Total	
	No.	%	No.	%	No.	%	No.	%
Breakfast	3	3.8	15	18.8	19	23.8	37	15.4
Lunch	0	0.0	0	0.0	0	0.0	0	0.0
Evening Snacks	0	0.0	6	7.5	7	8.8	13	5.4
Dinner	0	0.0	2	2.5	0	0.0	2	0.8
Missing Items	0	0.0	0	0.0	1	1.3	1	0.4
Total	3	3.8	15	18.8	20	25.0	38	15.8

Note: Column values are not additive because same HHs may consumed millets across different meals

4.4 Millet Recipes

Respondents were found consuming millets in several ways in form of porridge, bread, cake, steamed and beverage among others. Table 4.3 suggests that 15 per cent HHs consume millet porridge (Mandia jau) as a cooling drink where as 15 percent HHs consumes it in form of pancake (pitha). Only 0.4 per cent HHs consume millets in fermented form (Mandia torani).

Table 4.3: Consumption of Millets Recipes

Food Pattern	BANGIRIPOSI		BISOI		JASHIPUR		Total	
	No.	%	No.	%	No.	%	No.	%
Jau	2	2.5	15	18.8	19	23.8	36	15.0
Tampo	0	0.0	0	0.0	0	0.0	0	0.0
Pitha	2	2.5	15	18.8	19	23.8	36	15.0
MandiaTorani	0	0.0	1	1.3	0	0.0	1	0.4
Roti	0	0.0	0	0.0	0	0.0	0	0.0

Missing Items	1	1.3	0	0.0	1	1.3	2	0.8
Total	3	3.8	15	18.8	20	25.0	38	15.8

Note: Column values are not additive because same HHs may cosnumed millets different recipes

4.5 Conclusion

Though millets is not cultivated in most part, it is consumed in this district. Millets were consumed across all seasons, but relatively more in summer. Jau, Pitha and Mandia torani are the recipes that are popular and millets were consumed more during breakfast and lunch.

5

FOCUS GROUP DISCUSSION

5.1 Field Insights from FGD

Baseline information obtained from the field does not suggest millet in the regular consumption pattern of respondents. However, some HHs consume ragi sparingly by purchasing from local market when available. Also, engaging conversation with villagers through FGD hints at existence of millets as a part of diet (especially suan and kodo) in the past. These crops were cultivated in the highlands or forest lands using broadcasting method as they did not need much care and water. These crops were preserved mostly to serve as backup food to be used during lean period (August-September). New forest Acts and constant animal attacks were cited as two major reasons why farmers withdrew from cultivating these crops. Government incentive for paddy cultivation using modern methods increased paddy cultivation manifold and farmers no more confront lack of food in the villages any more. Respondents also told that millets was produced purely for household consumption and different porridges, cakes and pancakes were cooked or baked adding diversity to their food basket.

Supplement availability of rice in a minimal rate as government public distribution system has addressed accessibility to food even further. These were factors contributing to extinction of millet consumption in the district.

People eat food on the basis of availability, accessibility and affordability. Awareness about the nutrition component of food is limited and is based on traditional belief system. Though some of the informed knowledge base may be considered as reliable, respondents did not prioritize nutrition as a major factor influencing their consumption pattern.

Hygienic condition of the study area gives the following impression. Open defecation is a common practice. Though government has provided toilets to some HHs, they were found unused. Source of drinking water is mostly from community borewell/tubewell facilities. Water is never treated before consumption.

Health is not a priority issue of the respondents. Water borne and related communicable diseases are rampant in the area. Respondents avail government facilities available in the vicinity. Some cases of preferring quack for certain ailments were also cited. Private health facilities, though available, are found to be expensive and not affordable in most cases.

Main diet consists of rice and vegetables in the district. Flesh food especially chicken and mutton are consumed in a weekly basis. Puffed rice is included in regular diet and is considered to have possessed digestive elements.

5.2 Impact of OMM intervention and participants' perception: How far it has come?

Few FGDs were conducted by the research team one year after OMM intervention during cross verification by NCDS Research Team(December, 2019) to get some additional information and understand participants' views on millets.

Findings indicate that farmers are receptive about the new crop. Those who have participated in the programme express satisfaction over the process of awareness generation, quality of seeds, and method of production, yield, and most importantly, the handholding support provided throughout the process.

Respondents agreed that they did not have any awareness about method of cultivation of millets. However, constant motivation by the respective CBOs in the area, and regular visits of Community Resource Persons (CRPs) encouraged them to grow this new crop. Those who opted to explore millet cultivation in a patch of their farmlands agreed that millets need less water and is a more predictable crop for rainfed agriculture. New recipes of millets innovated by the local women has been highly approved by the respondents and, if provided handholding support to produce millet for a considerable period of time, it may get acceptance in the regular diet of the people.

The first year has shown encouraging result in terms of yield and more and more farmers are taking interest in experimenting with this new crop next kharrif. Motivated by the result, some programme participants with limited irrigation facilities have already prepared the seedbed for rabi season.

The incentive pronounced by the state government through its procurement system is another major attraction for farmer HHs to produce millets in their farmland. It may be noted that the state government has announced a higher price for millets in the *mandi* than that of paddy to encourage millet production in the state.

However, processing of millet is a tedious affair, which was cited as a factor responsible for the poor response to the crop.If provided machines to reduce drudgery, farmers will be encouraged to produce more millet in the locality.

So far, millets produced in the locality have been for HH consumption and surplus has been sold in *mandi*. A portion of the produce has been preserved as seeds for next year's cultivation. Since, it is a new crop grown in the area; farmers also have gifted some of it to their relatives and friends. Ragi and little millets are the two kinds of millets grown in the district as a part of OMM intervention. Clearly, this new crop has created some amount of excitement among the farmer circle in the surveyed district.

Case 1: Can Women Collectives Spearhead the Success Story of OMM? : Case Study of a Women SHG:

In one of the programme blocks, Jashipur, Programme participants are the Self Help Groups (SHGS). Targeting women folks as a potential group has proven to be a proactive approach. It may be noted thatwomen collectives in form of SHGs are a powerful platform to voice social issues of concern and has proven to be a potential group to enhance interventions in terms of outreach and efficiency.The women farmers' group of Maa Sarala SHG is a case in point. The objective of OMM has been well received by this particular SHG. These participants have engaged in all four verticals of OMM objectives including production, processing, marketing and consumption.

As the process unfolds, the incentive money was transferred to the women participants giving them financial authority to take decision to introduce a new crop in their family farmlands. Traditionally, the head of the HH (commonly the eldest male of the family) has the authority over the land. However, this financial factor gave these women a sense of ownership and with the support of their respective families, they engage themselves in introducing this new crop (millets: ragi and little millets) in the year 2017-18 kharrif for the first time. The yield was very high compared to that of paddy. Various factors contributed to it. a) Millets did not require as much water; b) SMI method was adopted for the purpose; c) organic manure was used in the land, which was made by them saving money required to purchase chemical fertilizers and pesticides.

Though, participants agreed that drudgery involved in the entire process is much higher than traditional practice, the yield obtained from such effort is much higher, and remains the motivating factor. Processing of the millets for HH consumption has been done by the same farmers, which they find cumbersome. But women have this additional role of bringing food from farm to hearth. And they have done this job amazingly well. The women farmers, who also have been traditionally engaged in cooking for the entire HH, have innovated recipes suitable to the taste bud of their family members adding variety and newness to their traditional food basket. 'Family members, especially children, do not like the taste of porridge made out of millets(ragi). And now that we understand this is good for the health of our children we have invented ways to feed them millets by making it more palatable,' maintains one of the SHG members. Women were enthusiastic in showing us the pots and pans in which they are cooking or baking their new recipes. Most of the recipes are cakes or pan cakes that are usually baked or steamed retaining food value of millets to a great extent.

The women SHG also perceive millets to be a great source of income. They have experimented selling their surplus product in the village market. And the price per kg is much higher than the unprocessed crop sold to the government. 'Now that people know it has a lot of health benefit, they would purchase it in a higher price. All we need is a little more awareness.' Janaki, the community resource person (CRP) who has also been trained in making organic manure and pesticide, adds with conviction.

Case 2: Women Empowerment through the Mission: Success Story of a Woman Farmer: SubhashoMahanto, a middle aged woman farmer from Kapanda village, Jashipur Block, is confidence personified. She has been actively engaged in her family farmland helping her husband in cultivating paddy since she has been married. When the OMM intervention was initiated in the block and the SHGs were motivated to take up millet as an additional crop for cultivation after explaining the benefits of the crop and the utility of the new methods of practice, she was convinced. However, convincing her husband was a herculean task. Like any average farmer, Suresh Mahanto, a seasoned paddy farmer, resisted change and opted to continue with paddy instead. But armed with this new knowledge base, Subhasho decided to differ. She bargained for a share of land where she independently can grow millets with the help of OMM, and succeeded in convincing.

Then started the diligent and courageous process of cultivating millets in her share of one acre of land(without irrigation facilities). She boasts of taking the entire onus on herself and was ready to face the consequence. The facilitating agency from OMM worked as a big support providing finger holding support in terms of financial incentive, knowledge base, and encouragement. She religiously followed the method of practices and went purely organic making her own organic manure and pesticide.

The yield paid back her effort. She produced 10 quintal millets from one acre of land, which was the highest yield in the block. She preserved 50 kgs out of the total yield for seed and most of it has been sold to the villagers who are inspired by her success. And she sold it for Rs 40/- per kg.

Now, farmers from the locality come to take tips from her on millet cultivation and she has become an iconic figure in millet production.

This new crop has already become a popular part of their daily diet. She has innovated a new recipe, Mansa pitha (mutton minces cooked with spices are mixed with millets and then baked in

traditional oven wrapped up in banana leaves), which has become a popular recipe in the area. This has been exhibited in the district and state level food festivals yearning accolades.

She is now looking forward to more meaningful engagement with millet crops. With the support of OMM, she went for a Participatory Variety Trial (PVT) in a patch of her land growing eight variety of millets. Similipal variety has been the healthiest and she aims to produce that in future entirely to preserve the seed variety.

Her husband is now supportive. He agrees that millet has greater profit potential and agrees to produce millets in more area next year. “I will continue producing paddy for HH consumption, whereas she may take on the greater role. However, it was difficult cultivating paddy all by myself without her supporting hand”, he added half jokingly. Dedicating the entire land for millet cultivation however is not negotiable in near future. Many farmers, like Suresh, need time and motivation enough to contemplate on this subject.

6

MAJOR FINDINGS

6.1 Special Programme for Promotion of Millets in Tribal Areas of Odisha is a landmark intervention initiated by Government of Odisha to revive millets in farms and on plates of the farmers of the state. A Baseline Survey of the second phase Programme districts have been done to collect, compile and record preliminary information of programme participant HHs prior to the intervention in order to develop data base that may be considered as a reference point to track the progress of the mission. This baseline survey of Mayurbhanj district, one of the second phase programme districts, is an attempt in this regard. The survey compiles demographic profile and socio economic status of intervened participants and gathers data related to production, processing, marketing and consumption in the surveyed district. Since millet is not included in the daily diet of the intervened district, the study also attempt to throw some light on production and consumption pattern of farmer HHs in the given area and try to understand related issues related to agriculture and nutrition. Demographic profile of respondents consulted for the survey may not necessarily reflect the district status, but is relevant for the purpose of the study. Gender Disaggregated data of respondents suggests that men to women ratio are slightly biased in favour of women. As per available information related to caste wise distribution, it was found to be highly tribal dominated area with maximum respondents from ST category, rest of them are from SC, OBC or SEBC category. Distribution on the basis of religion projects the area to be Hindu dominated whereas rest of the respondents, a very miniscule of them, belong to Christian community.

6.2 Economic status of the respondents indicates that 3.33 per cent are above poverty line (APL) and 96.66 per cent are categorized as below poverty line (BPL).A look at the dwelling characteristics of the respondents suggests that 62.91 per cent HHs dwell in kucha houses whereas 30.9 per cent resides in semi pucca houses and 6.2 per cent in pucca houses.

6.3 Agriculture activities are carried out by both male and female members of the household. Paddy is the main crop produced in the district. However, farmers were found to be cultivating maize and vegetables in some cases as well**.**

6.4 Lack of irrigation facility is posed as one of the single most problems encountered by the respondents. Very few farmers have access to modern irrigation facilities and most of the agricultural activities were found to be rain fed. Farmers restrict agriculture activities to only khariff season. During rabi season, the lands remain barren and villagers are found to be engaged in daily wage labour activities**.**

6.5 Total seed (for paddy cultivation) used by the respondents turn out to be 9151.1 kg per 240 HHs amounting to average of 38.12 kg per HH. Respondents are quite satisfied with the seed quality. Data indicate that 76.67 per cent marked it as good quality whereas 22.92 per cent called it average and only .005 per cent identified it as bad.

Mostly seeds are preserved from the previous year's cultivation whereas some purchase it from local market.

6.6 Processing unit for paddy is available within close proximity in the studied villages. People used to process paddy manually a decade back which was a tedious affair. Use of machine has reduced the workload on the farmers manifold**.**

6.7 People find marketing their surplus crop through middlemen to be easier than in government mandi though the rate in the mandi is higher. The money transaction is identified to be complicated and not as user friendly for the farmers in the case of the latter. Surplus vegetables and pulses (in rare cases) are sold in the village weekly market (haat).

6.8 People eat food on the basis of availability, accessibility and affordability. Awareness about the nutrition component of the food is limited and based on traditional belief system. Though some of the informed knowledge base may be considered as reliable, respondents did not prioritize nutrition as a major factor influencing their consumption pattern.

6.9 Main diet consists of rice and vegetables in the district. Flesh food especially chicken and mutton are consumed in a weekly basis. Puffed rice is included in regular diet and is considered to have possessed digestive elements.

6.10 Millet production is not a part of agricultural practice in the district and there is ***limited evidence of millet consumption in the study area. HHs consuming millets confirm that they consume it sparingly on the basis of availability in the local market. Millet in form of ragi is produced in remote forest locations by certain tribal communities not included in the baseline sample. There is limited awareness about millet in this area. Few respondents from older generation recalled consuming it during their childhood.***

6.11 Processing of millet is a tedious affair, which was cited as yet another factor responsible for the poor response to the crop.

6.12 Women collectives in form of SHGs are a powerful platform to voice social issues of concern and may be used as a potential group to enhance interventions in terms of outreach and efficiency.

6.13 Hygienic condition of the study area gives the following impression. Open defecation is a common practice. Though government has provided toilets to some HHs, they were found unused. Source of drinking water is mostly from community borewell/tubewell facilities. Water is never treated before consumption.

6.14 Health is not a priority issue of the respondents. Water borne and related communicable diseases are rampant in the area. Respondents avail government facilities available in the vicinity. Some cases of preferring quack for certain ailments were also cited. Private health facilities, though available, are found to be expensive and not affordable in most cases.

ANNEXURE I

HOUSEHOLD SCHEDULE ON
SPECIAL PROGRAMME FOR PROMOTION OF MILLETS IN TRIBAL AREAS OF ODISHA
Nabakrushna Choudhury Centre for Development Studies, Odisha, Bhubaneswar-751013

1. Identification of the HHs

a. Name of the (i) Village _____

(ii)Gram Panchayat: _____

(iii) Block: _____

(iv) District: _____

b. Category i) SC ii) ST iii) OBC iv) SEBC v) Others (Specify)

c. Sub-caste/ Sub-tribe: _____

d. Religion i) Hindu ii) Muslim iii) Christian iv) Animism v) Others

e. Category of HH: BPL/APL

f. House structure: Pucca/Kutcha/Semi-Pucca

2. Are you indebted? Yes/ No. If yes, what is the amount: Rs._____

3. Land Details (last year, Acre) i) Owned_____, ii) leased in _____

iii) Leased out _____iv) Encrosed_____

v) FRA _____v) Other_____

vi)Cultivable Land _____

4. Total irrigated land owned (last year, Acre): _____

5. Cropping systems i) Mono ii) Mixed [specify the crop(s)] _____

iii) Inter cropping [specify the crop(s)]_____

6. Seed (last year) i) Quantity of seed used (in kg):_____

ii) Is it the quantity adequate? (Yes/No)

iii) Seed Treatment (Yes/No)

iv) Seed quality: Good/Average/Bad

7. Package of practices for millets (Last Year, put tick mark)

i)Germination test: Yes/No

ii)Weeding: Weeder/Manual/Both

iii)Number of weeding: 1/2/3/4

iv)Application of Fertiliser: Organic/Chemical/Both

v)Application of Pestisides: Organic/Chemical/Both

8. Production and Utilization of Millets (2017-18)

Type of Millet	Total Production (qtl.)	Family consumption (qtl)	Kept for Seed (qtl)	Marketed (qtl)	Selling Price (Rs/qtl)
Mandia					
Suan					
Kangu					
Gurji					
Any other (Specify)					

9. Season-wiseAverage Requirment/Consumption (in kg)

Season	Summer	Winter	Rainy
Requirment			
Consumption			

10. Time of consumption: Breakfast/Lunch/Evening snacks/Dinner

11. Whether Purchased: Yes/No

12. Whether received from friends/relatives: Yes/No

13. Processing millets: Manually/ Machine/ Both

14. If by machine, is it your own machine: Yes/No

15. Food items prepared: i) Jau ii) Tampo iii) Pitha iv) Mandis Torani v) Handia v) Others

16. Sale of millets/Distance: a) Mill _____ b) Middle-man/Local trader_____

d) Market_____ e) Money lender_____

f) Any Other (Specify) _____

17: Household Particulars

Sl. No.	Name - start with Respondent of the HH	Relationship with HH (Use Code)	Marital Status	Sex M-1 F-2	Age	Education (Use Code)	Occupation/Income (Use Code)			Millet Based Acti-vities (Use Code)
							Main	Sub-sidiary	Avg. annual income	

Note: **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-Grand-son, 12- Grand-daughter, 13-Father-in-law, 14-Mother-in-law, 15-(Specify)

Marital Status: 1- Married, 2- Unmarried, 3- Widow, 4- Widower, 5- Divorced, 6-Separated, 7- (Specify)

Education: 1-Illiterate, 2-Just literate, 3-Upto Class 5, 4-Class 6-10, 5-Higher Secondary, 6- Graduate, 7- Post Graduate, 8- Technical (Diploma), 9- Technical (Degree), 10-Professional/Management, 11-Other (Specify)

Occupation: 1- Agriculture, 2- Daily labour/ Wage labour, 3- Business/ Entrepreneurship, 4- Government Servant, 5- Private service, 6-Migrants,7- Artisans, 8-Service Provider,9- MFP collection, 10-Student, 11-Housewife, 12-Other (Specify)

Millet Based Activities: 1=Production, 2=Consumption, 3= Processing, 4= Marketing

18: Crop-wise and Method-wise Details of Production (Last Year i.e. June 2017-May 2018):

(Area in Acre,Production in Quintal)

Sl.No	Name of the Crop	SMI		Line Transplanting		Line Sowing		Broadcasting		Any other (Specify)	
Kharif		A	P	A	P	A	P	A	P	A	P
1	Mandia										
2	Suan										
3	Kangu										
4	Koda										
5	Gurji										
6	Jawar										
7	Bajra										
8	Any oth (Specify)										

Rabi	(Take details as in Kharif)

Note: A stands for Area and P stands for Production(Use additional sheets for Rabi)

19: Expenditure pattern

Sl.No	Sources	Annual Expenditure (In Rs)
1	Food	
2	Clothes	
3	Education	
4	Medicine	
5	Social Function	
6	Marriage & Ceremony	
7	Agriculture	
8	Construction	
9	Durable Assets	
10	Others	

20: Sources of Income

Sl.No	Sources	Annual Income (In Rs.)
1	Agriculture	
2	Millets	
3	Horticulture	
4	Forest	
5	Ag.Labour	
6	Salary	
7	Pension	
8	Remittance	
9	Livestock	
10	Others (Specify)	

Remarks:

Signature of the investigator

ANNEXTURE II

Phase 2 Base line Study

Focused group discussion

Date:

Name of the Village:

Name of the Block:

Name of the District:

Stratification: Ethnicity/caste/genger

Sex:

Number of Individuals:

Number of Children:

Verbal consent obtained: yes/no

Researcher's name and observation:

Participant's name	Age	Sex	Education	Job	Notes
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

*[**For the benefit of the enumerator:** the focused group discussion aims to capture the millet related activities prior to OMM intervention in the community. Thus, focus of the discussion may*

attempt to capture the existing production activities, whether millet as a crop is being produced, processed, consumed and marketed in the locality.]

Discussion points

- How many HH are there in the village/hamlet? Economic status, Social and religious composition, education, health status et al.
- Please give a brief description of the basic amenities available in the village. (For example, water sources, drinking water facilities, electricity, AWC, primary school, health care facilities, market place, transport facilities etc.)
- What are the primary livelihood activities practised in the village?
- What are major activities around the farm that you undertake? (sowing, reaping, processing, weeding, storage practices). Who generally does what?
- Give a brief description on types of land, irrigation facilities, major crops produced, preservation of seeds/procurement of seeds, agriculture related government programmes, processing of produced crops, marketing of agricultural goods etc.
- Is millet production a part of agriculture practice in the village? How many HH cultivate millets in the village? Please elaborate on the cultivation process.
- What are the common food consumption practices in the village? (also probe: include episodically consumed food/status food, festivities and feasts, death and mourning, food offering to God)
- Is millet consumed in the locality? Source, how frequently, in what form, reason for consumption)
- Are you aware of the nutri benefits of millets? Elaborate.