BASELINE SURVEY:

KEONJHAR DISTRICT-2019-20, Phase III

(Special Programme for Promotion of Millets in Tribal-Cum-Mining affected Areas of Keonjhar, Odisha or Odisha Millets Mission, OMM)

2021

Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, Odisha

(an ICSSR Institute in Collaboration with Government of Odisha)

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FOREWORD

The seeds for the "Special Programme for Promotion of Millets in Tribal areas of Odisha" (or, 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. 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 Dr. T. Prakash, Chairperson, Karnataka Agricultural Price Commission. 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.

The Phase-II of the "Special Pogramme for Promotion of Millets in Tribal and Mining Areas of Keonjhar with the financial assistance from District Mineral Foundation (DMF), Odisha (hereafter, Odisha Millets Mission, OMM)," was started during Kharif 2019 in four blocks of the district, namely, Sadar, Jhumpura, Banspal and Harichandanpur. Subsequently, in Rabi season, the reach of the programme was extended to additional three blocks namely, Joda, Hatadihi, and Champua (Phase-III blocks). This baseline report is based on the findings of the survey conducted between August 2019 and February 2020 in the Phase-III blocks. I compliment all the members for their effort in preparing the report.

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.

Sri. Manish Agarwal, IAS
Director, NCDS

ACKNOWLEDGEMENTS

Baseline Survey- Keonjhar 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, I 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. Ashish Thakare, IAS, Collector-cum-District Magistrate, Keonjhar; 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.

I also express our sincere thanks and gratitude to district level officers of Keonjhar district, particularly to Dr. Uddhaba Chandra Majhi PD DRDA-Cum- Chief Executive Officer District Mineral Foundation(DMF) Keonjhar, Mr. Sarat Chandra Dash Chief district Agriculture Officer CDAO-Cum-Project Director (PD) Agriculture Technology Management Agency (ATMA), Mr. Kamal Kumar Naik DAO Anandapur, Mr. Bishnuprasad Kar, DAO Champua, Ms. Sumansmita Tarai, Scheme Officer, Mr. Bishnuprasd Kar, AAO Champua Block, Mr. Ramchandra Das, AAO Hatadihi Block, Mr. Abhisekh Behera, AAO Joda Block.

I extended our whole hearted and sincere gratitude to District Mineral Foundation (DMF) Team Leader Mr. Prasanna Venkatakrishanan., Mr. Sisir Kumar Sahoo Senior programme officer.

I express our gratitude to our other colleagues at NCDS, particularly, Ms. Sumati Jani (Odisha Finance Service, OFS), Secretary, Mr. Niranjan Mohapatra, Librarian; Ms. S. M. Pani, Computer Programmer; Mr. D. B. Sahoo, P.A to Director; Mr. P. K. Mishra,

Senior Assistant; Mr. P. K. Mohanty, Junior Accountant; Mr. N. K.Mishra, Stenographer and Mr. P. K. Mallia, Computer literate Typist; Mr. S. R Swain, Accounts Assistant (Projects), Mr. S. B. Sahoo, Xerox Operator for their support, help and cooperation.

Special thanks to the members of the Programme Secretariat (Watershed Support Services and Activities Network, WASSAN), particularly to Mr. Dinesh Balam, Consultant, Programme Secretariat; Ms. Aashima Choudhury, State Coordinator; Mr. Subham Sanjay Sharma, Regional Coordinator; and Mr. Charles Kindo former District Project Coordinator (DPC) and Sanjaya Kumar Sahoo, District Project Coordinator (DPC), Keonjhar; who have helped in our data collection work and in addressing other queries.

Last but not the least, credit and special thanks are due to the members of the facilitating agencies working in these three blocks of the district, namely, SHRISTI in Champua, TADASA Hatadihi, Saunta Gounta Foundation (SGF) Joda who have supported a lot during data collection.

Mr. Shiba Shankar Bibhar
Mr. Gajanan Maharana

EXECUTIVE SUMMARY

§1 Study Area

§1.1 Keonjhar is one of the eight districts where the "Special Programme for Promotion of Millets in Tribal-Cum-Mining Affected Areas of Keonjhar, Odisha (hereafter, Odisha Millets Mission, OMM)" was started in *kharif* 2019 in four blocks of the district, namely, Sadar, Banspal, Jhumpura and Harichandanpur. Subsequently, a second phase was started in Rabi 2019 in three blocks namely Champua, Hatadihi and Joda.

§1.2 This report compiles baseline information of second phase Rabi 2019. Out of 240 households (HHs) covered under baseline survey, 80 HHs each are from Champua, Hatadihi and and Joda blocks.

§2 Status of Agricultural Activities in the District: A brief desk review of literature of agricultural data of Keonjhar district indicates following information relating to land use pattern, cropping pattern and status of millet cultivation in the district.

§2.1 The land utilisation data (2017) shows that a substantial portion of land is utilized for forest and non-agricultural uses, or is barren, grazing, or cultural waste land. Percentage of cultivable land is small in size (i.e. 33.03 per cent at district level and 25.52 per cent at surveyed blocks level). Agriculture is rain fed in most part of the district, which has an adverse impact on the productivity and yield of the crops.

§2.2 Keeping the climatic condition and consumption pattern in perspective partly influenced by government schemes, Keonjhar has traditionally come to establish itself as a paddy growing district. Besides, other crops which are grown in the locality include wheat, maize, ragi, green gram, sugar cane, ground nut and mustard oil. However, productivity of these crops is quite low owing to various factors including climatic condition, soil fertility and lack of irrigation facility. It is estimated that per hectare productivity of paddy in the district is 21.4 quintals. Paddy is cultivated in 53572 hector of land out of district's total land worth 168219 hector.

The production of paddy in the district is 3516340 quintal while in the surveyed blocks production is 830260 quintal. District data regarding other crops show that production of maize and millets is done in 24341 hectare land with a production of 456950 quintal whereas in surveyed blocks maize and millets were cultivated in 3679 hector land with 44660 quintals yield whereas pulses, vegetable, condiment and

oilseeds are cultivated in 17001 ha land with a yield of 834520 quintal in surveyed blocks.

§2.3 Production of millet constitutes a miniscule percentage of total crop production in the district and information obtained from field suggests that most of millet production is done purely for household consumption. District level information obtained from the agriculture department indicates that total areas of millet cultivation amounts to 139 hector with a yield of 623.5 quintal. Banspal, Harichandanpur, and Telkoi are the dominant blocks where millets are found cultivated. Ragi (finger millets), Jawar (Sorghum), Bajra (Pearl Millets) and Suan (Little Millets) are the types of millets cultivated in the region. Sorghum is found to be cultivated maximum in the district among all millets amounting to 63 hectors with a yield of 290 quintal. This millet is found cultivated in Banspal (40 hector with a yield of 190 quintal) and Harichandarpur (18 hectors with a yield of 80 quintals) blocks. Little millets is cultivated in 52 hectors of land with a yield of 190 quintal across the district mostly in Banspal block. Ragi is found to be the next most cultivated millets in the district covering 19 hectors land with a yield of 123.5 quintal in Banspal and Harichandanpur blocks. Pearl Millets was found cultivated only in Anandpur block (not covered under study) in 5 hectors of land with a yield of 20 quintals in the year 2017.

§3 Socio-Economic Profile: Profile of the respondents on the basis of their demographic, social and economic status reveals the following information.

§3.1 Out of total surveyed population, 62.4 per cent are female and 37.68 per cent are male. Poverty status of the respondents show that 94.1 per cent HHs are below poverty line where as remaining 5.9 per cent are above poverty line. Also, 58.4 per cent HHs are found living in Kachha house where as 33.6 per cent own semi pucca house and remaining 8 per cent reside in pucca houses. The occupational profile of the respondents suggests a substantial percentage of them being dependant groups consisting of elderly people or school going children not contributing to the work force. Whereas 18 per cent are engaged in agricultural activities, 7.4 per cent are agricultural or other labourers, 0.3 per cent run small business enterprises, 0.6 per cent hold government services, 1.7 per cent are migrants, 28.5 per cent are school going children, 20.7 per cent are housewives,4.2 per cent are service provider, 3.7 per cent

are engaged in other activities and remaining 15.0 per cent belong to elderly population.

§4 Field Insight: Interaction with respondents in the surveyed Blocks provides the following anecdotal evidences about perception of millet crop in the district.

§4.1 Paddy is the main crop for the farmers engaged in agricultural activities in the district. Farmers recall millet production in forest land a generation back in forms of mandia, jawar and suan/gurji in order to meet food requirement during lean period. However, it has almost stopped since ten/fifteen years because of following reasons including i) constant animal attacks and imposition of new forest Act (Forest Rights Act 2005) restricting utilization of forest land for agricultural purpose; ii) government incentive for paddy cultivation and PDS introducing rice in accessible price that looks after the food requirement at HH level.

§4.2 Facilitating agencies working for millet promotion admits to the following challenges faced while motivating farmers to introduce millet in their farmland. i) farmers' inhibition to adapt to a new crop; ii) convincing farmers to cultivate millets in agricultural land as they presume it as an upland crop; iii) processing millets is a tedious affair.

§4.3 However, some farmers agree to cultivate millets in their farmland if government provides handholding support in terms of finance and other technical inputs. They also expect advanced processing unit to process millet citing traditional manual method of processing millets to be tedious. Marketing facilities for millets need to be available as previously millet was produced purely for HH consumption.

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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 Agricultural Labour
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

Keonjhar district has a huge potential for development of industries because it is rich in mineral resources and has vast deposit of iron, manganese and chrome ores. The district occupies a prominent place in the mineral deposit potential in the map of India. As a result of this, HHs of sizable numbers are engaged in mining work for their livelihood; shifting their occupation from farm to non-farm work. However, agriculture remains the main source of livelihood in the district. To revive and improve agricultural production, the District Mineral Foundation (DMF) has taken up many initiatives in this regard.

One such intervention is the "Special Pogramme for Promotion of Millets in Tribal and Mining Areas of Keonjhar, Odisha (hereafter, Odisha Millets Mission, OMM)," which was started in Kharif 2019 in Keonjhar in four blocks, namely, Sadar, Jhumpura, Banspal and Harichandanpur, and subsequently in Rabi season in the same year in Joda, Hatadihi, and Champua. Millets are small-seeded grains, which are now considered as nutri-cereals. Some of the millets cultivated in Keonjhar at the time of implementing OMM are *ragi* or finger millet, *gurji* or *suan* or little millet, and *kodo* millet, Sorghum or Gangai (Sorghum Bicolor).

OMM has a novel organisational architecture with joint partnership of the Government of Odisha with involvement of functionaries in the concerned departments at the state and the district levels, the State Secretariat comprising the Programme Secretariat and the Research Secretariat, and the Non-Governmental Organisations as facilitating agencies at the Block level. Under OMM, focus has been given to production (including the agronomical package of practices to be adopted by the farmer HHs), consumption, processing, and marketing of millets. This baseline survey is an attempt to provide necessary information on some aspects of these before the implementation of the programme. Before elucidating the details from the baseline survey, we now provide some information on the district profile of Keonjhar.

1.2 District Profile

The district of Keonjhar is a tribal dominated district active with mining activities. It is surrounded by Anugul and Dhenkanal districts in the South, Bhadrak and Balasore in the East, Deogarh and Sundergarh in the West and Mayurbhanj in North. The district has a total

geographical area of 8303 sq. km, which constitutes 5.33 per cent of the State. It is located between 21.1N to 22.10 North Latitude to 85.11E to 86.22 East Longitude.

As compared to the state's average population density, Keonjhar District is found to be one of the lowly populated districts of Odisha. According to 2011 Census, the average population density per sq. km area in Keonjhar district is 217, whereas it is 270 at the all Odisha level. The District was having a total population of 18,01,733 persons in 2011, out of which the rural population was 15,48,674 (86.0%) persons and urban population was only 2,53,059 (14.0%) persons. The sex ratio of population in the district was 988 females per 1000 males, as compared to 979 females at the all Odisha level. The social composition of population in the district is as follows: SC (11.6%), ST (45.4%), others (33.0%). Thus, the composition of weaker/disadvantaged section population in the district is higher than the all-Odisha level, which is about 40% of the total (SC-17.1% and ST-22.8%).

The administrative headquarters of the Keonjhar District is located at Keonjhar town. The administrative set up of the district consists of three sub-division, thirteen tehsils, thirteen blocks, 287 Gram Panchayats, four municipalities and 25 Police Stations.

The climatic condition of Keonjhar District is much varied. The average annual rain fall of the district is 1487.7 mm (Odisha Agricultural Statics 2013-14, P1). However there is a great variation of rainfall year to year. The work participation rate of population in the district is 42.5 per cent, as compare to 41.8 per cent at the all Odisha level.

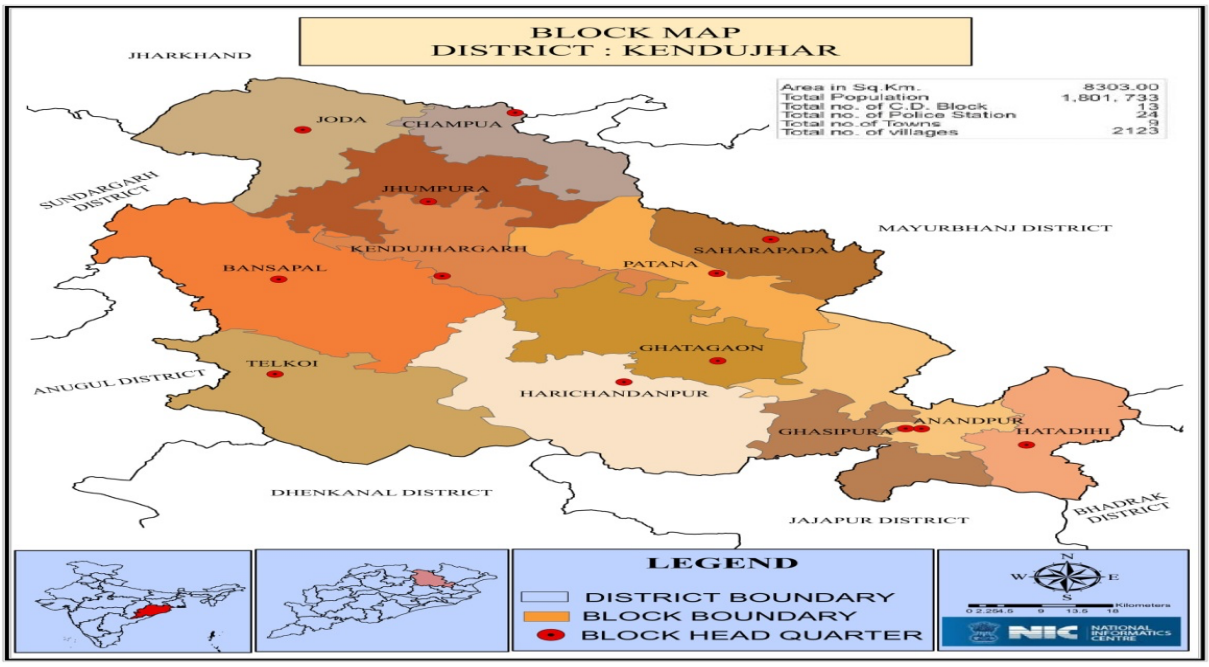


Table 1.1: Key Indicators of Keonjhar	
Indicators	Value
Census 2011	
Population	1801733
Male	906487
Female	895246
Scheduled Caste	209357
Scheduled Tribe	818878
Others	773498
Household (HH)	403869
Average HH Size	4.20
Sex Ratio	988
Total Worker	766514
Main Worker	442497
Marginal Worker	324017
Non-Worker	1035219
Work Participation Rate (WPR, %)	47.7
Cultivator as % of Total Worker	25.48
Agricultural Labourers as % of Total Worker	40.45
Literacy Rate (%)	68.24
Total Geographical Area (sq.km)	8303
Land Use Pattern (Area in '000 ha), 2014-15	
Forest	310
Land put to Non-agricultural use	77
Barren and Non-Cultivable Land	93
Permanent Pasture and Other Agricultural Land	20
Net Area Sown	245
Cultivable Waste Land	26
Old Fallow	0
Current Fallows	53
Miscellaneous Trees and Groves	6
Total Area under Survey	580.4

Agriculture, 2014-15	
Average Fertilizer Consumption (kg/ha)	54.5
Irrigation, Khaarif('000 ha)	146.9
Irrigation, Rabi ('000 ha)	111.3
Other Information	
Proportion of Villages Electrified (as on March 2014)	100.0
Credit Deposit Ratio (as on December 2015)	68.1
No.ofAanganwadi Centres, 2014-15	2185
No.of Job Card Issued (cumulative, March 2015)	301865
HH provided employment as % of demand, MGNREGS, cumulative 2014-15	81.9
Source: *District Statistical Hand Book, Keonjhar, 2015* Note: MGNREGS is Mahatma Gandhi National Rural Employment Guarantee Scheme	

As per 2011 Census, the schedule caste (SC) population is 11.6 per cent and schedule tribe (ST) population is 45.4 per cent, Table 2.1. There are 36 communities from among SCs and 25 communities from among STs in the district. Among the STs, 12 tribal communities consisting of Juangs, *Bhuyan*, *Bhatudi*, *Bhumij*, *Gond*, *Ho*, *Kisan*, *Kora*, *Munda*, *Oraon*, *Santala*, *Saunti*, and *Binjhal* (mentioned in a descending order as per their share in the tribal population of the district and each of them having more than 1000 persons in the district) constitute more than 98 per cent of the total tribal population of the district. The literacy rate of the district is 59.2 per cent as against 72.9 per cent of the state. The languages spoken by the people of this district are Odia, Telugu, Hindi, English, and different tribal languages.

The characteristics of soil in the district is as follows: 54 per cent is clay and sandy loams soil, 32 per cent red soil and 14 per cent black soil (*District Human Development Report: Keonjhar*, Planning and Coordination Department, Government of Odisha, 2012, p.8). Land under cultivation in the district may be classified as: (a) *Guda* lands (unbounded low fertile rainfed uplands), (b) *Nali* lands (medium lands with average fertility), (d) *Beda* lands (plain fertile land suitable for paddy cultivation), (e) *Taila* lands (lands in hill slopes occasionally used for slash and burn/shifting cultivation or *podu*, and (f) *badi* lands (adjacent to homesteads, generally used for growing kitchen gardens). From these, millets can be grown in Taila, Guda and Nali lands.

1.3 Objectives

The objectives of the baseline survey were 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 agricultural activities undertaken in the area under study
- To examine production and consumption pattern of millets
- To elucidate perception of respondents about millets to be reintroduced as a crop

1.4 Methodology

1.4.1 Universe

As per the list provided by the Programme Secretariat, all the HHs who were covered under OMM, formed the universe. Out of 1014 HHs covered under the programme, 240 HHs have been surveyed that include non-programme participants. From these, no HHs had cultivated millets in 2017-18, that is, in the year before the intervention under OMM. Out of total 240 HHs surveyed, 80 HHs (33.3 %) are from Champua block, 80 HHs (33.3 %) are from Hatadihi block, and 80 HHs (33.3 %) are from Joda block.

Table 1.2: Households Surveyed in Keonjhar

Block	Programme HHs		Surveyed HHs		HHs Cultivated Millets in 2019-20		HHs did not Cultivate Millets in 2019-20	
	No	%	No	%	No	%	No	%
Champua	317	31.3	80	33.3	54	31.8	26	37.1
Hatadihi	380	37.5	80	33.3	56	32.9	24	34.3
Joda	317	31.3	80	33.3	60	35.3	20	28.6
Total	1014	100.0	240	100.0	170	100.0	70	100.0

Source: Field Survey

Note: HHs denotes households

Data Collection

This baseline survey report is based on both secondary and primary data. The primary data was collected from the respondents in the concerned districts by using pre-tested interview schedule (Annexure 1) and focus group discussion (Annexure 2). The secondary data has been collected from different published and unpublished sources.

1.5 Limitations

Inclusion of non-programme participants in the sample is due to logistic constraints. As some of the information was based on memory, there could be some recall error. This is particularly so for actual income, expenditure, occupational status among others.

1.6 Chapterisation

The baseline survey has been divided into four chapters including the current introductory chapter, which provided district profile, objectives, methodology and limitations. Chapter II provides a desk review of literature of the agricultural activities in the district with special focus on status of millet cultivation in the studied blocks. Chapter III analyses the primary data and sketch a broad picture of the socio economic profile of the sample HH along with a summary of information regarding status of millet cultivation in the studied blocks extracted from engaging conversation with the community. Chapter IV summarizes the major findings.

2

STATUS OF AGRICULTURAL ACTIVITIES IN KEONJHAR DISTRICT: A DESK REVIEW OF LITERATURE

2.1 Introduction

Keonjhar is known for being a mining district, and a gradual shift of working force to mining work is noticed. However, agriculture remains the predominant occupation in the district and about three fourth of the working force is engaged in agricultural and allied activities. Thus, a need to strengthen the agricultural base in the district to accelerate rural development is essential.

2.2 Land Use Pattern:

Land is the most important factor for the development of the economy in general and agriculture in particular. The economic development and more particularly rural development of the district largely depend upon effective utilization of land resources. The significance of land availability lies in its income generating potential as well.

Table 2.1 projects land utilisation pattern in Keonjhar district. The total geographical area of the district spreads over 831000 hector in the year 2017. The surveyed three blocks occupy 18.41 per cent of the total geographical areas. Similarly barren uncultivable land is estimated to be 11.26 per cent at district level and in surveyed blocks it is 7.98 per cent. Forest land of the district remains 37.38 per cent of the total geographical areas where as 19.16 per cent is estimated at surveyed blocks level. Also, as per information provided in the table, total current fallow land of the district is 2.39 per cent and of surveyed blocks is 3.76 per cent. The other fallow land of the district shares 0.42 per cent and 0.66 per cent land in surveyed blocks; land put to non-agricultural use is estimated to be 9.22 per cent at district level and in surveyed blocks it is estimated to be occupying 6.35 per cent. Permanent pasture land of the district occupies 2.36 per cent and the surveyed blocks have 3.15 per cent. The cultural waste land of the district covers 3.19 per cent whereas the surveyed blocks have 4.96 per cent of land from total geographical area of the above said blocks.

The land utilisation data shows that a substantial portion of land is utilized for forest and non-agricultural uses, or is barren, grazing, or cultural waste land. Percentage of cultivable land is small in size (i.e. 33.03 per cent at district level and 40.74 per cent at

surveyed blocks level) and agriculture is rain fed in most part of the district, it has an adverse impact on the productivity and yield of the crops.

Table 2.1: Survey block Land utilisation pattern in during 2017

Block	District	Champua	Hatadihi	Joda	Total
Geographical Area	**831000**	56657	44488	51900	153045
Forest	**310672**	5862	8600	14872	29334
Misc. tree crops & grooves	**6000**	296	282	270	848
Permanent Pastures & other grazing land	**19631**	690	1301	2915	4825
Cultural waste land	**26522**	3089	2892	1612	7593
Land put to non-agricultural uses	**76688**	2724	1960	5043	9727
Barren uncultivable land	**93614**	806	249	11168	12223
Current fallow	**19880**	3007	1318	1439	5764
Other fallow	**3508**	531	233	254	1018
Net area sown	**274485**	20377	27653	14327	62357

*** Misc. tree crops & grooves not included in net area sown**

2.3 Cropping Pattern:

Cropping pattern has a significant role in influencing agricultural productivity leading to economic development in an agrarian society. Keeping the climatic condition and consumption pattern in perspective partly influenced by government schemes, Keonjhar has traditionally come to establish itself as a paddy growing district. Besides, other crops which are grown in the locality include wheat, maize, ragi, green gram, sugar cane, ground nut and mustard oil. However, productivity of these crops is quite low owing to various factors including climatic condition, soil fertility and lack of irrigation facility. It is estimated that per hectare productivity of paddy in the district is 21.4 quintals. Table 2.2 suggests that paddy is the main crop grown in the district as well as in the surveyed blocks. Paddy is cultivated in 53572 hector of land out of district's total land worth168219 hector.

The production of paddy in the district is 3516340 quintal while in the surveyed blocks production is 830260 quintal. District data regarding areas of cultivation and production of Maize and millets is 24341 hectare land and production is 456950 quintal whereas in surveyed blocks maize and millets were cultivated in 3679 hector land and production is 44660 quintals., pulses, vegetable, condiment and oilseeds are cultivated in 17007 ha land with a yield of 845910 quintal in surveyed blocks.

Table 2.2: Block and Crop wise Area Production of Keonjhar district for the Year 2017

Block		District	Champua	Hatadihi	Joda	Total
Paddy	Area (ha)	**168219**	14200	18995	3974	37169
	Production (qtl)	**3516340**	281190	412990	136080	830260
Pulses	Area (ha)	**27984**	1469	2269	2074	5812
	Production (qtl)	**141080**	12040	11780	8410	32230
Vegetable	Area (ha)	**36330**	1246	6333	730	8309
	Production (qtl)	**3390740**	112930	615900	67270	796100
Maize & Millets	Area (ha)	**24341**	1853	355	1471	3679
	Production (qtl)	**456950**	23860	4380	16420	44660
Oilseed	Area (ha)	**18608**	1155	52	969	2176
	Production (qtl)	**66240**	2910	130	2440	5480
Condiment	Area (ha)	**3908**	253	266	191	710
	Production (qtl)	**71030**	4210	4170	3720	12100

Source: District agriculture office, Keonjhar

2.4 Millets Cultivation in the District

Keonjhar district constitutes of predominantly tribal population, and millets is known to be traditionally a significant part of their daily diet. Millet cultivation has been practised from a primitive age in the district. However, modern government schemes and programmes and changed consumption pattern has adversely impacted millets cultivation in these areas, some pockets of the district witness millet cultivation.

Noticing decreasing cultivation and consumption of millets, which has come to be recognized as a potential nutri cereal, OMM attempts to revive millets in farms and on plates of the people of the district in collaboration with District Mineral Fund, However, a brief sketch of the status of millet production at the district level in general and at surveyed blocks level in particular may be drawn analysing the information provided in Table 2.3.

District level information obtained from agriculture department indicates that total areas of millet cultivation amounts to 139 hector with a yield of 623.5 quintal. Banspal, Harichandanpur, and Telkoi are the dominant blocks where millets are found cultivated. Ragi (finger millets), Jawar (Sorghum), Bajra (Pearl Millets) and Suan (Little Millets) are the types of millets cultivated in the region as per information. Sorghum is found to be cultivated maximum in the district among all millets amounting to 63 hectors with a yield of 290

quintal. This millet is found cultivated in Banspal (40 hector with a yield of 190 quintal) and Harichandarpur (18 hectors with a yield of 80 quintals) blocks. Little millets is cultivated in 52 hectors of land with a yield of 190 quintal across the district mostly in Banspal block. Ragi is found to be the next most cultivated millets in the district covering 19 hectors land with a yield of 123.5 quintal in Banspal and Harichandanpur blocks. Pearl Millets was found cultivated only in Anandpur block in 5 hectors of land with a yield of 20 quintals in the year 2017.

It may be noted that production of millet constitutes a miniscule percentage of total crop production in the district and information obtained from field (discussed in next chapter) suggests that most of millet production is done purely for household consumption.

Table 2.3: Block wise millets Production of Keonjhar for the Year 2017

Block			**District**	Champua	Hatadiha	Joda	**Total**
Area and Production of Millets	**Jowar**	**Area (ha)**	**63**	0	0	0	**0**
	(Soghum)	**Production (qtl)**	**290**	0	0	0	**0**
	Bajra	**Area (ha)**	**5**	0	0	0	**0**
	(Pearl Millets)	**Production (qtl)**	**20**	0	0	0	**0**
	Ragi	**Area (ha)**	**19**	7	0	0	**7**
	(Finger Millets)	**Production (qtl)**	**123.5**	50	0	0	**50**
	Suan (Little Millets)	**Area (ha)**	**52**	12	0	0	**12**
		Production (qtl)	**190**	40	0	0	**40**

Source: District agriculture office, Keonjhar

Conclusion:

This chapter discusses in broad details the land utilization of Keonjhar district, cropping patterns and millet cultivation status borrowing information from secondary sources. Information obtained from Agriculture Department, Keonjhar district indicate presence of millet cultivation in some pockets of the district, though in miniscule quantity in comparison with the main crop paddy. Millet, though traditionally a household diet is losing its previous status especially in the DMF blocks covered by OMM. Next chapter provides the socio economic profile of the surveyed blocks and factors contributing declining millet cultivation and consumption in the said areas on the basis of primary information obtained from the field.

3

SOCIO ECONOMIC PROFILE AND STATUS OF MILLET CULTIVATION OF THE SURVEYED HOUSEHOLDS

3.1 Introduction

Socio economic profile of HHs surveyed is discussed in this chapter along with status of millet cultivation in the said area. Socio economic profile includes social and demographic profile, poverty status, economic activities, and structure of house, 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.

Also, on the basis of inputs gathered from interaction and interview with respondents, the chapter provides present status of millet cultivation in the study area explaining factors responsible for absence of millet cultivation in the study area.

3.2 Social and Demographic Profile

Out of OMM intervention earmarked three blocks in Keonjhar district for second phase, OMM is presently implemented in three blocks, namely Champua, Hatadihi and Joda. It shows that total surveyed HHs were 238 out of which 134 HHs (56.30 %) are Social and Economic Backward Classes (SEBC), 95 HHs (39.91 %) are Scheduled Tribe (ST) and only 9 (3.78 %) are Scheduled Caste (SC) which is shown in Table 3.1. It was observed that these three blocks are both SEBC as well as tribal dominated area.

Table 3.1 : Distribution of Households by Social Groups across Blocks

Block	SC		ST		SEBC		Total	
	No	%	No	%	No	%	No	%
Champua	8	10.3	7	9.0	63	80.8	78	100.0
Hatadihi	1	1.3	63	78.8	16	20.0	80	100.0
Joda	0	0.0	25	31.3	55	68.8	80	100.0
Total	9	100.0	95	100.0	134	100.0	238	100.0

Source: Field Survey

Table 3.2 shows the total population from surveyed HHs which is 1669 in number. Data suggests that female population is higher than male population. From the total population from surveyed HHs, 629 were males whereas 1040 were females.

Table 3.2 : Distribution of Population by Gender across blocks						
Block	**Male**		**Female**		**Total**	
	No	**%**	**No**	**%**	**No**	**%**
Champua	180	39.3	278	60.7	458	100.0
Hatadihi	214	37.7	354	77.3	568	100.0
Joda	235	36.5	408	89.1	643	100.0
Total	**629**	**100.0**	**1040**	**100.0**	**1669**	**100.0**
Source: Field Survey						

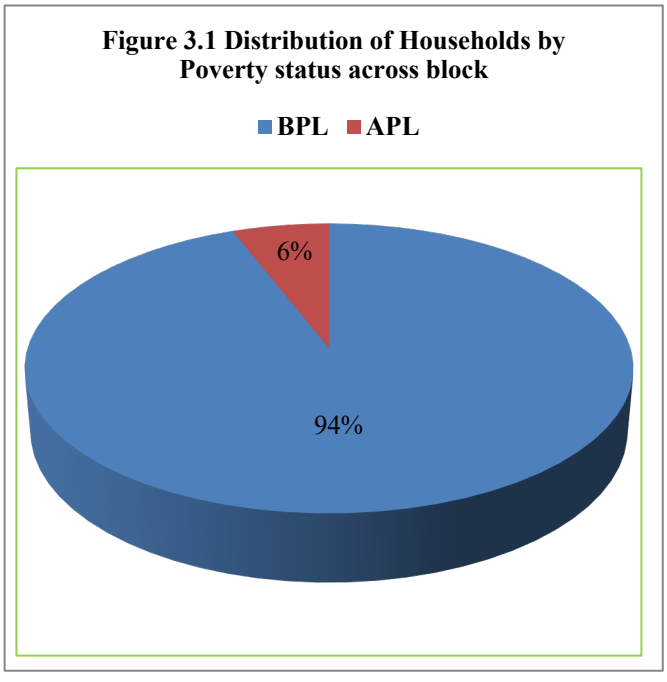
The religious status of surveyed HHs indicates that the majority of the population belonged to Hindu community (92.0%) and only 8.0 % population belonged to other religious group such as Sarana and Dharma (indigenous religious sects) (Table 3.3).

Table 3.3 : Distribution of households by Religion across blocks								
Blocks	**Christian**		**Hindu**		**Others**		**Total**	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
Champua	**0**	**0**	**78**	**100**	**0**	**0**	**78**	**100**
Hatadihi	**0**	**0**	**80**	**100**	**0**	**0**	**80**	**100**
Joda	**0**	**0**	**61**	**76.25**	**19**	**23.75**	**80**	**100**
Total	**0**	**0**	**219**	**92.0**	**19**	**8.0**	**238**	**100**

Source: Field Survey

3.3 Poverty Status

Fig 3.1 and Table 3.4 depict poverty status of farmers across the blocks. It clarifies that 93.6 per cent farmers from the Champua block, 98.8 per cent farmer from Hatadihi block, and 90.0 per cent farmers from Joda blocks comes under BPL category, whereas, 6.4 per cent farmer household from Champua block, 1.3 per cent farmers household from Hatadihi block and 10.0 per cent farmer household are belong to above poverty line (APL). Overall data show that across the blocks majority of the household (94.0 %) are coming under



below poverty line (BPL) category while only (6.0 %) are above poverty line (APL).

Table 3.4 : Distribution of Households by Poverty status across block						
Blocks	**BPL**		**APL**		**Total**	
	No	**%**	**No**	**%**	**No**	**%**
Champua	**73**	**93.6**	**5**	**6.4**	**78**	**100.0**
Hatadihi	**79**	**98.8**	**1**	**1.3**	**80**	**100.0**
Joda	**72**	**90.0**	**8**	**10.0**	**80**	**100.0**
Total	**224**	**94.1**	**14**	**5.9**	**238**	**100.0**

Source: Field Survey

3.4 Economic Activities

Table 3.5 provides a detailed picture of the economic activities undertaken by HHs in the studied blocks. Agriculture remains the main economic activities in the district with 98.3 per cent HHs engaged in the above said activity. However, HHs engaged in other economic activities include forest (22.7%), agricultural labour (31.9%), salaried class (26.9%), pension (12.2%), remittance (0.4%), livestock (10.5%), and (51.7%) per cent not engaged in others economic activities. there may be slight variation observed from block to block. It may be clarified further that these economic activities may be overlapping with each other as most of the farmers engage themselves in other economic activities during lean period to assist livelihood requirements.

Table 3.5 : Distribution of Households by Economic Activities across blocks								
Economic Activities	**Champua**		**Hatadihi**		**Joda**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No**	**%**
Agriculture	**78**	100.0	**76**	95.0	**80**	100.0	**234**	98.3
Forest	**0**	0.0	**54**	67.5	**0**	0.0	**54**	22.7
Ag. Labour	**5**	6.4	**69**	86.3	**2**	2.5	**76**	31.9
Salary	**7**	9.0	**21**	26.3	**36**	45.0	**64**	26.9
Pension	**4**	5.1	**14**	17.5	**11**	13.8	**29**	12.2
Remittance	**0**	0.0	**0**	0.0	**1**	1.3	**1**	0.4
Livestock	**1**	1.3	**0**	0.0	**24**	30.0	**25**	10.5
Others	**24**	30.8	**75**	93.8	**24**	30.0	**123**	51.7
Grand Total	**78**	32.8	**80**	33.6	**80**	33.6	**238**	100.0

Source: Field Survey

3.5 Structure of House

Dwelling characteristic of a HH speaks a great deal about their socio economic status. Table -3.6 and Fig 3.2 provides information regarding the structure of house of the HHs

surveyed under base line study. Data suggests that in Hatadihi block majority of the HHs (98.8%) reside in Kutcha house followed by Joda (46.3%) and Champua (29.5%). whereas majority of HHs across the block (58%) dwells in kuchha houses, 34 per cent reside in semi-pucca houses and 8 per cent reside in pucca houses in slightly better living condition.

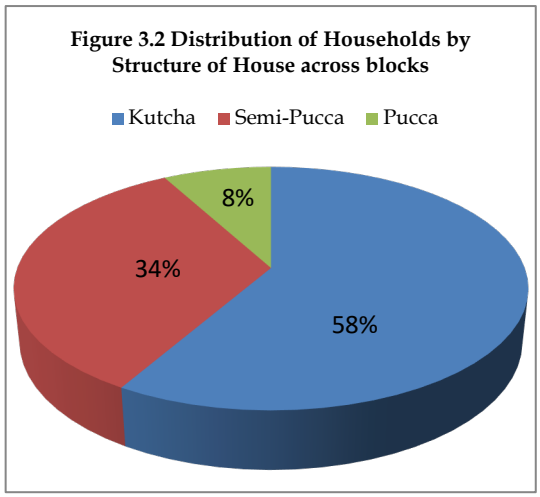


Table 3.6 : Distribution of Households by Structure of House across blocks

Blocks	Pucca		Kutcha		Semi-Pucca		Total	
	No	%	No	%	No	%	No	%
Champua	10	12.8	23	29.5	45	57.7	78	100.0
Hatadihi	0	0.0	79	98.8	1	1.3	80	100.0
Joda	9	11.3	37	46.3	34	42.5	80	100.0
Total	**19**	**8.0**	**139**	**58.4**	**80**	**33.6**	**238**	**100.0**

Source: Field Survey

3.6 Occupational Status:

Table 3.7 provides a detailed view of the occupational status of all household members covered under the study. Though most of the respondents are found engaged in agricultural activities, percentage share also includes children, women involved in household chores and unemployed members of the family that include all 1149 individuals. Specifically speaking, 18.0 per cent individuals are engaged in agricultural activities, 7.4 per cent work as agricultural or other labourers, 0.3 per cent run small business enterprises, 0.6 per cent are engaged in government services, 4.2 per cent are service providers, 1.7 per cent are migrants, 28.5 per cent are school going children, 20.7 per cent are housewives, 3.7 per cent are engaged in other activities and 15 per cent are elderly people or are not doing any kind of activities involving income.

Table 3.7 : Distribution of members of Households by occupational status across blocks								
Occupation	**Champua**		**Hatadihi**		**Joda**		**Total**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Unemployed	30	9.4	55	14.1	87	19.8	**172**	15.0
Agriculture	76	23.8	65	16.6	66	15.0	**207**	18.0
Daily Labour/Wage Labour	12	3.8	62	15.9	11	2.5	**85**	7.4
Business	2	0.6	1	0.3	0	0.0	**3**	0.3
Govt. service	1	0.3	3	0.8	3	0.7	**7**	0.6
service provider	7	2.2	3	0.8	38	8.7	**48**	4.2
Migrants	0	0.0	19	4.9	0	0.0	**19**	1.7
Student	102	32.0	109	27.9	117	26.7	**328**	28.5
Housewife	77	24.1	61	15.6	100	22.8	**238**	20.7
Other	12	3.8	13	3.3	17	3.9	**42**	3.7
Grand Total	319	27.8	391	34.0	439	38.2	**1149**	100.0

Source: Field Survey

3.7 Income Status:

Income of HHs for different blocks are shown in Fig-3.3. Average Income of HHs of Champua block is 31 per cent whereas Hatadihi and Joda blocks shares 32 per cent and 37 per cent respectively. Table 3.8 shows the distribution of source of HH's income in three blocks.

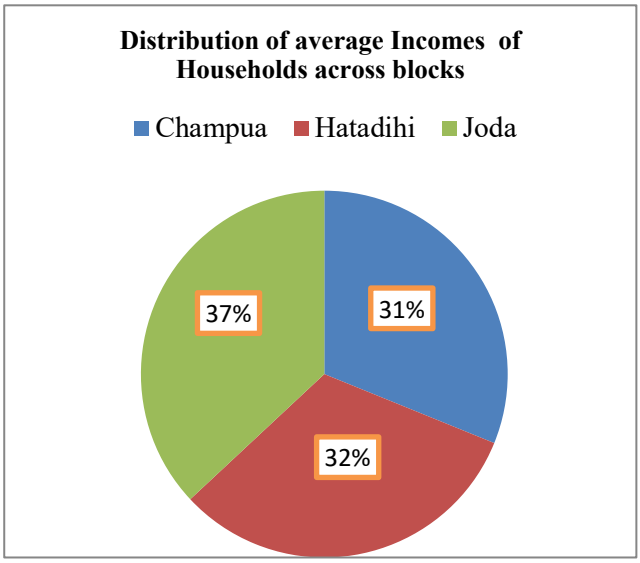


Table 3.8 : Distribution of average Incomes of Households across blocks								
Economic Activities	**Champua**		**Hatadihi**		**Joda**		**Total**	
	Income	%	Income	%	Income	%	Income	%
Agriculture	65833	64.7	15795	15.1	39324	33	40103	36.8
Forest	0	0.0	8888	8.5	0	0	2987	2.7
Ag. Labour	679	0.7	7025	6.7	125	0	2626	2.4
Salary	20846	20.5	35625	34.2	65645	54	40872	37.5
Pension	385	0.4	1050	1.0	868	1	771	0.7
Remittance	0	0.0	0	0.0	150	0	50	0.0
Livestock	187	0.2	0	0.0	3675	3	1307	1.2
Others	13818	13.6	35888	34.4	10975	9	20347	18.7
Total	**101749**	**100.0**	**104270**	**100.0**	**120761**	**100**	**109064**	**100.0**

3.8 Expenditure Status

Information obtained from field indicates that most of the HHs lead a subsistent living with major portion of their income spent on food and agriculture. Table 3.9 reveals that 27.8 per cent of the income is spent on food items while 21.5 per cent of the income spent on agriculture, followed by 14.8 per cent on clothes, 15.1 per cent on education, 4.9 per cent on health care, 11.9 per cent on social events including marriage, and spend 4.0 per cent on durable assets.

Table 3.9 : Distribution of Expenditure of Households across blocks

Items	Champua		Hatadihi		Joda		Total	
	Exp	%	Exp	%	Exp	%	Exp	%
Food	23064	25.7	8250	27.2	21038	31	17403	27.8
Clothes	10654	11.9	7875	25.9	9413	14	9303	14.8
Education	11982	13.4	3893	12.8	12663	18	9492	15.1
Medicine	4224	4.7	1338	4.4	3658	5	3061	4.9
Social function	5782	6.5	100	0.3	4833	7	3553	5.7
Marriage	11795	13.2	0	0.0	0	0	3866	6.2
Agriculture	18686	20.9	8850	29.1	13100	19	13502	21.5
Construction	0	0.0	0	0.0	0	0	0	0.0
Durable assets	3400	3.8	63	0.2	4013	6	2484	4.0
Others	0	0.0	0	0.0	0	0	0	0.0
Total	**89587**	**100.0**	**30368**	**100.0**	**68716**	**100**	**62663**	**100.0**

Source: Field Survey

3.9 Conclusion

The above information attempts to furnish socio economic profile of the respondents covered under Base Line Study. However, it may be noted at the outset that the areas under study does not provide any evidence of millet cultivation or consumption, though secondary data provides sporadic statistical evidence of millet cultivation in those blocks. It may be clarified that the areas under study are mining affected areas earmarked by DMF where most of the farmers are small land holder farmers and produce crops for their own consumption. They mostly grow paddy, which is their main diet, in their farmland during kharrif season. Millet, though traditionally grown in the area, is a forgotten crop now. OMM intervention may face the challenge of reintroducing the crop to the farmers as well as the consumers in the areas. Engaging conversation with respondents in the sample area provide following information regarding millet cultivation and consumption, which may be used as reference points for OMM to design intervention process for this particular district.

4

BASELINE INFORMATION ON STATUS OF MILLET CROP IN THE DISTRICT: FIELD INSIGHT

4.1 Introduction

Information obtained from engaging interaction with villagers agrees that rice is the main diet consumed two/three times a day along with vegetables or dal. Instances of millet production, though scarce, are evident in neighbouring villages. However, it does not impact the consumption pattern of the respondents as the former produce it for their HH consumption and it is generally not marketed. Following are some of the anecdotes received from the community collected through FGDs conducted by the researchers.

4.2 ***Kudapi village, Champua Block:*** Some respondents recalled that millets in forms of mandia (finger millets), Jowar (Sorghum), Gurji/Suan (little millets) and Kangu (pearl millets) were cultivated by the community along with short duration paddy and variety of pulses in upland few decades ago. People gradually moved from agricultural activities to non-agricultural works as later provided assured income impacting pattern of agricultural activities to an extent. Thirdly, new generation's exposure to modern life style influenced their consumption pattern and they moved away from millet consumption as poor men's diet.

4.3 ***K.Balipala village Hatadihi Block:*** New generation did not recall any association with millets from their production and consumption experience. Some respondents from older generation did acknowledge existence of millet in their agricultural landscape in the past. However, they also recalled that processing of millets was a tedious affair. Now, with modern method of paddy processing, it is unlikely villagers would adopt millet cultivation without proper processing facilities. They also recalled that millet was cultivated in forest land for HH consumption and there was no proper marketing strategy to increase outreach other than village markets where some farmers would sell it occasionally. In the new era of government procuring paddy in appropriate price, it is unlikely people will revert back to traditional method of millet production without any scope for marketing. Additionally government schemes and programmes supported paddy cultivation and easy availability of rice through PDS looks after their daily diet, thus, the need to have another crop during lean period is no more felt. It may be noted that millets was cultivated mostly to fulfil food requirement during lean period in the past.

4.4 ***Jamunapasi village, Joda Block:*** There is a major shift of livelihood pattern from agriculture to mining work. Though, they used to cultivate millets in forest lands (agricultural activities majorly depended on forest land), now the shift to mining work with assured income return has brought about major changes in their consumption pattern and younger generation do not consume millet any more.

However, it may also be highlighted that some farmers showed willingness to revert back to millet cultivation if appropriate handholding support is provided from the government including supply of quality seeds, subsidies in pesticides and manures and modern processing facilities. There is awareness in some quarters about the health benefit of millets in some quarters as they mentioned it is effective in curing weakness, dehydration, diabetes, kidney problems.

4.6 **Conclusion:** This chapter provides a detailed picture of the socio economic profile of the respondents. It also attempts to justify the factors contributing to near extinction of millet cultivation in the studied area and the change in consumption pattern impacting the same drawing insight from engaging conversation with the community. Next chapter summarizes the major findings of the study.

5
MAJOR FINDINGS

5.1 A substantial portion of land in Keonjhar district is utilized for forest and non-agricultural uses, or is barren, grazing, or cultural waste land. Percentage of cultivable land is small in size (i.e. 33.03 per cent at district level and 40.74 per cent at surveyed blocks level) and agriculture is rain fed in most part of the district, it has an adverse impact on the productivity and yield of the crops.

5.2 Keonjhar has traditionally come to establish itself as a paddy growing district. Besides, other crops which are grown in the locality include wheat, maize, ragi, green gram, sugar cane, ground nut and mustard oil. However, productivity of these crops is quite low owing to various factors including climatic condition, soil fertility, lack of irrigation facility. It is estimated that per hectare productivity of paddy in the district is 21.4 quintals. Paddy is cultivated in 53572 hector of land out of district's total land worth 168219 hector.

5.3 Production of millet constitutes a miniscule percentage of total crop production in the district and most of millet production is done purely for household consumption. Total areas of millet cultivation amounts to 139 hector with a yield of 623.5 quintal. Banspal, Harichandanpur, and Telkoi are the dominant blocks where millets are found cultivated. Ragi (finger millets), Jawar (Sorghum), Bajra (Pearl Millets) and Suan (Little Millets) are the types of millets cultivated in the region as per information. Sorghum is found to be cultivated maximum in the district among all millets amounting to 63 hectors with a yield of 290 quintal. This millet is found cultivated in Banspal (40 hector with a yield of 190 quintal) and Harichandarpur (18 hectors with a yield of 80 quintals) blocks. Little millets is cultivated in 52 hectors of land with a yield of 190 quintal across the district mostly in Banspal block. Ragi is found to be the next most cultivated millets in the district covering 19 hectors land with a yield of 123.5 quintal in Banspal and Harichandanpur blocks. Pearl Millets was found cultivated only in Anandpur block (not covered under study) in 5 hectors of land with a yield of 20 quintals in the year 2017.

5.4 Farmers recall millet production in forest land a generation back in forms of mandia, jawar and suan/gurji in order to meet the food requirement during lean period. However, it has almost stopped since ten/fifteen years because of following reasons including i) constant animal attacks and imposition of new forest Act (Forest Rights Act 2005) restricting utilization of forest land for agricultural purpose; ii) government incentive for paddy

cultivation and PDS introducing rice in accessible price that looks after the food requirement at HH level.

5.5 Facilitating agencies working for millet promotion admits to the following challenges faced while motivating farmers to introduce millet in their farmland. i) farmers' inhibition to adapt to a new crop; ii) convincing farmers to cultivate millet sin agricultural land as they presume it as an upland crop; iii) processing millets is a tedious affair.

5.6 Farmers agree to cultivate millets in their farmland if government provides handholding support in terms of finance and other technical inputs. They also expect advanced processing unit to process millet citing traditional manual method of processing millets to be tedious. Marketing facilities for millets need to be available as previously millet was produced purely for HH consumption.

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)_____

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 Activities (Use Code)
							Main	Subsidiary	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 (LT)		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				**20: Income pattern**		
Sl.No	Sources	Annual Expenditure (In Rs)		Sl.No	Sources	Annual Income (In Rs.)
1	Food			1	Food	
2	Clothes			2	Millets	
3	Education			3	Horticulture	
4	Medicine			4	Forest	
5	Social Function			5	Ag.Labour	
6	Marriage &			6	Salary	

19: Expenditure pattern				20: Income pattern		
Sl.No	Sources	Annual Expenditure (In Rs)		Sl.No	Sources	Annual Income (In Rs.)
	Ceremony					
7	Agriculture			7	Pension	
8	Construction			8	Remittance	
9	Durable Assets			9	Livestock	
10	Others (Specify)			10	Others (Specify)	

Remarks:

Signature of the investigator