BASELINE SURVEY

KORAPUT DISTRICT 2017-18, Phase – II

(Special Programme for Promotion of Millets in Tribal Areas of Odisha/ Odisha Millets Mission)

Nabakrushna Choudhury Centre for Development Studies, Odisha

(An ICSSR Institute in Collaboration with the Govt. of Odisha)

AUGUST 2020

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* See next page for details of NCDS Study Team

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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 I blocks. In principle decision was taken to extend the programme to another 25 blocks in 2018-19, the Phase II 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 October – November – December 2019 in three blocks where the programme intervention had already started.

In each of the block from the list provided by the facilitating agency through the Programme Secretariat had all the names of the 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. Samples 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 Koraput is Dr. Sitakanta Sethy with assistance from Mr. Arakshit Patra, Ms. Roma Choudhury and Mr. Dharmajit Biswal 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 (OMM), as per a recent report that I authored, comparing first year outcome with the baseline report of the phase one block 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 S*wabhimananchal* 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 (ICDS) 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 Ayog), civil society and the Academia. So, the chant of OMM continues to reverberate.

Srijit Mishra
Director, NCDS

ACKNOWLEDGEMENT

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We are also grateful to the present Collector & District Magistrate Shri Madhusudan Mishra, OAS (SAG), Koraput; Shri Deben Kumar Pradhan, OAS (SAG), ADM , Koraput; Sri Bijaya Kumar Soren, Chief District Agriculture Officer, Koraput; Mr. Kalidas Biswas, DDA, Koraput-Jeypore; Mr. Umesh Chandra Sahoo, DAO, Jeypore; Mr. Subrat Kumar Rath, DAO, Koraput; Mr. Mrutyunjaya Maharana, AAO, District Agriculture Office, Koraput; Mr. Ajit Kumar Giri, WMS, Jeypore; Mr. Jagannath Nanda, TO, Jeypore; Mr. Sashibhusan Senapati, AAO (JUTE), Jeypore; Mr. Biswaraj Rath, ADA (Input), Jeypore; Mr. Tusar Ranjan Swain, AAO (Input), Ms. Annapurna Behera, AAO, Jeypore; Mr. Abhimanyu Swain, AAO, Potangi, (I); Mr. Kanhu Ch. Khuntia, AAO, Potangi (II); Mr. Ranjan Kumar Pattnaik, AAO, Koraput (I); and Mr. Mahesh Kumar Padhy, AAO, Koraput (II) and the respective Agriculture Officers of Laxmipur as well.

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We express our sincere thanks to Dr. C. R. Das, Sr. Research Officer and Dr. Biswabas Patra, Research Officer also the Project coordinators at NCDS for their kind guidance and critical but constructive suggestions. Last but not the least, for the successful programme planning and implementation as well as their active coordination during data collection for this report credit goes to all the Facilitating Agencies working in Koraput, Laxmipur and Potangi Blocks in Koraput District i.e. the Koraput Farmers Association (KFA); Center for Social Development (CYSD) and Life Academy of Vocational Studies (LAVS). To be specific, our sincere thanks goes to their Community Resource Persons (CRPs) and Field Coordinators for coordinating the data collection from the households and undertaking the Focused Group Discussions (FGDs).

Dr. Sitakanta Sethy
Post Doctoral Fellow

EXECUTIVE SUMMARY

1. Survey Area

1.1 Under the "Special Programme for the Promotion of Millets in Tribal Areas of Odisha or the Odisha Millets Mission (OMM)" was begun in the *Kharif* 2017. Koraput comes within the seven Districts. In the Phase - I, seven Blocks of the District were covered. To expand the programme under Phase – II, Baseline Survey was conducted in Koraput, Laxmipur and Potangi Blocks. The present Baseline Survey Report is based on the findings.

1.2 Across the three Blocks, total 610 households (HHs) are cultivating millets. Total 373 HHs from Koraput Block, 173 HHs from Laxmipur Block and another 58 HHs are proposed to be covered under the programme. Hence, by adopting random sampling method, out of the total 80 HHs in Koraput, 80 HHs in Laxmipur and another 40 HHs in Potangi Blocks are selected and covered under the Baseline Survey. During 2017-18 as observed out of the 80 HHs in Koraput Block 74 are cultivating millets; out of the 80 HHs surveyed 76 are cultivating millets in Laxmipur Block and in Potangi out of the 40 HHs, 36 are found to be millets farmers.

2 Socio-economic Profile of the Respondent HHs

2.1 As observed by the Baseline Survey, from the surveyed HHs 55.50 per cent belong to Scheduled Tribe (ST), 13 per cent belong to Scheduled Caste (SC) and 31.50 per cent belonged to the Other Caste (OC).

2.2 **A**cross the three Blocks in Koraput District, it is found that 95.5 per cent HHs are engaged in agricultural activities, not a single HH are engaged in collection of the Minor Forest Produces (MFPs), 3.0 per cent in other/ allied activities such as in daily wage and agricultural laborer, 1.0 per cent HHs are in Service Sector and another 0.5 per cent are engaged in Business.

2.3 As per the Baseline Survey, across the three Blocks it was found that out of the total respondent HHs, 22.5 per cent houses are Pucca, 36.5 per cent Semi Pucca and another 41.0 per cent are Kutcha houses as their dwelling units.

3 Production

3.1 In the District, across the three blocks 178 respondents HHs are cultivating *Ragi* (Finger Millets) covering in 84.6 hector of land, and produced 538.5 quintals. In the same way, only 53 HHs are cultivating *Suan* (Little Millets) covering 30.0 hector of land and produced 244.5 quintals. The average yield of *Ragi* is 6.4 quintals per hector and *Suan* is 8.2 quintals per hector.

3.2 In Koraput Block, it was observed that out of the 80 HHs, 74 respondents HHs are cultivating *Ragi* covering total 41.60 hector of land, they have produced 306.60 quintals. In the same way it was also found that in the Block, only 17.6 per cent of the respondents HHs are cultivating *Suan* in 12.55 hector of land and producing 89.0 quintals. The average yield of *Ragi* is 7.4 quintals per hector and *Suan* is 7.1 quintals per hector.

3.3 In Laxmipur Block, it was found that out of the total 89.5 percent respondent HHs are cultivating *Ragi* in 28.5 hector of land, and produced 152.4 quintals. In the same way, 44.7 per cent of the respondents HHs are cultivating *Suan* in 16.0 hector of land and produced 144 quintals. The average yield of *Ragi* is 5.3 quintals per hector and *Suan* is 9.0 quintals per hector.

3.4 In Potangi Block, it was observed that 36 respondent HHs are cultivating *Ragi* in 14.53 hector of land, and produced 79.5 quintals. In the same way, 16.7 per cent of the respondents HHs are cultivating *Suan* in 1.38 hector of land, and produced 11.5 quintals. The average yield of *Ragi* is 5.5 quintals per hector and *Suan* is 8.4 quintals per hector.

3.5 Across the three Blocks, as shared by the respondent HHs and found that 50.5 per cent HHs used good quality if seeds, 98 per cent average quality and only one (0.5 per cent) used bad quality millet seeds during cultivation.

3.6 As far as the package of practices across the three Blocks it was found that for both *Ragi and Suan* 39.8 per cent HHs are adopting Broadcasting, 69.9 per cent Line Transplantation/ Line Sowing (LT/ LS) and only 1.6 per cent doing it by adopting the System of Millet Intensification (SMI).

3.7 Across the three Blocks, the Baseline Survey found that the corresponding production of millets from 54.4 hectors of land by adopting Broadcasting method is 438.9 quintals, adopting the LT/ LS in 59.6 hector of land the production is 337.6 quintals and adopting SMI method in 0.6 hectors of land the production is 6.5 quintals with a yield rate per hector of 8.1 and 5.7 and 10.7 quintals per hector respectively.

4 Consumption

4.1 In Koraput District, across the three Blocks the pattern of consumption of millet based recipes was surveyed and found that 95 per cent of the respondents HHs are taking millets during the Summer Season. It was followed by 94.5 per cent in Winter Season and 93.5 per cent during the Rainy Season.

4.2 Consumption of millets based recipes during different meals of a day (not mutually exclusive rather independent); it is observed that the highest number (94.5 per cent) are taking millets based recipes at the morning, followed by 89.5 per cent during lunch, 36 per cent during dinner and only 19 per cent of the respondent HHs are taking millets based foods during the evening time.

4.3 Findings related to the form and types of millets based recipes consumed by the respondent HHs across the three blocks in Koraput District is observed that 95 per cent of the respondent HHs are taking *Mandia Jau* (Porridge), 72.5 per cent taking Millets Cake, 17.5 per cent taking *Tempo* (a Semi Liquid Recipe), and 34 per cent of the respondent HHs are taking *Mandia Torani* (fermented *Ragi*).

5 Processing and Marketing

5.1 Across the three Blocks, the Baseline Survey found that 67 per cent of the respondent HHs are processing millets manually that includes Dehusking, De-stoning and Milling, 11 per cent are doing it through Machines that is located far away from their village, and another 17 per cent of the respondents HHs are adopting both the methods but as and when required.

5.2 Marketing of the millets is not mutually exclusive. As per the Baseline Survey, 27 per cent HHs sell their produce in the nearby Weekly Hat, 22 per cent sell to the Local Trader/ Middle Man who usually comes to their village and collects it himself. 7 per cent HHs sell to the local Money Lender as they had borrow money whenever there was a need, it was also shared that hardly anybody from them ever sold to the local Mill Owner.

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ABBREVIATIONS

AAO	: Assistant Agriculture Officer
AL	: Agricultural Labour
AP	: Andhra Pradesh
ATMA	: Agricultural Technology Management Agency
CYSD	: Centre for Youth and Social Development
DDA	: Deputy Director, Agriculture
FGD	: focused Group Discussion
Ha	: Hector
HHs	: Households
KFA	: Koraput Framers Association
LAVS	: Life Academy of Vocational Studies
MSP	: Minimum Support Price
NAL	: Non Agricultural Labour
NAM	: National Agricultural Market
NFSM	: National Food Security Mission
NSSO	: National Sample Survey Organization
OC	: Other Caste
OMM	: Odisha Millets Mission
PDS	: Public Distribution System
ST	: Scheduled Tribe
SC	: Scheduled Caste
WASSAN	: Water Support Services and Activities Network

1
INTRODUCTION

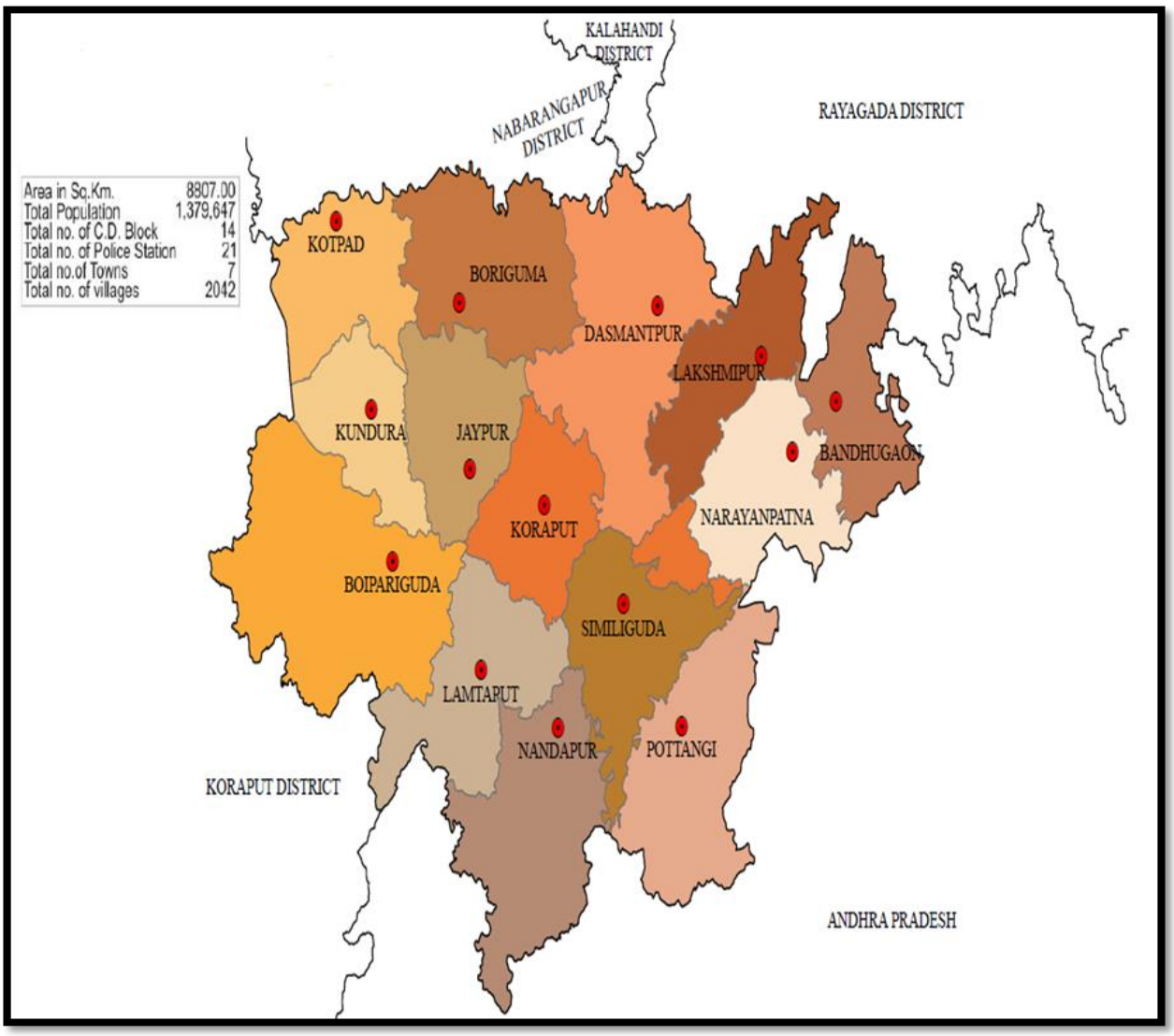
1.1 Background

According to various literatures, evolution of millets cultivation dates back to Prehistoric Period and its farming system found to be very primitive. It has been favored by the farmers as well as the people at large because of its climate and draught resilient capacity, short duration crop, nutritional value, healthy and tasty recipes. In India, since many decades millets as a food crop was just next to paddy. Now days the food prepared from millets is consumed by less people due to availability of subsidized rice with a nominal price at the Public Distribution System (PDS), advent of a variety of cash crops and readily availability of the modern, well packed and eye catching recipes anywhere and everywhere. However, in India millet based recipes are still found sustained due to its many potential benefits among the remote, rural and tribal households in a number of states including Odisha.

1.2 District Profile

Koraput is the third largest district in Odisha in terms of its geographical area and it is fifteenth in terms of population. The geographical area is of 88 Square Kilometers, which constitutes 5.7 per cent of the total geographical area of the State. As per the 2011 Census, the population in the district is 13.8 lakhs, male 6.8 lakhs and female 7.0 lakhs. Among the social categories, Scheduled Caste (SC) constitutes 2.0 lakhs and Scheduled Tribes (ST) 7.0 lakhs and the others constitute 4.8 lakhs. During the period, there were total 3.4 lakh households in the district. As per the 2011 Census, the literacy rate of the district is 49.2 percent, out of which the male literacy is 60.3 percent and female literacy is 38.6 per cent. Block-wise data reveals that the literates are highest in Koraput Block and lowest in Bandhugaon Block. Moreover, in the district male literates are higher than female literates in all blocks. The district is bounded by the newly break away Nabarangpur district in the North, Visakhapatnam district of Andhra Pradesh (AP) in the South, breakaway Rayagada district and Srikakulam district of AP in the east and still another breakaway Malkangiri district of Odisha and Bastar district of Chhattisgarh are located in the West.

Fig-1.1: Map of Koraput District (Phase II Blocks)



Source: http://gisodisha.nic.in/Block/KORAPUT.pdf

N.B: Baseline Survey 2017-18 was conducted in Koraput Block, Laxmipur Block and Potangi Block (shown on the Political Map of Koraput District (above) for implementing the Project titled "Special Programme for Promotion of Millets in Tribal Areas of Odisha" under Phase – II

Table 1.1: Key Indicators of Koraput District

Indicators	Value
Census 2011	
Population (In Lakh.)	13.8
Male (In Lakh.)	6.8
Female (In Lakh.)	7.0
SC (In Lakh.)	2.0
ST (In Lakh.)	7.0
Others (In Lakh.)	4.8
Total HHs (In Lakh.)	3.4
Average HH Size (In Nos.)	4.1
Sex Ratio (In %)	1032
Workers	
Total Worker (In Lakh)	6.9
Main Worker (In Lakh)	4.0
Marginal Worker (In Lakh)	3.0
Non-Worker (In Lakh)	6.9
Work Participation Rate (WPR) (In %)	50.3
Literacy Rate (In %)	49.2
Land Use Pattern (Area in '000 ha), 2014-15*	
Total geographical Area (Sq. km)	8807
Forest	81
Land put to Non-agricultural use	47
Barren & Non-Cultivable Land	144
Permanent Pasture & Other Agricultural Land	20
Net Area Sown	192
Cultivable waste Land	16
Old Fallow	24
Current Fallows	50
Misc. Trees and Groves	33
Average Fertilizer Consumption per ha (In Kg/ha)	43.6
Irrigation Potential Created (Area in '000 ha.)*	
Kharif	110.2
Rabi	43.5
Other Information	
No. of Village Electrified	1205
No. of Banks	78
No. of AWC	1488
No. of BPL Families	12688
No. of Job Card Issued	276537
No. of Beneficiaries provided employment in MGNREGS	178459

Source: District Statistical Hand book, Koraput district-2011
*District at a Glance-2016
Note: MGNREGS is Mahatma Gandhi National Rural Employment Guarantee Scheme

The district lies in between 82 Degree 5' E to 83 Degree 13' N to 19 Degree 10' N latitude. As per the District at a Glance 2016, during the year 2014-15, the net area shown was 192,000 hectors against the total geographical area of 8807, 000 Square Kilometers. Moreover during the year 2010-11, the production of Maize was 84513 quintals and *Ragi* was 259845 quintals. During the same year, as reported the irrigation potential created during *Kharif* and *Rabi* from all sources were 117.9 thousand hectors and 56 thousand hectors respectively through the major/ medium/ minor flow, lift irrigation projects and the other sources. As per the District at a Glance 2016 for Koraput, the total production of major crops was 7665937 Quintals and *Ragi* production was 241948 Quintals.

1.3 Objectives

Koraput District consists of 14 Blocks. During 2016-17, OMM began its Phase – I Programme in as many as seven Blocks consisting of Boipariguda, Boriguma, Dasamantapur, Kundra, Latmtaput, Nandapur, and Semiliguda. It is enumerated by OMM that total 2733 millet farming HHs were covered under this programme. After around one year i.e. in 2017-18 under the Phase – II another three Blocks such as the Laxmipur, Potangi and Koraput were added. This was decided on the findings of the Baseline Survey. It is pertinent to collect some authentic and reliable primary information on the farming households. The major objectives of the Baseline Survey are to:

- Explore and assess the socio-economic condition of the HHs;
- Outline millet production, productivity and package of practices;
- Examine the consumption pattern of millets and to
- Elucidate the method of processing and mode of marketing.

1.4 Methodology

1.4.1 Universe and Sample Design

To undertake the Baseline Survey 2017-18, Laxmipur, Potangi and Koraput Blocks have been selected by the Odisha Millet Mission's Programme as well as the Research Secretariat as it is one among the first seven districts where the Odisha State Government through its Department of Agriculture and Farmers Empowerment has already introduced the programme entitled "Special Programme for Promotion of Millets in Tribal Areas of Odisha". Under the Phase-II,

the three Blocks constituting Laxmipur, Potangi and Koraput have been selected. Nevertheless, all the respondent households including the potential beneficiary millet farmers from these Blocks have been selected in due consultation with the local farmers, NGO & CSOs being engaged as the Facilitating Agencies (FAs), and the District Agriculture Office, Govt. of Odisha.

From the list being provided by the OMM Programme Secretariat, there were 958 programme HHs covering 150 participant/ beneficiary and 808 non-participant farmer households spread across 111 villages, 16 Gram Panchayats covering the three Blocks in Koraput District (Table 1.2). 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 10 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 10 households randomly and if the participating households in the village is less than 10, 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 200 surveyed households selected under the Baseline Survey 2017-18 under Phase - II, total 63 participant households and 137 were non-participant households are there.

The NCDS Policy Research Team consisting of three Research Assistants, lead by one Post Doctoral Fellow (PDF) conducted the Back Check Exercise to verify the GI collected and submitted primary data. By using simple random sampling method 20 percent households i.e. 4 HHs each from the five Revenue Villages covering three GPs in three Blocks of the same sample the Back Check was done. To supplement and compliment the findings made under the Baseline Survey and also under the Back Check, Focused Group Discussions (FGDs) were conducted in each sample village constituting all the Millet Farming and other Households.

1.4.2 Data Collection

The Baseline Survey Report is prepared based on both primary and secondary data. As mentioned above, the primary data was collected from the respondent households from Koraput District by using the Pre-tested Interview Schedules (Annexure - 1) and the Check List of the Focused Group Discussions (FGDs) in Annexure - 2. The secondary data on geographical

information, population, agriculture, education, irrigation, forest and institutions has also been collected by using various published and unpublished sources including the 2011 Census. As mention in Table 1.2 there are 373 Programme HHs in Koraput Block, 179 HHs in Laxmipur Block, and another 58 Programme HHs are there in Potangi Block. Out of that as mentioned earlier, total 200 Sample HHs in three Blocks i.e. Koraput (80 HHs: 25 participants & 55 non-participants), Laxmipur (80 HHs: 21 participants & 59 non-participants) and Potangi (40 HHs: 17 participants & 23 non-participants) were selected for collecting primary data that is 21.45 per cent, 44.69 per cent and 68.97 per cent to the total HHs selected for the study respectively(Table 1.2).

Table 1.2: Households Surveyed across the Three Blocks in Koraput District

Block	Programme HHs (No.)	Surveyed HHs (No.)	Sample HHs		% of the HHs Covered under the Study
			Participants 2017-18	Non-Participants 2017-18	
Koraput	403	80	25	55	21.45
Laxmipur	229	80	21	59	44.69
Potangi	326	40	17	23	68.97
Total	958	200	63	137	32.79

Source: WASSAN & Field Survey

1.5 Limitations of the Study

The present Baseline Survey, under Phase - II is limited to only three Blocks of the Koraput District that excludes another seven blocks already covered under the Phase - I. Due to the beginning of the harvesting session followed by both in and out migration, some of the household head and female respondents were found to be absent. After around two years of harvesting millets, it was very difficult for the respondents to memorize, calculate and inform the exact quantity in acres cultivated, produces in quintals and even the profits made in cash.

1.6 Chapters

The Baseline Survey has been divided into total six chapters including the current Introduction Chapter that has covered the key information about the District, major objective of the Study, the methodology followed as well as the major limitations. Chapter 2 elaborates the overall social and economic profile of the HHs surveyed. Chapter 3 discusses the details on the

production including the package of practices during cultivation and harvesting. Chapter 4 explains the consumption pattern of millets by the selected HH respondents. Chapter 5 elucidates details about the processing and marketing of millets. Chapter 6 summarizes the major findings of the whole Baseline Study.

2
SOCIO-ECONOMIC PROFILE OF THE HOUSEHOLDS SURVEYED

2.1 Introduction

This chapter looks into the social, economic and demographic profile of the respondent HHs under the Phase – II Baseline Survey. It includes the distribution of the HHs by their religion, social groups, and the population by their educational status and gender. It also discusses the incidence of poverty by their Government of Odisha accorded Below Poverty Line (BPL) or the proportion Above Poverty Line (APL) category. Distribution of the respondent HHs by their economic activities, which is not mutually exclusive as a household can have a multiple umber of economic activities at the same time. It has also made an attempt to capture the capture and analyze the dwelling house structure of the respondent households.

2.2 Social and Demographic Profile

Under the Baseline Survey (Table 2.1) total 200 HHs were interviewed consisting of 111 HHs (55.50 percent) as the Scheduled Tribe (ST), 26 HHs (13 per cent) as Scheduled Caste (SC) and another 63 HHs (31.50 percent) as the Other Castes (OC). In Koraput Block (Fig. 2.1) there are 30 ST respondent HHs (37.50 percent), 3 SC HHs (3.75) and another 47 OC respondent HHs (58.75 per cent). Likewise, in Laxmipur Block there are 78 ST HHs (97.50 per cent) respondents, 2 SC HHs (2.50 per cent) and no respondent HH belonged to the OC Category. In Potangi Block, there are 3 ST HHs (3.70 per cent), 21 SC HHs (52.50 per cent) and 16 OC HHs (40 per cent) respondents. Data comparison, among the three Blocks reveals that highest number i.e. 78 farmer HHs belonging to

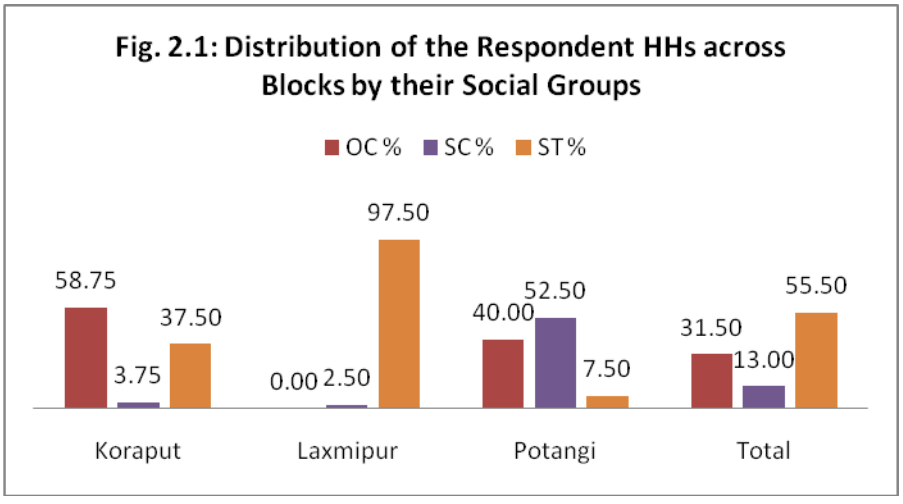


Fig. 2.1: Distribution of the Respondent HHs across Blocks by their Social Groups

ST, out of the total 80 respondent farmers have been cultivating millets in Laxmipur Block. Whereas in Potangi Block, out of the total 80 households surveyed there were 21 millets farmers, which are found to be the highest in the Block, belonged to SC Category. In Koraput Block, 47 OC Millets farmers were interviewed that is the highest among the said three categories.

Table 2.1: Distribution of Respondent HHs across the Blocks by their Social Groups

Block	OC		SC		ST		Total	
	No	%	No	%	No	%	No	%
Koraput	47	58.75	3	3.75	30	37.50	80	100.00
Laxmipur	0	0.00	2	2.50	78	97.50	80	100.00
Potangi	16	40.00	21	52.50	3	7.50	40	100.00
Total	63	31.50	26	13.00	111	55.50	200	100.00

Source: Field Survey.
Note: ST is Scheduled Tribe, SC is Scheduled Caste and OC denotes as the Other Caste.

The total respondent household population in Koraput, Potangi and Laxmipur Blocks, as per the surveyed HHs under Phase – II (Table 2.2) comes up to 874, consisting of 446 (51 per cent) male and another 428 female (49.0 per cent). As far as the respondent HH's population that is 373 in Koraput Block, 328 in Laxmipur Block and another 173 HHs in Potangi block by gender (Fig. 2.2) among the three Blocks is concerned, in all the blocks male population is found to be higher to female.

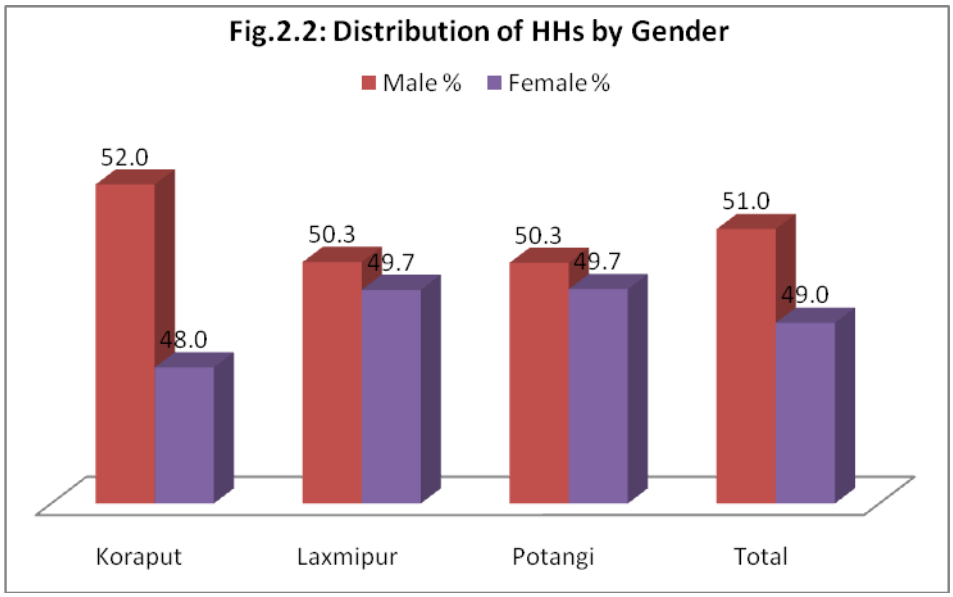


Table 2.2: Distribution of Respondent HHs across the Blocks by Gender

Block	Male		Female		Total	
	No	%	No	%	No	%
Koraput	194	52.0	179	48.0	373	100.0
Laxmipur	165	50.3	163	49.7	328	100.0
Potangi	87	50.3	86	49.7	173	100.0
Total	446	51.0	428	49.0	874	100.0

Source: Field Survey

In Koraput District, across the three Blocks, distribution of the total 200 respondent households consisting of 80 HHs from Koraput, 80 HHs from Laxmipur and another 40 HHs from Potangi Block, all belong to Hindu religion only (Table 2.3). Not a single respondent household belonged to any other religion such as Christian Religion or Muslim Religion.

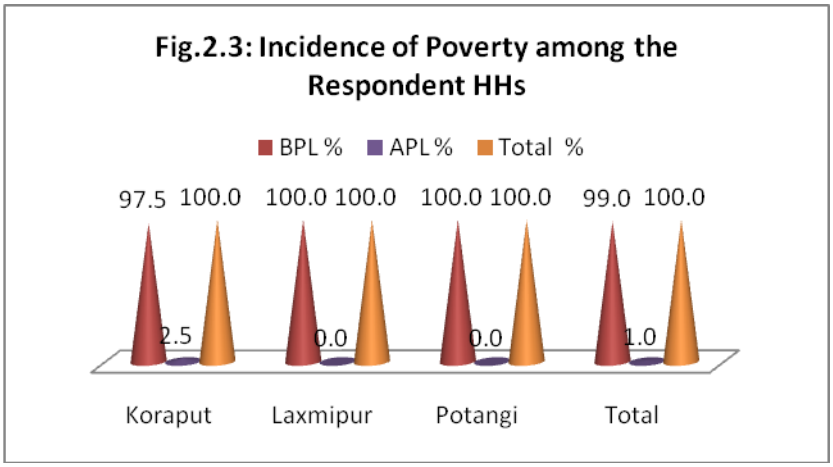
Table 2.3: Distribution of HHs across the Blocks by their Religion

Block	Hindu		Muslim		Christian		Total	
	No	%	No	%	No	%	No	%
Koraput	80	40.0	0.0	0.0	0.0	0	80	40
Laxmipur	80	40.0	0.0	0.0	0.0	0	80	40
Potangi	40	20.0	0.0	0.0	0.0	0	40	20
Total	200	100.0	0.0	0.0	0.0	0	200	100

Source: Field Survey

2.3 Incidence of Poverty[i] among the Respondent HHs across the Blocks

As per the 2011 Census (Table No.1.1 on Page No.3 of Chapter 1), in Koraput District 12688 HHs comes under Below Poverty Line (BPL). In the district, across the three Blocks and among the 200 respondent HHs the incidence of poverty



is found to be as high as 99 per cent (Table 2.4). In the three blocks, out of the total household respondents as many as 198 HHs belonged to the BPL Category and the remaining 2 HHs (1.0 per cent) belonged to the Above Poverty Line (APL). The said two respondents HHs were found in Koraput District.

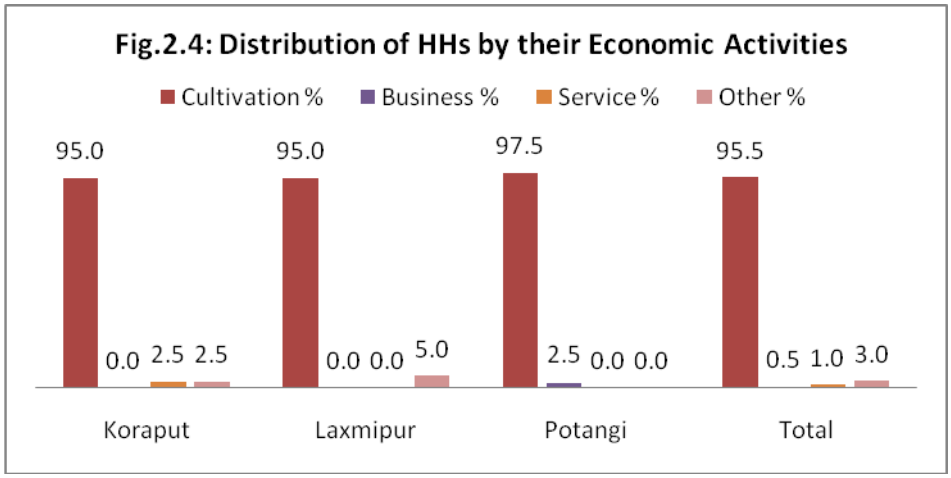
Table 2.4: Incidence of Poverty across the Blocks among the Respondent HHs

Block	BPL		APL		Total	
	No	%	No	%	No	%
Koraput	78	97.5	2	2.5	80	100.0
Laxmipur	80	100.0	0	0.0	80	100.0
Potangi	40	100.0	0	0.0	40	100.0
Total	198	99.0	2	1.0	200	100.0

Source: Field Survey
Note: BPL is Below Poverty Line and APL is Above Poverty Line

2.4 Economic Activities

An economic activity of a respondent HH family consists of cultivation, business, service and a number of other activities as well. Information collected and compiled on the economic activities of the 200 respondent HHs (Table 2.5) has been analyses and has also been shown in Fig.2.4. As found, across the three Blocks in Koraput out of the total HHs, 191 HHs that are found to be the primary and majority of the HHs (95.5 per cent) are engaged in agriculture. It was followed by 6 HHs (3.0 per cent) engaged in other/ ancillary activities, 2 HHs (1 per cent) engaged in service sector, and another 1 HH (0.5 per cent) is engaged in Business activity.



It is also observed that engagement in agriculture is almost same in all the three Blocks i.e. Koraput 95.0 per cent, Laxmipur 95.0 per cent and Potangi 97.5 per cent. A household

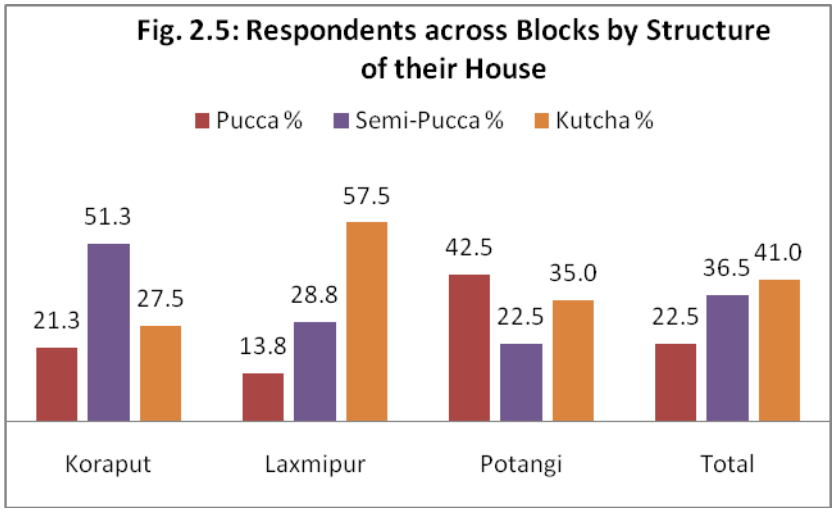
engaged in various economic activities determines their income and wealth leading to be considered as rich or poor. It is very often found that in a household, all the members of the house are engaged in agriculture, which is the primary source of their income and that provides them food throughout the year. Even the household sells a portion of their agricultural produce to manage the other essential expenses of the family.

Table 2.5: Distribution of HHs across the Blocks by their Economic Activities

Block	Cultivation		Business		Service		Other		Total	
	No	%	No	%	No	%	No	%	No	%
Koraput	76	95.0	0	0.0	2	2.5	2	2.5	80	100.0
Laxmipur	76	95.0	0	0.0	0	0.0	4	5.0	80	100.0
Potangi	39	97.5	1	2.5	0	0.0	0	0.0	40	100.0
Total	191	95.5	1	0.5	2	1.0	6	3.0	200	100.0

Source: Field Survey
Note: Activities total are not additive as activities are not mutually exclusive.

2.5 House Structure of the Respondent Households



House structure of a respondent household is very often considered as an important indicator of the economic condition of a family. Under the Baseline Survey, Phase – II as observed across the selected three Blocks in Koraput District it was found that out of the total 200 HHs (Table 2.6 & Fig. 2.5) surveyed 45 HHs (22.5 per cent) are *Pucca*, the second highest number 73 HHs (36.5 per cent) as Semi-Pucca and the remaining 82 HHs as the highest (41.0 per cent) are *Kutcha* Houses.

As per the Table 2.6, and the Figure 2.5, across the three Blocks in the District Laxmipur Block has the highest number of 46 *Kutcha* (57.5 per cent) houses, whereas in Koraput Block the

second highest number 41 houses (51.3 per cent) were available. Overall, in Laxmipur the least number i.e. 11 numbers of *Pucca* houses (13.8 per cent) were available during the survey.

Table 2.6: Distribution of HHs by Structure of their House

Block	Pucca		Semi-Pucca		Kutcha		Total	
	No	%	No	%	No	%	No	%
Koraput	17	21.3	41	51.3	22	27.5	80	100.0
Laxmipur	11	13.8	23	28.8	46	57.5	80	100.0
Potangi	17	42.5	9	22.5	14	35.0	40	100.0
Total	45	22.5	73	36.5	82	41.0	200	100.0

Source: Field Survey

2.6 Conclusion

From the various social and economic data mentioned in the Tables and also being shared through the Figures, it indicates that most of the respondent millets farming HHs (97.5 per cent in Koraput and 100 per cent in Laxmipur and Potangi) belong to the BPL Category. Across the three blocks, more than 95 per cent of the respondents HHs are primarily also engaged in agricultural activities. Out of the total 200 HHs surveyed, 45 HHs (22.5 per cent) are having the *Pucca* Houses, the second highest number 73 houses (36.5 per cent) are found to be *Semi-Pucca* and the remaining 82 houses, being the highest (41.0 per cent) had the *Kutcha* houses.

3
PRODUCTION

3.1 Introduction

Along with assessment of social and economic status of the millets farmers in Koraput, Laxmipur and Potangi Blocks in Koraput District, the Baseline Survey, Phase-II has made an attempt to capture the production process, package of practices and productivity of millets. Under the production practices of millets the seed selection, sources, its quality, preservation, use of seeds during cultivation and productivity as well.

3.2 Area, Production and Yield

As found, in Koraput District across the three Blocks there are mainly two types of millets such as *Ragi and Suan* cultivated during *Kharif* Season. The total quantity of *Ragi and Suan* produced in the three Blocks is 783.0 quintals (538.5 *Ragi* and 244.5 *Suan*) from 114.6 hectors (*Ragi* in 84.6 hectors and *Suan* 29.9 hectors) of land by the respondent HHs (Table 3.1). it is also found that across the three Blocks, per hector the yield of *Ragi* is 6.4 quintals and *Suan* is 8.2 quintals per hector. In the same way, the yield of *Ragi* per HHs is 3.3 quintals and *Suan* is 4.6 quintals (Fig.3.1).

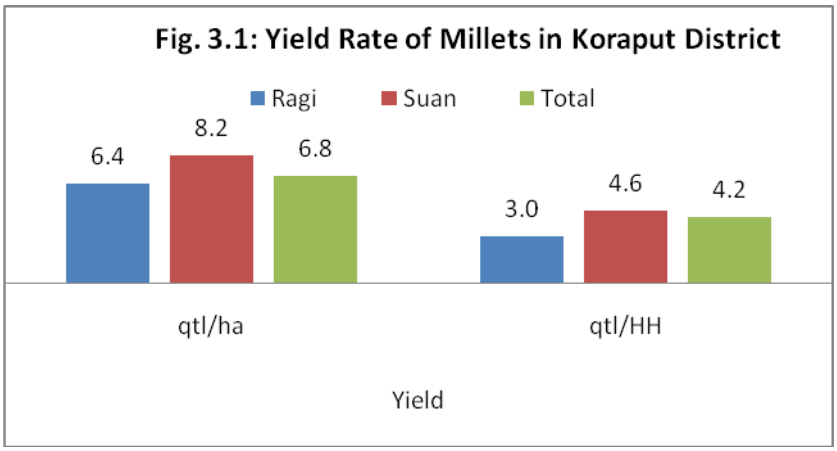


Fig. 3.1: Yield Rate of Millets in Koraput District

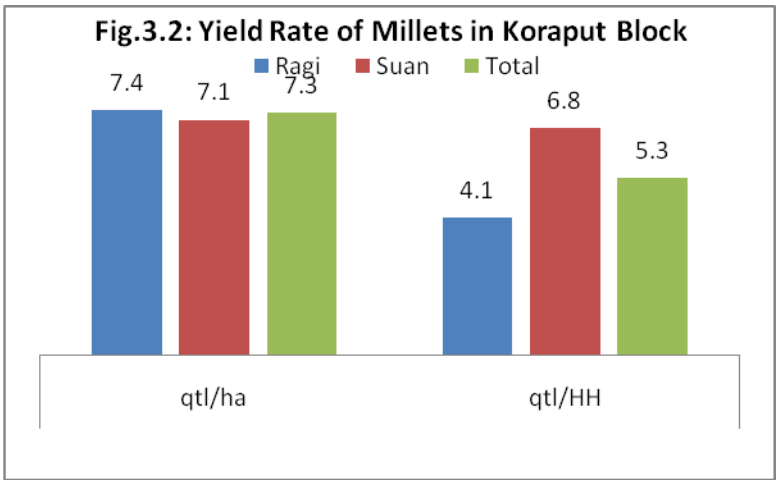
As revealed in the Baseline Survey across the three blocks in Koraput District (Table 3.1), the productivity of *Suan* was found to be more i.e. 8.2 quintals per hector than *Ragi*, which is 6.4 quintal per hector. As far as the yield rate at the household level is concerned, *Suan* is 4.6 quintal and *Ragi* is 3.0 quintals. As far as the total number of HHs cultivating *Ragi and Suan* in Koraput District is concerned, it is 178 HHs and 53 HHs respectively and 45 farmers HHs have cultivated both. It was observed that all respondent HHs are the regular farmers, however, during

the said *Kharif* season they have cultivated only *Ragi or Suan* or in some cases even both. In the following analysis, the Block-wise yield analysis of *Ragi and Suan* would bring more clarity on the subject.

Table 3.1: Area, Production & Yield of *Ragi & Suan* across the Blocks in Koraput District

Millets	HHs		Area		Production		Yield	
	No	%	Ha	%	qtl	%	qtl/ha	qtl/HH
Ragi	178	95.7	84.6	73.8	538.5	68.8	6.4	3.0
Suan	53	28.5	29.9	26.1	244.5	31.2	8.2	4.6
Total	186	100.0	114.5	100.0	783.0	100.0	6.8	4.2

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to all values across crops.



As it is reflected in Fig.3.2 and Table 3.2 in Koraput Block out of the total 80 respondent HHs, 74 HHs have cultivated *Ragi*, 13 HHs *Suan* and 13 HHs did both. It is also found that as a number of farmers were cultivating *Ragi and Suan* as and when required, hence, they are mutually exclusive. Production and the yield rate of *Ragi and Suan* in Koraput Block have also been sown in Table 3.2 as well as in the Fig.3.2.

As observed in the said Block, at the household level the yield of *Suan* is found to be more i.e. 6.8 quintals to *Ragi* i.e. 4.1 quintals. Whereas, *Suan* productivity per hector of land is 7.1 quintal per hector and *Ragi* is 7.4 quintal per hector. In the Block, 74 HHs did *Ragi* covering an area of 41.60 hectors with a production of 306.60 quintals. In the same way, *Suan* was cultivated by 13 HHs in 12.55 hectors of land with a net production of 89.0 quintals.

Table 3.2: Area, Production & Yield of *Ragi and Suan* in Koraput Block

Millets	HHs		Area		Production		Yield	
	No	%	ha	%	qtl	%	qtl/ha	qtl/HH
Ragi	74	100.0	41.60	76.8	306.60	77.5	7.4	4.1
Suan	13	17.6	12.55	23.2	89.00	22.5	7.1	6.8
Total	74	100.0	54.15	100.0	395.60	100.0	7.3	5.3

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to all values across crops.

In Laxmipur Block, out of the total 80 respondent HH, 68 HHs have cultivated *Ragi*, 34 HHs have cultivated *Suan* and another 27 have done both (Table 3.3 and Fig. 3.3). As observed in the Block, at the household level the yield rate of *Suan* is found to be more i.e. 4.2 quintals to *Ragi* i.e. 2.2 quintals. Whereas, the productivity of *Suan* per hector of land is 7.1 quintal and Ragi is 7.4 quintal. It was found that out of the total respondents in the Block, 68 HHs cultivated *Ragi* covering an area of 28.5 hectors with a production of 152.4 quintals. In the same way, *Suan* was cultivated by 34 HHs covering 16.0 hectors of land with a net production of 144 quintals.

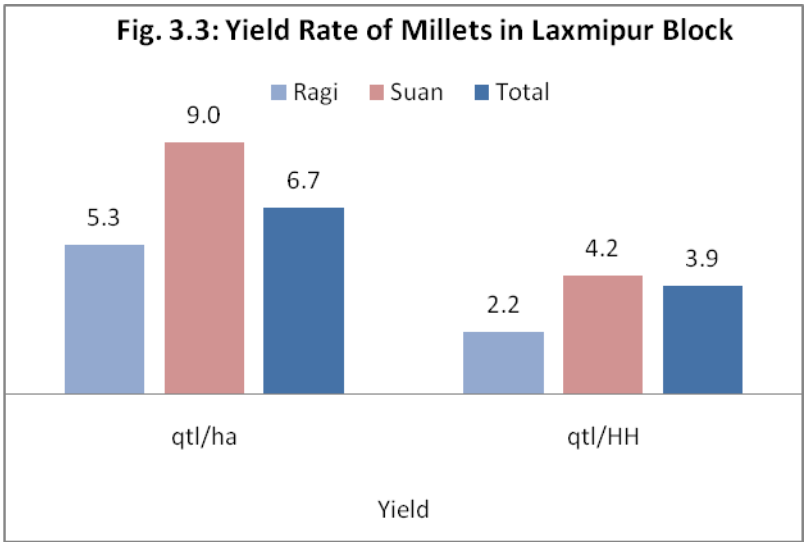


Table 3.3: Area, Production & Yield of *Ragi and Suan* in Laxmipur Block

Millets	HHs		Area		Production		Yield	
	No	%	ha	%	qtl	%	qtl/ha	qtl/HH
Ragi	68	89.5	28.5	64.0	152.4	51.4	5.3	2.2
Suan	34	44.7	16.0	36.0	144	48.6	9.0	4.2
Total	76	100.0	44.5	100.0	296.4	100.0	6.7	3.9

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to all values across crops

In Laxmipur Block, at the household level the yield of *Suan* is more i.e. 4.2 quintals to *Ragi* i.e. 2.2 quintals. Whereas, *Suan* productivity per hector of land is found to higher i.e. 9.0 quintals and *Ragi* per hector is 5.3 quintal.

In Potangi Block, the Baseline Survey undertaken in the proposed Phase – II Blocks it is observed that during the *Kharif* Season out of the total 40 respondent HHs, 36 HHs have cultivated *Ragi*, 06 HHs have cultivated *Suan* and another 6 HHs did both (Table 3.4 and Fig.3.4). It is also found that cultivation of *Ragi and Suan* on the same plot by the respondent HHs is being done interchangeably so, it is mutually exclusive. It was also found that the 36 farmer families have cultivated *Ragi* in 14.53 hectors of land (91.4 per cent) with a production of 79.5 quintals (87.4 per cent). In Potangi Block, at the household level the yield of *Suan* is less i.e. 1.9 quintals to *Ragi* 2.2 quintals. Whereas, *Suan* productivity per hector of land is found to be 8.4 quintal and *Ragi* productivity per hector is 5.5 quintals.

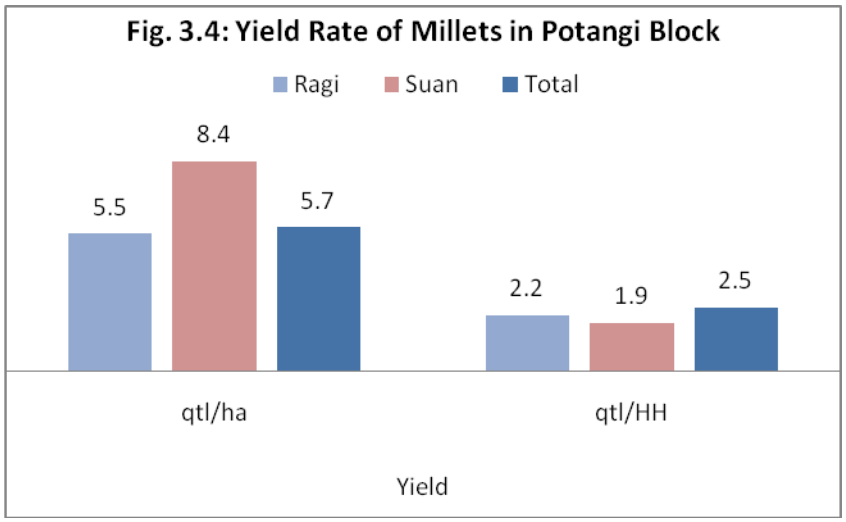


Table 3.4: Area, Production & Yield of *Ragi and Suan* in Potangi Block

Millets	HHs		Area		Production		Yield	
	No	%	ha	%	qtl	%	qtl/ha	qtl/HH
Ragi	36	100.0	14.53	91.4	79.5	87.4	5.5	2.2
Suan	6	16.7	1.38	8.7	11.5	12.6	8.4	1.9
Total	36	100.0	15.91	100.0	91.0	100.0	5.7	2.5

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to all values across crops.

3.3 Perception of Respondent Household Farmers on the Quality of Seeds used

According to the respondent farming HHs, the quality of seed is an important component of the cultivation and crop production process. Most of the time, the quality of the seeds used determines the volume of production and the same high quality seeds are again properly preserved for the next crop to reap the benefits. As per the findings of the Baseline Survey, as there was hardly any provision of seeds either from the Agriculture Department, Govt. of Odisha or from the local NGOs, most of the millets farming HHs in Koraput, Laxmipur and Potangi Blocks used the locally available and preserved seeds. In Koraput district, across the three blocks total 200 respondent farming households were covered under the Baseline Survey (Table 3.5 and Fig. 3.5). Out of the total respondents across the three blocks, 101 (50.5 per cent) households shared that the seed quality sued by them during the last season was of good quality, another 98 (49.0 per cent) told that the quality was average and only 1 HH (0.5 per cent) told that the local seeds being used by them was very bad.

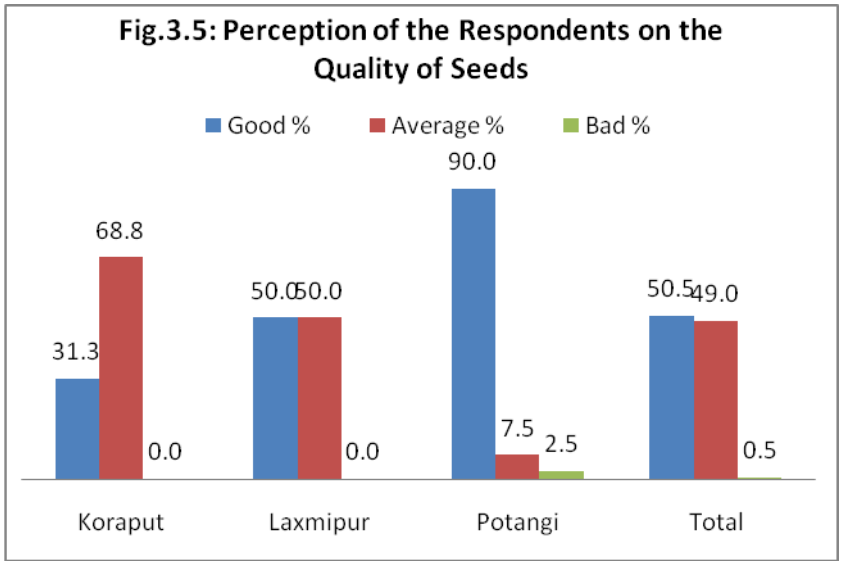


Table 3.5: Perception of the Respondents on Quality of Seeds used

Block	Good		Average		Bad		Total	
	No.	%	No.	%	No.	%	No.	%
Koraput	25	31.3	55	68.8	0	0.0	80	100.0
Laxmipur	40	50.0	40	50.0	0	0.0	80	100.0
Potangi	36	90.0	3	7.5	1	2.5	40	100.0
Total	101	50.5	98	49.0	1	0.5	200	100.0

Source: Field Survey

In Koraput Block, out of the total 80 respondent HHs, 25 HHs (31.3 per cent) revealed that the seed being used by them last season was of good quality. Another 55 HHs (68.8 per cent) told that the seeds being used by them are average and nobody said that the seeds they are using were bad at all. According to them, it was not bad because by using the same locally available seeds they have been producing their crops since years and as there is hardly any option to go for other seeds and moreover they were quite happy with their traditional varieties. In the same way, in Laxmipur Block 40 (50.0 per cent) farmer respondent HHs revealed that the seed being used by them was good, again 40 HHs (50.0 per cent) told that it was of average quality. In Potangi Block, out of the 40 respondent HHs, 36 HHs (90.0 per cent) told that the seed being used by them was good, 3 numbers of respondents HHs (7.5 per cent) told it was of average quality and the remaining one household (2.5 per cent) revealed that there was not production so it was of very bad quality. They were of the opinion that if possible Government may provide them good quality seeds for higher production.

3.4 Package of Practices across the three Blocks in Koraput District

As the package of practices is vital for a millets farmer, in this section the different agronomic practices being followed by the respondent HHs have been discussed at length. Under the agronomic and package of practices, the information on if the farming HHs are doing Broadcasting, Line Sowing (LS), Line Transplanting (LT) or use of the latest the most scientific i.e. System of Rice Intensification (SMI) were collected. As revealed (Table 3.6 and Fig.3.6), in Koraput District across the three Blocks Ragi and Suan were cultivated and the farmers had adopted the Broadcasting, LT/ LS, SMI and 1+ Methods[ii] and cultivated 114.6 acres of land and having a production of total 783.0 quintals and with a total yield rate of 6.8 quintals per hectors (Table 3.6). At the same time the

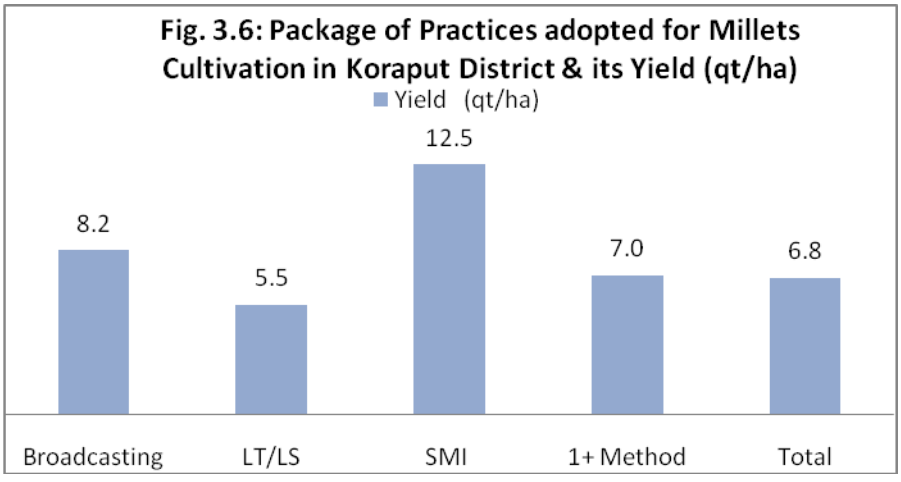


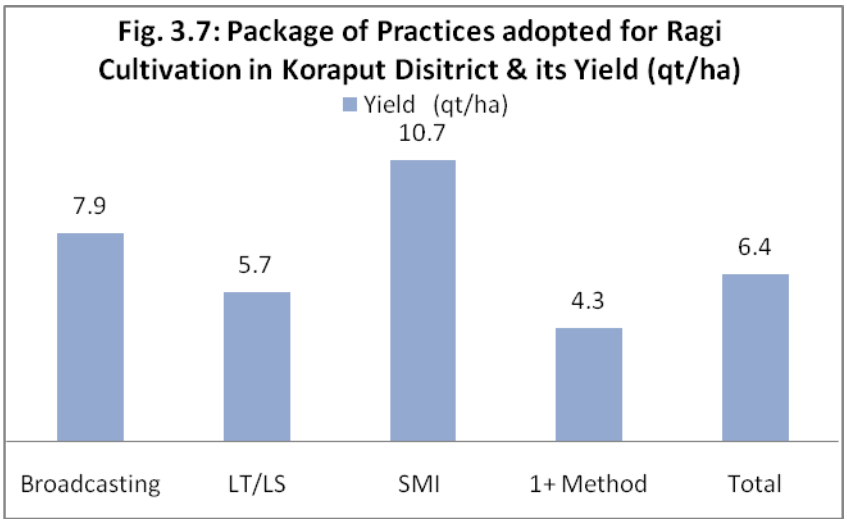
Fig. 3.6: Package of Practices adopted for Millets Cultivation in Koraput District & its Yield (qt/ha)

yield per hector of cultivation of millets by adopting SMI Method was the highest i.e. 12.5 quintals per hector (Fig.3.6). In the same way, when they had adopted the Broadcasting method it was 8.2 quintals per hector and when it was Line Transplantation/ Line Showing (LT/ LS) the production was as low as 5.5 quintals per hector. As far as productions of millets across the three Blocks are concerned, it was 361.4 Quintals in Broadcasting, 264.6 Quintals in LT/ LS and 5.0 Quintals by adoption of the SMI Method. Here, when the respondent farmer has adopted more than one method (1+ Method) such as Broadcasting and LT/ LS or Broadcasting and SMI or even the LS/LT and SMI in the same patch of land the yield rate is 7.0 quintals per hector. Across the three Blocks, it was found that out of the 186 millet farming HHs, 21 (11.3 per cent) cultivated 21.8 hectors (19 per cent) with a total production of 152 quintals.

Table 3.6: Package of Practices adopted for Millets Cultivation in Koraput District

Package of practices	HHs		Area		Production		Yield
	No	%	Ha	%	qtl	%	(qt/ha)
Broadcasting	53	28.5	44.0	38.4	361.4	46.2	8.2
LT/LS	110	59.1	48.4	42.2	264.6	33.8	5.5
SMI	2	1.1	0.4	0.3	5.0	0.6	12.5
1+ Method	21	11.3	21.8	19.0	152	19.4	7.0
Total	186	100.0	114.6	100.0	783.0	100.0	6.8

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to the total values across package of practices.



As it has been explained in the Table 3.7 and Figure 3.7, across the three Blocks in Koraput District along with the Broadcasting, LT/LS, SMI, more than one method also been adopted by the respondent farmers while cultivating Ragi. It was evident from the data shared in the table as well as figure that when SMI method is adopted the yield of Ragi was the highest (10.7 quintals per hector), in

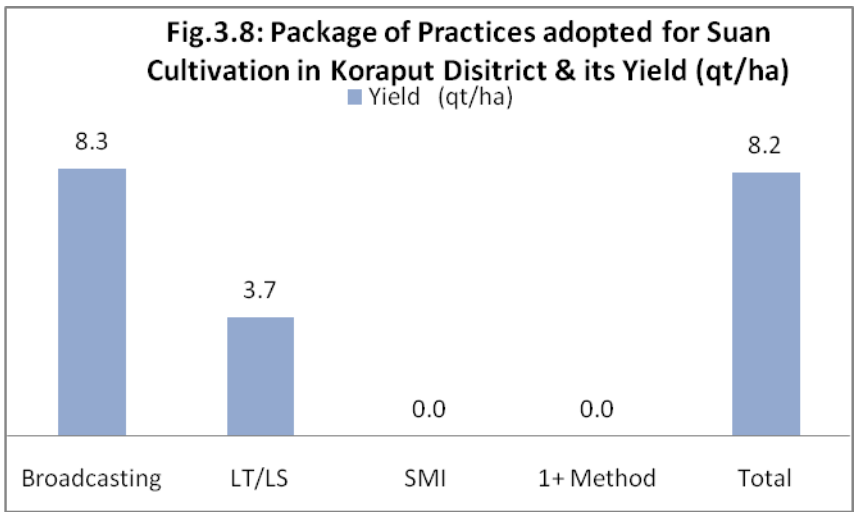
comparison to the adoption of LT/LS (5.7 quintals per hector), Broadcasting (7.9 quintals per hector) or even the 1+ Method (7 quintals per hector). Across the three Blocks, 45 respondent HHs cultivated Ragi, adopting Broadcasting method in an area of 24.8 hectors with a total production of 196.4 quintals. Out of the 178 respondent HHs, 129 cultivated Ragi by adopting LT/ LS Method in an area of 58.4 hectors have got total production of 332.1 quintals. In the same way only three farmers have adopted SMI and one has adopted more than one methods.

Table 3.7: Package of Practices adopted for Ragi Cultivation in Koraput District

Package of practices	HHs		Area		Production		Yield
	No	%	ha	%	qtl	%	(qt/ha)
Broadcasting	45	25.3	24.8	29.3	196.4	36.5	7.9
LT/LS	129	72.5	58.4	69.0	332.1	61.7	5.7
SMI	3	1.7	0.6	0.7	6.5	1.2	10.7
1+ Method	1	0.6	0.81	1.0	3.5	0.6	4.3
Total	178	100.0	84.6	100.0	538.5	100.0	6.4

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to the total values across package of practices.

In case of the per hector yield of *Suan* cultivation is concerned, the Baseline Survey 2017-18 (Table 3.8 and Fig.3.8) across the three blocks found that total 53 farmers have cultivated *Suan*. Out of that 51 have adopted the Broadcasting method, cultivated 29.2 hectors of land and have produced as much as 241.5 quintals that is 98.8 per cent to the total production across the three Blocks in Koraput District. In the same way, only two HHs (3.8 per cent to the total) have cultivated *Suan* by adopting LT/ LS in 0.8 hectors of land (2.7 per cent of the total area) with a production of 3.0 quintals.



Moreover, the findings in Table 3.8 and Fig.3.8 also show that across the three Blocks in Koraput District not a single farmer household has adopted either the SMI Method or the 1+ Method for cultivating *Suan*. The respondent farmer HHs also shared that not a single HHs in the locality has adopted the method because they do not know about the method. It was also revealed that across the three Blocks, out of the total 53 HHs have cultivated Suan by adopting different methods of cultivation in 30 hectors of land with a total production of 244.5 quintals Suan.

Table 3.8: Package of Practices adopted for *Suan* Cultivation in Koraput District

Package of practices	HHs		Area		Production		Yield
	No	%	Ha	%	qtl	%	(qt/ha)
Broadcasting	51	96.2	29.2	97.3	241.5	98.8	8.3
LT/LS	2	3.8	0.8	2.7	3.0	1.2	3.7
SMI	0	0.0	0.0	0.0	0.0	0.0	0.0
1+ Method	0	0.0	0	0.0	0.0	0.0	0.0
Total	53	100.0	30.0	100.0	244.5	100.0	8.2

Source: Field Survey
Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to the total values across package of practices.

3.5 Conclusion

During the Baseline Survey 2017-18, in Koraput District it was found that only *Ragi and Suan* were cultivated across the three Blocks i.e. Koraput, Laxmipur and Potangi in 114.6 hectors with a production of 784 quintals. *Ragi* is cultivated in 84.6 hectors of land and *Suan* is cultivated in 30.0 hectors of land. The average millet yield across the three Blocks is 6.8 quintals per hector. In case of *Ragi*, the yield rate is 6.4 quintals/ hector, whereas for *Suan* it is 8.2 quintals per hector. It was also revealed that overall, 50.5 per cent of the HHs used good quality of seeds, 49.0 per cent the average quality seeds and only 0.5 per cent used bad quality seeds across the three Blocks in the District. It was found that out of the total 200 respondent households, 53 HHs adopted Broadcasting, 110 HHs adopted LT/ LS, 2 HHs SMI and another 21 HHs used a combination of more than one method in their millets cultivation.

In the next chapter, analysis of the findings on the consumption patter of the respondent households is discussed.

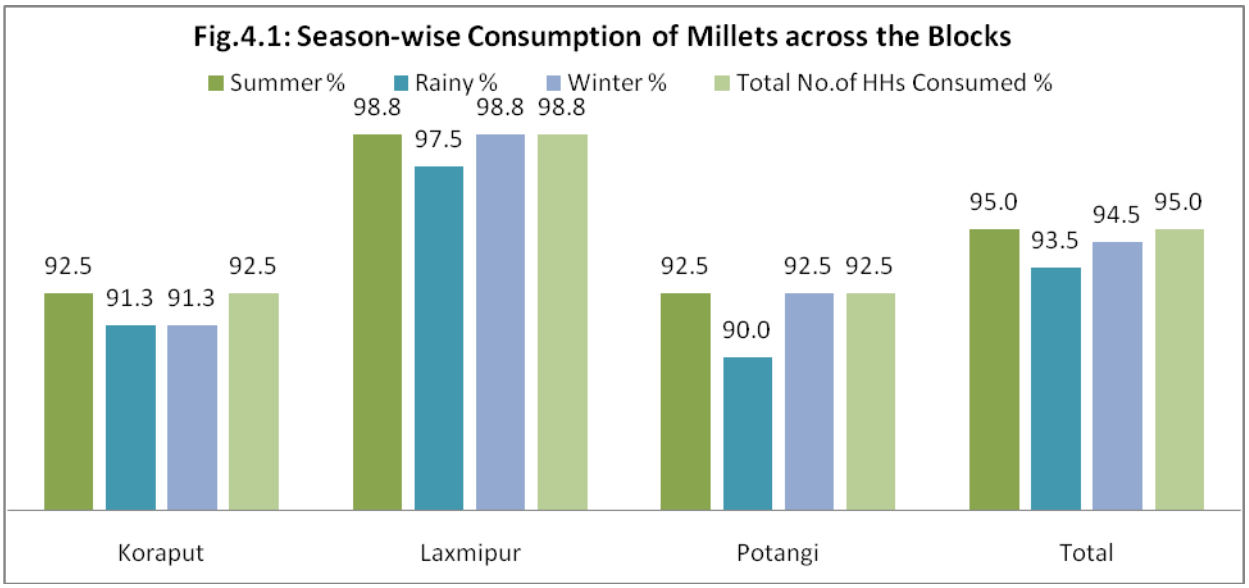
4
CONSUMPTION

4.1 Introduction

Millets production, consumption and marketing go hand in hand. Demand for production of millets largely depend on the consumption of various millets based recipes by all age groups throughout the day. In the earlier chapters, production practices by the millet farming respondent households have been discussed. Based on the findings of the Baseline Study 2017-18 conducted in Koraput, Laxmipur and Potangi Block in Koraput District this Chapter analyses the consumption pattern of millets in different seasons, at different times in a day. Nutritional and other health benefits from the millet based recipes determine its consumption at large.

4.2 Consumption of Millets in Different Seasons

To capture the consumption pattern of the millet farming respondent HHs across the three Blocks in Koraput Distircs were asked and a number of Focussed Group Discussions (FGDs) were also held. Across the three Blocks, as shared by the people at the villege level (Table 4.1 and Fig. 4.1), they consume more and more millets based recipes is not mutually exclusive rather independent that during the Summer Session, across the three Blocks out of the 200 respondent HHs, 190 (95.0 per cent) were eating millets that is the highest in comparision to the Rainy Session 187 HHs (93.5 per cent) or during the Winter Season it is 189 HHs (94.5 per



cent) to the total. Comparision among the Blocks reveal that, in Koraput out of the toatl 80 HHs, 74 HHs (92.5 per cent) are eating millets in Summer Sesion that is again the highest in comparision to 73 HHs (91.3 Per cent) in the Rainy Season, and it was 73 HHs (91.3 per cent) during the Winter Session. In the same way, in Laxmipur Block it was 98.8 per cent in Summer, 97.5 per cent in Rainy and again 98.8 per cent in Winter Session. In Potangi Block, it was 92.5 per cent, 90 per cent and 92.5 per sent respectively. Moreover, it may be noted that across the three Blocks in Koraput Distict, 186 HHs are cultivating, where as 190 HHs are consuming millets.

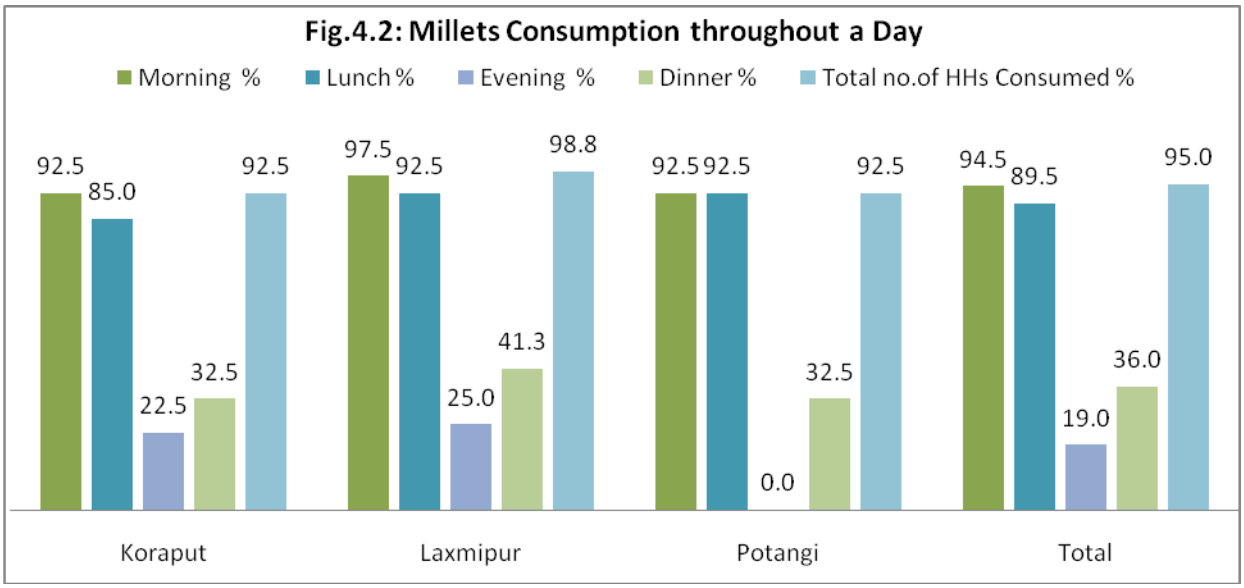
Table 4.1: Season-wise Consumption of Millets across the Blocks in Koraput District

Block	Total no. of HHs Surveyed	Summer		Rainy		Winter		Total no. of HHs Consumed	
		No.	%	No.	%	No.	%	No.	%
Koraput	80	74	92.5	73	91.3	73	91.3	74	92.5
Laxmipur	80	79	98.8	78	97.5	79	98.8	79	98.8
Potangi	40	37	92.5	36	90.0	37	92.5	37	92.5
Total	200	190	95.0	187	93.5	189	94.5	190	95.0

Source: Field Survey.
Note: Row totals are not additions across seasons, as a household can consume millets in all seasons.

4.3 Consumption during Different Meals in a Day

It was also revealed that throughut the day they work under the Sun, hence, to releive from being hydrated and get rid of Sun Strokes they prefer to take the specific recipes as well.



The food intake pattern of the respondent households in Koraput District across the three Blocks reflect that millet based recipes are found to be the most essential part of their daily life and recipes intake is not mutually exclusive. As the Table 4.2 and Fig. 4.2 reflect, across the three Blocks, out of the 200 respondent HHs, total 189 HHs (94.5 per cent) take millet based recipes during the morning, followed by during the Lunch 179 HHs (89.5 per cent), then during their Dinner 72 HHs (36.0 per cent) and during the evening time it was only 38 HHs (19.0 per cent). In the same way across the individual Blocks, during the evening time as observed, the least number of HHs are taking millets based recipes. Moreover, except the Potangi Block where not a single HH was taking millets based recipes during the evening, in Laxmipur Block only 20 HHs (25.0 per cent) and in Koraput Block almost the same 18 HHs (22.5 per cent) of the total respondents shared that they are taking millets based recipes.

Table 4.2: Millets Consumption during Different Meals in a Day

Block	No. of HHs	Morning		Lunch		Evening		Dinner		Total no. of HHs Consumed	
		No.	%	No.	%	No.	%	No.	%	No.	%
Koraput	80	74	92.5	68	85.0	18	22.5	26	32.5	74	92.5
Laxmipur	80	78	97.5	74	92.5	20	25.0	33	41.3	79	98.8
Potangi	40	37	92.5	37	92.5	0	0.0	13	32.5	37	92.5
Total	200	189	94.5	179	89.5	38	19.0	72	36.0	190	95.0

Source: Field Survey.
Note: Column totals are not additions across meals, as a household can consume millets during all meals of the day.

4.4 Millet Recipes Consumed by the Respondent HHs

Consumption of millet based recipes is found to be a most ancient and traditional practice of the indigenous and tribal communities in the whole of undivided Koraput District and the other tribal concentrated areas in Odisha. Thus, millets cultivation still exists in this belt and even forms a major food intake. As found in the Baseline Survey 2017-18 (Table 4.3 and Fig.4.3), across the three Blocks in the District the local communities are consuming millets in varietal ways in the form of *Jau* 95.0 per cent HHs that is the highest *number*, Cake 72.5 per cent HHs, *Tampo* 17.5 per cent HHs the least number, *Mandia Torani* 34.0 per cent HHs and in the form of *Roti* 41.5 per cent HHs. In all the three blocks the data reflects that in Koraput 92.5 per cent, Laxmipur 98.8 per cent, and in Potangi 92.5 per cent of the HHs are taking *Mandia Jau* (Finger Millet porridge)

mostly during the morning time. It is followed by cake/ flat bread (in Koraput 72.5 per cent), Laxmipur (71.3 per cent), and Potangi (75.0 per cent) that is prepared mostly during the festival, ceremonies and functions.

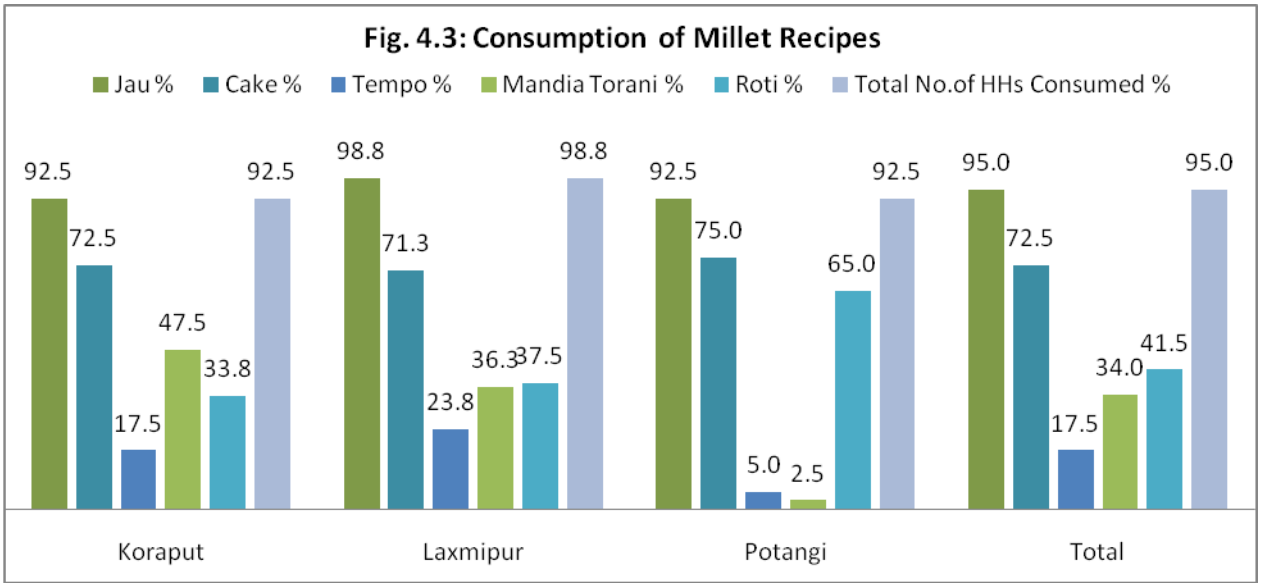


Table 4.3: Consumption of Millet Recipes by the Households

Block	No. of HHs	Jau		Cake		Tempo		Mandia Torani		Roti		Total no. of HHs Consumed	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Koraput	80	74	92.5	58	72.5	14	17.5	38	47.5	27	33.8	74	92.5
Laxmipur	80	79	98.8	57	71.3	19	23.8	29	36.3	30	37.5	79	98.8
Potangi	40	37	92.5	30	75.0	2	5.0	1	2.5	26	65.0	37	92.5
Total	200	190	95.0	145	72.5	35	17.5	68	34.0	83	41.5	190	95.0

Source: Field Survey.
Note: Row totals are not additions across recipes, as a household can prepare all recipes

Out of the total 80 respondent households in Koraput Block 14 (17.5 per cent), in Laxmipur 19 (23.8 per cent), and in Potangi only 2 (5.0 per cent) are taking *Tempo* that is being prepared by adding sugar/ jaggery as a semi liquid recipe. It was also shared that people from all age groups, especially the children like this recipe. Likewise in Koraput Block 38 (47.5 per cent), in Laxmipur 29 (36.3 per cent) and in Potangi only one (2.5 per cent) is taking the most popular *Mandia Torani*. It was found that *Mandia Torani* is a locally prepared beverage, which is prepared from *Mandia* with proportionate addition of some selected herbs. The Survey also

observed that in Koraput Block 27 (33.8 per cent), in Laxmipur Block 30 (37.5 per cent) and in Potangi Block 26 (65.0 per cent) HHs is taking *Mandia Roti* as a recipe during their meals.

4.5 Conclusion

The millet farming households consume more and more millets based recipes during the Summer Season (100 per cent), especially during breakfast to keep them fit and strong to work hard and save them from Sun in comparision to the Rainy (98.4 per cent) or during the Winter Season (99.5 per cent). In adition to that it is also found that the local communities are consuming millets in varietal ways in the form of *Jau* (100.0 per cent), Cake (76.3 per cent), *Tampo* (18.4 per cent), *Mandia Torani* (35.8 per cent) and *Roti* (43.7 per cent) across the Blocks. The next chapter discusses the various activities and issues linked to the processing and marketing of millets.

5
PROCESSING AND MARKETING

5.1 Introduction

Marketing millets and all millets based products largely depends on the extent of millets produced in the locality and other accessible places. Based on the findings and analysis of the Baseline Survey in Koraput, Laxmipur and Potangi blocks in Koraput District this chapter discusses the various methods adopted by the respondent millets farming households in processing, availability and the distance covered by the households to reach the processing and milling units, mode of marketing as well as the exact trend in utilization of millets.

5.2 Processing of Millets

After cultivation and harvesting, Millets processing is an essential and important aspect to make the produce ready for use or even get it ready for marketing in due rate. The Survey found that usually, two types of processing taking place at the village level by the respondent HHs, one is by manually and the other is through machines.

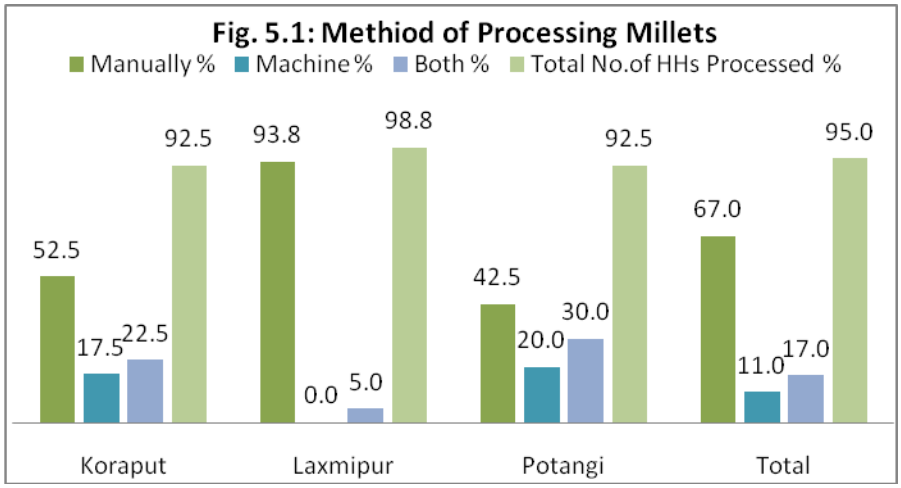


Table 5.1: Method of Processing Millets

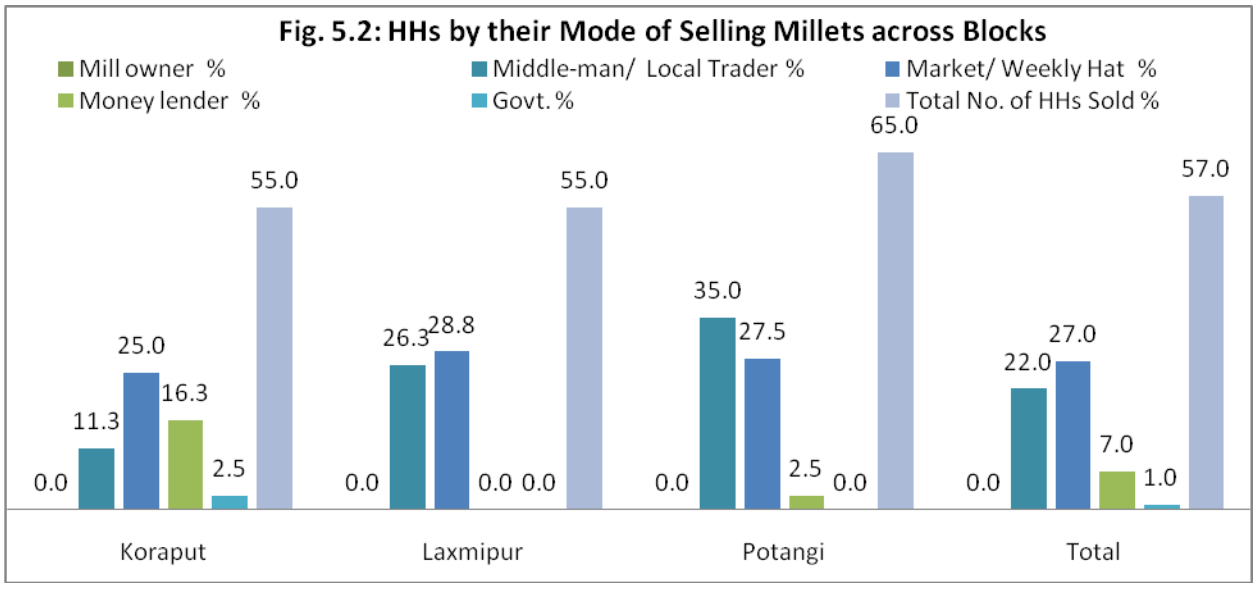
Block	No. of HHs	Manually		Machine		Both		No. of HHs Processed	
		No.	%	No.	%	No.	%	No.	%
Koraput	80	42	52.5	14	17.5	18	22.5	74	92.5
Laxmipur	80	75	93.8	0	0.0	4	5.0	79	98.8
Potangi	40	17	42.5	8	20.0	12	30.0	37	92.5
Total	200	134	67.0	22	11.0	34	17.0	190	95.0

Source: Field Survey

It was also revealed that few HHs are doing both as per their convenience. In Koraput District, across the three Blocks (Table 5.1 and Fig. 5.1) it was observed that out of the 200 HHs Surveyed 134 HHs (67.0 per cent) are doing it manually, 22 HHs (11.0 per cent) milling it by the help of machines, another 34 HHs (17.0 per cent) shared that they are adopting both the methods as and when required according to their convenience. To be specific, in Laxmipur Block 75 HHs (93.8 per cent) are doing it manually, in the Block not a single HH is taking the help of machines, and another 4 HHs (5.0 per cent) revealed that they are adopting both the methods as and when required according to their convenience. In the same way in Potangi Block 17 HHs (42.5 per cent) are doing it manually, 8 HHs (20.0 per cent) by using machines, and another 12 HHs (30.0 per cent) revealed that they are adopting both the methods as and when required according to their convenience.

5.3 Marketing of Millets

Adequate millets cultivation, its proper production and timely processing help the farming households in smooth consumption of their produce throughout the year. In addition to that it so happens that if the production is good or when the millets farmer produces more than



then their own consumption they usually go for marketing. In such a case, the producer has to take a right decision on where and who to sell so that it would be giving them the required profit that may lead to more and more savings. In some cases, it so happens that with a constant increase in their annual income from all sources including millets farming they may cross the

poverty line set by the Government. Hence, marking millets at a higher price for more income and savings is always important for the Farmers.

As shared by the millets farming household respondents (Table 5.2 and Fig. 5.2) in Koraput across the three Blocks, it was found that hardly any HH has sold their millets produce to the mill owner. Out of the total 200 respondent HHs across the Blocks as many as 44 HHs (22.0 per cent) sold to either to the Local Trader or the Middle Man, 54 HHs (27.0 per cent) sold in the local Weekly Hat, another 14 HHs (7.0 per cent) to the Money Lender and only 2 HHs (1.0 per cent) to the Govt. at the local Mandi. In case of the Koraput Block 9 HHs (20.5 per cent) sold to either the Local Trader or the Middle Man, 20 HHs (45.5 per cent) sold in the local Weekly Hat, 13 HHs (29.5) to the Money Lender and only 2 (4.5 per cent) HHs sold at the Govt. at the local Mandi.

It was also revealed that (Table 5.2 and Fig.5.2) in case of Laxmipur Block as many as 21 HHs (26.3 per cent) sold to either the Local Trader or the Middle Man, 23 HHs (28.8 per cent) sold in the local Weekly Hat, nobody sold either to the Money Lender or at the local Mandi. In case of Potangi Block 14 HHs (35.0 per cent) sold to either the Local Trader or the Middle Man, 11 HHs (27.5 per cent) sold in the local Weekly Hat, 1 HH (2.5) to the Money Lender and not a single family sold at the local Mandi.

Table 5.2: Households by their Mode of Selling Millets across the Blocks

Block	No. of HHs	Mill owner		Middle-man/ Local Trader		Market/ Weekly Hat		Money lender		Govt.		Total No. of HHs Selling	
		No	%	No	%	No	%	No	%	No	%	No	%
Koraput	80	0	0.0	9	11.3	20	25.0	13	16.3	2	2.5	44	55.0
Laxmipur	80	0	0.0	21	26.3	23	28.8	0	0.0	0	0.0	44	55.0
Potangi	40	0	0.0	14	35.0	11	27.5	1	2.5	0	0.0	26	65.0
Total	200	0	0.0	44	22.0	54	27.0	14	7.0	2	1.0	114	57.0

Source: Field Survey.
Note: The row totals are not additions across mode of selling millets, as a household can sell in multiple ways.

5.4 Conclusion

During the Baseline Survey it was found that in Koraput District, across the three Blocks, hardly anybody sold their millets produce to the mill owner, 44 HHs (22.0 per cent) sold to either the Local Trader or the Middle Man, 54 HHs (27.0 per cent) sold in the local Weekly Hat, 14 HHs (7.0 per cent) to the Money Lender and only 2 HHs (1.0 per cent) sold at the local Mandi. In Potangi Blok 14 HHs (35.0 per cent) of the respondent households that is highest among the three Blocks were found to be selling their products to the Middle Man or the Local Trader. Whereas, in Laxmipur Block it was 23 HHs (28.8 per cent) that is highest among the three Blocks are found to be selling at their local Weekly Hat.

6
MAJOR FINDINGS

6.1 In Koraput District, across the three surveyed Blocks it was found that in Potangi Block highest number among the respondent HHs (97.5 per cent) are engaged in agricultural activities including millets.

6.2 Across the three Blocks in Koraput District, in Laxmipur highest numbers Scheduled Tribe population (97.50 per cent) of the respondent HHs are cultivating millets.

6.2 It was found that 186 respondent HHs (100 per cent) are doing the traditional methods of sowing - broadcasting. It was also found that 130 HHs are also doing Line sowing & Line Transplantation and three HHs are adopting the System of Millets Intensification (SMI).

6.4 In Koraput, Laxmipur and Potangi Block the Baseline Survey found that the millets farming HHs are using their own and even the locally available seeds being preserved by them from their own produce by adopting traditional method. 50.5 per cent shared that their own seed is of good quality and another 49.0 per cent told that it is of average quality.

6.5 The Baseline Survey conducted across the three Blocks in Koraput District reveals that out of the 200 respondent HHs, during the interview 178 HHs of the respondent farming HHs shared that they are cultivating *Ragi* covering 84.6 hectors of land with a production of 538.5 quintals and another 53 HHs are cultivating *Suan* in 30.0 hectors of land with a production of 244.5 quintals.

6.6 In Koraput District across the three Blocks, it was also revealed that per HH yield of *Ragi* is 3.0 quintals, which is higher in *Suan* i.e. 4.6 quintals.

6.7 It was also observed that most of the households across the three Blocks are taking millets based recipes throughout the day. In comparison to lunch 89.5 per cent HHs, dinner 36.0 per cent HHs or during the evening 20.0 per cent HHs, at the morning all most all i.e. 94.5 per cent Hhs are taking Millets based recipes in one form or the other.

6.8 Across the Blocks, it was found that 95 per cent of the respondents HHs are taking during the Summer Season, which is bit less i.e. 93.5 per cent in the Rainy Session and 94.5 per cent during the Winter Season. As shared, while working under sun it keeps them cool that's why they always prefer to take *Mandia Jau* more than the other recipes.

6.9 Across the three Blocks, it is found that the 67 per cent of the millet framing HHs have been milling it manually, 11 per cent HHs are doing it by machine at the time of leisure and another 17 per cent HHs are found to be milling millets both manually and as by the machine as per their convenience.

6.10 It was also found that each year majority of the millet farming respondent HHs (47.4 per cent) sell at their nearby Weekly Hat, 38.6 per cent sell to the Local Trader/ Middle man, 12 3 per cent sell to the Money lender as an obligation, and only 1.8 per cent could manage to reach and sell at the Govt. Mandi/ LAMPS.

6.11 It was also found that millet farming HHs are interested to sell their produce at the Govt. declared Minimum Support Price (Rs.31.50), which is yet to function in their locality.

Confidential for Research Purpose Only

HOUSEHOLD SCHEDULE *Annexure - 1*
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) Encroached_____

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 the 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 Activities (Use Code)
							Main	Subsidiary	Annual income (appox.)	

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)

Millets 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 (LS)		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 other										
9	Any other										
Rabi	Mandia										

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	

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	Construction		8	Remittance	
	Durable Assets		9	Livestock	
10	Others		10	Others (Specify)	
11	Total		11	Total	

Remarks:

Signature of the Investigator

Phase II Base line Study *Annexure - 2*

Focused group discussion

Date:

Name of the Village:

Name of the Block:

Name of the District:

Stratification: Ethnicity/ Caste/ Gender

Sex:

Number of Individuals:

Number of Children:

Verbal consent obtained: yes/no

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.

[i] In a publication in The New Indian Express, February 13, 2020, titled "Odisha Second Bigger State in BPL Rank" reflects that on the State Wise Poverty rate, the Reserve Bank of India (RBI) corroborated the fact by stating that 13.85 million (32.50 per cent) population of Odisha are BPL as of 2011-12. Odisha ranks second among the bigger states which have maximum number of population below the National Poverty Line (National Average in 21.92 per cent). Persons with Annual Family Income not exceeding Rs.40000/- in rural areas and Rs.60000/- in urban areas are eligible for BPL Card/ AAY Card. They can get the Annual Income Certificate to be issued by the concerned Tahsildar.

[ii] As it was observed in the field, the millet farmers are adopting more than one method i.e. sometimes it is broadcasting with LS/ LT, other times it is LS/ LT with SMI or even Broadcasting with SMI as their package of practices on the same patch of land to get more produce. Here, in this analysis it is denoted as 1+ Method (more than one package of practice). As the study has captured the information, if the respondent farmer HH has adopted more than one package of practices methods and with no further details about the exact combination in the draft, it is mentioned that only.