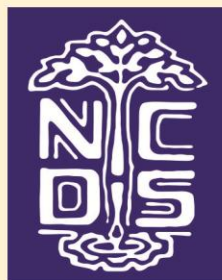


BASELINE SURVEY

STATE REPORT 2016-17, PHASE 1

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



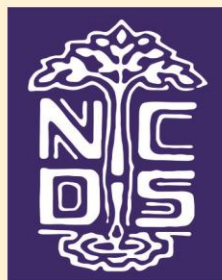
Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, Odisha
(An ICSSR Institute in Collaboration with Government of Odisha)

2019

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Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, 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) with the then Development Commissioner-cum-Additional Chief Secretary (DC-cum-ACS), Government of Odisha and the then Chairperson, NCDS, Mr. R. Balakrishnan (currently Chief Advisor, Government of Odisha) in the Chair. 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.

It was in 2017-18 that budget was apportioned and after the selection of facilitating agencies, the programme was implemented in *kharif* 2017 in 27 of the 30 blocks that were selected to be part of OMM. To help us better assess OMM, the baseline scenario of 2016-17, that is, prior to intervention in *kharif* 2017 is important.

After obtaining a list of farmers that were growing millets, as part of the programme in *kharif* 2017, a survey design was firmed up, and a baseline survey was conducted among 7000+ households during October/November of 2017. The

information collected from these households in 27 blocks spread across seven districts are being put up as baseline reports.

The current baseline report is an aggregate state-level report of the first phase intervention in 27 blocks of seven districts. As the Principal Investigator, I compliment all the members of the study team for taking up this arduous work and in bringing the results into completion.

The preliminary results from the baseline survey and the outcome from *kharif* 2017 have been encouraging. Production, yield and returns from millets have more than doubled in areas under OMM. It is this and a demand from the communities that led the government to increase the scope of OMM from 30 blocks in 2017-18 to 55 blocks (an addition of 25 blocks in the second phase) in 2018-19 and will have 72 blocks (a further addition of another 17 blocks in the third phase) in 2019-20. It is for this that the seven district-specific baseline survey reports and two aggregate state-level report (one on value of produce and the current one) are being referred to as first phase baseline survey reports.

Concurrently, the scope of OMM has also led to convergence with other departments. Some of these being the involvement of women self-help groups (SHGs) in putting up a stall of *Mandia Café* at the Hockey World Cup 2018 and in many other exhibitions and *melas* subsequently, the procurement of *ragi* (finger millets) in *kharif* 2018 and 2019, the plans to pilot millet meals and provide millet *ladoos* in *Aanganwadis* in 2019-20. There has been interest in OMM from the central as also other state governments. OMM has also raised curiosity among scholars within the country as also abroad. And, so they say, the proof of OMM is in its reverberation.

Srijit Mishra
Director, NCDS

ACKNOWLEDGEMENTS

Preparation of this report required concerted efforts of a number of individuals and institutions. First and foremost, we would like to express our sincere gratitude to farmers, farmers' representatives/associations, senior officers from the state Government, particularly to Mr. R. Balakrishnan, Indian Administrative Service (IAS, superannuated), currently Chief Advisor, Government of Odisha and former Development Commissioner-cum-Additional Chief Secretary (DC-cum-ACS) and former Chairman, Nabakrushna Choudhury Centre for Development Studies (NCDS); Mr. Asit Kumar Tripathy, IAS, Chief Secretary and former DC-cum-ACS, Government of Odisha and former Chairman, NCDS; Mr Suresh Chandra Mahapatra, IAS, DC-cum-ACS, Government of Odisha and Chairman, NCDS; Mr. Manoj Ahuja, IAS, former Principal Secretary, Department of Agriculture and Farmers' Empowerment (DAFE); Dr. Saurabh Garg, IAS, Principal Secretary, DAFE; Mr. Bhaskar Jyoti Sarma, IAS, Special Secretary, DAFE; Mr. Hari Ballav Mishra, IAS, former Director, Directorate of Agriculture and Food Production (DAFP); Dr. M. Muthukumar, IAS, Director, DAFP; Mr. Kashinath Khuntia, former Joint Director Agriculture (JDA), Millets & Integrated Farming, DAFP; Dr. Ananda Chandra Sasmal, Agronomist, DAFE; Mr. Ansuman Pattnayak, In-Charge JDA, Millets & Integrated Farming and Assistant Agriculture Officer (AAO), Farm, Millets, DAFP; and Mr. Sanjay Kumar Pani, AAO, DAFP.

We express our gratitude to our other colleagues at NCDS, particularly, Ms. Sumati Jani (Odisha Finance Service, OFS), Secretary, Mr. Srikanta Rath, former Administrative Officer, 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, Jr. Stenographer and Mr. P. K. Mallia, Computer Literate Typist; 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, former State Coordinator, Programme Secretariat; Mrs. Aashima Choudhury, State Coordinator; Mr. Ramani Ranjan Nayak, former Regional Coordinator; and all District Coordinators, 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 field investigators (Annexure A1), state/district officials (Annexure A2), Programme secretariat personnel (Annexure A3) and members of the Facilitating Agencies (FAs) and Community Based Organizations (CBOs)(Annexure A4) working in the phase 1 districts, who have supported a lot during data collection.

We thank Mr. Sarat Kumar Khandai who has helped in data entry work. We also thank Mr. Manoranjan Mishra, Ms. Rajadarshini Patra and Mr. Lokanath Sahoo, who worked in the project as Research Assistants. We would like to sincerely thank all farmer households, without their cooperation, collection of data would not have been possible. Our sincere thanks to all of them.

NCDS Study Team

EXECUTIVE SUMMARY

§1 Study Area

§1.1 This is an aggregate state-level baseline report of the first phase intervention of the "Special Programme for Promotion of Millets in Tribal Areas of Odisha (hereafter, Odisha Millets Mission, OMM)." The implementation started in *kharif* 2017 in 27 blocks across seven districts, namely, Gajapati, Kalahandi, Kandhamal, Koraput, Malkangiri, Nuapada and Rayagada.

§1.2 The baseline survey covered 7641 households (HHs) who had cultivated millets or were enrolled to cultivate millets in *kharif* 2017 under OMM: 1364 HHs from Gajapati, 499 HHs from Kalahandi, 628 HHs from Kandhamal, 2733 HHs from Koraput, 1076 HHs from Malkangiri, 799 HHs from Nuapada and 542 HHs from Rayagada. From these, 600 HHs reported that they did not cultivate millets in 2016-17, the period covered under baseline survey, which is the year preceding the intervention under OMM.

§2 Socio-Economic Profile

§2.1 From the surveyed HHs, 6366 HHs (83.3%) belong to Scheduled Tribes (STs), 480 HHs (6.3%) belong to Scheduled Castes (SCs), and 780 HHs (10.2%) belong to Other Social Groups (OSGs).

§2.2 The distribution of HHs surveyed by religion is as follows: Hindu (86.1%), Christian (13.8%) and Muslim (0.1%).

§2.3 From the seven districts, sex ratio, as per 2011 census, is the highest in Rayagada (1051) and the lowest in Kalahandi (1003). In these districts, the sex-ratio is favourable to women.

§2.4 From the HHs surveyed, 86.1% live below poverty line (BPL), that is, those with antodaya and priority cards.

§2.5 From the HHs surveyed, distribution across activities (which are not mutually exclusive) are as follows: cultivation (92.9%), allied (17.2%) non-timber forest products collection (12.7%), business (2.1%), services (1.1%) and other activities (10.2%).

§2.6 From the HHs surveyed, the distribution of housing type is as follows: kutcha (51.3%), semi-pucca (29.6%), and pucca (19.1%). The percentage of kutcha

houses is the highest in Nuapada (98.4%) and the percentage of pucca houses is the highest in Kandhamal (44.7%).

§3 Production

§3.1 In 2016-17, that is, before intervention under OMM, five types of millets, namely, *mandia*, *suan*, *janha*, *kangu* and *kodo* were cultivated by the HHs surveyed.

§3.2 The district-wise per hectare yield (quintal per hectare, qtl/ha) for all millets is as follows: Koraput 8.1 qtl/ha, Gajapati 4.9 qtl/ha, Malkangiri 4.7 qtl/ha, Kalahandi 3.8 qtl/ha, Rayagada 3.8 qtl/ha, Nuapada 2.9 qtl/ha and Kandhamal 2.2 qtl/ha.

§3.3 District-wise per hectare yield of *mandia* is as follows: Koraput 8.3 qtl/ha, Gajapati 5.0 qtl/ha, Malkangiri 4.7 qtl/ha, Kalahandi 3.9 qtl/ha, Rayagad 3.8 qtl/ha, Nuapada 2.9 qtl/ha and Kandhamal 2.2 t/ha.

§3.4 District-wise per hectare yield of *suan* is as follows: Koraput 6.6 qtl/ha, Kandhamal 4.2 qtl/ha, Kalahandi 3.0 qtl/ha, Malkangiri 2.5 qtl/ha and Gajapati 1.2 qtl/ha.

§3.5 District-wise per hectare yield of *janha* is as follows: Gajapati 5.4 qtl/ha, , Rayagada 5.2 qtl/ha, and Kandhamal 2.2 qtl/ha.

§3.6 District wise per hectare yield of *kangu* is as follows: Rayagada 1.5 qtl/ha, Kandhamal 1.2 qtl/ha and Gajapati 0.9 qtl/ha.

§3.7 District wise per hectare yield of *kodo* is as follows: Nuapada 2.3 qtl/ha and Kalahandi 1.1 qtl/ha.

§3.8 The perception of seed quality is as follows: tthe quality of seed being good was the highest in Kalahandi (82.8%), the quality of seed being average was the highest in Gajapati (76.5%), and the quality of seed being bad was the highest in Malkangiri (2.4%).

§4 Method of Agronomic Practices

§4.1 Method-wise per hectare yield from 7041 HHs that cultivated millets (*mandia*, *suan*, *janna*, *kangu* and/or *kodo*) in 2016-17 is as follows: broadcasting (4.3 qtl/ha, 2942 HHs), line sowing (6.4 qtl/ha, 1425 HHs), transplantating (7.1 qtl/ha, 1465 HHs) and System of Millet Intensification or SMI (8.7 qtl/ha, 433 HHs). There are 776 HHs that have used more than one method (but without information on break-up of area under each method, we refer to this as 1+ methods) that reported an average yield of 7.7 qtl/ha.

§4.2 Method-wise per hectre yield from 6966 HHs that cultivated *mandia* in 2016-17 is as follows: broadcasting (4.1 qtl/ha, 2925 HHs), line sowing (6.5 qtl/ha, 1425 HHs), transplantating (7.1 qtl/ha, 1463 HHs), SMI (9.0 qtl/ha, 433 HHs) and 1+ methods (8.9 qtl/ha, 720 HHs).

§4.3 Method-wise per hectre yield from 436 HHs that cultivated *suan* in 2016-17 is as follows: broadcasting (6.4 qtl/ha, 288 HHs), line sowing (4.8 qtl/ha, 42 HHs), transplantating (1.0 qtl/ha, 11 HHs), SMI (6.2 qtl/ha, 52 HHs) and 1+ methods (2.9 qtl/ha, 43 HHs).

§4.4 Method-wise per hectre yield from 170 HHs that cultivated *janha* in 2016-17 is as follows: broadcasting (2.4 qtl/ha, 63 HHs), line sowing (2.7 qtl/ha, 19 HHs), transplantating (4.2 qtl/ha, 8 HHs), SMI (0.5 qtl/ha, 2 HHs) and 1+ methods (5.9 qtl/ha, 78 HHs).

§4.5 Method-wise per hectre yield from 80 HHs that cultivated *kangu* in 2016-17 is as follows: broadcasting (1.1 qtl/ha, 54 HHs), line sowing (0.5 qtl/ha, 3 HH), transplanting (1.0 qtl/ha, 9 HHs) and 1+ methods (1.0 qtl/ha, 14 HHs).

§4.6 Method-wise per hectre yield from 67 HHs that cultivated *kodo* in 2016-17 is as follows: broadcasting (2.2 qtl/ha, 35 HHs), line sowing (2.6 qtl/ha, 18 HHs), transplantating (2.5 qtl/ha, 2 HHs), SMI (2.5 qtl/ha, 2 HHs) and 1+ methods (1.2 qtl/ha, 10 HHs).

§5 Consumption

§5.1 Consummption of millets across seasons is as follows: summer (95.1%, ranging from 87.0% in Kalahandi to 99.8% in Kandhamal), monsoon (57.6%, ranging from 8.9% in Nuapada to 80.9% in Koraput), and winter (58.8%, ranging from 13.8% in Nuapada to 90.7% in Koraput).

§5.2 The meal time at which millets were consumed is as follows: breakfast (80.6%), lunch (93.4%), evening snacks (36.3%) and dinner (39.6%).

§5.3 The millet recipies consumed were as follows: *jau* (porridge) - 83.6%, *roti* (bread) or *pitha* (pancake) - 50.3%, *tampo* (a gruel recipe) - 28.9%, *torani* (fermented ragi)-48.6% and *handia* (millet-based beer) - 3.5%. The FGDs also pointed to emergence of new rceipes in the form of *pakudi* or mixture with *mandia* as base, bakery proucts, and rice-based items (biryani or pulao with *suan*, *kangu*, or *kodo*) among others.

§6 Processing & Marketing

- §6.1** The distribution of surveyed HHs by method of processing (for dehusking and grinding) is as follows: manually (52.1%, 3982 HHs), machines (32.4%, 2472 HHs), both manually and machines (13.0%, 997 HHs), not spelt out any method of processing (0.3%, 25 HHs).
- §6.2** The district-wise proportion of HHs who processed using only machines are as follows: Gajapati (37.8%), Kalahandi (8.8%), Kandhamal (35.0%), Koraput (42.7%), Malkangiri (26.9%), Nuapada (6.7%) and Rayagada (44.3%).
- §6.3** From the 3469 HHs who processed millets in machines the distribution by ownership of machine is as follows: own machine (2.5%), other's pulveriser or machine (97.5%).
- §6.4** From the 3382 HHs who travel to process millets the distribution by distance to travel is as follows: within 10 kilometer (58.4%), 11-20 kilometer (28.6%), more than 20 kilometer (13.3%).
- §6.5** From 5143 HHs who reported selling millets during 2016-17 the distribution of where millets were sold is as follows: local traders (42.9%), weekly *haat* (35.1%), money lenders against loans taken before harvest (17.7%), mill owners (9.5%), middlemen (7.1%) and others (0.1%). FGDs pointed to interlocking across credit and output markets such that the local trader and moneylender may be the same person. At times this interlocking may happen in transaction with the mill owner and the middleman.

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ABBREVIATIONS

AAO	Assistant Agriculture Officer
ACS	Additional Chief Secretary
ASHA	Alliance for Sustainable and Holistic Agriculture
ATMA	Agricultural Technology Management Agency
DAFE	Department of Agriculture and Farmers' Empowerment
DAFP	Directorate of Agriculture and Food Production
DC	Development Commissioner
DDA	Deputy Director Agriculture
FGD	Focused Group Discussion
HH	Household
ha	Hectare
IAS	Indian Administrative Service
JDA	Joint Director Agriculture
kg	Kilogram
km	Kilometre
MoU	Memorandum of Understanding
MINI	Millets Network of India
NCDS	Nabakrushna Choudhury Centre for Development Studies
OFS	Odisha Finance Service
OMM	Odisha Millets Mission
PD	Project Director
qtl	Quintal
RRA	Revitalizing Rainfed Agriculture
SC	Scheduled Caste
SHG	Self-help Group
ST	Scheduled Tribe
SVA	Sahabhagi Vikash Abhiyan
WASSAN	Watershed Support Services and Activities Network

1 INTRODUCTION

1.1 Background

The "Special Programme for Promotion of Millets in Tribal Areas of Odisha (hereafter, Odisha Millets Mission, OMM)" was initiated in 2017-18 in 30 blocks of seven districts, namely, Gajapati, Kalahandi, Kandhamal, Koraput, Malkangiri, Nuapada and Rayagada.¹ The guiding spirit behind the programme was millets capacity to address climate crisis and malnutrition.² This is so because millet crops, in comparison to other cereals like paddy and wheat, are resilient to biotic and abiotic stress and are nutritionally superior.³ In recognition of this, millets, the small-seeded grains, are now considered as nutri-cereals.⁴ Some of the millets cultivated in Odisha at the time of implementing OMM are *mandia/ragi* (finger millet), *suan/gurji* (little millet), *janna/jowar* (sorghum), *kangu* (foxtail millet) and *kodo* (kodo millet).

OMM has a novel organisational architecture with joint partnership of the Government of Odisha in collaboration with related line departments at state and district levels, the State Secretariat comprising programme and research secretariats, and non-governmental organisations as facilitating agencies at 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 the above mentioned verticals before implementation of the programme. Before elucidating the details from the baseline survey, we now provide some information on the profile of the seven districts.

¹ Guidelines for implementation of "Special Programme for Promotion of Millets in Tribal Areas of Odisha," National Food Security Mission Cell, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar, Letter No 40856, 25 November 2016.

² Consultation meeting on "Comprehensive Revival of Millets: Securing Nutrition and Surviving Droughts in Southern Odisha" was held on 27 January 2016 at Nabakrushna Choudhury Centre for Development Studies (NCDS) vide Planning and Coordination Department, Government of Odisha, No 635(8)/DCACS, 14 January 2016.

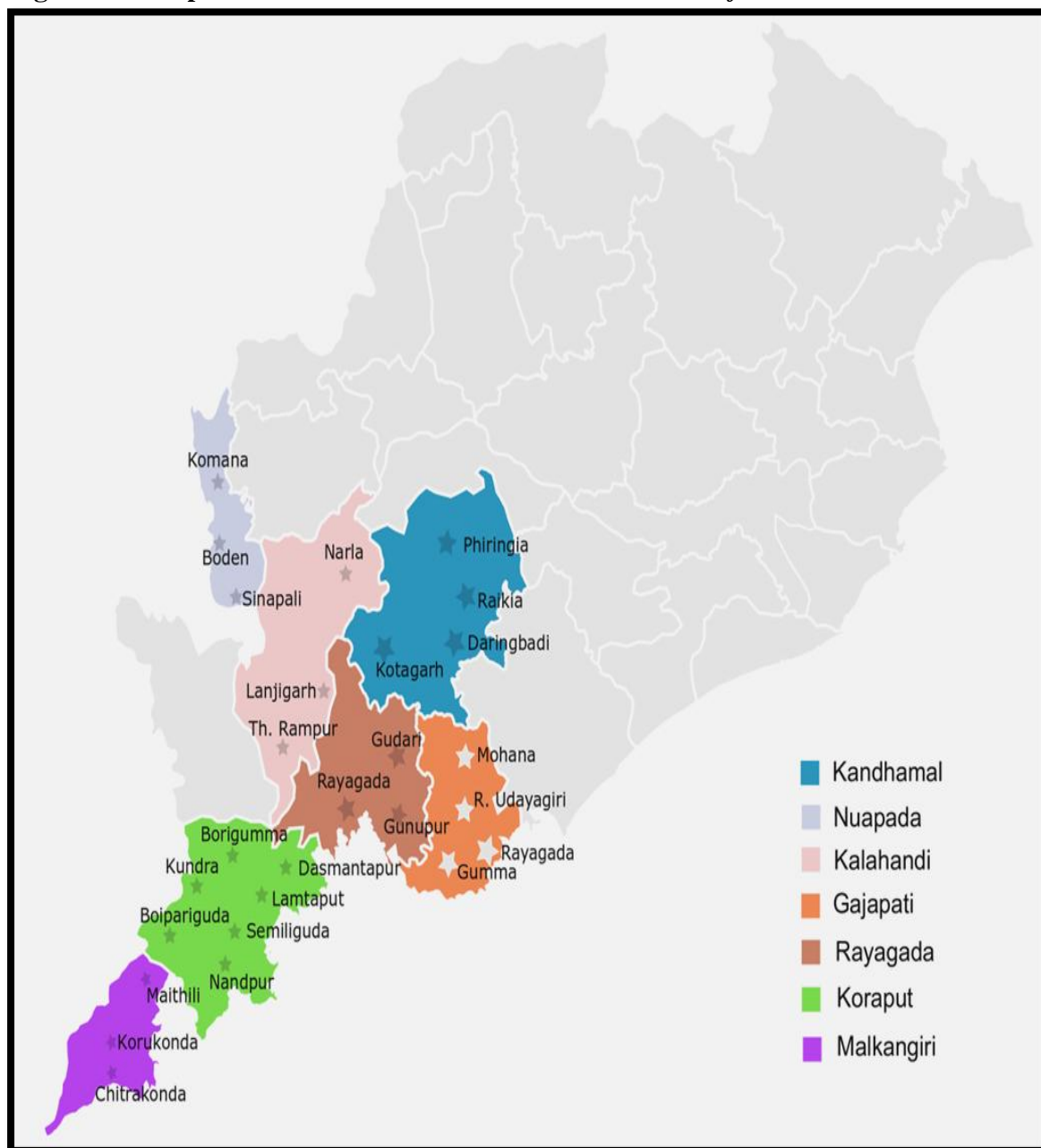
³ T Bandyopadhyay, M Muthamilarasan, M Prasad, "Millets for Next Generation Climate-smart Agriculture," *Frontiers in Plant Science*, 8:1266, 18 July 2017, DOI: 10.3389/fpls.2017.01266.

⁴ Notification declaring millets as nutri-cereals, Ministry of Agriculture and Farmers Welfare, *The Gazette of India: Extraordinary*, Part 1, Section 1, No.133, 13 April 2018.

1.2 District Profile

From the 30 blocks envisaged in the guidelines (see footnote 1), the programme was implemented in *kharif* 2017 in 27 blocks spread across seven districts.⁵ These programme areas are situated in southern part of Odisha (Figure 1.1).

Figure 1.1: Map of Odisha with OMM Blocks/Districts of *Kharif* 2017



Source: Programme Secretariat, Odisha Millets Mission

⁵ Subsequently, as of *kharifi* 2019, the programme has expanded to 72 blocks spread across 14 districts. Hence, we will refer to the blocks/districts where the programme was envisaged first as phase 1.

Table 1.1: Key Indicators of Districts with OMM implementation in Kharif 2017

Indicators	Gaja-pati	Kala-handi	Kan-dhamal	Kor-apat	Mal-kangiri	Nua-pada	Raya-gada	Odisha
Census 2011								
Households (lakh)	1.29	4.01	1.72	3.38	1.38	1.52	2.26	96.38
Population (lakh)	5.78	15.77	7.33	13.80	6.13	6.10	9.68	419.74
Sex Ratio (f/1000 m)	1043	1003	1037	1032	1020	1021	1051	979
Rural (%)	87.8	92.3	90.1	83.6	91.9	94.4	84.8	83.3
Scheduled Caste (SC) (%)	6.8	18.2	15.8	14.2	22.6	13.5	14.4	17.1
Scheduled Tribe (ST) (%)	54.3	28.5	53.6	50.6	57.8	33.8	56.0	22.8
Literacy Rate (%)	53.5	59.2	64.1	49.2	48.5	57.3	49.8	72.9
Total Worker (TW) (%)	50.9	47.7	48.5	50.3	50.7	50.0	48.3	41.8
Main Worker/TW (%)	58.0	50.1	47.0	57.2	57.6	49.7	48.8	61.0
Cultivator/TW (%)	22.1	19.3	22.3	29.9	48.7	31.0	21.3	23.4
Agr Lab/TW (%)	52.1	58.1	45.9	41.9	34.2	49.1	53.1	38.4
Density (per sq km)	133.4	199.1	91.4	156.6	105.9	158.5	136.9	269.6
Landuse Pattern 2017-18								
Geographical Area '000 ha	433	792	802	881	579	385	707	15571
Forest (%)	57.0	32.1	71.2	21.3	57.9	48.1	39.7	37.3
Misc. Trees (%)	1.8	1.0	4.2	1.9	0.2	0.3	2.5	2.2
Permanent Pastures (%)	2.8	2.9	1.2	5.1	3.6	0.5	3.7	3.2
Culturable waste (%)	0.9	2.7	1.7	5.0	0.7	0.5	3.1	2.4
Non-agri. use (%)	2.8	4.4	1.1	6.1	4.0	0.8	17.5	8.3
Barren & unculturable (%)	15.7	7.2	3.7	23.8	6.6	0.5	5.4	5.4
Current fallow (%)	0.0	4.7	2.6	5.4	0.0	0.0	2.7	5.3
Other fallow (%)	1.4	2.0	0.7	2.2	2.6	0.3	0.7	1.5
Net area sown (NAS) (%)	17.6	43.1	13.3	29.1	24.5	49.1	24.6	34.4
Agricultural Census 2015-16								
No. of holdings, '000	67.3	204.8	91.6	158.9	116.1	106.6	138.0	4865.9
Operated area, '000 ha	62.1	267.5	80.3	216.7	143.0	117.8	148.0	4619.3
Average size, ha	0.92	1.31	0.88	1.36	1.23	1.10	1.07	0.95
MGNREGA								
Active/Issued JC 4Dec2019, %	64.8	58.4	74.0	59.7	56.6	62.1	62.9	56.0
Average days per HH, 2016-17	39.48	30.55	45.12	38.11	35.44	38.66	46.06	38.08
Health, NFHS 2015-16								
Under five mortality	76.5	76.8	93.8	65.5	94.9	60.2	131.5	48.6
BMI Women <18.5 kg/m ² (%)	34.2	28.1	34.5	45.9	34.0	33.1	26.4	22.1
AYP Millets 2016-17								
Area, '000 ha	9.98	2.47	2.47	66.83	8.48	4.84	20.37	143.50
Yield, kg/ha	886	988	736	819	642	596	740	805
Production, '000 MT	8.84	2.44	1.82	54.71	5.44	2.89	15.08	115.50

Sources: *Census of India 2011*; Publications of Directorate of Economics and Statistics, Government of Odisha, http://www.desorissa.nic.in/latest_publications.html for landuse pattern from *District at a Glance 2019* and *Agricultural Census, 2015-16, Odisha (Phase-I): Bulletin on Operational Holdings (Number and Area)*; MGNREGA from nrega.nic.in; NFHS 2015-16 from District/State Fact Sheets, <http://rchiips.org/NFHS/nfhs4.shtml>, and JK Bora and N Saikia, "Neonatal and under-five mortality rate in Indian districts with reference to Sustainable Development Goal 3: An analysis of the National Family Health Survey of India (NFHS), 2015–2016," *PLoS One*, 2018, 13(7), e0201125; District-wise AYP of Millets from 2013-14 to 2018-19, Directorate of Agriculture and Food Production, GoO.

Notes: Sex Ratio is females per 1000 males; Rural, SC, ST and TW are % of population; Literacy Rate is % of 6+ population; Under land use pattern % is from geographical area; MGNREGA is Mahatma Gandhi National Rural Employment Guarantee Act, the proportion of active over issued job cards is as on 4 December 2019, HH is household who have worked under MGNREGA in 2016-17; NFHS is National Family Health Survey; under five mortality is deaths before five years per '000 live births computed for districts on data preceding 10 years prior to survey to increase sample and for state it is data preceding 5 years prior to survey; BMI is body mass index; AYP denotes area, yield and production, respectively.

Table 1.1 provides key indicators for the districts where OMM was implemented in *kharif* 2017. In comparison to the average for Odisha, Census 2011 indicates that the OMM districts have a sex ratio that is favourable to females, higher proportion of rural

population, greater proportion of ST population, lower proportion of literates, more proportion of total workers, and among total workers the OMM districts have a larger proportion of main workers and agricultural labourers. Under landuse pattern of 2017-18, the OMM districts have a larger proportion of forests except for Koraput that has a larger proportion of barren and unculturable land and in these OMM districts the proportion of net area sown is relatively lower than that of Odisha except for Nuapada. The agricultural census of 2015-16 shows that the average holdings for OMM districts are relatively greater than the average for Odisha except for Gajapati. Under MGNREGA, the real time active job cards as a proportion of issued job cards is relatively higher in OMM districts than that for Odisha (as on 4 December 2019) and average days of work per household in 2016-17 is greater than the state average in five of the seven districts. The National Family Health Survey 2015-16 indicates that under-five mortality and body mass index of women are lower than that of Odisha in the OMM districts. Area and production of millets for 2016-17 suggest that these seven OMM districts comprise nearly four-fifths of the area and production under millets. In short, the seven phase-1 OMM districts that are located in southern part of Odisha have a larger proportion of the scheduled population, have a larger proportion of forests (largely the scheduled areas) and grow a larger proportion of millets (the scheduled crops). Now, we elucidate the objectives of the baseline survey and the survey methodology.

1.3 Objectives

The baseline study has been carried out with the following objectives.

- To assess the socio-economic condition of the HHs
- To outline millet production, productivity and package of practices
- To examine the consumption pattern of millets
- To elucidate the method of processing and mode of marketing

1.4 Methodology

1.4.1 Universe

The universe for the study comprises of all the HHs who are covered under OMM, as per the list provided by the Programme Secretariat. The number of HHs in the list was found to be 8561 when the survey was envisaged (Table 1.2). From the 8561

HHs covered under the programme at the time of the survey,⁶ only 7641 HHs have been surveyed. From these, 7041 HHs (89.3%) had cultivated millets and 600 HHs did not cultivate millets in 2016-17, that is, in the year before the intervention under OMM. The distribution of surveyed HHs across seven phase-1 OMM districts are as follows: 1364 (17.9%) are from Gajapati, 499 (6.5%) are from Kalahandi, 628 (8.2%) are from Kandhamal, 2733 (35.8%) are from Koraput, 1076 (14.1%) are from Malkangiri, 799 (10.5%) are from Nuapada and 542 (7.1%) are from Rayagada.

Table 1.2: Households Surveyed in OMM Implemented Phase-1 districts of Odisha

District	Programme HHs	Surveyed HHs	HHs Cultivated Millets in 2016-17	HHs did not Cultivate Millets in 2016-17	% of HHs covered
Gajapati	1368	1364	1289	75	99.7
Kalahandi	542	499	482	17	92.1
Kandhamal	638	628	592	36	98.4
Koraput	2911	2733	2605	128	93.9
Malkangiri	1559	1076	927	149	69.0
Nuapada	879	799	693	106	90.9
Rayagada	664	542	453	89	81.6
Total	8561	7641	7041	600	89.3

Source: Programme Secretariat & Field Survey

Note: HHs denotes Households

1.4.2 Data Collection

This baseline survey report is based on both secondary and primary data. The primary data were collected from the respondents in the concerned districts by using pre-tested interview schedule (Annexure 1) and focus Group Discussion (FGD), (Annexure 2). The secondary data have been collected from different published and unpublished sources.

1.5 Limitations

There are three broad limitations. First, all HHs envisaged in the programme could not be surveyed for logistic reasons like inhostable terrain and other difficulties that the field investigators faced and non-availability of respondents. Second, there is the possibility of recall error, particularly applicable in case of actual quantity of consumption, expenditure, investment, and marketing among others. Last, but not the

⁶ The number of farmers who would have received incentives for following all agronomic practices, after verification, may be different.

least, there are instances where surveyed households have consumed millets, but have not produced or purchased it. This was possible because of past stock and acquiring of millets through exchange and barter. The details of this have not been captured.

1.6 Chapterization

The baseline survey has been divided into six chapters including the current introductory chapter, which provides district profile, objectives, methodology and limitations. Chapter 2 provides socio-economic profile of surveyed HHs. Chapter 3 provides details on production and productivity of millets. Chapter 4 discusses consumption pattern of millets. Chapter 5 elucidates on processing and marketing of millets. Chapter 6 summarizes the findings.

SOCIO-ECONOMIC PROFILE

2.1 Introduction

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

2.2 Social and Demographic Profile

The distribution of surveyed HHs by social groups indicates that 6366 HHs (83.3%) belong to scheduled tribes (STs), 480 HHs (6.3%) belong to scheduled castes (SCs), and 780 HHs (10.2%) belong to other social groups (OSGs), Table 2.1. In districts, the distribution of surveyed HHs by social groups indicate that the proportion of SCs is the highest in Kalahandi (32.7%) and that of OSGs is the highest in Koraput (18.3%).

Table 2.1: Distribution of Households by Social Groups across Districts

District	ST		SC		OSG		Total	
	No	%	No	%	No	%	No	%
Gajapati	1306	95.7	47	3.4	11	0.8	1364	100.0
Kalahandi	264	52.9	163	32.7	57	11.4	499	100.0
Kandhamal	523	83.3	41	6.5	64	10.2	628	100.0
Koraput	2045	74.8	188	6.9	500	18.3	2733	100.0
Malkangiri	1070	99.4	6	0.6	0	0.0	1076	100.0
Nuapada	651	81.5	27	3.4	121	15.1	799	100.0
Rayagada	507	93.5	8	1.5	27	5.0	542	100.0
Total	6366	83.3	480	6.3	780	10.2	7641	100.0

Source: Field Survey

The surveyed HHs belong to three religious communities: Hindus (86.1%), Christians (13.8%) and Muslims (0.1%), Table 2.2. In districts, the distribution of surveyed HHs by religion indicates that the proportion of Christians is the highest in Raygada (52.0%). The proportions of Christian are also relatively higher in Kandhamal (45.7%) and Gajapati (32.9%) than the average for all surveyed HHs. There are only

eight Muslims among the surveyed households: six in Gajapati and one each in Koraput and Nuapada.

Table 2.2: Distribution of Households by Religion across Districts

District	Hindu		Christian		Muslim		Total	
	No	%	No	%	No	%	No	%
Gajapati	909	66.6	449	32.9	6	0.4	1364	100.0
Kalahandi	492	98.6	7	1.4	0	0.0	499	100.0
Kandhamal	341	54.3	287	45.7	0	0.0	628	100.0
Koraput	2716	99.4	16	0.6	1	0.0	2733	100.0
Malkangiri	1065	99.0	11	1.0	0	0.0	1076	100.0
Nuapada	796	99.6	2	0.3	1	0.1	799	100.0
Rayagada	260	48.0	282	52.0	0	0.0	542	100.0
Total	6579	86.1	1054	13.8	8	0.1	7641	100.0

Source: Field Survey

From the surveyed HHs, the share of female population is higher than the share of male population in five of the seven districts, that is in all except for Gajapati and Nuapada, Table 2.3. This reiterates the observation from Census 2011 (Table 1.1) that the sex-ratio in OMM intervention districts are favourable to females.

Table 2.3: Distribution of Households by Gender across Districts

District	Male		Female		Total		Sex Ratio
	No	%	No	%	No	%	
Gajapati	2350	50.1	2336	49.9	4686	100.0	994.0
Kalahandi	778	49.7	787	50.3	1565	100.0	1011.6
Kandhamal	1109	49.4	1137	50.6	2246	100.0	1025.2
Koraput	6677	49.6	6776	50.4	13453	100.0	1014.8
Malkangiri	1918	49.5	1955	50.5	3873	100.0	1019.3
Nuapada	1237	50.3	1223	49.7	2460	100.0	988.7
Rayagada	901	49.6	914	50.4	1815	100.0	1014.4
Total	14970	49.7	15128	50.3	30098	100.0	1010.6

Source: Field Survey

2.3 Poverty Status

There are 86.1% of surveyed HHs who are below poverty line (BPL) or are with Antodaya or priority cards and those without these are referred to as above poverty line (APL). Across districts, the proportion of BPL among surveyed HHs is the highest in Malkangiri (95.3%) and it is more than 90 per cent in Kandhamal and Koraput. The district with the least proportion of BPL among surveyed HHs is Gajapati (67.1%).

Table 2.4: Distribution of Households by Poverty status across Districts

District	BPL		APL		Total	
	No	%	No	%	No	%
Gajapati	915	67.1	449	32.9	1364	100.0
Kalahandi	404	81.0	95	19.0	499	100.0
Kandhamal	574	91.4	54	8.6	628	100.0
Koraput	2491	91.1	242	8.9	2733	100.0
Malkangiri	1025	95.3	51	4.7	1076	100.0
Nuapada	715	89.5	84	10.5	799	100.0
Rayagada	455	83.9	87	16.1	542	100.0
Total	6579	86.1	1062	13.9	7641	100.0

Source: Field Survey.

Notes: BPL is below poverty line and it includes Antodaya and priority cards and APL is above poverty line that refers to those that are not in BPL category.

2.4 Economic Activities

The distribution by economic activities is as follows: cultivation (92.7%), allied (17.2%), these activities include among others agricultural labour, non-agricultural labour, livestock rearing, horticulture, backyard farming and pisciculture), non-timber forest product collection (12.7%), business (2.1%), services (1.1%) and other activities (10.2%), Table 2.5. These activities are not mutually exclusive, and hence, some surveyed HHs will have more than one activity. The proportions engaged in cultivation are relatively lower in Rayagada (71.2%) and Nuapada (86.7%). It is not a mere coincidence that these two districts are among the four where proportion of surveyed HHs engaged in allied activities is 25 per cent or more. Besides, Rayagada also has a relatively higher proportion engaged in collection of non-timber forest product (34.1%) and Nuapada has a relatively higher proportion engaged in other activities (42.3%). The collection of non-timber forest product as an activity is the highest in Malkangiri (43.1%).

Table 2.5: Distribution of Households by economic activities across Districts

District	Cultivation		Allied		NTFP		Business		Service		Other		All	
	No	%	No	%	No	%	No	%	No	%	No	%		
Gajapati	1288	94.4	334	24.5	0	0.0	60	4.4	7	0.5	135	9.9	1364	100.0
Kalahandi	488	97.8	7	1.4	4	0.8	20	4.0	8	1.6	8	1.6	499	100.0
Kandhamal	593	94.4	36	5.7	5	0.8	3	0.5	2	0.3	5	0.8	628	100.0
Koraput	2636	96.5	115	4.2	316	11.6	31	1.1	34	1.2	277	10.1	2733	100.0
Malkangiri	1016	94.4	360	33.5	464	43.1	34	3.2	10	0.9	1	0.1	1885	100.0
Nuapada	693	86.7	312	39.0	0	0.0	9	1.1	5	0.6	338	42.3	799	100.0
Rayagada	386	71.2	153	28.2	185	34.1	0	0.0	16	3.0	12	2.2	752	100.0
Total	7100	92.9	1317	17.2	974	12.7	157	2.1	82	1.1	776	10.2	7641	100.0

Source: Field Survey

Note: NTFPs denotes Non-Timber Forest Produce. The all column refers to the number of households and is not an addition across economic activities, as a household can be engaged in more than one economic activity.

2.5 Structure of House

The distribution of surveyed HHs by structure of house is as follows: *kutcha* (51.3%), semi-*pucca* (29.6%) and *pucca* (19.1%). The proportion of *kutcha* houses is the highest in Nuapada (98.4%) whereas the proportion of *pucca* houses is the highest in Kandhamal (44.7%).

Table 2.6: Distribution of Households by House Structure across Districts

District	Kutcha		Semi-Pucca		Pucca		Total	
	No	%	No	%	No	%	No	%
Gajapati	312	22.9	773	56.7	279	20.5	1364	100.0
Kalahandi	319	63.9	159	31.9	21	4.2	499	100.0
Kandhamal	16	2.5	331	52.7	281	44.7	628	100.0
Koraput	2259	82.7	62	2.3	412	15.1	2733	100.0
Malkangiri	175	16.3	560	52.0	341	31.7	1076	100.0
Nuapada	786	98.4	2	0.3	11	1.4	799	100.0
Rayagada	54	10.0	376	69.4	112	20.7	542	100.0
Total	3921	51.3	2263	29.6	1457	19.1	7641	100.0

Source: Field Survey

Note: Figures in parentheses represents to the respective row totals

2.6 Conclusion

The socio-economic profile indicates that HHs surveyed are largely STs (83.3%) from social groups, Hindus (86.1%) by religion, poor (86.1%) by economic status, and cultivators (92.9%) by activity. In Kalahandi, Koraput and Nuapada larger proportion of surveyed HHs stay in *kutcha* houses while in the remaining four districts (Gajapati, Kandhamal, Malkangiri and Rayagada) larger proportion of surveyed reside in semi-*pucca* houses. In Chapter 3 we look into aspects related to millets production.

3 PRODUCTION

3.1 Introduction

This chapter will look into the status of production and productivity of millets, usage of seeds and agronomic practices among HHs surveyed. The details are for the period covered under baseline survey, 2016-17.

3.2 Area, Production and Yield of Millets

In 2016-17, the surveyed HHs cultivated five types of millet crops, viz, *mandia/ragi* (finger millet), *suan/gurji* (little millet), *janha/jowar* (sorghum), *kangu* (foxtail millet) and *kodo* (kodo millet). The 7041 surveyed HHs cultivated millet crops in 2949.4 ha and produced 17065.2 qtl such that average production per hectare (or yield) was 5.8 qtl/ha and average millet production per cultivating household was 2.4 qtl/HH, Table 3.1. Area cultivated per HH ranges from 0.31 ha in Rayagada to 0.5 ha in Koraput. Yield of millets ranges from 2.2 qtl/ha in Kandhamal to 8.1 qtl/ha in Koraput, and average millet production per cultivating HH ranges from 0.7 qtl/HH in Kandhamal to 4.1 qtl/HH in Koraput. From the HHs surveyed, Koraput constitutes 37.0 per cent of HHs, 44.5 per cent of the area under millets and 61.9 per cent of the millet production.

Table 3.1: Area, Production and Yield of Millets across districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Gajapati	1289	18.3	459.8	15.6	2264.2	13.3	4.9	1.8
Kalahandi	482	6.8	182.1	6.2	691.6	4.1	3.8	1.4
Kandhamal	592	8.4	186.2	6.3	411.7	2.4	2.2	0.7
Koraput	2605	37.0	1311.9	44.5	10565.4	61.9	8.1	4.1
Malkangiri	927	13.2	360.4	12.2	1701.4	10.0	4.7	1.8
Nuapada	693	9.8	307.5	10.4	887.8	5.2	2.9	1.3
Rayagada	453	6.4	141.7	4.8	543.1	3.2	3.8	1.2
Total	7041	100.0	2949.4	100.0	17065.2	100.0	5.8	2.4

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.2.1 Area, Production and Yield of *Mandia*

From the surveyed HHs, 6966 cultivated *mandia* in 2694.6 ha and produced 15700.2 qtl, Table 3.2. These constitute 99 per cent of HHs who cultivated millets, 91

per cent of the area under millets and 92 per cent of the millet produce. As a result, yield of *mandia* at 5.8 qtl/ha and average *mandia* production per cultivating HH at 2.3 qtl/HH broadly matches to that for all millets. *Mandia* yield ranges from 2.2 qtl/ha in Kandhamal to 8.3 qtl/ha in Koraput, and average *mandia* production per cultivating HH ranges from 0.6 qtl/HH in Kandhamal to 3.7 qtl/HH in Koraput.

Table 3.2: Area, Production and Yield of *Mandia* across Districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Gajapati	1227	17.6	423.2	15.7	2111.5	13.4	5.0	1.7
Kalahandi	482	6.9	168.5	6.3	654.5	4.2	3.9	1.4
Kandhamal	592	8.5	163.05	6.1	360.6	2.3	2.2	0.6
Koraput	2597	37.3	1147.5	42.6	9481.8	60.4	8.3	3.7
Malkangiri	927	13.3	360	13.4	1700.4	10.8	4.7	1.8
Nuapada	689	9.9	291.7	10.8	851.6	5.4	2.9	1.2
Rayagada	452	6.5	140.5	5.2	539.8	3.4	3.8	1.2
Total	6966	100.0	2694.6	100.0	15700.2	100.0	5.8	2.3

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.2.2 Area, Production and Yield of *Suan*

Suan is also known as *gurji* in some parts of Odisha. From the surveyed HHs, 436 cultivated *suan* in 185.6 ha and produced 1146.1 qtl such that yield of *suan* was 6.2 qtl/ha and average *suan* production per cultivating HH was 2.6 qtl/HH, Table 3.3. From these, 75 per cent of HHs, 89 per cent of area and 95 per cent of production was in Koraput alone where yield of *suan* was 6.6 qtl/ha and average *suan* production per cultivating HH was 3.4 qtl/HH.

Table 3.3: Area, Production and Yield of *Suan* across Districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Gajapati	28	6.4	3.9	2.1	4.6	0.4	1.2	0.2
Kalahandi	33	7.6	11.57	6.2	34.8	3.0	3.0	1.1
Kandhamal	51	11.7	5.3	2.9	22.1	1.9	4.2	0.4
Koraput	323	74.1	164.4	88.6	1083.6	94.5	6.6	3.4
Malkangiri	1	0.2	0.4	0.2	1.0	0.1	2.5	1.0
Total	436	100.0	185.6	100.0	1146.1	100.0	6.2	2.6

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.2.3 Area, Production and Yield of *Janha*

From the surveyed HHs, 170 cultivated *janha* in 35.5 ha and produced 163 qtl of produce such that yield of *janha* was 4.6 qtl/ha and average production per HH of *janha* was 1.0 qtl/HH, Table 3.4. From these, 64 per cent of HHs, 75 per cent of area and 88 per cent of produce was in Gajapati alone where yield of *janha* was 5.4 qtl/ha and average *janha* production per cultivating HH was 1.3 qtl/HH. Except for one HH from Rayagada all the other surveyed HHs were from Kandhamal where yield of *janha* was 2.2 qtl/ha and average *janha* production per cultivating HH was 0.3 qtl/HH.

Table 3.4: Area, Production and Yield of *Janha* across Districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Gajapati	108	63.5	26.5	74.6	142.7	87.5	5.4	1.3
Kandhamal	61	35.9	8.6	24.2	18.2	11.2	2.2	0.3
Rayagada	1	0.6	0.4	1.1	2.1	1.3	5.2	2.1
Total	170	100.0	35.5	100.0	163.0	100.0	4.6	1.0

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.2.4 Area, Production and Yield of *Kangu*

From the surveyed HHs, 80 cultivated *kangu* in 16.2 ha and produced 17.4 qtl of produce such that yield of *kangu* was 1.1 qtl/ha and average *kangu* production per cultivating HH was 0.2 qtl/HH, Table 3.5. From these, 58 per cent of HHs, 57 per cent of area and 62 per cent of produce was in Kandhamal where yield of *kangu* was 1.2 qtl/ha and per HH production of *kangu* was 0.2 qtl/HH. Except for three HHs from Rayagada all the other surveyed HHs were from Gajapati where yield of *kangu* was 0.9 qtl/ha and average *kangu* production per cultivating HH was 0.2 qtl/HH.

Table 3.5: Area, Production and Yield of *Kangu* across Districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Gajapati	31	38.8	6.2	38.3	5.4	31.0	0.9	0.2
Kandhamal	46	57.5	9.2	56.8	10.8	62.1	1.2	0.2
Rayagada	3	3.8	0.8	4.9	1.2	6.9	1.5	0.4
Total	80	100.0	16.2	100.0	17.4	100.0	1.1	0.2

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.2.5 Area, Production and Yield of *Kodo*

From the surveyed HHs, 67 cultivated *kodo* in 17.8 ha and produced 38.5 qtl of produce such that yield of *kodo* was 2.2 qtl/ha and average *kodo* production per cultivating HH was 0.6 qtl/HH, Table 3.6. From these, 87 per cent of HHs, 89 per cent of area and 94 per cent of produce was in Nuapada where yield of *kodo* was 2.3 qtl/ha and average *kodo* production per cultivating HH was 0.6 qtl/HH. In Kalahandi only nine surveyed HHs cultivated *kodo* whose yield was 1.1 qtl/ha and average *kodo* production per cultivating HH was 0.3 qtl/HH.

Table 3.6: Area, Production and Yield of *Kodo* across Districts

District	HHs		Area		Production		Average	
	No.	%	Ha	%	Qtl	%	qtl/ha	qtl/HH
Kalahandi	9	13.4	2.0	11.2	2.3	6.0	1.1	0.3
Nuapada	58	86.6	15.8	88.8	36.2	94.0	2.3	0.6
Total	67	100.0	17.8	100.0	38.5	100.0	2.2	0.6

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total values summed over districts.

3.3 Perception on Quality of Seeds Used

Seed is an important input that determines the production, yield and quality of millets. The perception of surveyed HHs on quality of seed used indicates that 53.2 per cent opine that they used good quality seeds, 45.2 per cent opine that they used average quality seeds and 1.6 per cent opine that they used bad quality seeds, Table 3.7. Across districts, the perception on good quality of seeds is the highest in Kalahandi (82.8%), the perception on average quality of seeds is the highest of Gajapati (76.5%), and the perception on bad quality of seeds is the highest in Rayagada (6.6%).

Table 3.7: Perception on Quality of Seeds Used across Districts

District	Good		Average		Bad		Total	
	No.	%	No.	%	No.	%	No.	%
Gajapati	278	21.6	986	76.5	25	1.9	1289	100.0
Kalahandi	399	82.8	77	16.0	6	1.2	482	100.0
Kandhamal	424	71.6	165	27.9	3	0.5	592	100.0
Koraput	1675	64.3	905	34.7	25	1.0	2605	100.0
Malkangiri	573	61.8	332	35.8	22	2.4	927	100.0
Nuapada	237	34.2	455	65.7	1	0.1	693	100.0
Rayagada	163	36.0	260	57.4	30	6.6	453	100.0
Total	3749	53.2	3180	45.2	112	1.6	7041	100.0

Source: Field Survey

3.4 Method of Agronomic Practices

The different methods of agronomic practices used for millets production are broadcasting, line sowing, transplanting and system of millet intensification (SMI). Each method will be associated with a package of practices that may include number of seeds/saplings at each planting hole, the spacing between holes, and the frequency of weeding among others. Some of the HHs surveyed have applied different methods in different plots of land and we refer to them as 1+ methods, as we do not have any method-specific plot-wise break-up of area and production. We analyse this for each crop.

From the surveyed HHs who cultivated millets, 41.8 per cent who adopted broadcasting had a yield of 4.3 qtl/ha, 20.2 per cent who adopted line sowing had a yield was 6.4 qtl/ha, 20.8 per cent who adopted transplanting had a yield of 7.1 qtl/ha, 6.1 per cent who adopted SMI had a yield of 8.7 qtl/ha, and 11.0 per cent who adopted 1+ methods had a yield of 7.7 qtl/ha.

Table 3.8: Millets Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield	
	No	%	Ha	%	Qtl	%	qtl/ha	
Broadcasting	2942	41.8	1386.9	47.0	6008.4	35.2	4.3	
Line Sowing	1425	20.2	667.1	22.6	4266.3	25.0	6.4	
Transplanting	1465	20.8	548.1	18.6	3878.6	22.7	7.1	
SMI Method	433	6.1	238.7	8.1	2075.6	12.2	8.7	
1+Methods	776	11.0	108.6	3.7	836.4	4.9	7.7	
Total	7041	100.0	2949.4	100.0	17065.4	100.0	5.8	

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

3.4.1 Agronomic Practices for *Mandia*

Mandia cultivation across agronomic practices indicate the following: 42 per cent who adopted broadcasting had a yield of 4.1 qtl/ha, 20.5 per cent who adopted line sowing had a yield of 6.5 qtl/ha, 21.1 per cent who adopted transplanting had a yield of 7.1 qtl/ha, 6.2 per cent who adopted SMI had a yield of 9.0 qtl/ha, and 10.3 per cent who adopted 1+ methods had a yield of 8.9 qtl/ha, Table 3.9.

Table 3.9: *Mandia* Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield
	No	%	Ha	%	qtl	%	qtl/ha
Broadcasting	2925	42	1213.4	45.0	5025.4	32.0	4.1
Line Sowing	1425	20.5	641.7	23.8	4163.3	26.5	6.5
Transplanting	1463	21.0	544.3	20.2	3871.1	24.7	7.1
SMI Method	433	6.2	217.7	8.1	1949.6	12.4	9.0
1+Methods	720	10.3	77.3	2.9	690.8	4.4	8.9
Total	6966	100.0	2694.4	100.0	15700.3	100.0	5.8

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

3.4.2 Agronomic Practices for *Suan*

Suan cultivation across agronomic practices indicate the following: 66.1 per cent who adopted broadcasting had a yield of 6.4 qtl/ha, 9.6 per cent who adopted line sowing had a yield of 4.8 qtl/ha, 2.5 per cent who adopted transplanting had a yield of 1.0 qtl/ha, 11.9 per cent who adopted SMI had a yield of 6.2 qtl/ha, and 9.9 per cent who adopted 1+ methods had a yield of 2.9 qtl/ha, Table 3.10.

Table 3.10: *Suan* Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield
	No	%	Ha	%	qtl	%	qtl/ha
Broadcasting	288	66.1	144.7	78.0	929.7	81.1	6.4
Line Sowing	42	9.6	16.5	8.9	79.9	7.0	4.8
Transplanting	11	2.5	0.2	0.1	0.2	0.0	1.0
SMI Method	52	11.9	20.2	10.9	124.8	10.9	6.2
1+Methods	43	9.9	3.9	2.1	11.5	1.0	2.9
Total	436	100.0	185.5	100.0	1146.1	100.0	6.2

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

3.4.3 Agronomic Practices for *Janha*

Janha cultivation across agronomic practices indicate the following: 37.1 per cent who adopted broadcasting had a yield of 2.4 qtl/ha, 11.2 per cent who adopted line sowing had a yield of 2.7 qtl/ha, 4.7 per cent who adopted transplanting had a yield of 4.2 qtl/ha, 1.2 per cent who adopted SMI had a yield of 0.5 qtl/ha, and 45.9 per cent who adopted 1+ methods had a yield of 5.9 qtl/ha, Table 3.11.

Table 3.11: *Janha* Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield
	No	%	Ha	%	qtl	%	qtl/ha
Broadcasting	63	37.1	8.8	24.8	20.9	12.8	2.4
Line Sowing	19	11.2	3.8	10.7	10.2	6.3	2.7
Transplanting	8	4.7	1.0	2.8	4.2	2.6	4.2
SMI Method	2	1.2	0.4	1.1	0.2	0.1	0.5
1+Methods	78	45.9	21.5	60.6	127.6	78.2	5.9
Total	170	100.0	35.5	100.0	163.1	100.0	4.6

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

3.4.4 Agronomic Practices for *Kangu*

Kangu cultivation across agronomic practices indicate the following: 67.5 per cent who adopted broadcasting had a yield of 1.1 qtl/ha, 3.8 per cent who adopted line sowing had a yield of 0.5 qtl/ha, 11.3 per cent who adopted transplanting had a yield of 1.0 qtl/ha, and 17.5 per cent who adopted 1+ methods had a yield of 1.0 qtl/ha, Table 3.12.

Table 3.12: *Kangu* Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield
	No	%	Ha	%	Qtl	%	qtl/ha
Broadcasting	54	67.5	11.1	68.5	12.5	72.3	1.1
Line Sowing	3	3.8	0.2	1.2	0.1	0.6	0.5
Transplanting	9	11.3	2.2	13.6	2.1	12.1	1.0
SMI Method	0	0.0	0.0	0.0	0.0	0.0	0.0
1+Methods	14	17.5	2.7	16.7	2.6	15.0	1.0
Total	80	100.0	16.2	100.0	17.3	100.0	1.1

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

3.4.5 Agronomic Practices for *Kodo*

Kodo cultivation across agronomic practices indicate the following: 52.2 per cent who adopted broadcasting had a yield of 2.2 qtl/ha, 26.9 per cent who adopted line sowing had a yield of 2.6 qtl/ha, 3.0 per cent who adopted transplanting had a yield of 2.5 qtl/ha, 3.0 per cent who adopted SMI had a yield of 2.5 qtl/ha, and 14.9 per cent who adopted 1+ methods had a yield of 1.2 qtl/ha, Table 3.13.

Table 3.13: *Kodo* Cultivation across Agronomic Practices

Agronomic practice	HHs		Area		Production		Yield
	No	%	ha	%	Qtl	%	qtl/ha
Broadcasting	35	52.2	8.9	50.0	19.8	51.7	2.2
Line Sowing	18	26.9	4.9	27.5	12.8	33.1	2.6
Transplanting	2	3.0	0.4	2.2	1.0	2.6	2.5
SMI Method	2	3.0	0.4	2.2	1.0	2.6	2.5
1+Methods	10	14.9	3.2	18.0	3.9	10.0	1.2
Total	67	100.0	17.8	100.0	38.5	100.0	2.2

Source: Field Survey

Note: The area and production figures are rounded up to the first decimal, and hence, may not add up to total across agronomic practices.

The focus group discussion (FGDs) pointed out that some of the millets are still grown in the hilly slopes under slash and burn (*podu*) cultivation, a traditional practice of crop production in these areas. The FGDs also pointed out that land with low moisture retention capacity are suitable for growing millets. The FGDs and information on agronomic practices discussed above indicate that few HHs have adopted SMI method, one of the agronomic practice that is being taken up under OMM.

3.5 Conclusion

Five types of millets, viz, *mandia*, *suan*, *janha*, *kangu* and *kodo* were cultivated during the period covered under baseline survey, that is, in 2016-17. The predominant millet crop cultivated being *mandia*. From the surveyed HHs, the share of Koraput in area and production was the highest across districts. A matter of concern is that nearly half did not perceive the seed that they used for millet cultivation to be good. The agronomic practices in vogue were broadcasting, line sowing, transplanting and SMI and from these nearly half the area was under broadcasting. Further, across methods, yield was relatively higher for SMI method for *mandia*. We now look into consumption of millets in chapter 4.

4 CONSUMPTION

4.1 Introduction

This chapter looks into consumption of millets across seasons, consumption of millets during different meals of the day and different types of millet recipes consumed by the HHs surveyed. The analysis is for the period under survey, 2016-17.

4.2 Season-wise Consumption

From the HHs surveyed, 95.1 per cent consumed millets during summer, 58.8 per cent consumed millets during winter and 57.6 per cent consumed millets during monsoon, Table 4.1. Greater consumption during summer, as conveyed by respondents and participants of FGDs, helped them quench their thirst and also hunger.

There is variation across districts with regard to consumption of millets. In summer, the proportion consuming millets ranges from 87 per cent in Kalahandi to 99.8 per cent in Kandhamal. During monsoon, the proportion consuming millets ranges from 8.9 per cent in Nuapada to 80.9 per cent in Koraput. Similarly, in winter, the proportion consuming millets ranges from 13.8 per cent in Nuapada to 90.7 per cent in Koraput.

Table 4.1: Season-wise Consumption of Millets

Districts	Summer		Rainy		Winter		All	
	No	%	No	%	No	%	No	%
Gajapati	1327	97.3	564	41.3	544	39.9	1364	100.0
Kalahandi	434	87.0	286	57.3	336	67.3	499	100.0
Kandhamal	627	99.8	220	35.0	167	26.6	628	100.0
Koraput	2595	95.0	2210	80.9	2478	90.7	2733	100.0
Malkanagiri	1043	96.9	738	68.6	671	62.4	1076	100.0
Nuapada	747	93.5	71	8.9	110	13.8	799	100.0
Rayagada	495	91.3	314	57.9	185	34.1	542	100.0
Total	7268	95.1	4403	57.6	4491	58.8	7641	100.0

Source: Field Survey

Note: The all column refers to the number of households and is not an addition across seasons, as a household can consume millets in multiple seasons.

4.3 Consumption during Different Meals of the Day

Consumption of millets by HHs during different meals of the day points out that 80.6 per cent ate millets for breakfast, 93.4 per cent ate millets for lunch, 36.3 per cent

ate millets for evening snacks and 39.6 per cent ate millets for dinner, Table 4.2. There is variation across districts. The proportion of surveyed HHs who ate millets ranges from 18.5 per cent in Nuapada to 97.9 in Gajapati for breakfast, ranges from 78.6 per cent in Kalahandi to 97.2 per cent in Koraput for lunch, ranges from 2.0 per cent in Nuapada to 75.8 per cent in Malkangiri for evening snacks, and ranges from 0.6 per cent in Nuapada to 71.8 per cent in Malkangi for dinner.

Table 4.2: Millets Consumption during Different Meals of the Day

Districts	Breakfast		Lunch		Evening snacks		Dinner		All	
	No	%	No	%	No	%	No	%	No	%
Gajapati	1335	97.9	1282	94.0	111	8.1	34	2.5	1364	100.0
Kalahandi	471	94.4	392	78.6	311	62.3	272	54.5	499	100.0
Kandhamal	381	60.7	549	87.4	226	36.0	27	4.3	628	100.0
Koraput	2354	86.1	2656	97.2	1130	41.3	1776	65.0	2733	100.0
Malkangiri	1043	96.9	1030	95.7	816	75.8	773	71.8	1076	100.0
Nuapada	148	18.5	750	93.9	16	2.0	5	0.6	799	100.0
Rayagada	430	79.3	477	88.0	160	29.5	137	25.3	542	100.0
Total	6162	80.6	7136	93.4	2770	36.3	3024	39.6	7641	100.0

Source: Field Survey

Note: The all column refers to the number of households and is not an addition across different meals of the day, as a household can consume millets in more than one meal during the day.

4.4 Millet Recipes Consumed

Consumption of millets, especially ragi, as a staple food was conveyed in FGDs in many places. People have been consuming millets in the form of *jau* (porridge, particularly *mandia jau*), *ruti* (bread) or *pitha* (pancake), *tampo* (a gruel recipe prepared by adding jaggery and coconut or variants thereof and is a delicacy for special occasions), *mandia torani* (fermented *ragi* prepared by adding water to cooked *ragi* that is kept overnight or longer, it may be mentioned that fermenting increases bio-availability and is a popular form of consumption during summer months), and *handia* (a form of beer prepared by adding some local herbs to cooked millet and then fermented for a few days; it is an intoxicating drink that provides physical and mental relaxation) among others.

Table 4.3 indicates the consumption of different millet recipes across districts. It shows that, from among the HHs surveyed millet was consumed in *jau* form by 83.6 per cent of HHs, in *pitha* form by 50.3 per cent of HHs, in *tampo* form by 28.9 per cent of HHs, in *torani* form by 48.6 per cent, and in *handia* form by 3.5 per cent of HHs.

Table 4.3: Consumption of Millets Recipes

Districts	Jau		Pitha		Tampo		Torani		Handia		All	
	No	%	No	%	No	%	No	%	No	%	No	%
Gajapati	1346	98.7	770	56.5	721	52.9	384	28.2	5	0.4	1364	100.0
Kalahandi	323	64.7	299	59.9	140	28.1	223	44.7	22	4.4	499	100.0
Kandhamal	450	71.7	340	54.1	152	24.2	515	82.0	10	1.6	628	100.0
Koraput	2618	95.8	1528	55.9	550	20.1	946	34.6	0	0.0	2733	100.0
Malknagiri	982	91.3	382	35.5	397	36.9	770	71.6	223	20.7	1076	100.0
Nuapada	127	15.9	191	23.9	32	4.0	606	75.8	4	0.5	799	100.0
Rayagada	540	99.6	332	61.3	214	39.5	268	49.4	0	0.0	542	100.0
Total	6386	83.6	3842	50.3	2206	28.9	3712	48.6	264	3.5	7641	100.0

Source: Field Survey

Note: The all column refers to the number of households and is not an addition across recipes, as a household can prepare more than one recipes.

The consumption of different millet recipes from HHs surveyed has variation across districts. Consumption in *jau* form is the highest in Rayagada at 99.6 per cent, is more than 90 per cent in three additional districts (Gajapati, Koraput and Malkangiri), is in the 60-75 per cent range in Kalahandi and Kandhamal, and is the least in Nuapada at 15.9 per cent.

Consumption in *pitha* form is also highest in Rayagada at 61.3 per cent, is in the range of 54-60 per cent in four districts (Gajapati, Kalahandi, Kandhamal and Koraput), is at 35.5 per cent in Malkangiri, and is also the least in Nuapada at 23.9 per cent. However, in Nuapada, the proportion of HHs indicating consumption in *pitha* form is more than those indicating consumption in *jau* form.

Consumption in *tampo* form is the highest in Gajapati at 52.9 per cent, is in the range of 36-40 per cent in Malkangiri and Rayagada, is in the the range of 20-30 per cent in three districts (Kalahandi, Kandhamal and Koraput), and, as for *jau* and *pitha*, is the least in Nuapada at 4 per cent.

Consumption in *torani* form is the highest in Kandhamal at 82 per cent, is in the range of 71-76 per cent in Malkangiri and Nuapada, is in the the range of 44-50 per cent in Kalahandi and Rayagada, is 35 per cent in Koraput, and is the least in Gajapati at 28 per cent. For Nuapada, across recipes, the maximum consumption indicated has been in the form of *torani*.

Consumption in *handia* form is the highest in Malkangiri at 20.7 per cent, is less than 5 per cent in Gajapati, Kalahandi, Kandhamal and Nuapada and has nil entries for Koraput and Rayagada.

The FGDs and interaction with other stakeholders also revealed other millet recipes such as *pakoda* with *mandia* as base, cookies and other bakery items, and as substitutes for many rice/wheat-based items among others.

4.5 Conclusion

Millets are consumed across all seasons, but relatively more in summer. They are consumed at all meal times, but relatively more at lunch and for some districts at breakfast. There were five types of millet recipes that the households consumed, viz., *jau*, *pitha*, *tompo*, *torani* and *handia*. Consumption of millets requires their processing and their marketing. This is taken up in chapter 5.

PROCESSING AND MARKETING

5.1 Introduction

This chapter looks into the methods used for processing millets, availability/accessibility of processing machines and the mode of selling millets. In particular, it is an analysis of millets processing and marketing.

5.2 Processing Units

Processing of millet grains is necessary for storage and for preparation of different recipes. The processing of grains may be in the form of decorticating/dehusking, grinding, malting, fermentation, roasting, and flaking to improve their edible, nutritional, and sensory properties. Traditionally, the burden of processing grains and the associated drudgery has largely been borne by women.

Two locally available traditional instruments that facilitate processing are *dhinki*, made up of wooden logs, and *chakki*, made up of two round stone plates. *Dhinki* is used for dehusking and *chakki* is used for grinding. Both these instruments are operated manually. The distribution of surveyed HHs by method of processing (for dehusking and grinding) is as follows: 52.1 per cent process millets manually, 32.4 per cent use machines, 13 per cent process by both the methods (manually and by using machines) and 0.3 per cent have not spelt out any processing methods, Table 5.1. The FGDs point out that the reasons for not processing millets in machines are nutritional and taste advantages of millets processed in *dhinki* and *chakki*, inaccessible villages, distance of processing units, and meal-specific requirement being in smaller quantity.

Table 5.1: Method of Processing Millets

Districts	Manually		Machine		Both		No response		All	
	No	%	No	%	No	%	No	%	No	%
Gajapati	664	48.7	515	37.8	182	13.3	3	0.2	1364	100.0
Kalahandi	367	73.5	44	8.8	66	13.2	22	4.4	499	100.0
Kandhamal	329	52.4	220	35.0	79	12.6	0	0.0	628	100.0
Koraput	941	36.1	1113	42.7	551	21.2	0	0.0	2605	100.0
Malkanagiri	781	72.6	289	26.9	6	0.6	0	0.0	1076	100.0
Nuapada	606	79.5	51	6.7	105	13.8	0	0.0	762	100.0
Rayagada	294	54.2	240	44.3	8	1.5	0	0.0	542	100.0
Total	3982	52.1	2472	32.4	997	13.0	25	0.3	7641	100.0

Source: Field Survey

Across districts, the processing of millets was higher manually than that by machines in all the districts except for Koraput. Excluding Koraput, HHs who resort to only manual processing of millets are in the range of 72-80 per cent in Kalahandi, Malkangiri and Nuapada, and in the range of 48-55 per cent in Gajapati, Kandhamal and Rayagada. HHs who process by using machines only is the highest in Rayagada at 44.3 per cent. Koraput had the highest proportion of HHs, 21.2 per cent, who resorted to processing millets by using both manual methods and machines.

Table 5.2: Availability and Accessibility of Processing Unit

Districts	Own machine		Other's pulveriser		All	
	No	%	No	%	No	%
Gajapati	6	0.9	691	99.1	697	100.0
Kalahandi	33	30.0	77	70.0	110	100.0
Kandhamal	27	9.0	272	91.0	299	100.0
Koraput	10	0.6	1654	99.4	1664	100.0
Malkangiri	4	1.4	291	98.6	295	100.0
Nuapada	5	3.2	151	96.8	156	100.0
Rayagada	2	0.8	246	99.2	248	100.0
Total	87	2.5	3382	97.5	3469	100.0

Source: Field Survey

From the 3469 HHs who processed millets using machines (including those who resorted to both manual methods and machines), 2.5 per cent HHs have their own machine and 97.5 per cent HHs are going to other's pulveriser, Table 5.2. From 87 HHs having own machine, 33 HHs (that is, 30 per cent of the HHs who used machines for processing millets in that district) are in Kalahandi.

Table 5.3: Distance to Processing Unit

Districts	0-10 Km		11-20 Km		Above 20 Km		All	
	No	%	No	%	No	%	No	%
Gajapati	22	3.2	316	45.7	353	51.1	691	100.0
Kalahandi	0	0.0	74	96.1	3	3.9	77	100.0
Kandhamal	164	60.3	105	38.6	3	1.1	272	100.0
Koraput	1358	82.1	263	15.9	33	2.0	1654	100.0
Malkangiri	238	81.8	42	14.4	11	3.8	291	100.0
Nuapada	95	62.9	44	29.1	12	7.9	151	100.0
Rayagada	87	35.1	123	49.6	36	14.5	246	100.0
Total	1964	58.1	967	28.6	451	13.3	3382	100.0

Field Survey :Source

From all those who processed millets in other's pulveriser, 58.1 per cent had to travel a distance in the range of 0-10 km to process millets, 28.6 per cent had to travel a distance in the range of 11-20 km to process millets, and 13.3 per cent had to travel a distance of more than 20 km to process millets. Across districts, one observes the following with regard to distance travelled to process millets. The proportion who travelled 10 km or less to process millets was in the range of 81-83 per cent in Malkangiri and Koraput, in the range of 60-63 per cent in Kandhamal and Nuapada, 35.1 per cent in Rayagada, 3.2 per cent in Gajapati and none in Kalahandi. The proportion travelling 11-20 km to process millets was the highest in Kalahandi at 96.1 per cent, in the range of 45-50 per cent in Gajapati and Rayagada, 38.6 per cent in Kandhamal, 29.1 per cent in Nuapada, and in the range of 14-16 per cent in Malkangiri and Koraput, the two districts with the highest proportion travelling 10 km or less to process millets. The proportion travelling more than 20 km to process millets was the highest at 51.1 per cent in Gajapati, 14.5 per cent in Rayagada, 7.9 per cent in Nuapada and less than 4 per cent in Kalahandi, Kandhamal, Malkangiri and Koraput.

5.3 Marketing

Marketing of millets is important for millet producing HHs to earn income by selling their surplus produce. Better marketing opportunities can generate hope and interest to cultivate millets. From 5143 surveyed HHs who reported selling millets during 2016-17, 42.9 per cent sold millets to local traders, 35.1 per cent in weekly *haat*, 17.7 per cent sold to money lenders against loan taken before harvest, 9.5 per cent sold to mill owners, 7.1 per cent sold to middlemen and only 0.1 per cent sold to others, Table 5.4. These figures are not mutually exclusive, as a particular HH can sell at multiple places.

Table 5.4: Distribution of Households by Mode of Selling Millets

Districts	Local Trader		Weekly <i>Haat</i>		Money Lender		Mill Owner		Middleman		Others		All	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Gajapati	501	77.4	57	8.8	53	8.2	34	5.3	42	6.5	0	0.0	647	100.0
Kalahandi	69	22.1	47	15.1	42	13.5	184	59.0	97	31.1	0	0.0	312	100.0
Kandhamal	67	30.3	52	23.5	82	37.1	51	23.1	12	5.4	0	0.0	221	100.0
Koraput	964	38.7	1076	43.1	505	20.2	137	5.5	179	7.2	0	0.0	2494	100.0
Malkanagiri	41	8.9	292	63.6	90	19.6	21	4.6	15	3.3	0	0.0	459	100.0
Nuapada	484	67.0	165	22.9	66	9.1	44	6.1	18	2.5	4	0.6	722	100.0
Rayagada	79	27.4	116	40.3	73	25.3	16	5.6	4	1.4	0	0.0	288	100.0
Total	2205	42.9	1805	35.1	911	17.7	487	9.5	367	7.1	4	0.1	5143	100.0

Source: Field Survey

Note: Mode of selling millets could imply to whom or where the household is selling millets. A household can sell in multiple ways. Hence, the all column that denotes the number of households that sold millets is not an addition across mode of selling millets.

In each of the districts, from among the surveyed HHs who sold millets in that district, the highest proportion was sold to local trader in Gajapati (77.4%) and Nuapada (67.0%), to mill owner in Kalahandi (59.0%), to moneylender in Kandhamal (37.1%), and at weekly *haat* in Malkangiri (63.6%), Koraput (43.1%) and Raygada (40.3%). Our FGDs and interaction with other stakeholders point out that because of interlocking of markets, the local trader and moneylender may be the same person and a term used by respondents as a trader or a moneylender depends upon the popular reference to the person in the region.⁷ At times, the interlocking of markets could also happen with the mill owner or middleman. The FGDs and interactions with stakeholders also point out that the amount sold in weekly *haat*, more often than not, is in small quantities and the returns used to buy other products available in the weekly *haat* while the quantity sold to local trader, money lender or mill owner are usually in larger quantities, almost the entire surplus after retaining some for consumption.

5.4 Conclusion

The usage of traditional methods of processing millets with *dhinki* and *chakki* could be a matter of taste and preference, but also because of unavailability and inaccessibility of processing machines, particularly those that could still retain the nutritional advantages while reducing the drudgery. There was variation across districts in the predominant mode of selling millets - local trader, weekly *haat*, money lender or mill owner. Independent of this, there did exist interlocking of credit and produce markets. The major findings of the report are provided in chapter 6.

⁷ For earlier discussions on related-aspects, see Srijit Mishra, *Exchange Relations in an Agrarian Set-up: Case Study of a Tribal Village from Orissa*, MPhil Dissertation, Centre for Development Studies, Trivandrum (Jawaharlal Nehru University, New Delhi), 1993; and Srijit Mishra, *Micro-Processes and Institutions in Tribal Agrarian Economies: A Study of Two Villages in Orissa*, PhD Thesis, Centre for Development Studies, Thiruvananthapuram (Jawaharlal Nehru University, New Delhi), 1999.

6 MAJOR FINDINGS

- 6.1 Agriculture is one of the important economic activities in the surveyed districts. Engagement in economic activities among HHs surveyed is as follows: 92.9 per cent in cultivation, 17.2 per cent in allied agricultural activities, 12.7 per cent in non-timber minor forest produce collection, 2.1 per cent in business, 1.1 per cent in services, and 10.2 per cent in other activities.
- 6.2 Across the districts, among HHs surveyed, the proportion engaged in cultivation is in the range of 94-98 per cent in Gajapati, Kalahandi, Kandhamal, Koraput and Malkangiri, is 86.7 per cent in Nuapada and 71.2 per cent in Rayagada.
- 6.3 District-wise per hectare yield of millets is as follows: Koraput (8.1 qtl/ha), Gajapati (4.9 qtl/ha), Malkangiri (4.7 qtl/ha), Kalahandi (3.8 qtl/ha), Rayagada (3.8 qtl/ha), Nuapada (2.9 qtl/ha) and Kandhamal (2.2 qtl/ha).
- 6.4 District-wise per hectare yield of *ragi* is as follows: Koraput (8.3 qtl/ha), Gajapati (5.0 qtl/ha), Malkangiri (4.7 qtl/ha), Kalahandi (3.9 qtl/ha), Rayagada (3.8 qtl/ha), Nuapada (2.9 qtl/ha) and Kandhamal (2.2 qtl/ha).
- 6.5 District-wise per hectare yield of *suan* is as follows: Koraput (6.6 qtl/ha), Kalahandi (3.0 qtl/ha), Malkangiri (2.5 qtl/ha), Gajapati (1.2 qtl/ha), Kandhamal (4.2 qtl/ha).
- 6.6 District-wise per hectare yield of *janha* is as follows: Gajapati (5.4 qtl/ha), Rayagada (5.2 qtl/ha), and Kandhamal (2.2 qtl/ha).
- 6.7 District-wise per hectare yield of *kangu* is as follows: Rayagada (1.5 qtl/ha), Kandhamal (1.2 qtl/ha) and Gajapati (0.9 qtl/ha).
- 6.8 District-wise per hectare yield of *kodo* is as follows: Nuapada (2.3 qtl/ha) and Kalahandi (1.1 qtl/ha).
- 6.9 Perception on quality of seed indicate that 53.2 per cent HHs opine that they used good quality seeds, 45.2 per cent opine that they used average quality seeds and 1.6 per cent opine that they used bad quality seeds.
- 6.10 Method-wise per hectare yield from millets is as follows: broadcasting (4.3 qtl/ha), line sowing (6.4 qtl/ha), transplantating (7.1 qtl/ha), SMI (8.7 qtl/ha) and 1+ Methods (7.7 qtl/ha).

- 6.11 Method-wise yield from *mandia* is: broadcasting (4.1 qtl/ha), line sowing (6.5 qtl/ha), transplanting (7.1 qtl/ha), SMI (9.0 qtl/ha) and 1+ methods (8.9 qtl/ha).
- 6.12 Method-wise yield from *suan* is: broadcasting (6.4 qtl/ha), line sowing (4.8 qtl/ha), transplanting (1.0 qtl/ha), SMI (6.2 qtl/ha) and 1+ methods (2.9 qtl/ha).
- 6.13 Method-wise yield from *janha* is: broadcasting (2.4 qtl/ha), line sowing (2.7 qtl/ha), transplanting (4.2 qtl/ha), SMI (0.5 qtl/ha) and 1+ methods (5.9 qtl/ha).
- 6.14 Method-wise yield from *kangu* is: broadcasting (1.1 qtl/ha), line sowing (0.5 qtl/ha), transplanting (1.0 qtl/ha) and 1+ methods (1.0 qtl/ha).
- 6.15 Method-wise yield from *kodo* is: broadcasting (2.2 qtl/ha), line sowing (2.6 qtl/ha), transplanting (2.5 qtl/ha), SMI (2.5 qtl/ha) and 1+ methods (1.2 qtl/ha).
- 6.16 In summer season, 95.1 per cent of surveyed HHs consumed millets - at least 87 per cent of surveyed HHs in each of the districts. The proportion of surveyed HHs who consumed millets during monsoon and winter is around 58 per cent.
- 6.17 Millets were consumed during all meal times: breakfast (80.6%), lunch (93.4%), evening snacks (36.3%) and dinner (39.6%).
- 6.18 The surveyed HHs consumed millets in the form of *jau* (83.6%), *pitha* (50.3%), *tampo* (28.9%), *torani* (48.6%) and *handia* (3.5%). The FGDs also pointed to emergence of new recipes in the form of *pakudi* or mixture with *mandia* as base, bakery products, and rice-based items (biryani or pulao with *suan*, *kangu*, or *kodo*) among others.
- 6.19 The surveyed HHs method of processing (for dehusking and grinding) is as follows: manually using *dhinki* and *chakki* (52.1%), machines (32.4%), both manually and machines (13.0%), not spelt out any method of processing (0.3%).
- 6.20 Among those who processed in machines, 2.5 per cent had their own machines and 97.5 per cent used other's pulveriser.
- 6.21 From those who processed millets in other's pulveriser, 58.1% travelled within 10 km, 28.6% travelled 11-20 km and 13.3% travelled more than 20 km.
- 6.22 From those who reported selling millets (5143 HHs) 42.9% sold to local traders, 35.1% sold in weekly *haat*, 17.7% sold to money lenders, 9.5% sold to mill owners, 7.1% sold to middlemen and 0.1% sold to others. FGDs pointed to interlocking across markets such that the local trader and money lender may be the same person. At times this interlocking may happen in transactions with the mill owner and the middleman.



ସଂଯୁକ୍ତ ଗୃହ - ୧

**ଓଡ଼ିଶାର ଆଦିବାସୀ ଅଞ୍ଚଳରେ କ୍ଷୁଦ୍ରଶସ୍ୟର ବିକାଶ ନିମିତ୍ତ ସ୍ୱତନ୍ତ୍ର କାର୍ଯ୍ୟକ୍ରମ
ପରିବାର ସମ୍ବନ୍ଧୀୟ ପ୍ରଶ୍ନାବଳୀ**

୧. ପରିବାରର ଚିହ୍ନଟ:

ସାଙ୍କେତିକ ସଂଖ୍ୟା:

(କ) ଚାଷୀଙ୍କ ନାମ:

ଉତ୍ତରଦାତାଙ୍କ ନାମ:

(ଖ) ଗ୍ରାମ:

ଗ୍ରାମପଞ୍ଚାୟତ:

ବ୍ଲକ:

ଜିଲ୍ଲା:

(ଗ) ବର୍ଗ: (i) ହରିଜନ (ii) ଆଦିବାସୀ (iii) ଅନ୍ୟାନ୍ୟ ପଛଆବର୍ଗ (iv) ସାମାଜିକ ଏବଂ ଆର୍ଥିକ ଅନଗ୍ରସର ଶ୍ରେଣୀ
(v) ସାଧାରଣ (ଉଲ୍ଲେଖକର)

(ଘ) ଉପଜାତି (ଉଲ୍ଲେଖକର) _____

ଙ) ଧର୍ମ: (i) ହିନ୍ଦୁ (ii) ମୁସଲମାନ (iii) ଖ୍ରୀଷ୍ଟିଆନ (iv) ଅନ୍ୟାନ୍ୟ (ଉଲ୍ଲେଖକର)

(ଚ) ବି. ପି. ଏଲ ଶ୍ରେଣୀରେ ଅନ୍ତର୍ଭୁକ୍ତ କି? ହଁ/ ନା

(ଛ) ଘରପ୍ରକାର ଏବଂ କୋଠାଠା ସଂଖ୍ୟା: ପଟ୍ଟା- ଆଶିକପଟ୍ଟା - ମାଟି-

୨. ସରକାରଙ୍କ କ୍ଷୁଦ୍ରଶସ୍ୟ ମିଶନରେ ଭାଗୀଦାର ଅଛନ୍ତି କି? ହଁ/ ନା

୩. ପରିବାରର ମୋଟ ସଦସ୍ୟଙ୍କ ସଂଖ୍ୟା:

ଲିଙ୍ଗ	ବୟସବର୍ଗ (ବର୍ଷରେ)		
	୧୪ ବର୍ଷ ପର୍ଯ୍ୟନ୍ତ	୧୫-୨୦ ବର୍ଷ ମଧ୍ୟରେ	୨୦ ବର୍ଷରୁ ଊର୍ଦ୍ଧ୍ୱ
ମହିଳା			
ପୁରୁଷ			

୪. ପରିବାରର ଅର୍ଥନୈତିକ କାର୍ଯ୍ୟକ୍ରମ (ଗତବର୍ଷ):

(କ) ଚାଷ/ଆନୁସଂଗିକ କାର୍ଯ୍ୟ/ ଚାକିରୀ (ସରକାରୀ/ଘରୋଇ)/ବ୍ୟବସାୟ/ଜଙ୍ଗଲଜାତ ଦ୍ରବ୍ୟ ସଂଗ୍ରହ/ଅନ୍ୟାନ୍ୟ (ଉଲ୍ଲେଖକର)

(ଖ) ପରିବାରର ଆନୁମାନିକ ବାର୍ଷିକ ଆୟ (ଟଙ୍କାରେ): _____

୫. ଆପଣ କୌଣସି ଠାରୁ ଋଣ କରିଛନ୍ତି କି? ହଁ/ ନା

ଯଦି ହଁ, କେତେ ଟଙ୍କା ----- କେଉଁ ସଂସ୍ଥାରୁ ଆଣିଛନ୍ତି? -----

୬. ମୋଟ ଜମିର ପରିମାଣ (ଗତବର୍ଷ) (ହେକ୍ଟରରେ):

(କ) ନିଜସ୍ୱ ----- ସ୍ଥାନୀୟ ଏକକ -----

(ଖ) ଚାଷ କରିଥିବା ଜମିର ପରିମାଣ (ସ୍ଥାନୀୟ ଏକକରେ) -----

(ଗ) ମୋଟ ଜଳସେଚିତ ଜମିର ପରିମାଣ (ସ୍ଥାନୀୟ ଏକକରେ) -----

୭. କ୍ଷୁଦ୍ରଶସ୍ୟ କିପରି ଚାଷ କରିଥିଲେ? (କ) କେବଳ ଗୋଟିଏ ଶସ୍ୟ (ଖ) ଅନ୍ୟଶସ୍ୟ ସହିତ (ଅନ୍ୟଶସ୍ୟର ନାମଲେଖ)

୮. ବିହନର ବ୍ୟବହାର (ଗତବର୍ଷ)

(କ) ବ୍ୟବହାର କରିଥିବା ବିହନର ପରିମାଣ (କିଲୋଗ୍ରାମରେ) -----

(ଖ) ବିହନର ପରିମାଣ ଯଥେଷ୍ଟ ଥିଲା କି? ହଁ/ ନା

(ଗ) ବିହନକୁ ବିଶୋଧନ କରିଥିଲେ କି? ହଁ/ ନା

(ଘ) ବିହନର ମାନ କିପରି ଥିଲା? i) ଭଲ ii) ସାଧାରଣ iii) ଖରାପ

୯. କ୍ଷୁଦ୍ରଶିକ୍ଷାପ୍ରଣାଳୀ(ଗତବର୍ଷ)

ଗାନ୍ଧୀ ପ୍ରଣାଳୀ	ଠିକ ଚିହ୍ନ ଦିଅନ୍ତୁ	ଗାନ୍ଧୀ ପ୍ରଣାଳୀ	ଠିକ ଚିହ୍ନ ଦିଅନ୍ତୁ
ଅଳ୍ପରୋଦ୍ଧାନ ପରୀକ୍ଷା		ମେସିନ୍ ଦ୍ଵାରା ଘାସବନ୍ଧା	
ଛଟାବୁଣା		କେତେଥର ଘାସବନ୍ଧା ହୋଇଥିଲା(ସଂଖ୍ୟାରେ)	
ଧାଡ଼ିବୁଣା		ଜୈବିକ ସାରର ବ୍ୟବହାର	
ରୁଆ		ଜୈବିକ କୀଟନାଶକର ବ୍ୟବହାର	
ଏସ.ଏମ.ଆଇ ପ୍ରଣାଳୀ		ରାସାୟନିକ ସାରର ବ୍ୟବହାର	
ହାତରେ ଘାସବନ୍ଧା		ରାସାୟନିକ କୀଟନାଶ କରବ୍ୟବହାର	

୧୦ .କ୍ଷୁଦ୍ରଶିକ୍ଷାପ୍ରଣାଳୀରୁ ଉତ୍ପାଦନ ଏବଂ ବ୍ୟବହାର(ଗତବର୍ଷ)

କ୍ଷୁଦ୍ରଶିକ୍ଷା ପ୍ରକାର	କେତେ ଜମିରେ ହୋଇଥିଲା (ଏକରରେ)	ମୋଟ ଉତ୍ପାଦନ (କିଣ୍ଟାଲରେ)	ଘରେ ବ୍ୟବହୃତ (କିଣ୍ଟାଲରେ)	ବିହନପାଇଁ ରଖିଥିବା ପରିମାଣ (କିଲୋଗ୍ରାମରେ)	ବିକ୍ରି କରିଥିବା ପରିମାଣ (କିଣ୍ଟାଲରେ)	ମୂଲ୍ୟ (କିଣ୍ଟାଲପିଛା/ଟଙ୍କାରେ)

୧୧. ଗତବର୍ଷ ଆପଣଙ୍କ ଘରେ କ୍ଷୁଦ୍ରଶିକ୍ଷା ପରିମାଣ ଯଥେଷ୍ଟ ଥିଲା କି? ହଁ/ ନା
- (କ) ହାରାହାରି ବାର୍ଷିକ ବ୍ୟବହୃତ ପରିମାଣ ----- ଖ) ହାରାହାରି ବାର୍ଷିକ ଆବଶ୍ୟକତା-----
୧୨. କେଉଁ ସମୟରେ କ୍ଷୁଦ୍ରଶିକ୍ଷା ବ୍ୟବହାର କରିଥାଆନ୍ତି? i) ସକାଳେ ii) ଖରାବେଳେ iii) ସଂଧ୍ୟାବେଳେ iv) ରାତିରେ
୧୩. କେଉଁ ଋତୁରେ କ୍ଷୁଦ୍ରଶିକ୍ଷା ବ୍ୟବହାର କରିଥାଆନ୍ତି? i) ଗ୍ରୀଷ୍ମଋତୁ ii) ବର୍ଷାଋତୁ iii) ଶୀତଋତୁ
୧୪. ଆବଶ୍ୟକ ପଡ଼ିଲେ କେଉଁଠାରୁ କ୍ଷୁଦ୍ରଶିକ୍ଷା କିଣିଥାଆନ୍ତି?
- i) ବାହାରୁ ii) ପଡୋଶୀ/ ସାଙ୍ଗସାଥୀ/ ସମ୍ପର୍କୀୟଠାରୁ iii) ଅନ୍ୟାନ୍ୟ (ଉଲ୍ଲେଖକର)
୧୫. ଆପଣ କ୍ଷୁଦ୍ରଶିକ୍ଷାକୁ କିପରି ପ୍ରସ୍ତୁତ କରନ୍ତି? i) ହାତରେ ii) ମେସିନ୍ ସାହାଯ୍ୟରେ
- ଯଦି ଉଭୟ, ମେସିନ୍ ସାହାଯ୍ୟରେ ହୋଇଥାଏ ? ନିଜର ମେସିନ୍ ଅଛି କି? ହଁ/ ନା
୧୬. ଆପଣ କ୍ଷୁଦ୍ରଶିକ୍ଷାରେ କିପ୍ରକାରର ଖାଦ୍ୟ ପ୍ରସ୍ତୁତ କରିଥାଆନ୍ତି ?
- ଜାଭ-୧, ପିଠା-୨, ତମୋ-୩, ମାଣ୍ଡିଆ-ତୋରାଣୀ-୪, ହାଣ୍ଡିଆ-୫, ଅନ୍ୟାନ୍ୟ (ଉଲ୍ଲେଖକର)-୬
୧୭. ମହିଳାମାନେ କ୍ଷୁଦ୍ରଶିକ୍ଷା ପ୍ରସ୍ତୁତ କରିବାରେ କିଛି ଅସୁବିଧାର ସମ୍ମୁଖୀନ ହେଉଛନ୍ତି କି? ହଁ/ ନା
୧୮. କ୍ଷୁଦ୍ରଶିକ୍ଷା ବିକ୍ରୟ ପ୍ରଣାଳୀ:
- i) ମିଳ୍ମମାଲିକଙ୍କୁ ii) ମଧ୍ୟସ୍ଥଙ୍କୁ iii) ସ୍ଥାନୀୟ ବ୍ୟବସାୟୀଙ୍କୁ iv) ବଜାର v) ହାଟରେ/ସାହୁକାରଙ୍କୁ vi) ଅନ୍ୟାନ୍ୟ (ଉଲ୍ଲେଖକର)
୧୯. ବିକ୍ରୟ ସ୍ଥାନ ଏବଂ ଗ୍ରାମ ମଧ୍ୟରେ ଦୂରତ୍ଵ (କିଲୋମିଟରରେ)

ତଦନ୍ତକାରୀଙ୍କ ସ୍ଵାକ୍ଷର



ସଂଯୁକ୍ତ ଗୃହ - ୨

ନବକୃଷ୍ଣ ଚୌଧୁରୀ ଉନ୍ନୟନ ଗବେଷଣା କେନ୍ଦ୍ର ଭୁବନେଶ୍ୱର

ଗୋପନୀୟ, କେବଳ ଗବେଷଣା ନିମିତ୍ତ

**ଓଡ଼ିଶାର ଆଦିବାସୀ ଅଞ୍ଚଳରେ କ୍ଷୁଦ୍ରଶସ୍ୟର ବିକାଶ ନିମିତ୍ତ ସ୍ୱତନ୍ତ୍ର କାର୍ଯ୍ୟକ୍ରମ
ଗୋଷ୍ଠୀ ଏବଂ ଦଳ ମାନଙ୍କ ସହିତ ଆଲୋଚନା**

ଗ୍ରାମ: _____ ଗ୍ରାମପଞ୍ଚାୟତ: _____
 ବ୍ଲକ: _____ ଜିଲ୍ଲା: _____
 ତାରିଖ: _____ ସମୟ: _____

୧. ଆଲୋଚନାରେ ଅଂଶଗ୍ରହଣ କରିଥିବା ବ୍ୟକ୍ତି ମାନଙ୍କ ତଥ୍ୟାବଳୀ:

କ୍ରମଂ.	ନାମ	ଲିଙ୍ଗ	ବୟସ	ଜାତି/ଗୋଷ୍ଠୀ	ଶିକ୍ଷା	ବୃତ୍ତି	ସ୍ୱାକ୍ଷର/ଟିପଚିହ୍ନ

ବି. ଦ୍ର: ଗ୍ରାମମୁଖ୍ୟ, ଗ୍ରାମର ଶିକ୍ଷିତ ବ୍ୟକ୍ତି, ପଞ୍ଚାୟତର ନିର୍ବାଚିତ ସଭ୍ୟ, କ୍ଷୁଦ୍ରଶସ୍ୟା ଚାଷୀ ଏବଂ ଅନ୍ୟାନ୍ୟ ପ୍ରମୁଖ ତଥ୍ୟ ପ୍ରଦାନକାରୀ

ବିଭାଗ-୧: କ୍ଷୁଦ୍ରଶସ୍ୟର ଉତ୍ପାଦନ

୧. ଗ୍ରାମର କେତେ ଘର କ୍ଷୁଦ୍ରଶସ୍ୟ ଚାଷ କରନ୍ତି :

ମାଣ୍ଡିଆ, ଶୁଆଁ କାଙ୍ଗୁ କୋଦୋ, ଅନ୍ୟାନ୍ୟ ଉଲ୍ଲେଖକର

୨. କ୍ଷୁଦ୍ରଶସ୍ୟ ଚାଷର ପରିବର୍ତ୍ତନ:

ସୂଚୀ	ପୂର୍ବରୁ	ଗତବର୍ଷ
ଜମିର ପରିମାଣ (ଏକରରେ)		
କିସମ		
ଅଧିକ ଅମଳକ୍ଷମ		
ପାରମ୍ପରିକ		
ଚାଷପ୍ରଣାଳୀ		
ଛତାବୁଣା		
ଧାଡ଼ିବୁଣା		

ଏସ.ଏମ.ଆଇ		
ବଛାବଛି (ଲୋକମାନଙ୍କଦ୍ୱାରା)		
ବଛାବଛି (ମେସିନ୍ ସାହାଯ୍ୟରେ)		
କେତେଥର ବାଛନ୍ତି		
କେଉଁ ଖତସାର ବ୍ୟବହାର କରନ୍ତି (କମ୍ପୋଷ୍ଟଖତ)		
ରାସାୟନିକସାର		
କ୍ଷୁଦ୍ରଶସ୍ୟ ବୁଣାଠାରୁ ଅମଳ ପର୍ଯ୍ୟନ୍ତ କେତେ ସମୟ ଲାଗେ(ଦିନ)		
କେଉଁ ରତ୍ନରେ		
ଖରିଫ ରତ୍ନ		
ରବି ରତ୍ନ		
ସମର ରତ୍ନ		
ଅମଳର ମାତ୍ରା (ହେକ୍ଟରପିଛାକୁଖିଲରେ)		
ପ୍ରକାର- ୧		
ପ୍ରକାର- ୨		

ବିଭାଗ:- ୨ (କ୍ଷୁଦ୍ରଶସ୍ୟର ବ୍ୟବହାର)

୧. କ୍ଷୁଦ୍ରଶସ୍ୟ ସମ୍ପର୍କିତ ପାରମ୍ପରିକ ଉତ୍ସବ କିଛି କରାଯାଏ କି? ହଁ/ ନା
ଯଦି ହଁ: ୧) ପାରମ୍ପରିକ ଉତ୍ସବ, ୨. ବିହନ ବଦଳ, ୩. ବିଭିନ୍ନ ପ୍ରକାରର ଖାଦ୍ୟପ୍ରସ୍ତୁତି, ୪. ପ୍ରଦର୍ଶନୀ କିମ୍ବା ମେଳାର ଆୟୋଜନ
୨. କେଉଁ ମାସ/ରତ୍ନରେ କ୍ଷୁଦ୍ରଶସ୍ୟର ଅଧିକ ବ୍ୟବହାର କରାଯାଇ ଥାଏ? ମାସ _____ ରତ୍ନ _____
କାରଣ କଣ - ଉଲ୍ଲେଖକର
୩. କ୍ଷୁଦ୍ରଶସ୍ୟରୁ ପ୍ରସ୍ତୁତ ଖାଦ୍ୟକୁ ଅଙ୍ଗନୱାଡି ମାନଙ୍କରେ ଦିଆଯିବା ପାଇଁ ଆପଣ ଚାହୁଁଛନ୍ତି କି? ହଁ/ ନା
ଯଦି ହଁ, କାରଣ କଣ ଉଲ୍ଲେଖକର
୪. କ୍ଷୁଦ୍ରଶସ୍ୟରୁ ପ୍ରସ୍ତୁତ ଖାଦ୍ୟକୁ ବିଦ୍ୟାଳୟ ମାନଙ୍କରେ ଦିଆଯିବାପାଇଁ ଆପଣ ଚାହୁଁଛନ୍ତି କି? ହଁ/ ନା
ଯଦି ହଁ, କାରଣ କଣ ଉଲ୍ଲେଖକର
୫. କ୍ଷୁଦ୍ରଶସ୍ୟରୁ ପ୍ରସ୍ତୁତ ଖାଦ୍ୟକୁ ଛାତ୍ରାବାସ ମାନଙ୍କରେ ଦିଆଯିବା ପାଇଁ ଆପଣ ଚାହୁଁଛନ୍ତି କି? ହଁ/ ନା
ଯଦି ହଁ, କାରଣ କଣ ଉଲ୍ଲେଖକର
୬. କ୍ଷୁଦ୍ରଶସ୍ୟକୁ ସହାୟକମୂଲ୍ୟ କେନ୍ଦ୍ରମାନଙ୍କରେ ଲୋକମାନଙ୍କୁ ବିତରଣ କରାଯିବାପାଇଁ ଆପଣ ଚାହୁଁଛନ୍ତି କି? ହଁ/ ନା
ଯଦି ହଁ, କାରଣ କଣ ଉଲ୍ଲେଖକର

ବିଭାଗ: ୩ – କ୍ଷୁଦ୍ରଶସ୍ୟର ପ୍ରସ୍ତୁତିପ୍ରଣାଳୀ

୧. ସାଧାରଣତଃ ଲୋକମାନେ କିପରି କ୍ଷୁଦ୍ରଶସ୍ୟକୁ ପ୍ରକ୍ରିୟା କରନ୍ତି* ?
୨. କେତେ ପରିବାର କ୍ଷୁଦ୍ରଶସ୍ୟର ପ୍ରକ୍ରିୟାକରଣ ନିଜ ହାତରେ କରନ୍ତି?
୩. ଗ୍ରାମରେ କିମ୍ବା ପଞ୍ଚାୟତରେ କ୍ଷୁଦ୍ରଶସ୍ୟକୁ ପ୍ରସ୍ତୁତ କରିବାପାଇଁ ମେସିନ୍ ଅଛି କି? ହଁ/ ନା
ଯଦିହଁ, ତେବେ କେତୋଟି ମେସିନ୍ ଅଛି? _____
ଯଦିନା, ତେବେ କେତେ ଦୁରତ୍ତରେ ମେସିନ୍ ଉପଲବ୍ଧ ହେଉଅଛି,(କିଲୋମିଟରରେ) _____
୪. ଗ୍ରାମଠାରୁ କେତେଦୂରରେ କ୍ଷୁଦ୍ରଶସ୍ୟକୁ ପ୍ରସ୍ତୁତ କରିବାପାଇଁ ଯନ୍ତ୍ରାଂଶ ଉପଲବ୍ଧ ଅଛି? (କିଲୋମିଟରରେ)
(i*ହାତରେଗୁଣ୍ଠକରିମେସିନ୍ଦ୍ୱାରାବଛାବଛିକରିବାରୋପାନ୍ତତାଳ (iv ,ହାତରେବଛାବଛିକରିବାରୋପାନ୍ତତାଳ (iii ,ମେସିନ୍ଦ୍ୱାରାଗୁଣ୍ଠକରି(ii ,

ବିଭାଗ: ୪ -ବିକ୍ରୟ ପ୍ରଣାଳୀ

୧ .ବର୍ତ୍ତମାନ ବିକ୍ରୟ କରାଯାଉଥିବା ସ୍ତ୍ରୀପୁଷ୍ୟସ୍ୟର ପ୍ରଣାଳୀ*

i*ଚାଷ ଜମିରୁ ସିଧା ବିନା ପ୍ରକ୍ରିୟା କରଣରେ,ii)ବଛାବଛିକରି,iii) ଚୋପା ଛତାଇ, iv) ଗୁଣ୍ଡକରି, v) ଅନ୍ୟାନ୍ୟଉଲ୍ଲେଖକର

୨. ଚାଷୀମାନେ ସାଧାରଣତଃ କେଉଁଠାରେ ସ୍ତ୍ରୀପୁଷ୍ୟକୁ ବିକ୍ରୟ କରିଥାଆନ୍ତି?*

ମିଲ୍ଲାଇକକୁ ii) ମଧ୍ୟସ୍ଥକୁ iii) ସ୍ଥାନୀୟବ୍ୟବସାୟୀକୁ iv) ବଜାର/ ହାଟରେ v) ସାହୁକାରକୁ vi) ଅନ୍ୟାନ୍ୟ(ଉଲ୍ଲେଖକର)

୩. ପାଖ ବିକ୍ରୟ କେନ୍ଦ୍ରର ଦୂରତ୍ୱ କେତେ? (କିଲୋମିଟରରେ)_____

୪. ପରିବହନର ମାଧ୍ୟମ (କିଲୋମିଟରରେ)_____

ବିଭାଗ: - ୫

୧ I କୃଷିରେ ବିକାଶ ନିମନ୍ତେ କୌଣସି ସରକାରୀ ଅଧିକାରୀ ଆପଣଙ୍କ ଗ୍ରାମକୁ ପରିଦର୍ଶନରେ ଆସିଥିଲେକି ? ହଁ/ ନା
ଯଦି ହଁ, କେଉଁ ସ୍ତରର ଅଧିକାରୀ ଆସିଥିଲା ?

i) କୃଷକ ସାଥୀ, ii) ଗ୍ରାମ୍ୟ କୃଷି କର୍ମଚାରୀ, iii) ବ୍ଲକ ସ୍ତରୀୟ (ସହକାରୀ କୃଷି ଅଧିକାରୀ),

iv) ଜିଲ୍ଲା ସ୍ତରୀୟ (ଜିଲ୍ଲା କୃଷି ଅଧିକାରୀ / ଜିଲ୍ଲା ଉପ କୃଷି ନିର୍ଦ୍ଦେଶକ),

v) ଅନ୍ୟାନ୍ୟ ଉଲ୍ଲେଖକର_____

୨ I ସ୍ତ୍ରୀପୁଷ୍ୟସ୍ୟର ଉତ୍ପାଦନ / ବ୍ୟବହାର / ପ୍ରସ୍ତୁତି ଏବଂ ବିକ୍ରିୟାର ଉନ୍ନତିପାଇଁ ଯଦି କିଛି ମତାମତ ଥାଏ, ତେବେ ଉଲ୍ଲେଖ
କରନ୍ତୁ

ଦଳଗତ ଆଲୋଚନା ସଂଚାଳନ କରିଥିବା ବ୍ୟକ୍ତିଙ୍କ
ସ୍ୱାକ୍ଷର

ANNEXURE A1
FIELD INVESTIGATORS INVOLVED IN BASELINE SURVEY

Gajapati	Gumma	Mr. Ayub Naik
		Mr. Remon Raita
	Mohana	Mr. Pitabas Mahapatra
		Mr. Purushotama Dash
Kalahandi	Rayagada	Mr. Sanjay Sabar
	R.Udaygiri	Mr. Gupteswar Parichha
	Lanjigarh	Mr. Gobinda Nayak
	Narla	Mr. Kamalakant Bhoi
Kandhamal	Th.Rampur	Mr. Chandrasen Naik
	Daringbadi	Mr. Birenmitra Naik
	Kotagarh	Mr. Padma Lochan Nayak
	Phiringia	Mr. Nabin Digal
Koraput	Raikia	Mr. Naresh Pradhan
		Mr. Utkal Keshari Nayak
	Boipariguda	Ms. Bijayalaxmi Mohapatra
		Mr. Thakur Prasad Paik
	Borigumma	Mr. Nabin Harijan
		Mr. Satya Penthia
	Dashmantpur	Mr. Bikash Jani
		Mr. Gopinath Nayak
	Kundra	Mr. Ranjan Kumar Machha
		Mr. Sapan Ku Panigrahi
Lamtaput	Mr. Sita Prasad Senapati	
Malkangiri	Nandapur	Mr. Daitari Badnaik
		Mr. Kapilendradev Samantray
	Semiliguda	Mr. Ajit Kumar Sisha
		Mr. Mangu Khilla
		Mr. Thakur Krisani
		Mr. Devraj Sisha
		Mr. Lingaraj Pradhan
	Chitrakonda	Mr. Belalsen Guntha
	Korkonda	Mr. Ram Chandra Madkami
	Mathili	Mr. Sanjay Maharana
	Mr. Ajit Ku Sagaria	
	Mr. Chandrasen Khudupia	
	Mr. Harihar Dalai	
	Mr. Tripati Nayak	
Nuapada	Boden	Mr. Parsuram Dharua
	Komana	Mr. Kharat thela
		Mr. Pabitra Bag
	Sinapali	Mr. Ajit Ku Bisi
Rayagada		Mr. Lambodhar Majhi
	Gudari	Mr. Laxman Sabar
	Gunupur	Mr. Chhabilal Mutuka
	Rayagada	Mr. Amruta Naik
	Mr. Brundaban Madangi	

ANNEXURE A2

AGRICULTURE DEPARTMENT/DIRECTORATE AND DISTRICT OFFICIALS

Office	Position	Name of the Officer
DEPARTMENT OF AGRICULTURE AND FARMERS' EMPOWERMENT	Former Agriculture Production Commissioner (APC)	Mr. Gagan Ku Dhal, IAS
	APC	Mr. Pradipta Ku Mohapatra, IAS
	Former Principal Secretary	Mr. Manoj Ahuja, IAS
	Principal Secretary	Dr. Saurabh Garg, IAS
	Former Special Secretary	Mr. Bhaskar Jyoti Sarma, IAS
	Former Agriculturist	Mr. Basant Ku Sar
	Agriculturist	Mr. Pramod Ku Samal
DIRECTORATE OF AGRICULTURE AND FOOD PRODUCTION	Former Director	Dr. Ananda Chandra Sasmal
	Director	Mr. Hari Ballav Mishra, IAS
	Former Joint Director Agriculture (JDA), Millets/Integrated Farming	Dr. M. Muthu Kumar, IAS
	Assistant Agriculture Officer (AAO) & in charge JDA	Mr. Kashinath Khuntia,
	AAO	Mr. Ansuman Pattnayak
GAJAPATI DISTRICT	Former Collector	Mr. Sanjay Kumar Pani
	Collector	Ms. Manasi Nimbhal, IAS
	Deputy Director Agriculture (DDA)	Mr. Anupam Saha, IAS
	District Agriculture Officer (DAO)	Mr. Promod Ku. Mishra
	Scheme Officer	Mr. Bijaya Ku Pradhan
	AAO, Gumma block	Mr. Chaitanya Charan Sahoo
	AAO, Mohana block;	Ms. Sanghamitra Pradhan
	AAO, R. Udayagiri block	Mr. Bhabendra Murmu
	AAO, Rayagada block.	Mr. Suryakanta Sethy
KALAHANDI DISTRICT	Former Collector	Mr. Dibyaswarup Panda
	Collector	Mr. Anjan Ku Manik, IAS
	DDA-cum-Project Director (PD)	Dr. Parag Harshad Gavali, IAS
	Scheme Officer	Mr. Antaryami Mallick
	AAO, Lanjigarh Block (also in charge of Narla Block at the time of survey)	Ms. Pujarani Bag
	AAO, Narla Block	Mr. Sudhansu Meher
	AAO, Th. Rampur Block	Ms. Sibani Pradhan
		Mr. Soubhagya Behera
KANDHAMAL DISTRICT	Collector	Dr. Brunda D
	DDA-cum-PD ATMA,	Mr. Pradeep Kumar Rath
	Scheme Officer	Mr. Hemant Kumar Das
	AAO, Raikia Block	Mr. Sudepta Pradhan
	AAO, Phiringia	Mr. Sabyasachi Das
	AAO, Daringibadi	Mr. Pabitra Mohan Sahoo
AAO, Kotgarh Block	Mr. Jyoti Ranjan Mishra	

continued

ANNEXURE A2
AGRICULTURE DEPARTMENT/DIRECTORATE AND DISTRICT OFFICIALS

Office	Position	Name of the Officer
KORAPUT DISTRICT	Former Collector	Mr.K. Sudarshan Chakravarthy IAS
	Collector	Mr. Madhusudan Mishra, OAS(SAG)
	DDA, Koraput, Jeypore	Mr. Kalidas Biswas
	DAO, Jeypore	Mr. Umesh Chandra Sahoo
	DAO, N. Patna	Mr. P. V. R. Rao
	DAO, Koraput	Mr. Subrat Kumar Rath
	DAO, Nandapur	Mr. Sarat Kumar Mohapatro
	FMS Range, Jeypore	Mr. D. S. Bariha
	W. M. S, Jeypore	Mr. Ajit Kumar Giri
	T O, Jeypore	Mr. Jagannath Nanda
	AAO (JUTE), Jeypore	Mr. Sashibhusan Senapati
	ADA (INPUT), Jeypore	Mr. Biswaraj Rath
	AAO (INPUT) ,Jeypore	Mr. Tusar Ranjan Swain
	AAO (Input), Jeypore	Ms. Annapurna Behera
	P O (Oilseed), Jeypore	Mr. Gokul Chandra Nayak
	AAO (Sugarcane), Jeypore	Mr. Kailash Panda
	AAO (Information)), Jeypore	Mr. Rajani Kumbhar
	AAO, Jeypore-I	Mr. G. Satyanarayan,
	AAO, Jeypore-11	Mr. Purna Chandra Burudi
	AAO, Kundra	Mr. Debasish Mallick
	AAO, Digapur	Mr. Nrimalya Kumar Naik
	AAO, Boipariguda	Mr. Ramesh Chandra Naik
	AAO, Ramagiri	Ms. Monsoon Khemundu
	AAO, Borigumma	Mr. K. Jeetendra Rao
	AAO/ ASPO. Kusumi/ OSSC	Mr. Shitikanta Das
	AAO, Kotpad	Mr. Seetakanta Rout
	AAO, N. Patna-I	Mr. Gabriel Dung Dung
	AAO, N. Patna-II	Mr. Bharat Bhusan Mallik
	AAO, Laxmipur	Mr. Sudarsan Dehury
	AAO, Kakiriguma	Mr. Suryakanta Nahak
	AAO, Kumbhariput	Mr. Subash Ch Behera
	AAO, Bandhugaon	Mr. Basudev Bisoi
	PPO, Nandapur	Mr. Sanjaya Kumar Dalei
	AAO, Nandapur	Mr. Hrusikesh Kanhar
	AAO, Pottangi (I)	Mr. Abhimanyu Swain
	AAO, Pottangi (II)	Mr. Kanhu Ch Khuntia
	AAO, Machakund	Mr. Ramchandra Behera
	AAO, Koraput (I)	Mr. Ranjan Kumar Pattnaik
	AAO, Koraput (II)	Mr. Mahesh Ku. Padhy
	AAO, Dasamantapur	Mr. Tapas Chandra Ray
AAO, Semiliguda	Mrs Subharshree Bandita	
AAO, Kunduli	Mr. Rajendra Nath Naik	

continued

ANNEXURE A2
AGRICULTURE DEPARTMENT/DIRECTORATE AND DISTRICT OFFICIALS

Office	Position	Name of the Officer
MALKANGIRI DISTRICT	Collector	Mr. Manish Agarwal, IAS
	DDA	Mr. Ramachandra Patnaik
	DAO	Mr. Kailash Chandra Swain
	AAO, Chitrakonda	Mr. Krushnapada Mukherjee
	AAO, Korkonda	Mr. Chandra Sekhar Bhumia
	AAO, Mathili	Mr. Jagdish Kumar Choudhury
NUAPADA DISTRICT	Former Collector	Dr. Poma Tudu, IAS
	Collector	Ms. Madhusmita Sahoo, IAS
	Deputy Director Agriculture	Mr. MD. Jahed
	District Agriculture Officer	Mr. Bishnu Prasad Nayak
	Scheme Officer	Mr. Sudhansu Sekhar Sahoo
	AAO, Boden	Mr. Yogeswar Triwedi
	AAO, Komna	Mr. Tankadhar Tanti
	AAO, Sinapali	Mr. Sanjay Kumar Sahoo
RAYAGADA DISTRICT	Former Collector	Ms. Guha Poonam Tapas Kumar, IAS
	Collector	Mr. Pramod Kumar Behera, OAS (SAG)
	Deputy Director Agriculture	Mr. Rabindranath Khuntia
	District Agriculture Officer	Mr. Krushna Chandra Sing
	Scheme Officer	Mr. Bhibudendu Dey
	AAO, Rayagada	Mr. Dushmanta Swain
	AAO, Gunupur	Mr. Priyanatha Patra
	AAO, Gudari	Mr. Sanatana Behera

Note: The position of district-level officials was as in August 2019.

ANNEXURE A3
PROGRAMME SECRETARIAT PERSONNEL

Position	Name of the Officer
Former State Coordinator	Mr. Dinesh Balam
State Coordinator	Ms. Ashima Choudhury
Former Regional Coordinator (Kandhamal, Nuapada, Bolangir, Kalahandi)	Mr. Ramani Ranjan Nayak
Former Regional Coordinator (Gajapati, Rayagada, Koraput)	Mr. Susanta Sekhar Choudhury
Regional Coordinator (Sundergarh, Keonjhar)	Mr. Subham Sharma
Regional Coordinator (Gajapati, Kandhamal, Rayagada)	Ms. Sasmita Nayak
Regional Coordinator (Nawarangpur, Bargarh, Kalahandi, Bolangir, Nuapada)	Mr. Narendra Kumar Barik
Finance Officer	Mr. Bishnu Prasad Sahoo
Finance Officer	Mr. Sagar Patnaik
IT Officer	Mr. Rakesh Kumar Sahoo
Event Coordinator	Ms. Sabanam Aferin
District Coordinator, Gajapati	Mr. Raghunath Sahu
District Coordinator, Kalahandi	Mr. Aditya Singh Deo
District Coordinator, Kandhamal	Mr. Rama Chandra Tosh
Former District Coordinator, Koraput	Mr. Aswini Das
District Coordinator, Koraput	Mr. Sibashankr Shetty
District Coordinator, Koraput	Mr. Trinath Taraputia
District Coordinator, Malkangiri	Mr. Prakash Ch. Mallick
District Coordinator, Nuapada	Mr. Biswa Shankar Das
Former District Coordinator, Rayagada	Mr. Niranjana Gauda
District Coordinator, Rayagada	Mr. Malay Ku Sahoo

Note: IT denotes Information and Technology

ANNEXURE A4

DISTRICT WISE FACILITATING AGENCY AND COMMUNITY BASESD ORGANIZATION

Districts	Blocks	Facilitating Agency	Community Based Organization
Gajapati	Gumma	Centre for Community Development (CCD)	Moriyam Mahila Sangha
	Mohana	Social Action for Community Alternative Learning (SACAL)	Taptapani Farmers Producer Company Ltd.
	Rayagada	Society for the Welfare of the Weaker Section (SWWS)	Mahendragiri SHG
	R.Udaygiri	Suraksha	Maa Kureisuni Producer Company Ltd. Ramagiri
Kalahandi	Lanjigarh	Janasahajya	Anchalika Agri Producer Company Limited (Aapcol)
	Narla	Sahavagi Vikas abhiyan (SVA)	Manikeswari Agri Producer Company Ltd.
	Th.Rampur	The Huma Development	Pragati Multipurpose Co-operative Society Ltd
Kandhamal	Daringbadi	Jagruti	Pahadi Farmers Producers Company Ltd.
	Kotagarh	Nirman	Kandhamal Farmers Producers Company Ltd.
	Phiringia	Agragramee	Priringia Anchalika Mahila Mahasangha
	Raikia	Social Welfare Agency and Training Institute (SWATI)	Surgabhata Farmers Producer Company Ltd.
Koraput	Boipariguda	Centre For Youth And Social Development (CYSD)	Sabujima Producers Company Ltd.
	Borigumma	Harsha Trust	MAA Santoshi SHG
	Dashmantpur	Development Of Humane Action Foundation (DHAN)	Kalanjiam Cluster Sangaha
	Kundra	M S Swaminathan Research Foundation (MSSRF)	Mahila Sawayan Sahayak Gosti
	Lamtaput	Professional Assistance for Development Action (PRADAN)	Nari Shakti Mahila Maha Sangha
	Nandapur	Pragati	Jaivik SRI farmers Producers Company Ltd.
	Semiliguda	Development Of Humane Action Foundation (DHAN)	Deomali Kalanjiam Maha Sangha
Malkangiri	Chitrakonda	Sishu O Mahila Kalyan Samty (SOMKS)	Krushak Anchalika Sadhan Kendra
	Korkonda	Tagore Society for Rural Devt. Parivartan	Prayas Anchalika Seva Kendra
	Mathili		Subash Bose Gosthi Sadhan Kendra
Nuapada	Boden	Palli Vikas	Marjyada Farner Producer Company
	Komana Sinapali	Ahinsa Sahavagi Vikas Abhiyan (SVA)	Maa Mahalaxmi SHG Jay Jaganath UVS
Rayagada	Gudari	Jagaran	Biswaradharani SHG
	Gunupur	Asha	Pathima SHG
	Rayagada	Orissa Professional Development Service Consultants (OPDSC)	Arati SHG

Note: SHG denotes Self-help Group, UVS denotes Udyan Vikas Samitee

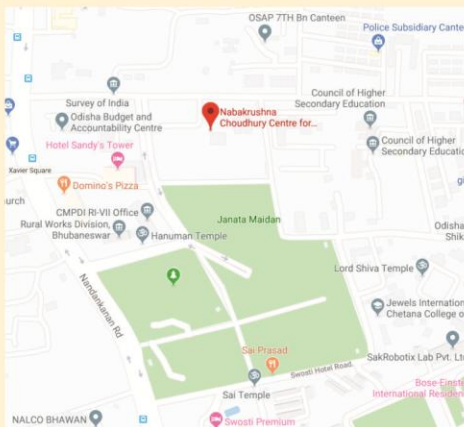
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About NCDS, Bhubaneswar

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