



Lessons from Odisha Millets Mission

A Case for Mainstreaming Millets

December 2021

Message from Director of Agriculture and Food Production

Millets-based crop systems are highly resilient to climate variability and produce highly nutritious food grains. Millets' share in crop area and household consumption is drastically reduced over years. Low productivity with the current methods of cultivation, lack of local processing units, and lack of awareness on nutrition are identified as the prime reasons. However, increasing urban demand, improvement in processing machinery, availability of improved cultivars, better agronomic practices, and the possibility of accessing support irrigation have increased the potential of realizing higher productivity and profitability in millets, thereby, nutrition security, resilience, and economic security of tribal households.



The special program for millets in tribal areas of Odisha has evolved after multiple consultations at the state level to secure nutrition and mitigate drought in southern Odisha organized by the Planning and Convergence Department, Govt. of Odisha. The comprehensive project includes a campaign for the revival of millets in household consumption, improving the productivity of millet crop systems, promoting local processing enterprises, and developing markets. The programme was budgeted for in the State Agriculture Budget of 2017-18 and is in implementation since then.

During implementation of Odisha Millets Mission, Odisha became the first state in the country to declare direct incentive to farmers for three years through Direct Benefit Transfers, complete benchmarking of prices of little millet and foxtail millet, develop standard specifications for the minor millet machinery through a recognized panel of experts from different scientific institutions, and include Ragi laddu in ICDS through the support of District Mineral Foundation. It also became the third state to distribute millets in PDS in the country.

The Odisha Millets Mission has received recognition from many quarters. The Government of India has asked all states to adopt the Odisha Millets Mission model for the promotion of millets, pulses, and oilseeds. The State Planning Commission of Chhattisgarh has asked the Government of Chhattisgarh to start a millet mission on the lines of "Odisha Millets Mission". The Government of India has set up a task force to understand the framework of the Odisha Millets Mission and to revise the National submission on millets based on the learnings of the OMM. Cambridge University partnered with Odisha Millets Mission to explore the possibility of the design of OMM as an alternative to the Green Revolution framework. The Governor of Maharashtra has asked the Government of Maharashtra to explore initiating a project on millets considering the Odisha Millets Mission. UN-IFAD and UN-FAO have supported the framework of Odisha Millets Mission as suitable for taking up agroecological initiatives. Odisha received the award for best government initiative on millet promotion by the Ministry of Food Processing Industries (MOFPI) - Indian Institute of Food Processing Technology (IIFPT).

Based on OMM's success in motivating farmers and building their confidence, the Govt. of Odisha has approved the expansion of OMM to a further 60-65 blocks, beyond the current 84 blocks. I wholeheartedly welcome the joint documentation exercise undertaken in partnership with the WFP that is considered as a learning exercise so that mid-term correction of the program can be undertaken and appreciate the study team also have to identify the gaps in program design and implementation. The findings are learning-oriented with a focus on areas of improvement for the program.

I sincerely thank Principal Secretary, Agriculture & Farmers Empowerment, and the members of the High-Power Committee on Millets for their continuous and generous support. I also thank District, Block, and Panchayat level staff of the department and our Civil Society and Community partners for their perseverance and hard work to take the programme to the last mile. I assure you that the churning of ideas for the revival of millets in farms and on plates shall continue. I hope that the report and compendium of good practices will inspire all co-travelers within India and globally in the journey to follow this dream.



Dr. M Muthukumar IAS,
Director of Agriculture and Food Production,
Government of Odisha

Message from the Country Director WFP in India

The adverse consequences of climate change present a real and present risk to nutrition and food insecurity, impacting vulnerable communities and livelihoods dependent on agriculture due to rising temperatures, floods, droughts, and other extreme weather phenomena.

Adaptation through income diversification, resilient varieties, and less water-intensive crops is needed among other strategies to secure the food and nutrition security of millions of vulnerable populations, especially smallholder farmers. It's in this context, millets are being championed as the crops of the future and a 'climate-smart crop', contributing to sustainable food systems, advancing food and nutrition security, and achieving the Sustainable Development Goal 2.

The Government of India has been championing the role of millets in the nutritional security in the country and globally as was evident in its advocacy at the United Nations General Assembly for declaring 2023 as the International Year of Millets. Integration of Nutri-cereals in National Food Security Act (2013) for potential distribution through Targeted Public Distribution System, incorporation in National food Security Mission-coarse cereals, and observing 2018 as millet year demonstrates India's commitment at the highest level.

The Government of Odisha initiated the Odisha Millet Mission (OMM), a special programme for the promotion of millets in tribal areas, in 2017. The flagship led by the Department of Agriculture and Farmers' Empowerment, the Government of Odisha, has emerged as the first of its kind initiative to revive millets from farms to plate, introducing millets in the Public Distribution System (PDS) and Integrated Child Development Services (ICDS).

For these innovative interlinkages, OMM has been recognised by NITI Aayog as one of the progressive models for the promotion of millets that could offer learning to other Indian states. Chhattisgarh and Maharashtra are in different stages of introducing a project/ mission on the similar line.

WFP has undertaken this documentation of Good Practices and Lessons Learned of OMM to take stock of the achievements and provide an overview of the operational model followed to inform its replication by others.

I would like to acknowledge the leadership of Mr. Suresh Kumar Vashishth, Commissioner-cum-Secretary to Agriculture and Farmers' Empowerment, and Dr. M Muthukumar, Director, Agriculture & Food Production, Government of Odisha, and incessant and unbridled support of the entire OMM team in undertaking this project.

I am confident that this documentation along with the other products developed will be of immense value for learning from the Odisha experience and inspire other states in India, and other countries, that face similar challenges, and opportunities in the world to face climate uncertainties impacting food security.



Bishow Parajuli

Representative and Country Director,
United Nations World Food Programme, India



Acknowledgements

World today is looking at alternatives, to ensure sustainable food security for the world, that are climate resilient and nutritious. Millet is seen as one of the options. While the Government of India is spearheading the efforts of millet mainstreaming, it is important to understand the underlying challenges and document the experiences of how some of these challenges were addressed. The study precisely tried to look at these aspects and analyzed efforts of Odisha Millet Mission across millet value chain. The study team would like to acknowledge the opportunity and wholehearted support provided by the Government of Odisha, particularly the Department of Agriculture & Farmers Empowerment at the state level and their officials at district and block level. Their support was instrumental in facilitating access to the stakeholders for data collection as well as providing necessary data and background information on Odisha Millets Mission.

The study would not have been possible without the full support and great insights from Dr Neelam Patel, Senior Adviser-Agriculture, NITI Aayog, Dr Vilas A Tonapi, Director, Indian Institute of Millets Research (IIMR), Dr. B Dayakar Rao, CEO, Nutrihub, IIMR, Dr. Sridevi Annapurna Singh, Director, CSIR - Central Food Technological Research Institute (CFTRI), Mr. Indevar Pandey, Secretary, Ministry of Women & Child Development, Dr Arvind Padhee, Director, Country Relations, ICRISAT, Mr. Manoj Joshi, Additional Secretary, Ministry of Food Processing Industries & Mr. Vasimalai M.P, Executive Director, DHAN Foundation. We are grateful to them for their availability and willingness to share their valuable perspectives, experience and directions despite their busy schedules.

The study team is especially grateful to all the stakeholders of OMM i.e., Nabakrushna Choudhury Centre for Development Studies, Watershed Support Services and Activities Network & district level NGO partners, farmer producer organizations, self-help group members and individual farmers for making themselves readily available for the interview and focused group discussions and sharing their insights and feedback. The openness in their conversations with the study team is much appreciated. Last but not the least, the study would not have been possible without the support from all stakeholders who participated in the validation workshop and provided valuable comments and insights.

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Responsibility for the opinions expressed in this report rests solely with the study team.

Study Team

WFP

Pradnya Paithankar, Head- Policy Design, Climate Change, DRR and SSTC

Himanshu Bal, State Head, Odisha

Pranay Sinha, Programme Policy Officer (South-South & Triangular Cooperation)

IPE Global

Vinit Pattnaik, Team Leader

Lipika Patro, Knowledge Management Expert

Kriti Gupta, Evaluation Manager

Saanjuli Gupta, Senior Analyst

Amrutha Nair, Senior Analyst

Srimanta Khuntia, Documentation Manager

Animesh Jana, Field Manager

Abbreviations and Acronyms

Abbreviation	Expanded Notation
AAO	Assistant Agriculture Officer
ASHA	Alliance for Sustainable and Holistic Agriculture
ATMA	Agricultural Technology Management Agency
BC	Block Coordinator
CBO	Community Based Organization
CFTIR	Central Food Technological Research Institute
CHC	Custom Hiring Centre
CRP	Community Resource Person
DBT	Direct Beneficiary Transfer
DRDA	District Rural Development Agency
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
FO	Facilitating Agency
FPO	Farmer Producer Organization
GP	Gram Panchayat
ICDS	Integrated Child Development Services
IDI	In-depth Interviews
IIFP	Indian Institute of Food Processing Technology
IIMR	Indian Institute of Millet Research
INSIMP	Initiative for Nutritional Security through Intensive Millet Promotion
KII	Key Informant Interviews
KVK	Krishi Vigyan Kendra
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIS	Management Information System
MoA& FW	Ministry of Agriculture and Farmer Welfare
MoFPI	Ministry of Food Processing Industries
M-PAS	Millet Procurement Automation System (M-PAS)
MPR	Monthly Progress Report

Abbreviation	Expanded Notation
MSME	Micro, Small & Medium Enterprises
MSP	Minimum Support Price
NCDS	Nabakrushna Chaudhury Centre for Development Studies
NFSM	National Food Security Mission
NGO	Non-Governmental Organization
NIWCYD	National Institute of Women, Child, and Youth Development
NNS	National Nutrition Strategy
ODOP	One District One Product
OMM	Odisha Millet Mission
PD	Project Director
PDS	Public Distribution System
PESA	Panchayat Extension to the Scheduled Areas Act
PM FME	Pradhan Mantri Formalization of Micro Food Enterprises
PMFBY	Pradhan Mantri Fasal Bima Yojana
RADP	Rainfed Area Development Program
RCS	Recommended Cropping Systems
RESMISA	Revalorizing Small Millets in Rainfed Regions of South Asia
RKVY	Rashtriya Krishi Vikas Yojana
RRA	Revitalizing Rainfed Agriculture
SHG	Self-Help Group
SMFPA	State Minor Forest Produce Association
SOE	Statement of Expenditure
SPMU	State Program Management Unit
TDCCOL	Tribal Development Co-operative Corporation of Odisha Limited
TIGR2ESS	Transforming India's Green Revolution by Research to Empower Sustainable Food Supplies
UN	United Nations
VAW	Village Agriculture Worker
WASSAN	Watershed Support Services and Activities Network
WFP	World Food Program

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Executive Summary

India shares a quarter of the global hunger burden with nearly 195 million undernourished people. Despite substantial improvement in health and well-being since independence, malnutrition remains a silent emergency in the country. The vulnerability of agriculture to climate change further compounds the risk of malnutrition. Being a nutritious and climate-resilient crop, millets are an excellent solution for the current agricultural and nutritional crisis in the country. To boost the production of the nutrient-rich millets, the Government of India observed the year 2018 as India's "National Year of Millets". In addition, many other pro-millet policies have been implemented to leverage millets for combating nutrition insecurity in the country. Odisha Millet Mission (OMM) is a flagship program of the government of Odisha launched in 2017 to improve nutrition at the household level

through the revival of millets in farms and on plates of tribal communities in Odisha. The program has also aimed to tackle malnutrition by introducing millets in the Public Distribution System (PDS) and other State nutrition schemes like Ragi Laddu in Integrated Child Development Services (ICDS).

World Food Program, India, signed an MoU with Odisha Millet Mission to assess the key achievements of OMM, the operational model followed, plans, lessons learned and document the best practices of OMM experience to develop a range of knowledge products. The assessment included the end-to-end value chain interventions under OMM and identifying scalable and innovative approaches. WFP has tried to bring together all the relevant information around OMM in a consolidated platform by creating policy briefs, reports, and case studies.

Methodology

A mixed-methods approach was adopted to collect the data, draw on key policy and program documents, and conduct qualitative primary data collection. Cluster sampling method was used to identify the sample districts, and OMM districts were divided into 4 clusters and one or two districts from each cluster were selected. Primary data collection included Key Informant Interviews (KIIs), In-depth Interviews (IDIs), Focus Group Discussion (FGDs) and observations from the field. The Stakeholders from all levels – National, State, District and Community were interviewed to triangulate information and obtain a wide range of perspectives around the program. A detailed document and literature review to corroborate the primary data was undertaken. The report deep – dives into the design and implementation mechanism of OMM to gain a comprehensive understanding of the program and also look at the national level policies related to millets.

Situational analysis

The situational analysis provides a holistic overview of OMM's design, components and implementation mechanism while also discussing millet mainstreaming from a climate resilience, gender and policy lens.

National Policy Initiatives towards Millet

Promotion: To revive millet cultivation, the Government of India announced an allocation of Rs. 300 crores in 2011-12 under Rashtriya Krishi Vikas Yojana for promotion of millets as Nutri-cereals. Further, GOI declared 2018 as the year of millets and launched its millet mission as a part of the National Food Security Mission. There, however, exists policy level gaps such as ensuring government procurement and minimum support price for all millet varieties.

Development Journey of Odisha Millets

Mission: The program has managed to make remarkable progress in the 5 years since its inception. The area under cultivation of Ragi in OMM districts increased from 3,116 hectares to 43,993 hectares since the program began. A critical component of OMM was introducing Ragi in various social safety net programs such as Public Distribution System (PDS), Supplementary Nutrition Programs (SNP) under ICDS, and Mid May Meal scheme, which significantly improved the consumption of millets.

Reviving Millet Cultivation as Climate

Resilient Crop: Millets are adaptable to changing climatic conditions and can grow in harsh weather conditions, requiring low levels of pesticides. OMM was unique as it used only bio-inputs and therefore organic millets are being produced. This led to improved soil quality and decreased grain wastage due to pests. Ensuring organic certification for these crops would ensure that farmers receive fair market prices for their products.

Mainstreaming Millets in Safety-Nets:

Odisha millet mission could successfully incorporate Ragi in various social safety net programs. This ensured procurement of ragi from farmers at MSP and distribution through different government programs thereby increasing the demand and consumption of millets. Efforts should be taken to optimize the polish of ragi given in PDS to ensure a balance between taste and nutrition.

Gender & Inclusion in Odisha Millets

Mission: Odisha Millets Mission, improved the involvement of women-led Self-Help Groups (SHGs), and facilitated their participation in the entire millet value chain with women being tasked to take on roles in processing, value addition, and marketing, while also maintaining their traditional role of post-harvest operations and seed management. Further, the availability of modified paddy

machines significantly reduced the drudgery associated with millet processing and brought a big change in the lives of women.

Multi-stakeholder Partnership and Multi-Department Convergence: OMM brings together key government departments, academic institutions, CSOs and NGOs, farmer collectives and community-based organizations to leverage best results. The research partner contributed to developing high-yielding and resilient varieties of seeds. The ground-level implementation of the program is done by facilitating agencies, which are local NGOs, familiar with the agricultural practices and the communities. Convergence with the Department of Mission Shakti is a critical part of OMM to fulfill its objective of empowering women.

Conclusion and Recommendation

The Odisha millet mission is a commendable model for mainstreaming millets, which can be scaled up and replicated by other States. Its focus on the demand side along with the supply of millets makes it a unique and successful model. In the next phase additional focus needs to be given in areas such as research and development on millet processing equipment and seeds; improved market linkages and private sector engagement; focusing on the millet value chain including storage, packaging, marketing, etc.; and ensuring the sustainability of gains beyond the period of incentivization by increasing demand of millets in the general population through campaigns and innovations such as millet trucks and cafes. The focus of OMM on women empowerment and climate resilience is also noteworthy. Some recommendations include:

Policy Level

- Incorporate mechanism to assess and document for all innovations to enable replication
- Promote customized machinery based on the requirement and capacities of the CBO for all types of millets at various stages of value chain

Implementation of OMM

- Intensify State-level campaign to promote millet consumption
- Encourage farmers to convert paddy/other cropland to millet cultivated land
- Focus on storage of seeds and millet grains as much as their production

Capacity Building

- Awareness and opportunity of inter-cropping to be included
- Exposure visits to different blocks and districts for cross-learning
- Training to SHGs for packaging, marketing, etc. and ensure participation of a majority of SHGs
- The cadre of experts for troubleshooting machine-related issues

Linkages

- District level Apex body or network/ federation to ensure market linkages, transfer of skills, etc.
- Millet centred industrial park including all upstream and downstream industrial units for end-to-end millet processing, value addition, and packaging

1. Approach and Methodology

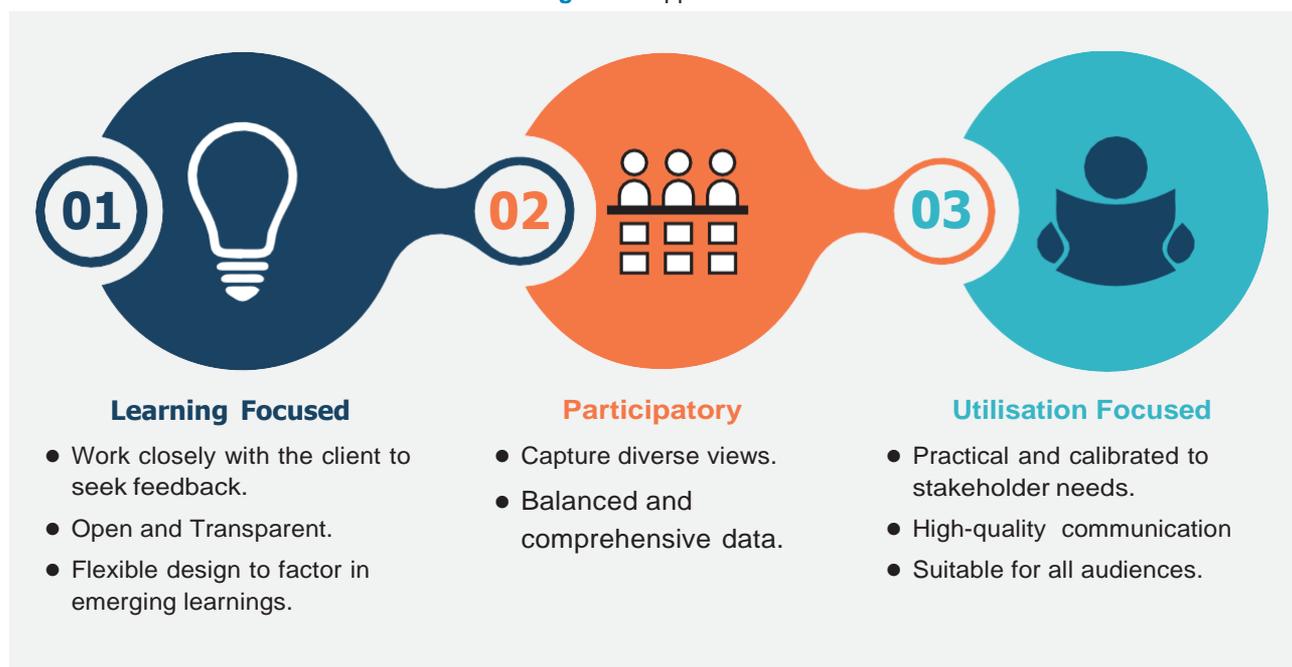
Approach

This report aims to take stock of the achievements made by Odisha Millets Mission, provide an overview of the operational model followed, and identify plans and lessons learned to inform future program undertakings. The following approaches were adopted to undertake primary data collection, data analysis, report writing and develop knowledge products.

while utilizing all data and undertook a deep dive into the design and implementation mechanism of OMM to gain a well-rounded understanding of the program as well as National level policies related to millets. The research framework for the study is presented in annex 8.1 and is based on the following themes:

- Development Journey of Odisha Millets Mission

Figure 1: Approaches



Methodology

A **mixed-methods** approach drawing on key policy and program documents as well as qualitative primary data was undertaken. Stakeholders from all levels – **National, State, District and Community** were interviewed to triangulate information and obtain a wide range of perspectives, and yield insights into the challenges of mainstreaming millets as well as learnings from Odisha and other States, which can be replicated. We were **analytical**

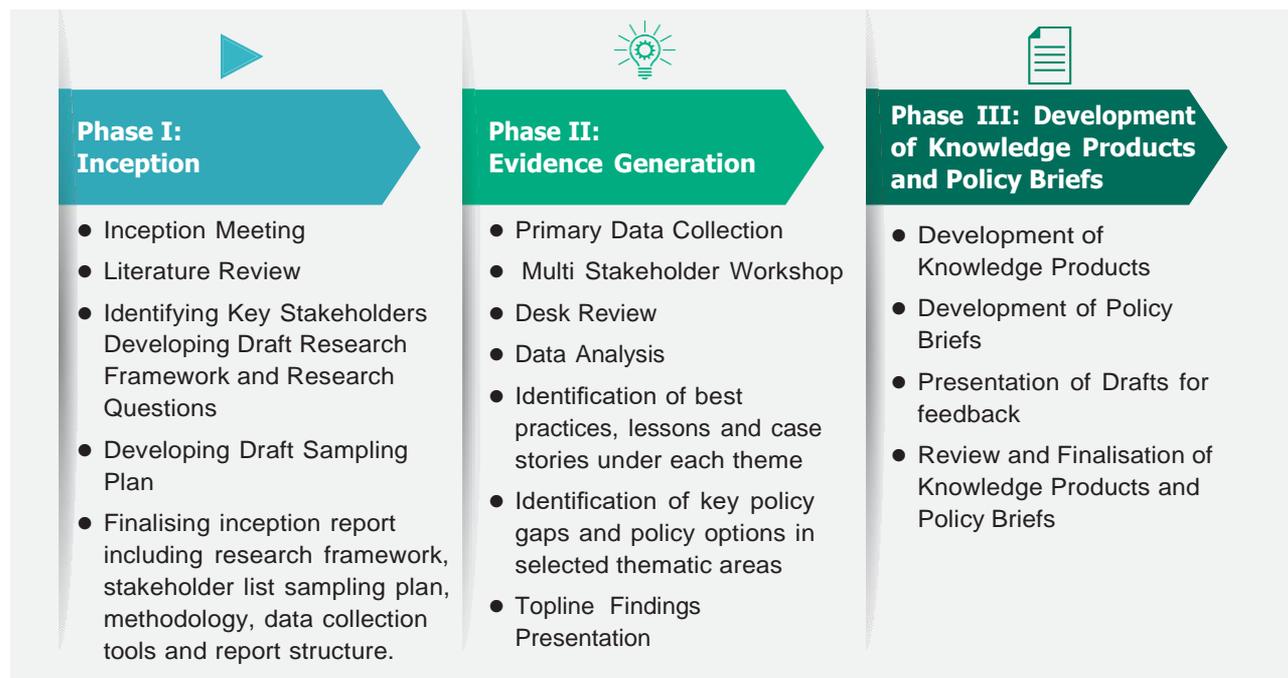
- Reviving Millet Cultivation as Climate Resilient Crop
- Mainstreaming Millets in Safety-Nets
- Gender & Inclusion in Odisha Millets Mission
- Multistakeholder Partnership and Multi-Department Convergence
- Scale-Up and Replicability in Other States of India and Countries in the Region/ Elsewhere

Primary data collection included Key Informant Interviews (KIIs), In-depth Interviews (IDIs), Focus Group Discussion (FGDs) and observations from the field. Additionally, we undertook a document and literature review to corroborate the primary data. The methodology for this assignment is divided into three phases as given in figure 2:

Joint Director, Agriculture and Odisha Millet Mission with the participation of other officials from the Agriculture Department, WASSAN, WFP and IPE Global.

Literature Review was also undertaken during this phase to get an overview of the challenges in mainstreaming millets in

Figure 2: Methodology



Phase I: Inception

The inception phase started in July 2021 with a **kick-off/briefing meeting**. During the kick-off meeting, the client elaborated on their expectations from the assignment and outlined the management arrangements. This was followed by an **inception meeting** chaired by the Director, Agriculture and Food Production, Govt. of Odisha with representatives from the government, WASSAN, WFP and IPE Global. An **introductory meeting was chaired by**

India, review the policy framework for millet mainstreaming, gain an understanding of the design and operation of Odisha Millets Mission, familiarize ourselves with the work being undertaken in different districts under OMM and start identifying best practices and lessons from other States as well as internationally. Further, the **methodology** for the assessment & documentation process was finalized along with the **stakeholder mapping, sampling, and data collection tools**.

Table 1: Sampling

Clusters	Sampled Districts
Cluster 1: Sundargarh, Mayurbhanj, Keonjhar and Angul	Sundergarh; Mayurbhanj
Cluster 2: Bargarh, Nuapada, Bolangir and Kalahandi	Nuapada
Cluster 3: Malkangiri, Koraput and Nawarangapur	Koraput; Malkangiri
Cluster 4: Rayagada, Kandhamal, Gajapati and Ganjam	Kandhamal; Gajapati

Sampling

OMM is being undertaken in 15 districts and 84 blocks, having a large tribal population. We divided OMM districts into clusters and based on the above considerations, selected one or two districts from each cluster in consultation with the department of agriculture and farmers welfare as given in table 1. From each of the 7 sampled districts, 2 blocks and one village per block were selected for data collection.

Phase II: Evidence Generation

The inception phase was followed by the evidence generation phase, which started with a **multi-stakeholder workshop** (proceedings report presented in annex 8.2). The key objectives of this workshop were to share

study objectives with a larger stakeholder group and get inputs on the study design and methodology; collect information on various innovations and best practices across various research themes; and identify promising geographies for field visits and data collection.

We **field-tested** the data collection tools in the Daringbadi Block of Kandhamal district. Based on the inputs received the tools were edited and translated for data collection. This was followed by **2 days of training** of field enumerators and researchers. Following the training of the study teams and the pilot, we initiated the fieldwork. A team of 3 Cluster Resource Persons and 6 Enumerators, guided by a Field Operations Manager completed the fieldwork in 4 weeks in the blocks and villages given below. The list of interviews and focus group discussions conducted is given in annex 8.3.



Table 2: List of block-wise clusters and villages

SN	District	Block	Cluster 1	Village	Cluster 2	Village
1	Sundargarh	Rajgangpur	Alanda	Dudkabahal	Jareikela	Chandiposh
	Sundargarh	Kuaramunda	Jhunmur	Jhunmur	Pratapur	Sakambahal
2	Nuapada	Komna	Kandipada	Lalbhata	Darlipada	Siletpani
	Nuapada	Boden	Boden	Chalanpada	Litesarsargi	Ghantiguda
3	Keonjhar	Jhumpura	Khuntapada	Khuntapada	Baliposhi	Baliposhi
	Keonjhar	Sadar	Kanurikala	Kanurikala	Bhadrapal	Bhadrapal
4	Kandhamal	Baliguda	Barakhama	Musukuli	Bataguda	P. Bataguda
	Kandhamal	Raikia	Manikeswari	Ramungia	Gumamaha	Gumamaha
5	Mayurbhanj	Jashipur	Manada	Badasialnai	Mahigad	Singarpur
	Mayurbhanj	Bangiriposi	Shamsundarpur	Anlajodi	Badagaon	Panasadhia
6	Koraput	Semiliguda	Daleiguda	Bileiguda	Sadam	Yubirajpeta
	Koraput	Boipariguda	Kolar	Kandhapada	Daraguda	Dadiapadar
7	Gajapati	Mohana	Baghamari	Jalibadi	Mamikpur	Gobindapur
	Gajapati	R. Udayagiri	Subala	S.Gudisahi	Tangili	Tangii

Further, the Delhi and Bhubaneswar-based team members conducted **key informant interviews with stakeholders at the National and State level** to understand the constraints and needs, as well as their perspectives regarding millets mainstreaming and the OMM program. A list of interviews conducted is provided in Annex 8.3.

Phase III: Development of Knowledge Products and Policy Briefs

Qualitative data analysis methods were employed to synthesize, analyze, and triangulate the data collected – both primary and secondary. Some key tenets of our data analysis methods are:

- The data collected was organized around the key themes and research questions developed during the inception phase.
- Based on the above framework analysis, we defined a long list of possible best practices, lessons learned, case stories and policy briefs.
- Data triangulation, background research, stakeholder interactions were used to select the final topics for the knowledge products and policy briefs.
- These finalized topics were deep-dived into to develop a narrative of best practices and lessons learned, an operational framework that is adaptable and scalable, case stories and policy briefs.

2. Background

2.1 Desk Review

Context

Nutritional insecurity is a serious threat to the world's growing population as our food habits are highly dependent on a micronutrient deficient cereals-based diet. For millions of people in the semi-arid tropics of Asia and Africa, millets are an important staple food item¹. It has high productivity and a short growing season under dry, hot climatic conditions². They are nutritionally beneficial as they contain high content of proteins, B-vitamins, essential amino acids, dietary fibers, minerals such as zinc, potassium, calcium, and magnesium³. Millets are non-acid forming, non-allergic, and easy to digest.

Millets are also known as next-generation crops for their climate-resilient nature. They are adaptive to a wide range of environmental conditions, have low nutrient input requirements, minimum vulnerability to ecological stresses, less reliance on synthetic fertilizers, low water requirement, better growth, and productivity⁴.

Millets are referred to as 'small-seeded grasses.' They are of nine varieties: Sorghum (Jowar)⁵, Pearl millet (Bajra), Finger millet (Mandia/Ragi), Little millet (Kutki), Kodo millet (Kodon), Foxtail millet (Kangana/Kakum), Barnyard millet (Sanwa/Jhangaon),

Proso millet (Barre) and Browntop Millet. In most developing countries, almost all kinds of millets are consumed by humans⁶. In developed countries, they are primarily used to feed animals.

Finger millet (Mandia/Ragi) serves as the primary food for the rural population of Southern India and East and Central Africa. Proso millet (Barre) is a short-season crop, cultivated in drier regions of Asia, Europe, Australia, Africa, and North America. Barnyard millet (Sanwa/Jhangaon), with a harvesting period of only six weeks, is the fastest growing among the millets. It is predominantly cultivated in India, Korea, China, and Japan, for food and fodder. Kodo millet (Kodon) is domesticated in India around 3000 years ago and is native to the tropical and sub-tropical regions of South America. Little millet (Kutki) was domesticated in the Eastern Ghats of India, occupying a major portion of diet amongst the tribal people. The use of this grain spread to Sri Lanka, Myanmar, and Nepal⁷.

Finger, Foxtail, Kodo, Proso, Barnyard, and Little Millets are categorized as 'Small Millets.' These millets are grown with limited water resources and usually without fertilizers or other inputs, therefore have preference over other millets in terms of production and consumption by small and marginal farmers.

¹ <https://www.fao.org/3/t0818e/t0818e01.htm>

² Vinoth A, Ravindhran R. 2017. Biofortification in Millets: A Sustainable Approach for Nutritional Security. *Frontiers in Plant Science*

³ Ibid.

⁴ BandyopadhyayTirthankar, MuthamilarasanMehanathan, Prasad Manoj. 2017. Millets for Next Generation Climate-Smart Agriculture. *Frontiers in Plant Science*

⁵ In parentheses, Hindi vocabulary of millets are written.

⁶ BhaskarachryKandlakunta. 2017. Nutritional and Health Benefits of Millets. *Research Gate*

⁷ Vinoth A, Ravindhran R. 2017. Biofortification in Millets: A Sustainable Approach for Nutritional Security. *Frontiers in Plant Science*

Benefits of Millets

Millets have a major contribution towards sustainable agriculture and a healthy world. In addition to providing nutritional security and food security, consuming millets regularly reduces the risks of diabetes, heart disease; improves the digestive system; increases immunity in respiratory health, lowers the risk of cancer; increases energy levels; detoxifies the body, and improves muscular; and neural systems⁸. Millets can have a major impact on improving iron status, hemoglobin Level, and reducing iron deficiency anemia, demonstrating the potential nutritional impact of millets⁹. As millets are climate-resilient crops and sustainable income sources for farmers, they provide economic security. Millets are resilient crops with tolerance against extreme climatic stress including drought and flood and can be considered ideal crops of the 21st

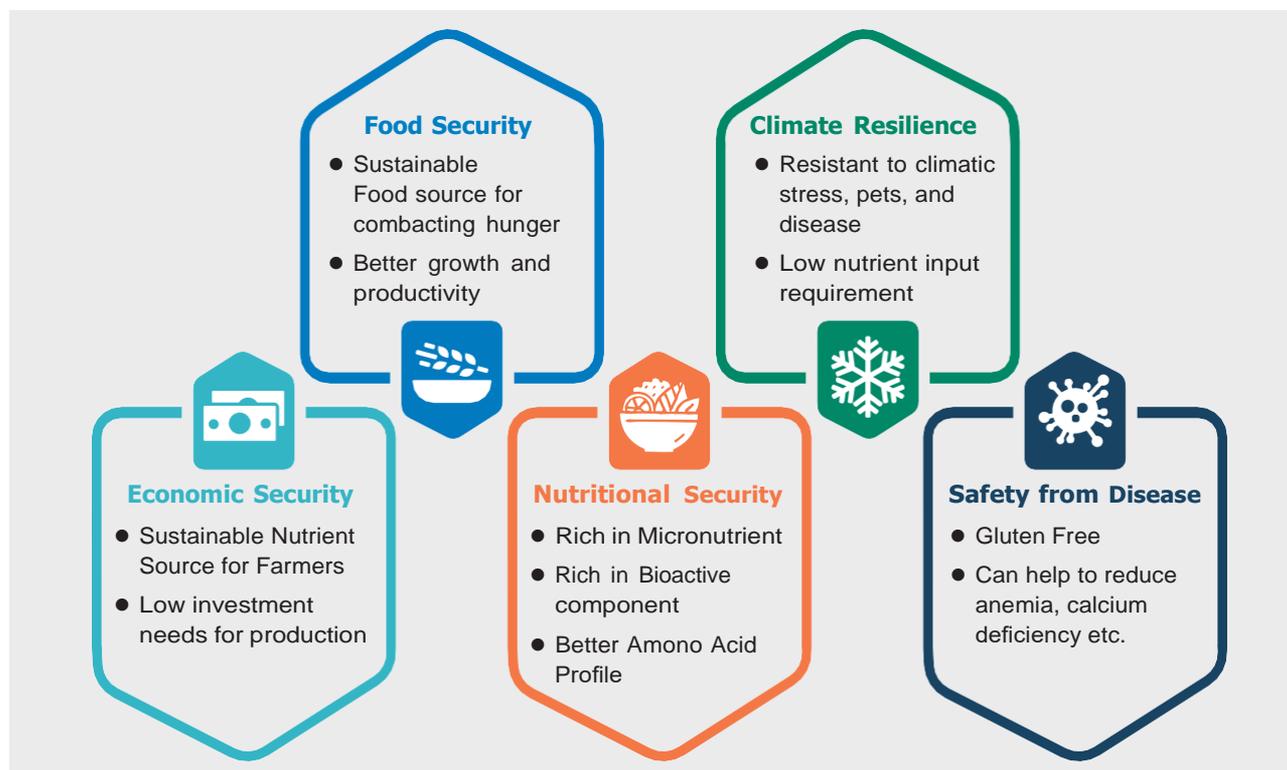
Century where we face depleting natural resources and an era of climate change¹⁰.

Millets in India

India is the largest producer and second-largest exporter of Millets globally and accounts for about 80% of the global production of millet. India has more than 34% of the semi-arid lands (of the total area) suitable for harvesting millets. In terms of hectares and total production, in India, millets are grown on about 17 million hectares with an annual production of 18 million tons and contribute 10% to the country's foodgrain basket¹¹.

In India, India Finger millet (Ragi), Sorghum (Jowar), Little millet (Kutki), Pearl millet (Bajara), and Proso millet (Barre) are produced in 21 States including Rajasthan, Karnataka, Andhra Pradesh, Tamil Nadu, Uttar Pradesh,

Figure 3: Benefits of Millets



Source: Kumar et al. 2018. Millets: a solution to agrarian and nutritional challenges. Agriculture & Food Security

⁸ BhaskarachryKandlakunta. 2017. Nutritional and Health Benefits of Millets. Research Gate

⁹ <https://www.frontiersin.org/articles/10.3389/fnut.2021.725529/full>

¹⁰ Goron TL, Raizada MN. 2015. Genetic diversity and genomic resources available for the small millet crops to accelerate a New Green Revolution. Front Plant Sci.

¹¹ B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

Gujarat, Madhya Pradesh, and Haryana. Rajasthan is the largest millet-producing State.

In each millet growing region, at least 4-5 species are produced either as a primary or allied crop with pulses, spices, oilseeds, and condiments¹². For example, pearl millet is a primary crop while sorghum is an allied crop in the desert regions of Rajasthan. In contrast, it is the opposite for the eastern parts of

Rajasthan and Gujarat. Similarly, Finger millet is a primary crop in Gujarat and Tamil Nadu, while it is a minor crop in Telangana. Therefore, the production of Millets, either as a primary or allied crop, varies across the country depending on the amount of rainfall the region receives and growing habitat. The table below gives an overview of millets produced in India and the top 5 production states.

Table 3: Overview of millets in India

Type of millets	Vernacular name	Major nutritional composition per 100 gm.	Top 5 production states (production in lakh tones)
Pearl millet	Bajra, Bajri, saiya, Cumbu, Sajje	Energy (361k.cal), CHO (67.5g), Protein (11.6g), Calcium (42mg), Iron (8mg)	Rajasthan (42.83), Uttar Pradesh (13.02), Haryana (10.79), Gujarat (9.61), Maharashtra (6.62)
Sorghum	Jowari, Juar, Jowari, Juar Jola, Jondhla,	Energy (349k.cal), CHO (72.6g), Protein (10.4g), Calcium(25mg), Iron (8 mg)	Maharashtra (35.87), Karnataka (16.29), Madhya Pradesh (5.74), Andhra Pradesh (4.36), Tamil Nadu (2.14)
Finger millet	Marwa, Nagli, Bavto, Ragi, Mandika, Marwah	Energy (328k.cal), CHO (72g), Protein (g), Calcium (mg), Iron (mg)	Karnataka (13.94), Uttarakhand (1.93), Tamil Nadu (1.70), Maharashtra (1.25), Andhra Pradesh (.52)
Barnyard millet	Syama, Sanwa, Oodalu	Energy (307k.cal), CHO (65.5g), Protein (6.2 g), Calcium (20mg), Iron (5.0mg)	Uttarakhand (.91), Arunachal Pradesh (.16), Nagaland (.14), Madhya Pradesh (0.12), Uttar Pradesh (0.07)
Little millet	Sama, Gajro; Kuri, Kutki, Shavan, Same, Save	Energy (341k.cal), CHO (67.0g), Protein (7.7 g), Calcium (17mg), Iron (9.3 mg)	Madhya Pradesh (.37), Tamil Nadu (0.32), Karnataka (0.20), Chhattisgarh (0.12), Jharkhand (0.11)
Kodo millet	Kodra, kodon, Harika, Varaku, kodra, Kodua, Arika, Varagu	Energy (309k.cal), CHO (65.9g), Protein (8.3g), Calcium (27mg), Iron (.5mg)	Madhya Pradesh (0.50), Chhattisgarh (0.17), Tamil Nadu (0.12) Maharashtra (0.08), Uttar Pradesh (0.07)
Foxtail/ Italian millet	Kaon, Kang, Kakun, Kangni, Navane, Thena, Raja, Kangam	Energy (331k.cal), CHO (60.9g), Protein (12.3g), Calcium (31mg), Iron (2.8mg)	Andhra Pradesh (0.17), Karnataka (0.14), Arunachal Pradesh (0.05), Maharashtra, Rajasthan (0.05)
Proso millet	Cheena, Cheno, Bari, Baragu, Vari, Bachari, Panivaragu	Energy (341k.cal), CHO (70.4g), Protein (12.5g), Calcium (14mg), Iron (0.8mg),	Maharashtra (0.17) Bihar (0.05) Orissa, (0.01) Rajasthan (0.01) Tamil Nadu (0.004)

Source: Dhan Foundation and WASSAN. 2012. Supporting Millets in India, Policy Review and Suggestions for action: Revalorizing Small Millets in Rainfed Regions of South Asia (RESMISA). Canadian International Development Agency

¹² Spatial distribution of millets in India, 2011

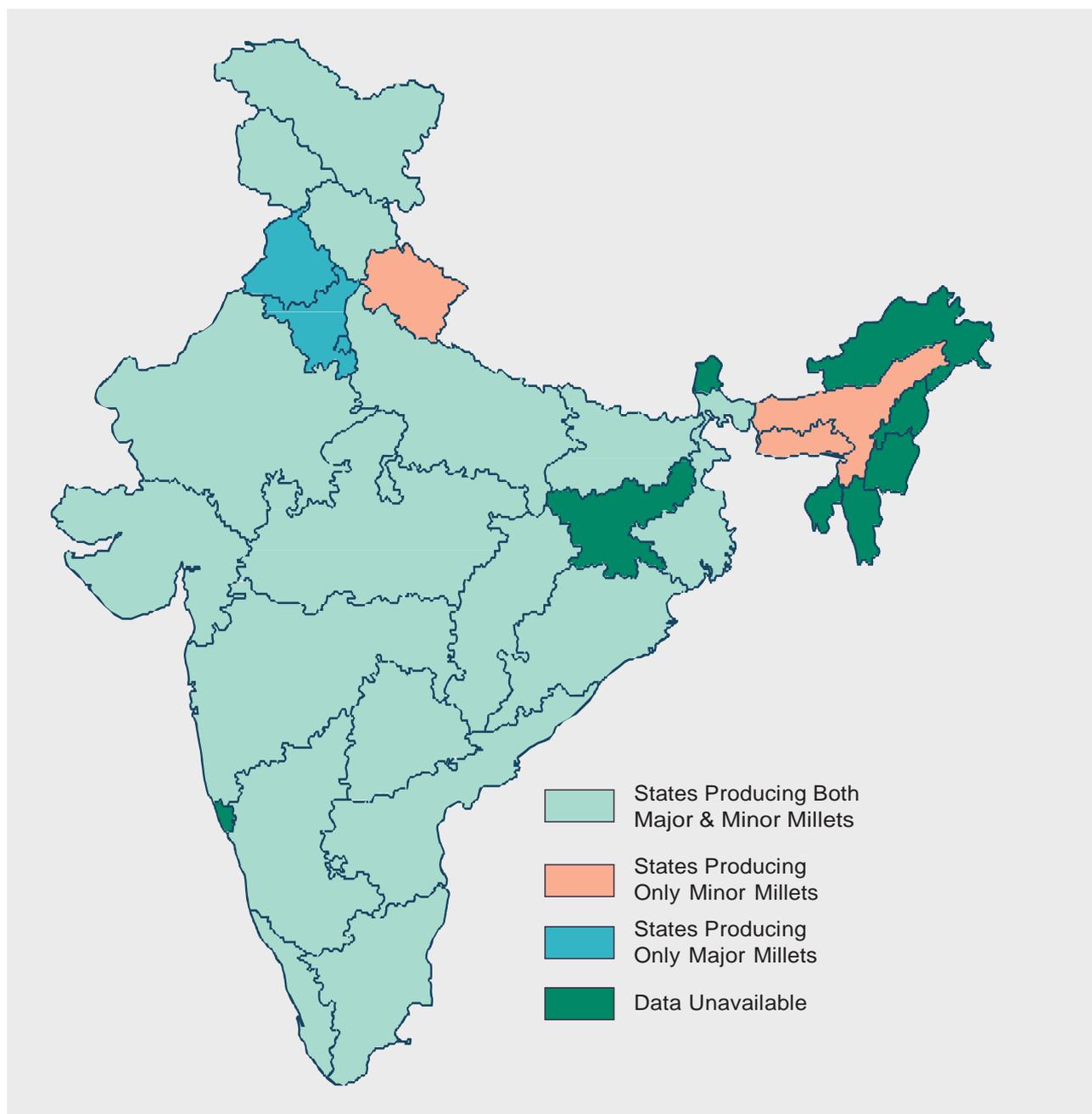
The map given below shows the states that produce major and minor millets.

National Policies on Millets

Millets provide health benefits and food and fodder security to the agricultural communities of drylands. Despite numerous health benefits, climate resilience, and high productivity, the direct consumption of

millets has significantly reduced in India over the last three decades. The major reason for the decline is the inconveniences in food preparation, lack of processing technologies, and lack of awareness of nutritional advantages along with the government's policy of disincentives towards millets and subsidizing the production and prices of fine cereals¹³. Additionally, a significant drop has

Figure 4: Major and Minor Millet Producing States in India



Source: B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

¹³ M. Uma Gowri* and K.M. Shivakumar. 2020. Millet Scenario in India. Economic Affairs

been seen in the production of Millets. The growth rate of millet area and production registered negative growth, i.e., area and production declined from 1950-51 at the rate of 16.3% and 13.6% per year, respectively. In the same way, productivity declined up to 2005 after that; it showed growth (3.23%)¹⁴.

To address the decline in production and consumption of millets, the Government of India (GoI) has made certain national-level policies¹⁵. In 2012, an Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP) was launched to boost millet production and value-added processing. Later, it merged with National Food Security Mission (NFSM) and spread across 182 districts¹⁶. In 2017, NITI Aayog released the National Nutrition Strategy (NNS) for 'Nourishing India' and recommended that the Ministry of Agriculture and Farmer Welfare (MoAFW) strengthen cereal productivity and production diversity – including the production of 'coarse' cereals such as millets. In 2018, millets were officially declared as '**Nutri-Cereals**.' GoI has also launched the sub-mission on Nutri-cereals under NFSM with an investment of Rs 300 Cr for 2018-19¹⁷. The year 2018 was India's **National Year of Millets** to boost the production of the nutrient-rich millets and boost the agriculture industry involved in it. Sponsored by India and supported by more than 70 countries, the U.N. General Assembly adopted a resolution declaring 2023 as the **International Year of Millets**.

Promoting millets production under MSMEs, in 2020, the Ministry of Food Processing

Industries (MoFPI) has launched a scheme called PM Formalization of Micro Food Enterprises (PM FME). It provides technical, financial, and business support for the up-gradation of existing micro food processing enterprises through formalizing and handholding. The scheme has adopted the One District One Product (ODOP) approach. 17 districts from 11 states were selected for millet-based products¹⁸. In 2018, GoI sent a proposal to the United Nations (UN) to declare 2023 as the 'International year of Millets' to promote supply and demand of millets and to promote international recognition of millets. In response, in 2021, the UN approved and declared **2023 as the 'International Year of Millets'**¹⁹. To encourage millet consumption, GoI has included millets as a 'coarse cereal' under Food Security Bill as a policy intervention. In addition to the production and consumption of millets, certain types of millets need proper processing, an organized seed distribution mechanism, and marketing. According to Vilas Tonapi, Director of the Institute of Millets Research (IIMR), apart from finger millet and sorghum, other types of millets need proper processing as they have tough seed coats. He further added that millet processing needs to be diversified²⁰. Additionally, a policy review²¹ by Dhan Foundation and WASSAN, states that the lack of organized seed distribution mechanisms to supply good quality seeds for small millet crops following farmers' preferences is among the few major barriers to increase in millets production and consumption. It further adds that a state like Tamil Nadu has the National Seed Multiplication Scheme²², which grants a

¹⁴ Ibid.

¹⁵ Table 1 provides the details of national level policies

¹⁶ B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ India's millets policy: is it headed in the right direction?. 2020. MONGABAY

²¹ Dhan Foundation and WASSAN. 2012. Supporting Millets in India, Policy Review and Suggestions for action: Revalorising Small Millets in Rainfed Regions of South Asia (RESMISA). Canadian International Development Agency

²² Under this assistance, all farmers who produce and supply the seeds to the Department of Agriculture on Contract basis are eligible to enroll and register their seed farms. Separate allocation will be provided to SC/ST seed growers and preference is given to farm women groups, Farmers Interest Groups.

premium of Rs 2 per kg above the government procurement price to assist farmers to produce certified millet seed.

Other than Pearl, Finger, and Sorghum millets, farmers and consumers need to be encouraged and advocated towards the production and consumption of small millets. At present, there is a lack of policy to promote small millets at the national level, but there are certain community interventions, listed below, to showcase the importance of small millets.

1. Tamil Nadu, Namakkal District – In the State, millets are known as ‘women crops’, as they are traditionally (and still) a women’s responsibility²³. The Kolli Hills Agro-Biodiversity Conservers Federation (KHABCoFED) is a social enterprise composed of farmers interest groups, millets farmers, and self-help groups from Kolli villages in the district, comprising

of 110 different groups and with a membership of 1,523 (985 men and 538 women)²⁴. The company’s idea is to upscale business with varied strategies and to help farmers with sustainable management of their lands. In collaboration with M. S. Swaminathan Research Foundation (MSSRF), they are focusing on training young women, on millet cultivation and processing. MSSRF is also designing agroforestry orchards that include millets and nutritional cash crops. As an outcome, women of this village are now food entrepreneurs actively involved in communities’ decision-making process²⁵.

2. Karnataka, Mandya and Mysore Districts – The water shortage in the districts forced the farmers to look at alternatives to replace irrigated crops like paddy and sugarcane with millets



²³ <https://www.greenbrownblue.com/small-millets-case-study/>

²⁴ https://www.biodiversityinternational.org/fileadmin/user_upload/Agricultural_King.pdf

²⁵ <https://www.greenbrownblue.com/small-millets-case-study/>

during rabi season with the help of Sahaja Sumruddha, an organic producer company²⁶. The experiment was successful with record yield. The farmers found that millets could grow with the moisture available in the soil after paddy harvest, being low investment crops with maximum returns²⁷.

3. WhatsApp group for small millet enterprises – DHAN Foundation is managing a WhatsApp group of 81 participants including entrepreneurs, organic shop owners and supermarket owners from four states were interacting with each other²⁸. The group acts as a platform to communicate (i) product introduction, (ii) expression of interest

to buy/sell, (iii) sharing of information on government schemes, taxes, and new developments, and (iv) sharing details about upcoming events²⁹.

While some national and state policies and community-level interventions to promote production and consumption have been formulated, a national-level integrated policy framework for enhancing the supply chain including the component of promoting quality seed production in adequate quantity, distribution mechanism, processing, and marketing of all types of millets is still awaited. For the positive impact of these policies, all the concerned stakeholders need to be trained, guided, and sensitized by the central ministry or State governments.

Table 4: National Level Policies

National Millet Policies		
Supply Side Support		
Policy	Description	Relevance to Millet
Initiative for Nutritional Security through Intensive Millets Promotion (INSIMP)	INSIMP was an integrated scheme to boost millet production and value-added processing. The scheme covered several activities, including raising awareness, demonstrating new technology, farm mechanization and other initiatives, including setting up processing capacity.	INSIMP is now merged with National Food Security Mission (NFSM), and millets are covered under NFSM-coarse cereals, implemented in 182 districts across all states. The costs incurred under the scheme are shared by the center and states in the ratio of 60:40
Rainfed Area Development Program (RADP)	RADP was launched during the year 2011- 2012 as a sub-scheme of Rashtriya Krishi Vikas Yojana (RKVY) to address the needs of rainfed areas. It assists farmers in improving the productivity of existing cropping patterns and in diversifying production.	RADP provides a subsidy on inputs (such as seeds, fertilizer, and manure) for Recommended Cropping Systems (RCS) and millets-based crops are eligible for subsidy. RADP does not provide any incentives to set up millet-based enterprises

²⁶ Return of the forgotten crop – Brown top millet. LEISA INDIA

²⁷ Ibid.

²⁸ Mr. M. Karthikeyan, and Dr Vijaya Raghavan. 2018 Scaling up Small Millet Post-harvest and Nutritious Food Products Project Dhan Foundation and McGill University.

²⁹ Ibid.

National Millet Policies		
Supply Side Support		
Policy	Description	Relevance to Millet
Crop insurance scheme	Pradhan Mantri Fasal Bima Yojana (PMFBY) was started in 2016. The objective is to provide insurance coverage and financial support to farmers in the event of crop failure because of natural calamities, pests, and diseases	PMFBY provides subsidized premium rates for specified crops, including major millets. The scheme is not available for small millets as the database on inputs required for crop loss calculation is not readily available.
PM Formalization of Micro Food Enterprises (PM FME)	To provide technical, financial, and business support for the up-gradation of existing micro food processing enterprises through formalizing and handholding. The scheme has adopted the One District One Product (ODOP) approach.	Total 17 districts from 11 states were selected for millet-based products. Maharashtra is most proactive with three millet districts followed by Madhya Pradesh, Odisha, Tamil Nadu, and Telangana.
NITI Aayog-National Nutrition Strategy (NNS)	For 'Nourishing India' and recommends that the MoAFW strengthen cereal productivity and production diversity—including the production of 'coarse' cereals such as millets.	Millets officially declared as 'Nutri-Cereals.' GoI has also launched the submission on Nutri-cereals under NFSM with an outlay of Rs 300 Cr for 2018-19.
Demand Side Support		
Inclusion of coarse cereals under Food Security Bill	The National Food Security Act, 2013 (also known as the Right to Food Act), governs the framework of distribution of subsidized grains under PDS and government welfare schemes	The Act holds promise for augmenting millet demand as a distribution under PDS can lead to a significant increase in its consumption
Mission Millet	The Government of India is planning to launch Mission Millet- A comprehensive scheme for promoting millets.	Aimed to boost millet processing by making standardized millet processing machinery available to entrepreneurs

Source: Dhan Foundation and Ministry of Food Processing. 2018. Comprehensive Support Package for MSME's in Millet sector – A Policy Study

NITI Aayog has recognized the efforts of the Odisha State Government for designing and implementing an impactful initiative, Odisha Millet Mission, to encourage the production and consumption of millets across the State and nationally. GoI has also recommended the Odisha Millet Mission as the model millet promotion project to other States.

Millet Policy in States other than Odisha

Few states like Karnataka have a policy around millet promotion, and the State government is committed to incentivizing millet growing farmers. On the other hand, the State governments of Maharashtra and Chhattisgarh, do not have comprehensive millet policies. However, they intend to study OMM and explore the possibility of replication due to its potential and impact.

Karnataka: It is among India's highest millet growing States, where farmers from 14 Taluks of 8 districts are extensively producing millets. As per the Karnataka agriculture department data, the total cultivated area for major millets has gone up by around 10% or 1.8 lakh hectares in the year 2018-19³⁰. Karnataka government has introduced millets in their PDS and started procuring millets in 2014 with an MSP of Rs.1500 per quintal³¹. It went up to Rs.2250 per quintal in 2016. The government dis-incentivized the cultivation of paddy by stopping the distribution of paddy seeds. The state government is also organizing three days of trade fairs (conferences, panel discussions, Business to Business (B2B) meetings, culinary demonstrations, training sessions, etc.) to complete the value chain by bringing the entire millet stakeholders and consumers together.

In the year 2018, the State government has widely organized roadshows in India and abroad. Mini fairs, press meets, orientation

sessions for retailers, marketers, and traders have also been organized in different millet production districts like Tumkur, Mysore, Hassan, Kolar, and Bangalore. These events helped entrepreneurs, and they found fairs useful in gaining access to large distributors, corporates, and supermarkets. The State government has also introduced Karnataka Agri-Business and Food Processing policy 2015 to promote millet processing industries, including grain milling and value-added products. This policy has two components – subsidy to promote investment and to upgrade technology.

Apart from the above, the Farmers Producers Groups have formed a Producer company named Sahaja Samrudha. This company has established organic network outlets in different parts of the State, i.e., Bangalore, Shimoga, Mysore, Davangere, Tumkur, Channapatna, and Dharwad districts. This company has ensured a complete value-chain of millets procurement, including marketing, eco-friendly packaging, distribution, quality maintenance, and ensuring clientele management.

A study³² - *The Karnataka Agriculture Price Commission*, chaired by Hanumanagouda Belagurki, was conducted by the Karnataka Agriculture Price Commission on procurement and involvement of millets under PDS. The study recommended that the State government include millets in the midday meal scheme to encourage farmers and provide nutritious food to schoolchildren and include them in the food kits provided to pregnant women and lactating mothers. The study also suggests announcing the MSP of millets of Rs 4,500-5,000 per quintal, considering the production cost. It further adds that the millet distributed under PDS should be directly procured from farmers in the State. Currently,

³⁰ Karnataka pushes for cultivation of millets, organic crops, 2018: Livemint

³¹ Karnataka's efforts put millets on global map. 2021. The Indian Express

³² Source millets for PDS from local farmers: Panel. 2021. The Indian Express

unlike Odisha, Karnataka does not have a decentralized millet procurement process.

Maharashtra: A report by the Indian School of Business observed that about 59% of preschool children, 61% of adolescent girls, 76% of pregnant women, and 73% of lactating mothers in Maharashtra suffer from anemia because of insufficient nutritional intake³³. As millets are rich in beta-carotene and B vitamins, especially riboflavin, niacin, and folic acid, the Government of Maharashtra has intended to promote millet cultivation through its **Pragati Abhiyaan** drive.

Under Pragati Abhiyaan, the knowledge and skills of millet growing farmers are being upgraded to enhance their productivity so that they will get better returns on their produce. As millets are being grown in tribal regions, the government has decided to encourage the tribal people to grow Jowar, Bajra and Ragi to cover 2000 farmers of 50 villages like Thane, Palghar, Raigad and Nashik so that they can cultivate millet in 2000 acres³⁴. In addition to this, the State-tribal department has also ensured a convergence approach to revive millets and finger millets in the areas under PESA (Panchayat Extension to the Scheduled Areas Act, 1996) through the national employment act MGNREGA.

Despite being one of the highest millet-producing states, Maharashtra lacks a comprehensive program to promote the production and consumption of millets. Therefore, the State government has constituted an expert committee to explore and understand the Odisha Millets Mission.

Chhattisgarh: The Kodo and Kutki millets are grown mostly by tribals of Bastar and

in other parts of the State. Starting 2021, the State government has announced MSP for Kodo-Kutki to help the tribals and other farmers of the State³⁵. The State's Forest Produce Federation has signed an MoU with the Indian Institute of Millets Research (IIMR) for better processing of Kodo-Kutki (minor millets). The procurement will be done through Chhattisgarh State Minor Forest Produce Association (SMFPA) and will be sold under the 'Chhattisgarh Herbals' brand name.

As per the National Agriculture Innovation Project Report by the Indian Council of Agriculture Research, several innovations like Public-Private Partnership wherein group farming, line sowing of millets through Patela/ Patta with tines and modified country plough, village seed bank, modification of rice hullers for milling Kodo millets, innovation in marketing, mid-day meal as healthy food, popularization, and publicity, etc. have been taken up for the promotion of small millets in Bastar regions of Chhattisgarh. On the other hand, the National Institute of Women, Child, and Youth Development (NIWCYD), a non-profit headquartered in Nagpur, has begun work with over 500 farmers in eight villages of Pendra district to grow millets on at least 0.2 hectares each³⁶. The State does not have a specific initiative to promote the production and marketing of millets and therefore the State government has been asked to study the framework of OMM to develop a similar model for Chhattisgarh.

While other high Millets producing States like Rajasthan, Gujarat, Uttar Pradesh, and Madhya Pradesh have the intent of mainstreaming millets, they are yet to launch dedicated schemes for the same.

³³ Malnutrition stuck Maharashtra turns to millet to enrich tribal health, lifestyle. 2019. DNA India

³⁴ Ibid.

³⁵ Chhattisgarh to announce minimum support prices for kodo-kutki millets. 2021. The Hindustan Times

³⁶ Millet magic: Kodo and Kutki calling in Chhattisgarh. 2021. Gaon Connection

2.2 Odisha Millet Mission: Assessment of the Journey

World Food Program, India signed an MoU with Odisha Millet Mission for informing national, regional and global policy dialogues on Millets as climate adaptable nutri-cereal for sustainable food and nutrition security and advancement of South-South Cooperation. Through this assignment, documentation of key achievements by OMM, the operational model followed, plans, and lessons learned since its launch to inform future program undertakings and replication by other States is being undertaken.

The objectives of this assessment were to **review, extract and document the lessons learned and best practices of the OMM experience and develop a range of knowledge products**. The specific objectives are:

- Understanding **OMM's objectives, its components, journey, and current program delivery mechanism**
- Analyzing **OMM's program design & implementation, budgetary allocations, departmental convergence, partnerships, and capacity development** to recommend a scalable operational model
- Assessment of the **end-to-end value chain interventions under OMM** i.e. production, processing, marketing, and consumption stage
- **Documenting OMM's bottom-up participatory approach** to mobilize farmers and households for improving production and consumption respectively and experiences/processes of OMM's integration in social safety-nets
- **Identification and assessment of scalable and new approaches, good practices and lessons learned**; reviewing existing challenges and barriers to sustainability; and understanding perceived gaps based on the stakeholder interactions. This will be backed up by case stories and testimonies of change, where needed (with photographs)
- **Reviewing National and State level policies, initiatives challenges and gaps related to Millets**, specifically by **studying States like Karnataka** (with similar models) **or Maharashtra and Chhattisgarh** (shown interest in Millets).
- **Identify geographies similar in context** for possible replication and suggest potential policy options, approaches and recommendations aligned with national and global expansion objectives

The subsequent chapters analyze these aspects in detail.

3. OMM’s Operational Model

3.1 Overview and objective

Millets are part of the traditional staple diet and crop systems in Odisha supplementing the nutritional needs of the communities, especially in the rainfed regions (66% of Odisha’s total cultivated area³⁷). The conscious pursuit of an agricultural policy since the 1960s to meet national food security with paddy and wheat has led to a decline in millet production and consumption. Millets were not the focus crops in the food security framework of the green revolution³⁸. Millets have been providing the necessary diet-diversity and nutritional security for generations in the drought-prone uplands in districts inhabited by tribal communities. But there has been little support to incentivize the production, processing, marketing, or consumption of millets.

To address the issue of decline in millet production and consumption, the Planning & Convergence Department, Government of Odisha, and Nabakrushna Chaudhury Centre for Development Studies (NCDS) in partnership with Revitalizing Rainfed Agriculture (RRA) Network and Alliance for Sustainable and

Holistic Agriculture (ASHA) Network organized a multi-stakeholder consultation to evolve a strategy for revival of millets in Odisha. After multiple rounds of discussions around the need to revive the traditionally grown crops, Honorable Minister of Finance, Shri Pradip Kumar Amat in the budget speech of 2016-2017, declared the launch of a “Special Program on Promotion of Millets-Odisha Millet Mission”.

Odisha Millet Mission (OMM) is a flagship program launched in 2017 by the Department of Agriculture and Farmers’ Empowerment, Government of Odisha. It became the first of its kind agriculture initiative with a vision to increase nutritious, rich millets in Odisha and to revive millets in farms and on plates. The program has also aimed to tackle malnutrition by introducing millets in the Public Distribution System (PDS) and other State nutrition schemes like Ragi Laddu in Integrated Child Development Services (ICDS).

It has a unique architecture, led by three partner organizations: Government of Odisha, NCDS, and WASSAN:

Agency	Role
Government of Odisha	<ul style="list-style-type: none"> Multi-departmental High-Power Committee led by Development Commissioner, Government of Odisha. 3 Level selection process: Application > Presentation > Field verification Policymaking, Meticulous development of guidelines, implementation, and monitoring. Involvement of all stakeholders in a participatory approach.
Nabakrushna Choudhury Centre for Development Studies (NCDS)	<ul style="list-style-type: none"> State/District level consultations. Real-time policy recommendations.

³⁷ <https://agriodisha.nic.in/Home/StatusofAgriculture>

³⁸ Annual Report OMM 2017-18

Agency	Role
	<ul style="list-style-type: none"> ● National/International partnerships: Transforming India's Green Revolution by Research to Empower Sustainable Food Supplies (TIGR2ESS) with Indian Institute of Millet Research (IIMR) & Central Food Technological Research Institute (CFTIR)
Watershed Support Services and Activities Network (WASSAN)	<ul style="list-style-type: none"> ● Inputs in the design of the program and bridge the field level gaps. ● Actively daily follow up. ● Capacity building with the involvement of facilitating agencies. ● Annual and monthly participatory implementation plan. ● Support to departmental agencies and coordination.

Program Areas: The program is designed with a block as a program unit. The program was initiated in 72 Blocks with a significant tribal population spreading across 14 districts of Odisha. In 2021, out of 30 districts of the State, 15 are covered under OMM composed of 84 blocks, 1,510 Gram Panchayats (GPs), 15,608 villages, and 1,10,448 farmers³⁹. Expansion of OMM to a further 60-65 blocks is currently on-going⁴⁰.

The mechanism for identification of Households: The project is implemented in tribal areas and contiguous habitations intensely. The predominance of tribal population, previous history of millets consumption, and farming is a significant criterion for choosing the contiguous patches. On the consumption part, the program works with all households. The processing enterprises have a special focus on Women Tribal Entrepreneurs.

Objectives

Odisha Millets Mission envisages reviving millets in farms and on plates in the tribal areas of the State with a specific focus on women empowerment. The program intended to promote processing and business

enterprises, in addition to increasing productivity by promotion of improved agronomic practices through organic inputs.

In 2016, the following objectives were planned under Special Program for Millets in Tribal Areas of Odisha later called OMM:

1. Increasing household consumption of millets by about 25% to enhance household nutrition security and to create demand for millets with a focus on women and children.
2. Promoting millet processing enterprises of Gram Panchayats and Block level to ease processing at households and for value-added markets
3. Improving productivity of millets crop systems and making them profitable
4. Developing millet enterprises and establishing market linkages to rural/urban markets with a focus on women entrepreneurs
5. Inclusion of millets in State nutrition program (SNP) and public distribution system (PDS)

To achieve these objectives the mission tested and deployed several methods like

³⁹ <http://www.milletsodisha.com/about-program>

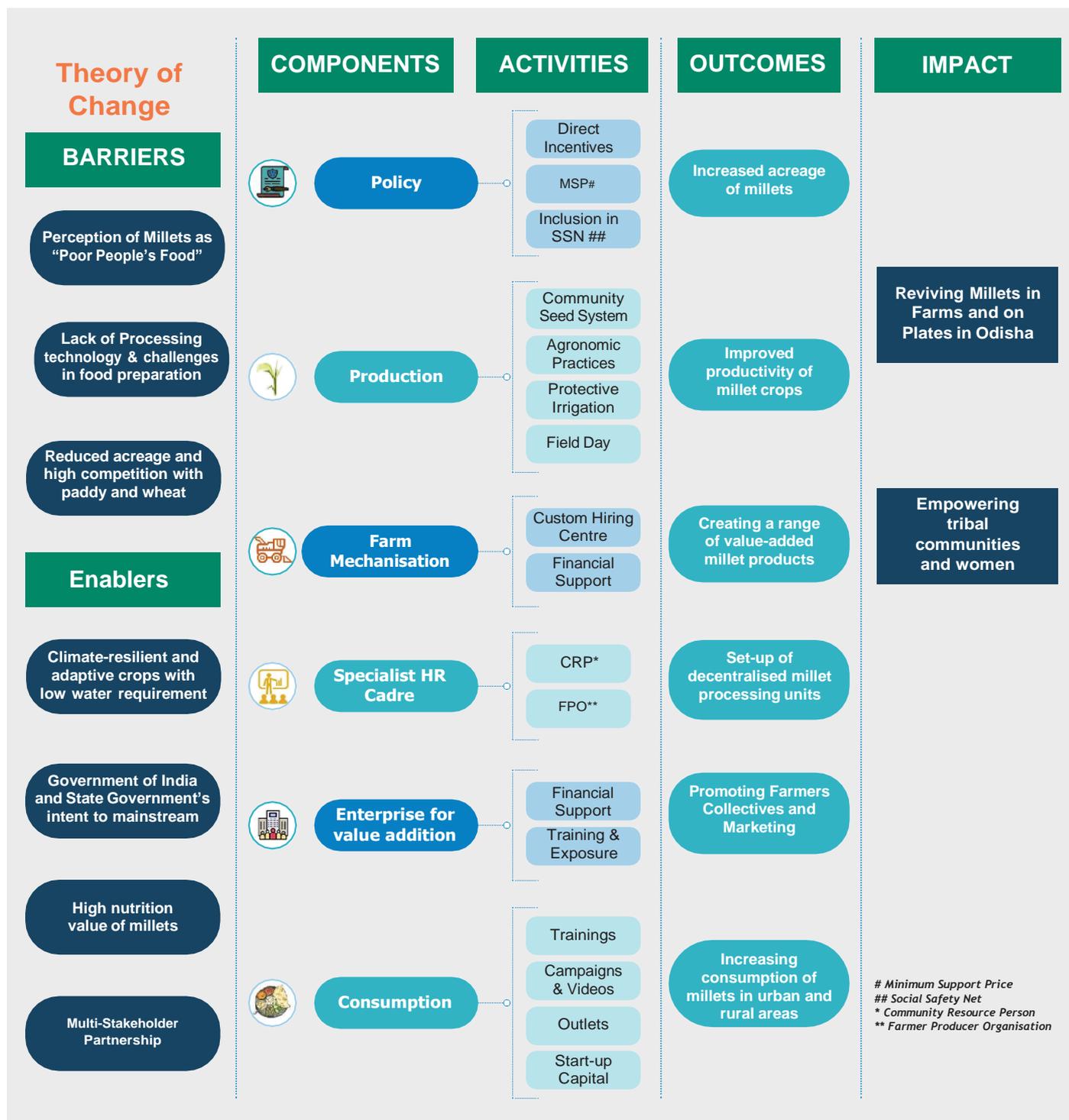
⁴⁰ Workshop Proceeding Report, Annex 8.2

setting up Community Seed Centers with Participatory Varietal Trials of local landraces at each Block, setting up of Processing Units at GP & Block level & Custom Hiring Centers at the cluster level, led the inclusion of millets in SNP-ICDS, Mid-Day Meal (MDM) & PDS, organized consumption Campaign at Village, Block, Dist. & State level with Self Help Groups

(SHGs), Market Linkages and value addition, and Improved Agronomy in Millet Crops over 1000 Ha per block with the use of technologies like System of Millet Intensification (SMI), Line Transplanting and Line Sowing.

The Theory of Change in Figure 5 describes overall framework of followed by the mission.

Figure 5: Theory of Change



3.2 Components

Policy

Direct Incentives

OMM has been promoting improved agronomic practices for improvement in quality and diversity of millet seeds as well as higher productivity and incomes from millets. Thus, a monetary incentive is transferred to farmers' accounts on the completion of the following practices:

1. Application of adequate quantity of farmyard manure, compost, etc. for soil health
2. Seed treatment as prevention from diseases and pests and to enhance purity and yield
3. Improved agronomic practices like System of Millet Intensification (SMI), Line Transplanting (LT), and Line Sowing (LS)
4. Use of organic preparations for disease and pest management

These practices are promoted by the provision of hand-holding support by CRPs at the village level. Local NGOs acting as facilitating agencies monitor the work. On the successful completion of all the activities, an amount of Rs. 5000 per ha for SMI and Rs. 2500 per ha for LT and LS is provided to farmers via the Direct Benefit Transfer (DBT) route in the first year. Farmers are eligible to receive incentives for three years. In the next two years Rs 3000 and Rs 1500 per ha are provided under SMI and Rs 1500 and Rs 1000 are provided under LT/LS to farmers⁴¹.

Minimum Support Price for Ragi

The Government of India has announced the Minimum Support Price (MSP) for Ragi

at Rs 3295.00 only per quintal conforming to Fair Average Quality (FAQ) norms for Kharif Marketing Season (KMS) 2020-21. The state government has set the target of 1, 60,000 quintals for KMS-2020 for 14 Ragi growing districts. Tribal Development Cooperative Corporation of Odisha Ltd (TDCCOL) shall procure Ragi within the approved target mentioned. The target may be revised after the proposal of the Collector & District Magistrate. However, as an achievement, the Odisha Millet Mission crossed the target and procured 2,00,000 quintals of Ragi under KMS-2020.

Ragi is procured from the farmers at the rate of five (5) quintals per Hectare (2 quintals per acre). If required, this may be revised based on an assessment of crop yield by the CDAO of the districts and approvals by the Collector and District Magistrate.

Ragi (Finger Millet) - Major Produce: In Odisha, out of 47,190 ha cultivated land, 86% of the land is occupied by Ragi⁴². Ragi is the most produced millet in Odisha since 2010-11 as shown in table 5. It is considered to be the staple food among tribal communities of Odisha. It is a Kharif crop, sown between May and August and harvested between September and January. It requires less harvesting time and gets matured within 3 to 5 months. The table 5 also shows that in the year 2018-19, after the launch of OMM, apart from ragi, bajra, sorghum, and small millet's area, production, and therefore yield has also increased.

However, favoring one species over the other can risk a loss of biodiversity. As stated by a WASSAN member, "Ragi corners 90% of the millet market in Odisha as it is included in PDS. Unless we adopt better policies and practices, we face the danger of losing the rich diversity of minor millets that still exists in India."⁴³

⁴¹ Odisha Millet Mission- Taking millets to millions, Directorate of Agriculture and Food Production, Odisha, 2019

⁴² B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

⁴³ Bindu Mohanty. 2020. Odisha millet mission: the successes and the challenges. Food and Water

Table 5: Area, Production, Yield of different millets from 2010-11 to 2019-20

Types of Millets		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Pearl Millet (Bajra)	Area (in' 000 ha.)	3.34	3.09	2.84	3.03	2.35	2.11	1.84	1.76	2.16	1.87
	Production (000 Tones)	2.07	1.90	1.73	1.85	1.44	1.29	1.13	1.09	1.34	1.16
	Yield (in Kg/ha.)	620	615	610	611	613	611	614	619	620	620
Finger Millet (Ragi)	Area (in' 000 ha.)	179.4	169.2	172.9	165.8	158.2	147.2	138.3	114.3	117.8	116.8
	Production (000 Tones)	147.3	151.4	149.2	143.7	137.3	127.6	120.9	100.5	104.9	128.7
	Yield (in Kg/ha.)	821	895	863	867	836	867	874	880	890	1102
Sorghum (Jowar)	Area (in' 000 ha.)	8.90	8.63	7.83	7.46	6.69	6.21	5.47	5.62	7.19	5.81
	Production (000 Tones)	5.35	5.44	4.89	4.66	4.19	3.89	3.44	3.55	4.56	3.68
	Yield (in Kg/ha.)	601	640	624	625	626	626	629	632	634	633
Small Millet	Area (in' 000 ha.)	15.75	17.20	17.38	19.32	20.78	25.35	27.41	29.18	32.78	32.87
	Production (000 Tones)	7.28	8.95	8.86	9.7	10.45	12.70	13.84	14.94	16.98	16.99
	Yield (in Kg/ha.)	462	520	510	502	503	501	505	512	518	517

Source: 5 decades of Odisha agriculture statistics. 2020. Directorate of agriculture and food production, Odisha

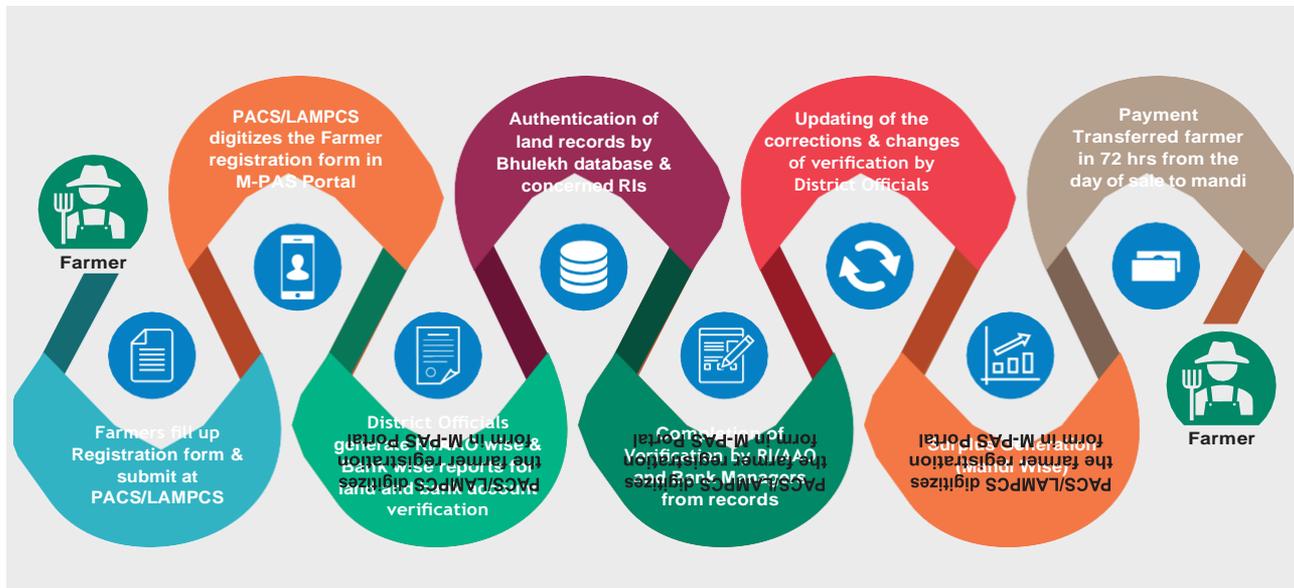
The major reason for the high production of ragi is policy intervention of including and distributing ragi. Apart from policy intervention, there are three other reasons for high ragi cultivation; First, the government has fixed Minimum Support Price (MSP) only for Ragi out of all other millets. Secondly, only ragi can be procured at the local mandi, and lastly, ragi is the traditional food for the natives of Odisha, therefore it is included in PDS. The procurement and consumption of Ragi are high as compared to other millets. Farmers cultivate other millets for their household consumption only.

MSP for ragi in India in 2019-20 was Rs 3150 per quintal. On similar lines in Odisha in the year 2019–20, 94,745 quintals of millets at Rs. 3148 per quintal from 20,328 farmers has been procured⁴⁴. Tribal Development Co-operative Corporation of Odisha Limited (TDCCOL) has been selected as a State procurement agency. Millet Procurement Automation System (M-PAS) is developed on the lines of paddy procurement to ease farmer registration and operations⁴⁵.

⁴⁴ B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

⁴⁵ Annual Report. 2018-19. Odisha Millet Mission

Figure 6: Process of farmer registration and payment using MPAS



M-PAS: One of the initiatives under Odisha Millet Mission, like the Paddy Procurement Automation System (P-PAS), is the online registration of farmers to procure millets. The registration process follows seven steps; first - the farmer needs to fill the registration form, then LAMPCS/ PACS uploads the registration form on the M-PAS portal. After that, district officials verify the land and bank account, followed by authentication of land records by Bhulekh database & concerned RIs; if some changes come up during verification, data officials update the portal. Lastly, the surplus is generated (mandi wise), and then the procured millet is sold at the mandi. The payment gets transferred to the farmer in 72 hours only from the sale to the mandi. As per the 2018-19 annual report, 25,000 farmers are registered on the portal.

Inclusion in Social Safety Net

Ragi is procured and distributed to the Department of Women and Child Development (DWCD) and Food Supply and Consumer Welfare (FS & CW) Department. Farmers bring ragi to the procurement center. TDCCOL does the procurement, and the procured ragi goes

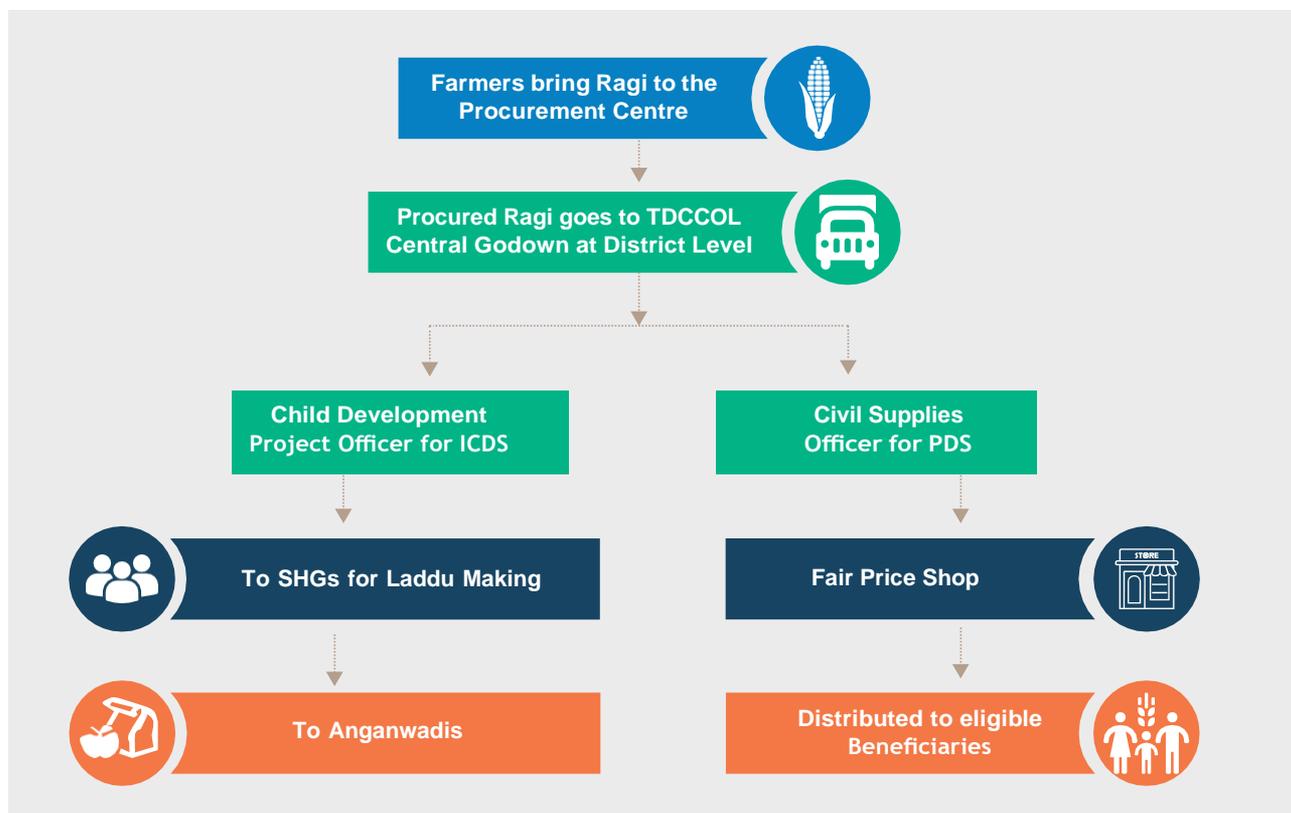
to their central warehouse at the district level.

The government of Odisha has a decentralized approach to PDS, where grains are procured, processed, and distributed within the district. Therefore, the procured ragi goes to the FS & CW department for PDS. The procured grains are then sent to the Fair Price Shops (FPSs) as per the demand and beneficiary lists, followed by the distribution of ragi to eligible beneficiaries. As a policy, stated by a WASSAN State coordinator, all the districts are provided 1.5 kilograms ragi per person (out of the five kg per person entitlement) through PDS to ration card holders under National Food Security Act⁴⁶. However, local NGOs mentioned that only 1 Kg of Ragi was provided per household.

On the other hand, TDCCOL supplies the procured ragi to the child development project officer, sends the ragi to the Self-help groups (SHGs) to make ragi laddu, as Ragi laddus are considered as the major source of nutrition. After making laddus SHG's provide the laddus to the Anganwadi centers to incorporate in the ration for children. In two districts, namely Keonjhar and Sundergarh, 1.57 Lakh children are covered by the ragi laddu initiative⁴⁷.

⁴⁶ Chinmayi Shalya. 2020. Odisha set to introduce locally produced millets into ICDS, PDS. Down to Earth.

⁴⁷ Dinesh Balam. 2021. Odisha Millets Mission and WASSAN. Millet Mission Odisha.



Production

Community Seed Centers

The program intends to establish a decentralized seed system managed by the farmers'-based organizations that produce and supply quality landraces or varieties of millets and other crops suitable for their locality well in time to the farmers. This seed system explores the possibility of supplying quality seeds to programs such as OMM, ATMA, PKVY, Odisha Organic Mission, and farmers. In the long run, the purpose of a community-managed seed system is to cater demand-driven seed supply to local farmers with less dependent on government subsidies/traders.

One seed center and three seasonal sub-centers within the block. In brief, the process involves-

1. Selection of suitable seeds from different indigenous landraces/varieties of millets

through Participatory Varietal Trial (PVT) within the block.

2. Mass selection of the farmer preferred local landraces.
3. Development of pool of local seed producers for quality seed production.
4. Establishment of community seed center
5. Processing, storage, management, distribution, and maintenance of the seeds.

Community Seed Centre (CSC) is implemented by a CBO of OMM. It runs as a business enterprise and is responsible for producing, supplying, and selling quality seed. The Seed Centers are linked to relevant research stations for selection, purification and multiplication of elite performing local varieties⁴⁸.

⁴⁸ <http://www.milletsodisha.com/about-program>

Agronomic Practices

OMM is providing an incentive to farmers for adopting the following agronomic practices in millets:

1. System of Millet Intensification (SMI)
2. Line Transplantation in millets (LT)
3. Line Sowing including intercropping in millets (LS)

In addition, seed treatment, manuring, the addition of organic matter, maintaining adequate plant population and weeding are carried out. The program secretariat (WASSAN) makes regular field visit and monitor the technology and ensure coverage of SMI, LT, LS, IC in a farmer's field as per the assigned target for each block. The marker and cycle weeder can be utilized hiring of same from Custom Hiring Centre (CHC). Any farmer in the block is eligible for an incentive under OMM. In the tribal sub-plan blocks, at least 51% of the farmers shall be from ST& SC communities. A farmer must take up improved agronomic practices in a minimum of 0.2 ha. and incentive is permitted a maximum of up to 2 ha. per farmer. The FA with the support of CBO/VAW/AO selects the feasible cluster in consultation with the farmers and prepares the tentative beneficiary list and submits it to the AAO/BAO.

FA organizes the training program on agronomic practices for the selected farmers. The farmers with the guidance of CRP/FA/VAW/AO/AAO/BAO and DPC adopt different agronomic practices for different millet crops. After sowing or transplanting a joint field verification is taken up by FA with AAO/BAO or his representative to prepare a final beneficiary list. After receipt of the beneficiary list with a verified certificate of AAO/BAO on coverage of area under different agronomic practices, 50% of incentive will be released by PD ATMA to the farmers within 15 days.

Field verifications are conducted to the extent of 100% by VAW/AO, 50% by AAO/BAO, 10% by DAO, and 5% by DDA/Scheme officer within two months of transplanting/sowing. The DPC coordinates the timely field visit and proper

documentation in the program area. The rest 50% incentive is transferred electronically to the farmer's bank account by the PD ATMA after obtaining the field verification report.

Protective Irrigation

Patches of 4 to 10 Ha are selected in villages /GPs requiring protective irrigation for the millet crops. Criteria for selection of land under protective irrigation for the millet crop

1. It should be a continuous/contiguous patch covering adjacent clusters/villages
2. Patches nearest to the existing water sources shall be preferred.
3. Patches, where farmers are willing to share additional resources, will be preferred.
4. Farmers should agree to cultivate millets.
5. Patches for seed production for millets will be given preference.

Financial Support for Site-Specific Protective Irrigation Infrastructure (SSPII) is given such as farm ponds, Community Lift Irrigation, Pipeline grid with Sprinklers, Solar Pumps, Electric Pumps, PVC pipeline/HDPE Pipes, etc. as per need to prevent millets crop failures during dry spells. Infrastructure needs are assessed based on the field report of FA and assessments report by Program Secretariat/Block AAO/BAO with support from a technical person. In addition, water-carrying pipes, sprinklers, etc are provided to mitigate the risk of dry spells.

The DPRs are prepared for different feasible patches with support of the AAE/Asst Ex Engg/Engg of water resource (WR) dept. as per the government scheme norms. Program Secretariat coordinates with the other departments in the development of the DPR. Funds are sanctioned as per the estimate and due approval of the DPR by the District Collector cum Chairman ATMA. The farm ponds may be excavated by converging with MNERGA. The list of feasible farm ponds to be excavated through MGNREGA is prepared by CBO/FA. The list with the recommendation of AAO is sent to BDO for action. The Asst.

Agriculture Engineer supervises the area and gives suitable specifications of the solar pumps/electric pumps, HDPE pipes/PVC pipes/Sprinklers. The PD, ATMA purchases the materials from the empaneled suppliers of Agril Dept. on SLPC approved rate (if any), otherwise due tender process is followed. The materials so purchased are installed on the project site or handed over to CBO/FPO.

Field Day

Field day is conducted during the Kharif harvesting season and Rabi harvesting season by the facilitating agency. Crop cutting as per standard procedure is carried out in presence of at least one person from the agriculture dept (VAW/ AO/ Statistical Asst/AAO/BAO/DAO/ DDA) or Directorate of Economics and Statistic during the field-day. The dry grain weight from the crop cutting area of 5mt*5mt is taken and documented with the token signature of the dept. staff attending the crop cutting. Following are the participants in the field day:

1. Farmers from the nearby/potential villages for area expansion
2. DDA/DAO/AAO/BAO/AO/ VAW
3. FA Representative
4. Program Secretariat representative
5. Statistics representative (Invitees)
6. PRI members (Invitees)

Field day can have participation from a maximum of 50 people. Progressive farmers and other participants also share their experiences on the benefits of improved agronomic practices. A provision of Rs.3000 per field day is made by the State government. The number of field days to be conducted by facilitating agencies is approved in the Annual action plan each year and funds are released to FAs by CDAO.

Farm Mechanisation

Custom Hiring Centre

Custom Hiring Centers (CHC) are a unit comprising a set of farm machinery,

implements, and equipment meant for custom hiring by farmers. The main objective of CHC is to supply farm implements to small, marginal, and poor farmers at subsidized rates on hire. The custom hiring Center will be hosted by the CBO under OMM at the GP level. Each CHC in turn has a maximum of seven sub-centers at cluster /near the millet cropping area. The selection of sub-centers will be based on the need. If more sub-centers are not required, then they will be merged into a few with more numbers of need-based implements/ machinery. The geographical situation, distance from the clusters, convenience of farmers, and availability of storage space are the criteria for deciding the number of sub-centers. Following are the criteria for sub-centers of CHC.

1. Sub centers may be anchored by the local SHG/Farmer Groups at the village level
2. Sub centers shall be near to the millet program clusters
3. Sub centers shall with the CBO of Main CHC of the Odisha Millets Mission

Financial Support- Rs 1 lakh per CHC has been provisioned which can be used towards the rent of the CHC @ Rs. 1000/Month while the remaining Rs 88,000/- can be utilized for the purchase of the farm implements as per local needs with approval of DDA cum PD, ATMA, or The Director, Agriculture & Food Production, Odisha.

Specialist Human Resource Cadre

Community Resource Person

Community resource persons play a key role in the implementation of the activities through farmers and CBO interface at ground level. The CRPs are identified by CBO and FA from the farming community where the project is implemented. The CRP should read, write local language/ Odia with good communication and motivation skills. The CRP should have her/ his mobility.

The primary role of CRP involves, uploading the data and images on the mobile app. After primary identification, they are verified by the Program Secretariat and VAW/AO and finally selected by FA in consultation with AAO/BAO. Program Secretariat provides smartphones to CBO for exclusive use by CRPs for data collection and upload related to the program. CBO can engage no of CRPS as per approved person-days in budget and work required in the year. The CRPs and progressive farmers are provided two days of residential training by FA on all the activities to be conducted by CRPs.

Following are the main activities of CRP:

1. Demonstrating good agronomic Practices as recommended by the program Secretariat and FA
2. Facilitating the Seed Management System
3. Facilitating the custom hiring center
4. Support to FA on different Awareness Campaigns, training, workshop
5. Support for Millet Recipe Preparations
6. Participate in Farmer registration process and millet procurement activities
7. Assisting CBO in Marketing, Entrepreneurship Development, processing activities, etc.
8. Data upload and documentation through the mobile application.

Mode of payment: The CRPs are provided honorarium at the rate of 25 person-days per month per cluster at the rate of Rs 250 per day (including travel). While assigning the responsibility to a CRP the CBO/FA shall inform the CRP in writing regarding the terms of engagement that include incentive norms, deliverables, performance appraisal mechanism and duration of the assignment. The CBO/FA shall refer to the work done register of the month and the transactional report generated from the website collected by the CRP through Mobile App and payment shall be made accordingly. The honorarium shall be released on monthly basis as per

person days duly approved by both the CBO, certified by FA. AAO/BAO/VAW shall also monitor the work of CRPs time and again. Finally, the payment is done by CBO on monthly basis through bank account transfer after verification of work register.

Farmer Producer Organizations

OMM envisages forming of Farmers' Producer Organizations in each block, in which both men and women can be a part of FPOs. These FPO's are expected to be farmer-led bodies to ensure improvement of production, productivity, direct linkages for higher value realization for the millet farmers and takeup some welfare activities directly.

This aims to achieve the following objectives:

1. The FPOs successfully deal with challenges and constraints that confront farmers by leveraging collective strength and bargaining power to access financial and non-financial inputs, services, and appropriate technologies, reduce transaction costs, tap high-value markets, and enter into partnerships with private entities on more equitable terms.
2. The FPOs offer forms of aggregation and investments in irrigation, storage, processing, etc. leaving land titles with individual producers and using the strength of collective planning and bargaining for production, procurement, and marketing, so that considerable value is added to the members' produce.

These FPO's are expected to be a platform for small and marginal millet farmers to collectively sell processed grains and value-added products of millets. They are also expected to anchor community institutions envisaged in the program viz. Millet Processing Unit, Community Managed Seed System, and Custom-Hiring Centre. 274 out of 714 i.e., 38% board of directors are women. 17716 out of 30136 i.e. 59% women are shareholders amongst the 75 FPOs.

Thus, in addition to the revenue from the collective sale of millet grains, the FPO shall earn its revenue from:

1. Supply of products like
 - a. Locally produced or sourced seeds of preferred varieties of different millet crops
 - b. Bio-manures and bio-pesticides
 - c. Processed grains and value-added products
2. Provision of services like
 - a. Primary processing of millet grains: threshing, de-stoning, de-husking, and pulverization (Managing Processing Units)
 - b. Farm implements on hiring basis: Weeders, markers, power-sprayers, tarpaulin sheets, electronic weighing machines (Managing Custom Hiring Centers)
 - c. Storage of seeds (through Community Seed Centers) and other value-added products
3. Opening of millet-based eateries or outlets in small towns (Managing Millet Enterprises)

As per the program guidelines of Odisha Millets Mission, the nodal CBO in every block takes the form of a Farmer's Producer Organization- which is a representative organization of farmers, both men, and women, meant to provide services and help them negotiate with market agencies for better price realization on their produce through organized efforts. Legally, the FPO could be a Cooperative Society (State Cooperatives act or MACS act or Multi-State Cooperative Act), a Producer Company (Section 581 C of Companies Act), or a Private Limited Company. The choice of registration lies with the facilitating agency that is providing hand-holding support to the nodal CBO considering the institutional and financial health of the CBO.

Enterprise For Value Addition

Financial support

Financial support has two components: to entrepreneurs on a grant basis and to block-level enterprises on processing and value addition.

Financial support to entrepreneurs on a grant basis for establishing pulverizing/ grinding enterprises for local consumption at clusters of panchayats level. A-Millets Processing Units such as machinery include thresher cum pearler, grinder/pulverizer and such other devices which are useful for value addition. The financial support is limited to Rs 7.5 lakhs during the project period/ block. These machineries are provided to the women SHGs /FPO/CBO by the DDA cum PD ATMA. Selection of SHG /FPO/CBO for these millets processing units are finalized by a committee consisting of DAO, Scheme Officer, AAO, AAE, Program Secretariat, and FA under the chairmanship of PD, ATMA. All the selected CBO/FPO/SHG shall enter into an agreement with the concerned block AAO/BAO/BEO of the block on behalf of DDA cum PD ATMA.

Financial support to block-level enterprises on processing and value addition (dehullers, cleaner, grader, de-stoner thresher cum pearler, biscuit making machine, etc.) on a need basis. Support can also be provided for one-year maintenance, including the setting of basic infrastructure and power supply after approval of the business plan by district ATMA. Millet Processing Units of capacity (200-300 Kg/Ha/ 300-1000 Kg/Ha/ 1000-1200 Kg/Ha) to be established within the Program Block / District as per market feasibility by CBO / FPO/SHG selected through a process. These machinery include Cleaner cum De-stoners cum Grader, dehullers, etc. Value addition units such as Bakery/ Biscuit making unit, laddoo-making unit, decorticator, flaking units and such other value-added machinery shall be established within the district by FPO/ CBO/SHG through a process of selection. A

committee is formed for the selection of the FPO/SHG/CBO for processing machines under the chairmanship of the Deputy Director of Agriculture (DDA cum PD ATMA).

Training and Exposure Visits

A five-day exposure visit outside State on processing, value-added products and markets for CRPs, NGO staff, Entrepreneurs, Traders and Department Officials shall be organized by FA.

1. Program Secretariat shares the tentative list of locations for the exposure visit. Any other suitable location can be selected by FA with the approval of DDA cum PD ATMA.
2. Dates of the visit shall be proposed by FA in consultation with AAO/BAO and is approved by the DDA cum PD ATMA quarterly.
3. Selected CBO members, CRPs and farmers are chosen by the FA and AAO.
4. The Selected CBO/FPO/SHGs members who had undergone training on millet processing, packing, value addition must be included for an exposure visit.
5. In this exposure visit participants need to be trained on the following aspects:
 - a. Different types of millets
 - b. Different types of processing of different millets
 - c. Quality issues in the processing of millets
 - d. Different machinery for processing of millets
 - e. Issues and challenges in the setting up the millet processing units
 - f. Storage and packaging of millets
 - g. Different value-added products of the millet processing
 - h. Opportunities in the value addition of millets
 - i. Training module and IEC material shall be supplied for the same.

- j. The practical operation of the millet processing machines (Depends on the availability)

Consumption

Training

The guidelines also have a provision for a two-day residential training within the district to be organized for a 10-member women campaign team. These training are conducted by Facilitating Agencies and its objective is to increase the household consumption of millets.

1. Dates and venues are to be finalized by facilitating agencies in consultation with AAO/BAO and approved by the DDA cum PD ATMA quarterly.
2. Women with experience in campaigning, active in community events, interested persons are to be selected for this training.
3. Women SHG members of Mission Shakti and OLM are to be given preference.
4. In this training, women are to be trained on
 - a. Different types of millets and their nutritive values.
 - b. Need for consumption of more millets
 - c. Different millet recipe preparation
 - d. Strategies to create more awareness on the consumption of millets.
5. Women campaigns and food festivals are to be linked to the training to ensure greater effectiveness.
6. Brochures on different millet recipes, the importance of millets & their nutritional values are to be prepared by Program Secretariat in Odia language for distribution during the campaign.
7. Residential training is to be converted to non-residential training only when residential facilities are not available. Certificates shall be given by the FA on the body of the voucher to the effect that residential accommodation is not available near the place of the training. In case

of conversion from residential to non-residential training, then participants shall be increased to 16 instead of 10 so that the total cost of training shall remain the same.

Due to Covid 19, several of these activities are yet to happen.

Campaigns and Videos

Campaigns are organized in villages to increase awareness of household consumption of millets. After the training of the women campaign team (master trainers) in component, master trainers will be organizing village-level campaigns to generate interest in household-level consumption. Four-day campaigns (minimum three types of campaigns such as School Rally, Street play and Rath) are taken up by the campaign team during one financial year.

1. FA identifies the suitable locations for organizing the awareness campaigns. Preference in street play will be given to weekly haats/local events/panchayat meetings/ any other suitable congregations of people.
2. FA identifies the suitable street play group and links them with the women campaign team for the development of the script covering the above activities.
3. Dates and location of the street play shall be shared with Program. Secretariat/AAO/BAO/DAO/DDA cum PD ATMA before 15 days of the event.
4. Street play and household level mobilization

For videography following points shall be considered:

1. Videographers already empaneled by the DDA cum PD ATMA for other schemes may also be assigned for video documentations.
2. The cost is inclusive of all aspects from the development of a script to submission of video copy.
3. Videographers also submit the raw footage to PD ATMA and Program Secretariat.

4. Payment is made by the DDA cum PD ATMA directly to the empaneled videographers.
5. Video documentation shall focus on Agronomic Practices, Millet consumption, Procurement, Processing, Value addition of millets and methods of recipes preparation, Inclusion of millets in ICDS, MDM, and PDS, and any other video deemed suitable for the program and public.

Outlets

Under OMM, there is a provision for opening a Mobile Outlet / Farmer sales outlet. The support at the rate of Rs 4 lakh is given as start-up capital for the project period to the FPOs/CBOs/SHG to prepare the millet recipe and sell it to generate income. Preference is given to the FPOs/CBOs engaged in the OMM activities.

Process steps for establishing the Mobile Outlet

1. The FPOs/CBOs/SHGs having adequate infrastructure for the setting of Mobile outlet/ Farmer sales outlet for marketing of millet recipe will apply to PD ATMA through AAO/BAO facilitated by FA through an application format.
2. The applicant must have adequate resources such as capital, workforce, vehicle (own or rented), kitchen facilities, etc.
3. A committee is formed for the selection of the FPO/SHG/CBO for mobile outlet/Farmer's sale outlet under the chairmanship of DDA cum PD ATMA.

The fund is transferred to the selected CBO /FPO/SHG in two phases. In the first installment, 50% of the fund will be released to the selected CBO /FPO/SHG. After 100% utilization of the first installment, the rest 50% can be transferred as the second installment. The specifications of the outlet are finalized by the Committee as per local situations. Program Secretariat shares indicative specifications.

Start-up Capital

Under the Odisha Millet Mission, there is a provision for Start-up Capital for setting up/management of Kiosk for millets-based products by FPO/CBO/SHG preferably Women SHGs of Mission Shakti (Millet value-added stall for Tiffin Centre, Evening Snacks, Sweet Shop, etc.). The selection criteria are the same as the criteria of mobile/farmer outlets. The selected SHG/CBO/FPO are supported with a start-up cost of Rs. 30,000 for setting up/management of Kiosk for millets-based products to entrepreneur (Millet value-added stall for Tiffin Centre, Evening Snacks, Sweet Shop, etc.).

Recognition and Impact

The Government of India has appreciated OMM as a model initiative to promote millets, oilseeds, and pulses. The central government has also asked all other millet growing States to understand and adapt the framework of OMM and replicate the learnings. On similar lines, the State Planning Commission of Chhattisgarh and the Governor of Maharashtra have asked their respective State governments to initiate a project on millets on the foundation and insights from OMM. Under **MoPFI- PM FME** scheme of the **One District One Product approach**, two districts of Odisha, Naupada and Malkangiri,

have been selected for the millet-based product⁴⁹. Additionally, Cambridge University has partnered with Odisha Millets Mission to explore the possibility of the design of OMM as an alternative to the Green Revolution framework. The global recognition of OMM illustrates that the project has crossed various policy milestones while maintaining transparency, innovations, and efficiency.

At the policy level, Odisha has become **the first State**: to declare direct incentives to farmers for three years through DBT, to complete benchmarking of prices of little millet and foxtail millet; to develop standard specifications for the minor millet machinery through a recognized panel of experts from different scientific institutions and to include Ragi laddu in ICDS through the support of District Mineral Foundation Trust. Odisha has also received the **best government initiative** on millet promotion award by MoFPI-IIFP and became the **third state** to distribute millets in PDS in the country.

A study⁵⁰, '**Health and Nutrition, Practice Insight**' by NITI Aayog acknowledges OMM's efforts and achievement. It states that there has been a 215% increase in the gross value of millets produced per farmer household in Odisha because of OMM⁵¹. The reach of OMM is about 15,292 villages covering 81 blocks

Figure 7: OMM Achievements 2019-20



⁴⁹B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

⁵⁰NITI Aayog, Government of India. 2020. Health and Nutrition Practice Insights (Vol. II)

⁵¹NITI Aayog hails millet revival in Odisha. 2021. The Hindu

and 15 districts of the State. OMM promoted the cultivation of all millets to 47,190 ha; however, ragi occupies 86% of the cultivated area due to the reasons mentioned above. Additionally, as one of the objectives of OMM, 38 custom hiring centers at cluster level for helping 30,285 farmers have been set up and are functioning. The State millet mission has also conducted 45 participatory varietal trials and has identified 14 unique improved varieties and 103 unique traditional varieties. Seed production has been carried out with 112 farmers in 66.5 Hectares. 61 traditional varieties and 5 Govt. recommended varieties identified through PVT, were taken up in the seed production program as of 2021. As a part of the distribution chain, ragi was distributed to 16 lakh beneficiaries in 7 districts in 2018-19 under PDS⁵². Also, under ICDS in Keonjhar and Sundargarh, ragi laddu was introduced as a morning snack for children receiving pre-school education in Anganwadis.

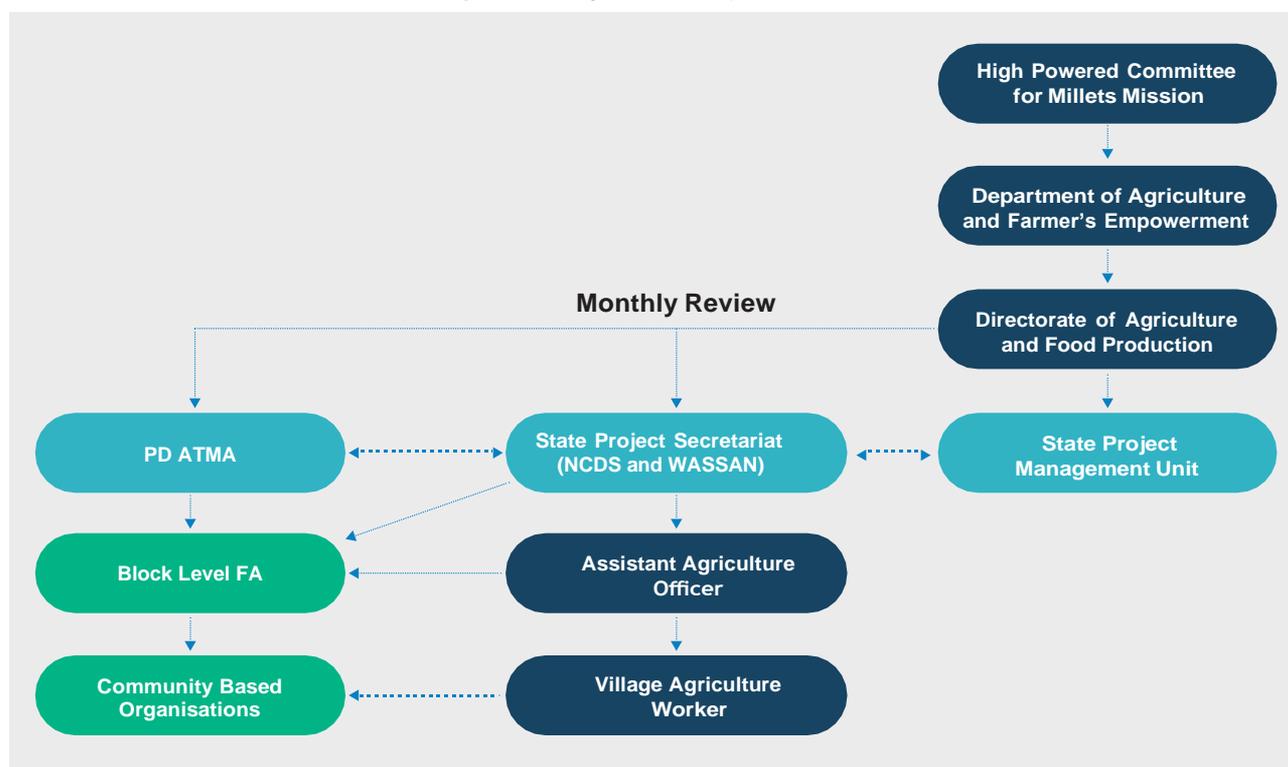
To promote and showcase the initiatives undertaken by the Government of Odisha for

promoting millets, a two-member team from the Program Secretariat participated and set a display stall in the **International Trade Fair on Organic and Millets** in Bangalore from 18th to 20th January 2018. Two initiatives were taken to popularize millet consumption in urban areas: First **Millet Shakti Café**- serving millet-based recipes, bakery products, and hot-cook items. **Second, Urban Internship on popularizing millets** - A summer internship, organized by the State Program Secretariat (NCDS and WASSAN) with the support of the Department of Agriculture, for students to set up and manage millet food stalls in 26 different locations in Bhubaneswar⁵³.

3.3 Program Delivery Mechanism

The implementation of the program includes stakeholders from State, District, and Partnered organizations. At the State level, the High-Power Committee for Millet Mission, Department of Agriculture & Farmers'

Figure 8: Program Delivery Mechanism



⁵² B. Dayakar Rao, Raj Bhandari, and Tonapi, VA, K. (2021). White Paper on Millets – A Policy Note on Mainstreaming Millets for Nutrition Security. ICAR-Indian Institute of Millets Research (IIMR)

⁵³ Annual Report. 2018-19. Odisha Millet Mission

Empowerment, Directorate of Agriculture and Food Production, State Program Secretariat (NCDS & WASSAN) are major stakeholders. At the district level, ATMA, Facilitating Agency (FA), Assistant Agriculture Officer (AAO), and Community Based Organizations (CBOs) are the main human resources.

The high-power committee for Millet Mission is formed at the State level chaired by the Development Commissioner. The Commissioner cum Director, Food and Production, is the member convener of the committee. The committee meets once in six months to discuss governance and policy-related aspects of the program. The Department of Agriculture and Farmer's Empowerment looks after the administration and funding for the program. Directorate of Agriculture & Food Production, Odisha, is the nodal agency to monitor and implement the program. They undertake bi-monthly reviews to monitor the progress of work. They also approve the annual report of the program.

State Secretariat, NCDS and WASSAN, coordinate with various stakeholders to ensure smooth implementation of the program and develop a research program. A state secretariat is established at NCDS, Bhubaneswar. NCDS partnered with WASSAN on the programme management of the project. NCDS is the research secretariat for the project, responsible for evaluation and policy research. WASSAN anchored programme secretariat for the project, responsible for the program management, capacity building, program implementation, design, and process support to ATMA, facilitating agencies (FAs), and monitoring of the implementation of the program.

State Program Management Unit (SPMU) is responsible for developing program processes and designs. It regularly monitors the program implementation and develops monitoring and evaluation reports. SPMU maintains coordination with PD ATMA and State Program Secretariat.

District level ATMA is the program administrative unit, and Project Director (PD) ATMA acts as the nodal person for the program's success at the district level. An NGO/FPO active in the block is chosen as the FA through a process of selection taken up by ATMA and the Program Secretariat. The organizations which had a presence in District/ Blocks and fulfilled the criteria of capacity, experience and history of working with farmer's organizations are selected as FAs. The responsibility of FA is to form/strengthen and support community/ farmer organizations to implement the program.

AAO extends support to FA in technical matters, helps in convergence, participates in the block-level review, and reports the progress to PD, ATMA. Community-Based Organizations (CBOs) are the project implementation agency, identified and partnered by FA. During program implementations, the expectation is that Group(s) working with a 'focus on millets' will be formed into an FPO or in case, the existing FPO will be strengthened; this is the responsibility of the FA. Once the FPO evolves, it becomes the program implementing agency. Lastly, the Village Agriculture Worker (VAW) in the GP is responsible for working with CBO on implementing the program in the project area. VAW reports the progress of the program to the concerned AAO.

3.4 Roles and Responsibilities of Stakeholders

The program incorporated the bottom-up approach for decentralized implementation. This included the diverse stakeholders and key decision-makers ranging from the Director of Agriculture at the state level to the Village Agriculture Worker (VAW). The roles and responsibilities of all the stakeholders involved are detailed in table 6:

Table 6: Roles and Responsibilities of Stakeholders

Stakeholders	Position	Roles and Responsibilities
High Power Committee on OMM	State Ministry	<ul style="list-style-type: none"> Member convener of the High-level Committee chaired by Development Commissioner. The committee meets once in 6 months to discuss governance and policy-related aspects of the program such as the introduction of millets into PDS, reworking on the state nutrition programs to include millets, tax, and market incentives for millet-based industries.
Department of Agriculture & Farmers' Empowerment, Govt. of Odisha	State Ministry	<ul style="list-style-type: none"> Apex body to look after the administration and funding for the program
Directorate of Agriculture & Food Production, Odisha	State Ministry	<ul style="list-style-type: none"> The nodal agency for monitoring and implementation of the program. Responsible to conduct a bi-monthly review to monitor the progress of the work, making overall decisions of the program and reporting to the Principal Secretary of Agriculture & Farmers' Empowerment for a policy decision.
Directorate of Agriculture & Food Production, Odisha, NCDS, and WASSAN	State Secretariat	<ul style="list-style-type: none"> Responsible to coordinate with various stakeholders to ensure smooth implementation of the program and to develop a research program.
Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar	Research Secretariat within State Secretariat	<ul style="list-style-type: none"> Undertake Baseline survey and assessment of the blocks and will undertake annual survey, report on issues of importance to the program with a focus on assessing the milestones (quantity and quality). Identify a suitable third-party agency for the end-line assessment of the program. Provide research-related inputs to Millets Policy Development in the state. Undertake impact assessment at the end of 2nd year and 4th year. Report to Commissioner cum Director, Agriculture and Food Production on progress in research works and report to Principal Secretary, Department of Agriculture and Farmers Empowerment on policy aspects in the program.

Stakeholders	Position	Roles and Responsibilities
WASSAN	Program Secretariat within State Secretariat	<ul style="list-style-type: none"> ● Developing program processes and design including program implementation, process manual, and policy guidelines. ● Capacity building modules and identifying community bases institutions and resource persons & extending support to FAs in the field. ● Identify resource organizations/ individuals, liaison with research institutions, and formation of expert support groups for supporting FAs. ● Provide support to PD, ATMA in the verification of technical and financial documents submitted by FAs and in facilitating convergence with District Administration. ● Monitor the program implementation and develop Monitoring & Evaluation reports and submit it to the Directorate of Agriculture and Food Production, Odisha. ● Facilitate convergence across departments at the state level with the support of Commissioner cum Director, Agriculture and Food Production, Odisha. ● Verifying technical and financial documentation submitted by FAs to ATMA Governing Board for technical and financial compliance respectively.
ATMA Governing Board	District	<ul style="list-style-type: none"> ● Chaired by District Collector, responsible for implementation and monitoring of the program at the district level. ● Reviewing the program bi-monthly with help of the Project Director, ATMA. Provide consultation to programme secretariat to develop district-wise Milestones, Action plans, and timelines of the project. ● May make justifiable amendments to technical and financial protocols of the program based on the local situations, these changes have to be submitted to Directorate of Agriculture and Food Production, Odisha through programme secretariat for approval of the same.

Stakeholders	Position	Roles and Responsibilities
Project Director, ATMA	District	<ul style="list-style-type: none"> ● Program administrative unit and PD, ATMA is the nodal person for the success of the program at the district level. ● Tripartite MoU with FA and Community Based Organizations (CBOs). ● ATMA receives funds from the state and releases the same to FA and CBO as per the approved Half-Yearly Action Plans. ● Review the program on monthly basis with the support of the Programme Secretariat at the district level to ensure the progress of the work as per deadlines and milestones. ● Facilitate bi-monthly review of the program by the district collector. ● Ensure compliance of financial and physical reports with support from the program secretariat. ● WASSAN extends support to ATMA in aspects related to review of the FA's work, verifying financial compliance, and developing reporting systems.
Facilitating Agency (FA)	Block	<ul style="list-style-type: none"> ● An NGO/FPO active in the block is chosen as FA through a process of selection taken up by ATMA and the Program Secretariat. ● The MoU will be signed between PD, ATMA, Selected FA, and Program Secretariat after proper scrutiny of FAs. ● Based on the experience and local presence, each Block will be assigned to a FA but not more than 3 Blocks across the state and not more than 2 blocks in a district. ● FAs support CBOs in the preparation and submission of half-yearly plans, estimates, bookkeeping, technical support, capacity building, etc. FAs will regularly monitor the work of CBOs. ● Ensures that all relevant technical and financial documentation is in place for processing the funds to CBO by PD ATMA. ● Conducts weekly/fortnightly review meetings with CBOs. Responsible to submit all the reports and documents related to CBO (Estimate, Utilization Certificates, etc.) to PD ATMA and State secretariat.

Stakeholders	Position	Roles and Responsibilities
Assistant Agriculture Officer (AAO)	Block	<ul style="list-style-type: none"> The block AAO extends support to FA in technical matters, help in convergence, participate in the block-level review and report the progress to PD, ATMA for the success of the program
Community-Based Organizations (CBOs) and Farmers' Producer Organization (FPOs)	Community/ Gram Panchayat (GP)	<ul style="list-style-type: none"> FA is responsible to identify and partnering with a CBO for project implementation. Any functional CBO working with farmers in the Project Area (selected GPs) is chosen as the implementing agency. CBO can be a federation of Farmer Groups, Common Interest Groups, Self Help Group, FPOs, or Cooperatives or any other local community institution. Based on FA's recommendation, a team from Program Secretariat evaluated the CBOs and grade them (A, B, or C)⁵⁴. Among 'Grade, A' CBOs, priority is given to CBOs with women farmers. All the program implementation funds are received by the CBO. A tripartite agreement is supposed to be made between PD, ATMA, FAs and the CBOs. PRI members at GP level may be involved in planning processes and informed about the progress made at regular intervals. CBOs are responsible to implement the program with the support of FAs, VAW and AAO at the respective area of the block.
Village Agriculture Worker (VAW)	Gram Panchayat	<ul style="list-style-type: none"> Responsible to work with the CBO or Groups on the implementation of the programme in the project area. The VAW reports the progress of the program to the concerned AAO

⁵⁴ Grade C ones are not accepted for program partnership. Grade B?? are accepted with a probation period of 2 months to set the systems right and a re-assessment is made. Grade A can get into program partnership straight.

3.5 Monitoring and Evaluation

Odisha Millet Mission has a component of regular monitoring at each level, from state to block. DDA cum Program Director, ATMA and Joint Director, Millet SPMU, OMM provides overall guidance and monitoring of the program at the District and State level and report to the Director, Agriculture & Food Production, Odisha. They also undertake monitoring/field visits during various stages of implementation for the project with the support of the Programme Secretariat (WASSAN).

Quarterly monitoring is conducted by Program Secretariat and AAO/BAO to review the implementation of the mission, to provide actionable insights and to discuss challenges if any. Simultaneously, monthly status on processing machine operations is reported to DDA cum PD ATMA through AAO/BAO. Regular monitoring on the execution of projects at gram panchayat and block level is conducted by FA.

Facilitating agencies have block coordinators and additional block coordinators at block level to monitor and work along with CRPs on daily basis on their different roles and responsibilities. Additional block coordinators provide monitoring support to the CRPs and ensure the proposed accomplished status in consultation with farmers, preparation and submission of weekly report and monthly report to the district.

FAs are monitored by the district coordinator of WASSAN. There is one district coordinator (DC) from WASSAN for every five blocks involved in OMM. For more than five blocks two district coordinators are placed. The major role of DC WASSAN is to provide implementation and monitoring to FAs. They conduct monitoring visits, work on quality

assurance, check on pest attacks, do situation analysis, etc.

District administration has adopted the following two innovative methods for transparency and accountability

Web Portal for Project Reporting: A web-based Management Information System (MIS) is developed by Program Secretariat for every facilitating agency (FA) and ATMA with login facility and process of uploading the data on a real-time basis. The MIS aims to monitor the program regularly. A Monthly Progress Report (MPR) comprising a Statement of Expenditure (SOE) is uploaded every month by each FA. It can be accessed by all stakeholders of the program using a login and password.

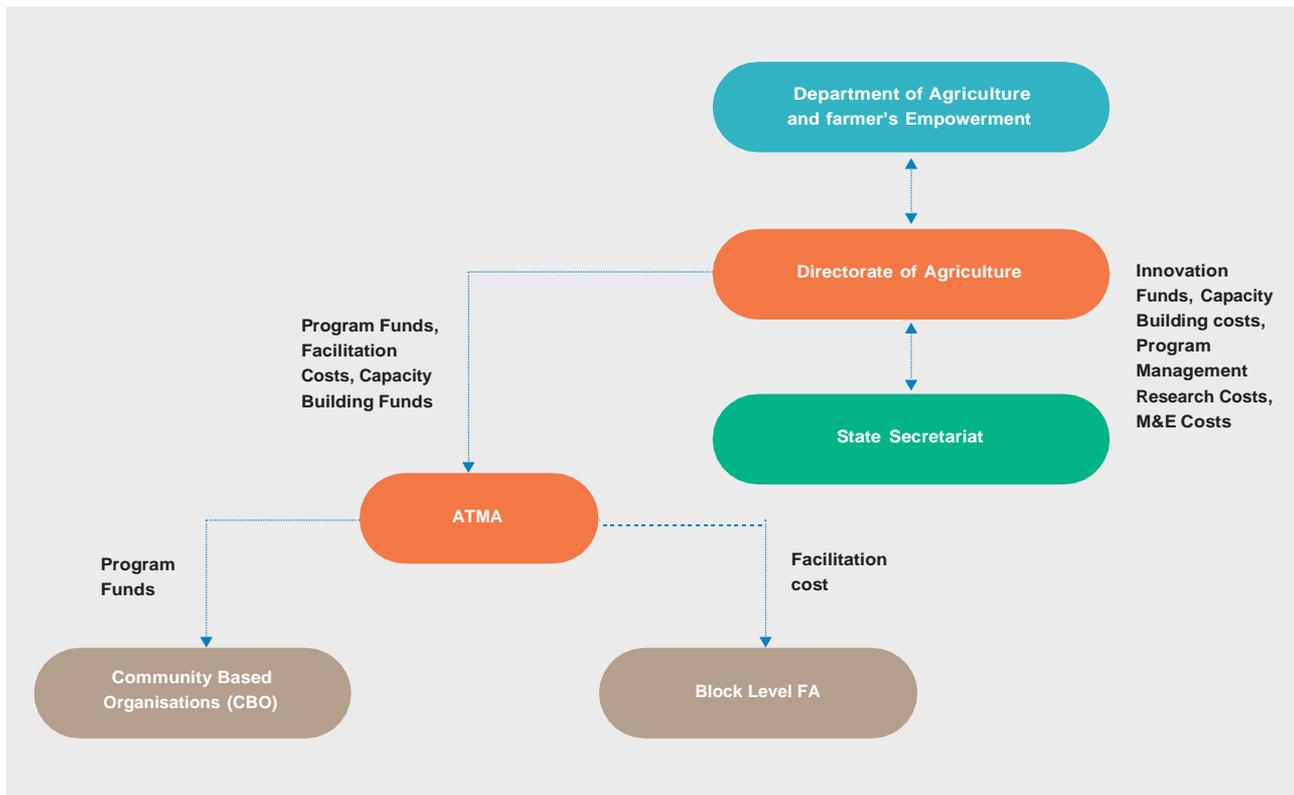
Mobile Application for Farmers' Database and Monitoring: CRPs at the cluster level are provided with android mobile phones to regularly upload the farmers' progress data. A program tracking sheet is developed in two languages, English and Odiya. The data uploaded by CRPs, including geotagged photographs of the farmers, can be accessed by the admin at the state level.

3.6 Budget and Fund-flow

Under OMM, two types of funds are seen: **Program Funds** - to be spent implementing the program and **Facilitation Funds** - for program facilitation and are received/ spent by the facilitating agency/Program Secretariat.

The Department of Agriculture & Farmers' Empowerment releases funds to the Directorate of Agriculture and Food Production, Odisha. These funds are further released to State Secretariat (NCDS) by the Directorate of Agriculture and Food Production for research, monitoring and evaluation, innovation, and capacity building. State Secretariat (NCDS) further releases the funds to Program Secretariat (WASSAN) for

Figure 9: Flowchart of Intended Fund Flow Mechanism



monitoring, capacity building, and innovation. WASSAN is responsible for management and reports directly to Commissioner cum Director of Agriculture and Food Production, Odisha. Directorate of Agriculture and Food Production, Odisha, also releases funds to district level ATMA's for the overall implementation of the program, i.e., funds for facilitation and capacity building to FA and program funds to CBOs.

At the state level, the program management funds are drawn in four instalments i.e., 25% in each quarter and in the district level, the program funds are drawn in three instalments i.e., 30:30:40 basis. The drawl of budgeted

funds in the next instalment are conditional on the receipt of Utilization Certificate (UC), Statement of Expenditure (SoE) of 75% funds released in the previous instalment.

At the district level, the nodal agency i.e., Project Director, ATMA shall transfer the budgeted funds instalment wise through NEFT/ RTGS to the back account of CBOs/FAs (NGOs) within the 7 days of receipt of funds from the Directorate of Agriculture. PD, ATMA ensures the receipt of UC and SoE from CBOs/ FAs (NGOs) and submit the consolidated UC to the Directorate of Agriculture & Food Production before the drawl of the next instalment of funds.

4. Situational Analysis

4.1 National Policy Initiatives towards Millet Promotion

With the introduction of minimum support price (MSP) in the mid-1960's for paddy and wheat, production patterns shifted to favor these crops. While self-sufficiency of food in the country was achieved, it also led to a reduction in crop diversity, overuse of fertilizers and loss of groundwater took place.⁵⁵ Moreover, the production of millets reduced significantly, and it got reduced to a fodder crop in just a few decades post-Green Revolution.⁵⁶

Over the years, millet's role in improving nutrition and reducing agricultural carbon footprint⁵⁷ has been recognized. Further India's agriculture sector is largely rain-fed and in the event of precarious monsoons, millets can act as "famine reserves" given their prolonged and easy storability.⁵⁸ To revive millet cultivation, the Government of India announced an allocation of Rs. 300 crores in 2011-12 under Rashtriya Krishi Vikas Yojana for promotion of millets as Nutri-cereals. The scheme on the initiative for Nutrition Security through Intensive Millets Promotion was formulated to operationalize this.⁵⁹ Under the scheme, technology demonstrations in compact blocks were organized in selected districts; new varieties of seeds were promoted; centers of excellence were planned to be established; research & development was initiated;

and awareness generation activities were undertaken.

The Government of India declared 2018 as the year of millets and launched its Millet Mission as part of the National Food Security Mission, which focuses on developing farm-gate processing units and empowering farmers through collectives while focusing on value-addition and aggregation of the produce.⁶⁰ NFSM has laid specific focus on 202 nutri-cereal districts in 14 states to provide an incentive to farmers for seed mini-kits, field-level demonstrations, training, processing clusters, and research support. The \$14 billion Agricultural Infrastructure Fund (AIF) has pushed investments across States to support millet entrepreneurs, primary processing machines for millets dehulling, and the formation of millet farmer collectives.⁶¹ The One District One Product (ODOP) initiative, which lists agro-climatically suitable crops for which there is niche demand, has identified 27 nutri-cereal districts to focus upon.⁶² The Promotion of 10,000 Farmer Producer Organizations (FPOs) program of \$ 924 million, in addition, aims at millet producers' effective market participation as member shareholders in these entities. The year 2023 will be observed as the International Year of Millets, following India's proposal to the Food and Agriculture Organization, which was approved at the 160th session of the FAO Council in December 2018, and finally adopted by the UN General Assembly in March 2021⁶³.

⁵⁵ Nelson E, Ravichandran K and Anthony U (2018), The impact of the Green Revolution on indigenous crops of India, Journal of Ethnic Foods

⁵⁶ *ibid*

⁵⁷ Behera M (2017), Assessment of the state of millets farming in India

⁵⁸ Passi SJ, Jain A (2014), MILLETS: The nutrient rich counterparts of wheat and rice, Government of India: Press Information Bureau

⁵⁹ INSIMP Guidelines

⁶⁰ Ministry of Agriculture and Farmers Welfare (2021), India to take a leading position in production of millets, PIB

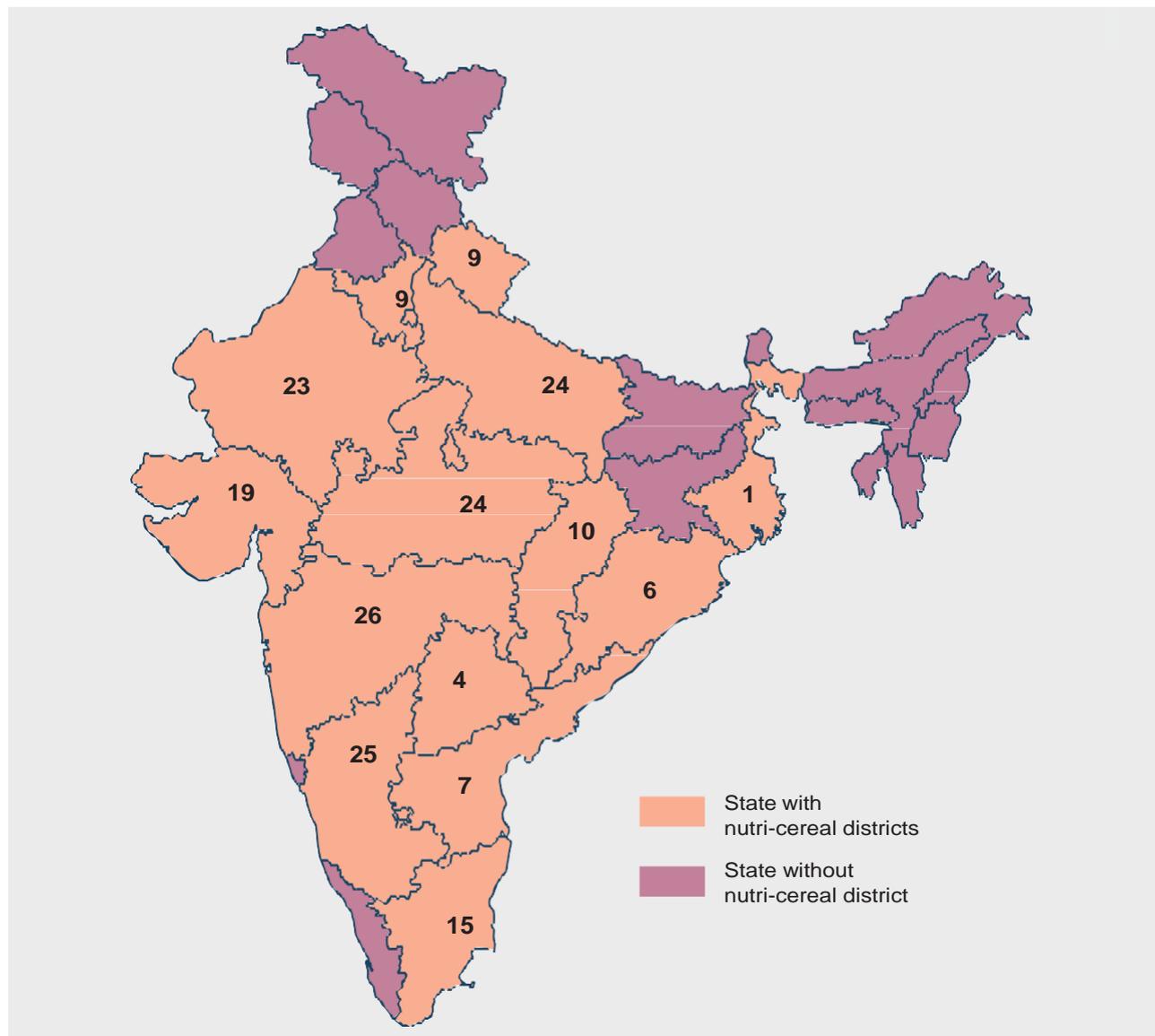
⁶¹ Likhi A., Promoting Nutri-Cereal (Millet) Farming in India, <https://www.manage.gov.in/millets.html>

⁶² <https://mofpi.nic.in/pmfme/one-district-one-product>

⁶³ Resolution adopted by the General Assembly on 3 March 2021, <https://undocs.org/A/RES/75/263>

The map given below shows the distribution of 202 nutri-cereal districts across 14 states:

Figure 10: Distribution of nutri-cereal districts across states



Source: Re-Vamped National Food Security Mission (NFSM) Operational guideline (2018-19 to 2019-20)

While the Government of India has clearly shown the will to mainstream millets and certain actions are also taking place in that direction, yet a lot remains to be done. The area under millet cultivation has declined significantly over the last few decades. Even with rising productivity, this pattern needs to be reversed. The Ministry of Women and Child Development stated that a key issue in including millet-based items in the supplementary nutrition program is the insufficiency in millet supply. A key scientist from ICRISAT stated that most research funding is centered on rice and wheat and even the

available high yielding varieties of millets that have been developed are not available everywhere. He also stated that increasing the demand for millets is one of the most critical aspects to be focused on at a national level. Currently, the availability of millets in palatable and reasonably priced forms is scarce and awareness regarding millet preparation and its benefits is low.

We, therefore, see that millet mainstreaming in India is constrained by both demand and supply-side factors, which needs to be tackled through policy initiatives. On the supply

side, while certain States such as Odisha are procuring finger millet (Ragi) at MSP for the PDS, this is not universalized in the country or for all varieties of millets. An expert from ICRISAT stated that universal MSP and large-scale government procurement is the backbone of expanding millet cultivation to allow increased domestic consumption as well as encourage exports.

Coupled with production constraints are several issues with millet processing, which is often a tedious and costly process. A representative from the Ministry of Food Processing Industries (MOFPI) stated that appropriate machinery is not available for millet processing, especially little millets – *“while pilot level machines are available for certain types of millets, their mass production has not been focused on.”* Experts from Dhan Foundation also pointed out that most of the machines available in India have been modified from paddy machines and are not very efficient – especially for processing small millets. They added that the *“right kind of machines for weeding and harvesting are still not there and most are in R&D stage only. There is a need to connect R&D with marketing.”* There is also a lack of availability of technical staff to troubleshoot millet-related machinery.

On the consumption side, stakeholders agreed on the need for universally including Ragi in social safety net programs such as Supplementary Nutrition Program (SNP) under Integrated Child Development Services scheme and the Mid-Day Meal scheme. The problem as stated by an official from the Ministry of Food Processing Industries (MOFPI) is that *“largely only traditional millet-based products are being consumed by traditionally millet eating populations – otherwise millet consumption is not going anywhere”*. He further stated that large companies are not currently interested in preparing millet-based products – *“unless product development is undertaken with big companies, mainstreaming is difficult.*

Larger players need to get in to make the space competitive and reduce the price of processed, ready to cook millet products”. The need for product development support to companies was also agreed upon by several stakeholders. An official from NITI Aayog further shared that people’s perception regarding millets is the biggest problem – *“while calling millets nutri-cereals rather than coarse grains has helped matters, yet millet consumption is still not seen very favorably”*. She further suggested a large-scale publicity campaign to help raise awareness regarding the consumption of millets. Further, linkages with markets need to be ensured to have the availability of affordable forms of millets in rural and urban areas.

4.2 Development Journey of Odisha Millets Mission

Odisha Millet Mission has a threefold objective of increasing household consumption of millets; improving its productivity, processing and marketing while reducing drudgery; and inclusion in social safety nets. The program has managed to make remarkable progress in the 5 years since its inception. The area under cultivation of Ragi in OMM districts increased from 3,116 hectares to 43,993 hectares since the program began. Further, Ragi has been introduced on a pilot basis in ICDS’s supplementary nutrition program, the MDM scheme and given as a part of PDS in addition to rice and wheat. Further, a rise in income levels have been fallow lands used to cultivate ragi leading to additional income generation

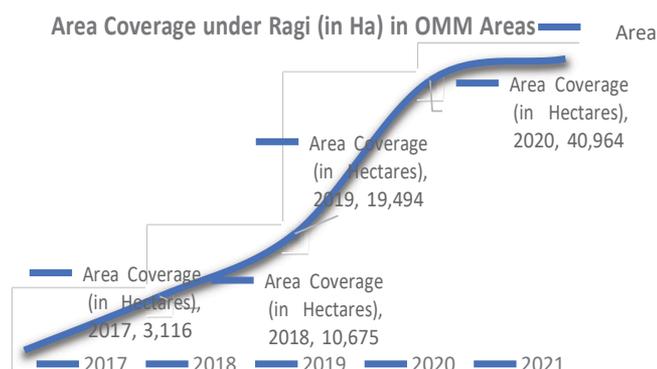
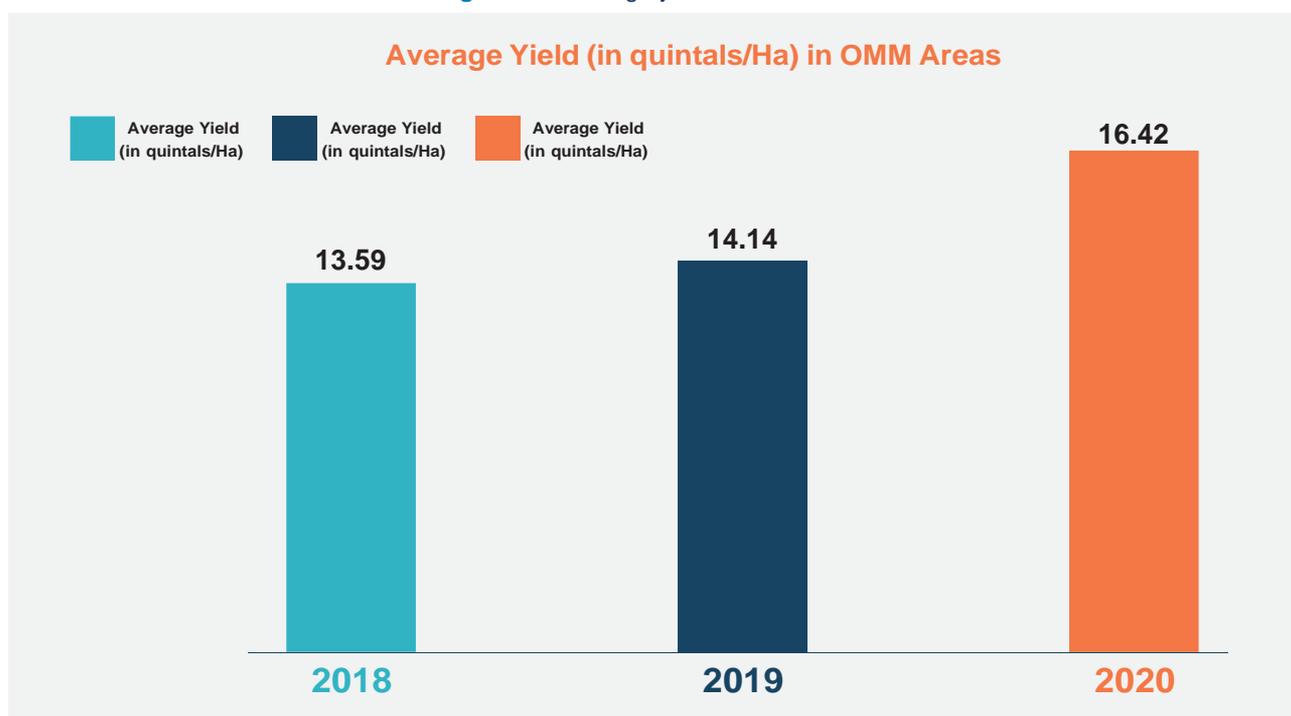


Figure 11: Average yield in OMM Areas



for farmers through receiving incentives, selling for MSP, and increased demand in local markets. The farmers received training in advanced productivity methods along with high-quality inputs such as seeds which helped them increase their yields. Exposure visits to other blocks and districts to ensure cross-learning was suggested.

The introduction of equipment such as cycle weeders has significantly reduced drudgery for women while the push of implementing certain components of the program through SHGs has led to their empowerment. A missing link however is post-harvest and processing equipment. An OMM District Coordinator stated that *“The processing part of Millets is problematic because of the unavailability of machinery to make millet flour thereby reducing its consumption”*. Moreover, SHGs are only provided training on millet-related recipes and not on packaging and marketing to help complete the millet value chain.

As a result of OMM, more people are also aware of the high nutritional value of millets and their benefits in preventing diseases

such as diabetes. A member of a facilitating agency in Koraput shared that because of OMM, a significant increase in consumption of Millets is seen – almost 25% more. Also, as a result of recipe demonstrations in the community, people are learning to make a variety of tasty millet-based food items, diversifying consumption beyond Jau (a simple millet-based porridge). Women have become entrepreneurs selling millet-based products in their local markets and also through online platforms.

“I started my own business of selling various millet-based snacks items on order in Jhumpura and Keonjhar in 2020. I can earn an additional Rs.10,000/- per month from this. I have also started a YouTube channel demonstrating different recipes to promote millet across India.”

– Rinki Panda, District Coordinator, Keonjhar

4.3 Reviving Millet Cultivation as Climate Resilient Crop

Millets are known as C4⁶⁴ crops and have higher efficiency in absorbing and utilizing carbon dioxide. Most varieties of millets are well known for their hardiness and can withstand prolonged periods of drought, high temperatures and still produce grains and fodder⁶⁵. Also, unlike wheat and paddy, they do not require many inputs in terms of fertilizer and water. According to ICRISAT, one rice plant requires nearly 2.5 times the amount of water required by a single millet plant of most varieties. Dr. Aburto, deputy director in the nutrition and food systems division of the UN Food and Agriculture Organization has noted that the high carbon content of millet residues makes them particularly important for maintaining and increasing soil carbon levels, important for sustainable cropping systems, and, where applicable, for providing forage for livestock⁶⁶.

“Producing millets has more benefits than paddy because it is sown on upland areas and harvesting one quintal of paddy requires many more inputs such as water and fertilizer.”

- SHG, Skambahal Village, Kuanmunda, Sundergarh

“Climate change is a global issue. If we look into the existing climatic condition, paddy is now becoming a risky crop for the farmers given the amount of water it needs. Mandia on the other hand is a climate resistant crop. In case there is heavy rain in some season, then also millet seedlings will sustain.”

– District Coordinator, WASSAN, Kandhamal

According to the report of the National Rainfed Area Authority (NRAA) even after realizing the full irrigation potential, about half of the net sown area will continue to remain rainfed.⁶⁷ An increase in the areas of crops with intense water requirements like rice, sugarcane, and cotton has resulted in the loss of approximately 7191 liters of groundwater per hectare.⁶⁸ Agricultural lands with irrigation facilities have been exploited to the maximum, and millet cultivation in drylands can ensure increased grain production.⁶⁹

An expert from ICRISAT reiterated the value of millets in fighting climate change – *“these crops are adaptable to the changing climatic conditions and can grow in harsh weather conditions. With R&D, productivity levels are increasing, and more hybrid varieties are coming up. Another significant advantage is the low levels*

⁶⁴ A plant that utilizes the C4 carbon fixation pathway in which the CO₂ is first bound to a phosphoenolpyruvate in mesophyll cell resulting in the formation of four-carbon compound (oxaloacetate) that is shuttled to the bundle sheath cell where it will be decarboxylated to liberate the CO₂ to be utilized in the C3 pathway. A C4 plant is better adapted than a C3 plant in an environment with high daytime temperatures, intense sunlight, drought, or nitrogen or CO₂ limitation.

⁶⁵ ICRISAT, Farmers turn to millets as a climate-smart crop, <https://www.icrisat.org/farmers-turn-to-millets-as-a-climate-smart-crop/>

⁶⁶ <https://news.un.org/en/story/2021/05/1092492>

⁶⁷ National Rainfed Area Authority (NRAA); 2012. <http://www.indiaenvironmentportal.org.in/category/28905/publisher/national-rainfed-area-authority/>

⁶⁸ Sharma CP (2016) Overdraft in India's water banks: studying the effect of production of water intensive crops on ground water depletion

⁶⁹ Kumar A, Tomer V, Kaur A, Kumar V and Gupta K (2018), Millets: a solution to agrarian and nutritional challenges

of pesticides used in millet production.” However, currently, the level of intercropping seen is low and more effort needs to be done to make farmers aware of this.

Under Odisha Millet Mission, only bio-inputs are used and therefore organic millets are being produced. This has led to improved soil quality. Further, the inter-cropping of millets with other crops is beneficial because the fibrous roots of millet plants help in improving soil quality, keeping water run-off in check and aid soil conservation in erosion-prone areas, thereby restoring natural ecosystems.⁷⁰ Experts however recommend inter-cropping, which is currently not largely being undertaken.

“Mandia, Sorghum and Maize should be intercropped as higher crop, medium crop and lower crop to ensure soil fertility and health. There will be diseases in pure cropping, but mixed cropping can prevent diseases because it will create a crop barrier.”

- Block Agriculture Officer, Raikia

Further, millets do not get destroyed easily, and some raw millet grains are good for consumption even after 10-12 years of growing, thus providing food security, and playing an important role in keeping a check on food wastage.⁷¹

4.4 Mainstreaming Millets in Safety-Nets

Odisha Millet Mission correctly identified the increase in demand and consumption of millets to be a key driver in its mainstreaming. A critical component of this was introducing Ragi in various social safety net programs such as Public Distribution System (PDS), Supplementary Nutrition Programs (SNP) under ICDS and Mid May Meal scheme. The government of Odisha procures finger millet (Ragi) at MSP from farmers and through the Food Supply and Consumer Welfare Department goes to the various government departments for the safety nets schemes. Before OMM, while MSP was present, there was no government procurement of millets and farmers were not able to avail the MSP⁷². Currently, 20-30% of the millet produced in Odisha is procured under MSP while the rest is sold in the open market.⁷³

Currently, as part of the PDS, one kilogram of ragi at Rs.1 per kg per cardholder was supplied in seven districts in Odisha—Gajpati, Kalahandi, Kandhamal, Koraput, Malkangiri, Nuapada and Rayagada. Ration cardholders in the Malkangiri district were supplied 2 kg of ragi as millet consumption is widespread. 17895 and 94745 quintals of ragi were procured in 2018-19 and 2019-20. It was distributed to 16 and 48 lakhs households under PDS in 2018-19 and 2019-20. 96677 beneficiaries under ICDS also benefited in 2019-20. It has been planned to distribute 2,03,880 quintals of ragi procured in 2020-21 to be distributed to 50 lakhs households under PDS, 149330 beneficiaries under ICDS and 85822 beneficiaries under MDM in 2021-22.

⁷⁰ Verma M, Sharma P, Singh A (2021) Millet could help India mitigate malnutrition and Climate Change, Livemint, <https://www.livemint.com/opinion/online-views/millets-could-help-india-mitigate-malnutrition-and-climate-change-11630861353572.html>

⁷¹ ICRISAT, <https://www.icrisat.org/a-short-history-of-millets-and-how-we-are-recognising-their-importance-in-the-modern-context/>

⁷² Primary Data Collection, KII with WASSAN

⁷³ Primary Data Collection, KII with WASSAN

The aim was to not only give an additional choice to consumers in their food basket but also help tribals earn a fair price for their produce⁷⁴. Experts from WASSAN shared that the idea is to slowly replace rice or wheat with millets in PDS and approval to do so is pending with the Government of India under the National Food Security Act. An official from GoO's Department of Agriculture and Farmers' Empowerment said that some reimbursement from Gol for the inclusion of millets is needed as is done for rice and wheat to make its large-scale inclusion feasible. Experts from CSIR-CFTRI also felt that the amount of processing on millets also plays an important role in its consumption as it's a high fiber grain making consumables items difficult to produce. They also shared that more research is needed to optimize the polish of ragi given in PDS to ensure a balance between taste and nutrition. Some recipients of Ragi PDS too commented on its poor quality.

"In PDS, the mandia provided is not clean, so people prefer to not take it and use Mandia available at home. After cleaning 1.5kg millets we got only 1 kg"

– Recipient of Ragi PDS,
BoodenBlock_Nuapada

Given the health benefits of millets, the aim should be to slowly partially replace them with rice and wheat, which is the grain of choice in India. Experts from WASSAN felt that a good starting point for the inclusion of millets in ICDS and MDM is to replace 25% of these with millets. An expert from CSIR – CFTRI stated *"....partial replacement*

of rice or wheat with millets is a good place to start to increase the acceptability of millets.

"An official from the Ministry of education overseeing the MDM scheme shared that there are procedural issues in including ragi such as the supply of processed grains, its storage and preparation and availability of final millet products. He further shared that MDM is bound by Gol norms and grains cannot be sourced from the open market. Similar issues were raised at the national level by a senior official from MWCD, who stated "...there is a significant intent to include Ragi in ICDS, however, its supply is the main constraint along with operational challenges such as long-term storage and preparation of final products." Currently, Ragi Ladoos are being given to children in AWC's in certain districts while the inclusion of millet products in MDM is in the planning stage, and proposals for the supply of biscuits and khichdi are being sought. CFTRI will recommend healthy recipes for the same. As a next step, some districts are planning to introduce Ragi Malt in AWCs and in MDM.

"Rago Ladoo is being given every Wednesday and Saturday. Though the provision was for it to be given at AWC but because of COVID, we are now giving this in the form of THR. One child will be provided with 8 Ladoos in a month i.e. weekly two but now we are planning to give 16 Ladoos in a month"

– District Coordinator,
ICDS, Keonjhar

⁷⁴ <https://www.thehindu.com/news/national/other-states/odisha-to-offer-millet-in-public-distribution-system/article27773935.ece>

4.5 Gender & Inclusion in Odisha Millets Mission

Women play a very important role in the cultivation and processing of millets. Historically, millets have been grown and consumed by marginal communities and were managed by women owing to their labor-intensive production. An expert from ICRISAT stated that particularly in tribal areas, all major millet-related activities are undertaken by women. He noted that as a result of Odisha Millets Mission, the involvement of women-led Self-Help Groups (SHGs) has come up in a big way.

“Seven people from our SHG are cultivating mandia together in 6 acres of land. Except ploughing, all other activities are being taken care of by us women like bed preparation, transplantation, using weeders, use of bio inputs, harvesting”

– FGD, SHG in Jhumpara, Keonjhar

Promoting millet farming should rely on the traditional knowledge of farmers, especially women food producers, to spread the message of food security for cultivators and good health for consumers. Women’s traditional rights as millet cultivators can be harnessed to improve their lives in the future. On the flip side, however, is the long hours of drudgery women spend in processing them. While in recent years it has improved, the lack of focus on marginal communities has led to the arduous labor demands of millet production being overlooked.⁷⁵ Experts from the Dhan Foundation shared that one

of the main reasons for the decline in millet production over the years was the drudgery involved – “...with the availability of modified paddy machines, drudgery involved in ragi processing has reduced however continues to remain for small millets.” Machines like the cycle weeder have also brought a big change in the lives of women.

“Using traditional ways, for one acre, 9-12 women used to work from morning till evening for weeding. But now with the help of cycle weeder, one person can do that work in 2 days.”

– WASSAN Regional Coordinator, Koraput

We see a change in gender roles because of farm mechanization and changing cropping patterns – there is less labor-intensive work and reduction in drudgery, leaving more time for other activities. Women are now involved in the entire millet value chain with women SHGs being tasked to take on roles in processing, value addition and marketing while also maintaining their traditional role of post-harvest operations and seed management.⁷⁶ Traditional social norms have also limited women’s ability to engage in enterprise and trade as well as access to training, advice, financial services.⁷⁷ OMM is looking to change this and under the program, women are playing a big role in setting up community seed centers and custom hiring centers, and also developing millet-based ready to eat products. SHGs have been given training in recipe preparation, however, aspects of packaging and marketing too need to be added. An expert from ICRISAT suggested providing further training and support to SHGs

⁷⁵ <https://www.downtoearth.org.in/interviews/food/-labour-burden-on-women-millet-producers-must-be-reduced--61748>

⁷⁶ <https://www.fao.org/3/ac546e/ac546e05.htm>

⁷⁷ <https://research.kent.ac.uk/development-economics/page/4/?article=2969>

under OMM to create marketable products along with linking them to markets and providing adequate technology.

OMM is focused on the promotion of millets in tribal areas of Odisha. The program has strengthened MSP and assured government procurement for PDS and ICDS, allowing farmers from tribal communities to earn a fair price for millet cultivation. Further, Patta of land is not required to get incentives, which is a positive factor as the Patta of land is normally not in the name of women, particularly from tribal communities. Access to resources and ownership rights continue to remain key factors in bringing equity and land ownership continues to be dominated by men.⁷⁸

Odisha Millet Mission has also brought a significant change in the lives of remote tribal communities such as the particularly vulnerable tribal groups (PVTGs) in Malkangiri district. Malkangiri is among the 100 most underdeveloped and poverty-stricken districts of India and their farming practices have gradually shifted away from millet-centered mixed cropping to paddy. The awareness created by Bonda youth volunteers and local non-governmental organizations (NGOs) about cultivating millets through improved farming techniques to meet nutritional and climatic challenges, and the institutional impetus given by the Odisha Millets Mission--such as assured purchase and higher prices--is steadily yielding results. Odisha has recorded a 215% increase in gross value of millet produced per farmer household from Rs 3,957 in 2016-17 to Rs 12,486 in 2018-19, according to a 2020 NITI Aayog study. In the same period, the area under millet cultivation has increased from 2,949 hectares to 5,182 hectares and the yield rate has increased by 120%, the study showed.⁷⁹

4.6 Multistakeholder Partnership and Multi-Department Convergence

Odisha Millet Mission's operating model depends on partnerships and convergence. It brings together key government departments, academic institutions, CSOs and NGOs, farmer collectives and community-based organizations. The close collaboration between action research and program implementation is a key ingredient for the success of OMM.⁸⁰ On the research side, activities like participatory varietal trials are ensuring the development of high-yielding and resilient varieties of seed while implementation activities such as developing recipes ensure that millets are palatable and acceptable by both rural and urban consumers. Nabakrushna Choudhury Center for Development Studies (NCDS) is the research partner for the program while WASSAN is the implementation agency. The department of agriculture and farmers' empowerment is the nodal agency.

Ground-level implementation of the program is done by facilitating agencies, which are local NGOs, familiar with the agricultural practices and the communities. The selection process was an open tendering process and was undertaken by District Agricultural Technology Management Agency (ATMA) and State Secretariat (NCDS and WASSAN). Further, the District Mineral Foundation (DMF) has provided funds in several districts to undertake implementation activities.

Convergence with Mission Shakti is a critical part of OMM to fulfill its objective of empowering women. Self Help Groups are provided training in millet-based recipes, which help them prepare and sell quality

⁷⁸ <https://www.fao.org/3/ac546e/ac546e05.htm>

⁷⁹ <https://www.indiaspend.com/climate-change/tribal-community-odisha-battling-climate-change-with-traditional-farming-758207>

⁸⁰ <https://vikalpsangam.org/article/odisha-millet-mission-the-successes-and-the-challenges/>

products such as Ragi Ladoos and cookies. SHGs are also responsible for the community seed centers and custom hiring centers in several districts. Further, Mission Shakti Cafes have been approved and are in the process of being established in urban areas of Odisha. They will serve millet-based hot cooked items and bakery products along with packaged millet grains and ready-to-cook products. An investment of Rs. 50 lakhs under the State plan, 20 lakhs under DMF Keonjhar and 10 lakhs under DMF Sundargarh. An amount of Rs. 10 lakhs per café is planned, 70% to be provided by OMM and 30% to be contributed by the SHG.⁸¹

Convergence has also been undertaken with the Department of Women and Child Development for including millets in the Supplementary Nutrition Program and with the School & Mass Education Department for Mid-Day Meal (described above in the section on mainstreaming millets in safety net). Convergence with the Food Supply and Consumer Welfare Department is taking place to supply millets in PDS. Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL) manages procurement.

“DMF is providing us funds for the Ragi Ladoo initiative. DCSO looks after the supply part, he supplies the required amount of mandia for this initiative and if the required amount of mandia is not available then he will coordinate with other districts for its supply. The millets are stored with TDCCOL and DSWO looks after requirement, processing, mixing and supply of Ragi Ladoo mix to the AWC. CDPO/ Lady Supervisors look after processing, ensuring proper hygiene during packing, supply in consultation and coordination with DSWO and also monitoring the distribution at the AWC. AWWs are making the mothers aware about its benefits.”-

- DC-ICDS, Keonjhar

⁸¹ Minutes of the review meeting on Odisha Millets Mission under chairmanship of Principal Secretary to the Govt., Department of Agriculture & FE

5. Compendium of Best Practices

Qualitative data was collected from the OMM blocks based on which best practices in the form of case studies have been developed as a compendium of best practices based

on the key research themes. Additionally, international best practices in millet production were researched and included in the compendium.

Theme	Best Practices
Production	<ul style="list-style-type: none"> • How OMM changed Badal Sahoo's fortune • Bio-input Unit in Jashipur • How Balaram Paik escaped the clutch of moneylenders
Processing and Value Addition	<ul style="list-style-type: none"> • Millet Processing Unit in Mayurbhanj • The Success Story of Koraput Cookies
Consumption	<ul style="list-style-type: none"> • Millet Girl Mili • Millets on Wheels • "Finger Millet flour: A Magical Seed for Healthy Life"
Climate Resilience	<ul style="list-style-type: none"> • Bio-input for Millet Production • Odisha's First Solar Millet Processing Unit
Mainstreaming in Social Safety Nets	<ul style="list-style-type: none"> • Ragi Ladoo introduced at Anganwadis
Gender and Inclusion	<ul style="list-style-type: none"> • The Story of Jyoti Dang – a progressive farmer from Sundargarh • Female Pioneer of Millet Cultivation – Pratima Pradhan • Mandia Maa – SubasaMohanta
International Case Stories	<ul style="list-style-type: none"> • High Yield Pearl Millet in Burkina Faso • Reducing Anaemia through Millet Consumption in Niger

6. Discussions and Conclusions

While MSP has been announced at the National level for millets, this needs to be implemented through actual procurement for social safety net schemes. Each State needs to assign budgets and minimum procurement amounts each year to ensure continuous millet demand. Odisha Millet Mission's model of demand generation through inclusion in schemes like PDS, ICDS and MDM is something that can be replicated by other States. However, this needs to be matched with adequate supply and investment in research and development on high-yielding seeds and millet processing equipment.

Providing incentives to encourage farmers to convert fallow land to millet production areas under OMM has worked and several cases of increase in farmer incomes were found but the shift from wheat & rice production to millet production is slow. Introducing millets into the everyday meals of people in both rural and urban areas is the key to increasing the demand and therefore supply of millets while reducing the daily dependence on rice and wheat. This not only needs extensive campaigns to combat existing perceptions about millets but also encouraging the private sector to come up with easy to cook & palatable millet products and recipes. The benefits here will be multi-fold, on the nutrition status of the population along with conserving the environment.

The focus of OMM on gender and inclusion is noteworthy, with the program being specifically targeted to the tribal population and having an objective of women

empowerment. This can be further enhanced by increasing the role women play as a part of FPOs and as CRPs. Further, the training on millet-based recipes should be targeted at the community as a whole rather than only women to help break gender stereotypes on the role of women being solely responsible for cooking at home. Additionally, an expansion in the types of training being given to SHGs and FPOs should be considered such as packaging and marketing of products; appropriate storage practices, creating value-added products, etc. with more emphasis on "learning by doing".

Another key learning from OMM is its focus on 'pilot initiatives', with some districts introducing initiatives such as solar energy-powered processing unit and millet-based food trucks. However, it is important that these initiatives are scaled up and the learnings from these are shared with a wider audience. It was seen during the interactive workshops that districts did not have a lot of information on the initiatives being undertaken in other districts. Moreover, this needs to be an ongoing activity and the process needs to be institutionalized with regular learning events.

The Odisha Millet Mission has started a very successful initiative to mainstream millets and has paved the way for other States to follow. Moving forward, to further strengthen the project, it will be important to focus on ensuring market linkages as well as private sector engagement to ensure the sustainability of the gains made beyond the lifecycle of the mission and the incentives it provides.

7. Way Forward and Recommendations

The situation analysis paved the way for recommendations on the design, implementations and scale-up of OMM. These have been divided into 4 sections – policy; implementation; capacity building; and linkages as given below:

Policy Level

- **Mechanism to assess and document for all innovations to enable replication:**

Under OMM, several innovations are taking place about production, processing, and consumption. However, most are in the pilot phase with the district taking ownership of spearheading these.

Therefore, we do not see a standard set of practices being followed across the State.

This documentation exercise (template attached as Annex) is a good first step in developing a comprehensive repository of all activities being undertaken across the State. However, moving forward a mechanism must be in place that will help assess these innovations for their effectiveness in providing a solution to a problem, ease of adoption by the community, and cost involved. Such innovations then should be replicated in multiple locations through quarterly exchange and capacity-building mechanisms. Detailed implementation plans and budgetary allocations need to be developed and disseminated within the State as well as with other States for easy replication.

- **Customized machinery based on the requirement and capacities of the CBO for all types of millets:** It is currently seen that machinery available for millet processing is mostly of sub-par quality leading to poor quality of grains being produced and distributed. Further, CBOs

differ in the availability of infrastructure and expertise in operating machinery as well as their capacity requirements. Machines should therefore be available as per the need of the CBO (for example, in those areas where grid electricity is sporadically available, solar equipment be installed). Involvement of the private sector or local entrepreneurs can be encouraged for such initiatives

Implementation of OMM

- **State-level campaign to promote millet consumption:** OMM has indeed put forward a strong impetus in increasing the consumption of millets. However, this is largely centered on millet-producing areas where traditionally millets were already consumed. To further mainstream the consumption of millets in urban households and those areas where millet is not cultivated, a campaign to showcase its nutritional value, as well as the ways it can be prepared and consumed, can lead to a further increase in demand.
- **Encourage farmers to convert paddy/ other crop-land to millet cultivated land:** It was seen that under OMM, currently, the increase in area under Ragi cultivation is a result of fallow lands being used to cultivate Ragi. Moving forward, given the environmentally sustainable nature of millets, the conversion of paddy and rice fields to produce millets may be encouraged.
- **Focus on storage of seeds and millet grains as much as their production:** OMM has a strong focus on improving agricultural productivity and increasing millet consumption. Some other aspect, which stakeholders felt should be

emphasized on during the next phase of OMM are the storage of inputs and produce to reduce post-harvest losses.

Capacity Building

- **Awareness and opportunity of inter-cropping:** Intercropping is an all-encompassing term for the practice of growing two or more crops nearby: in the same row or bed, or in rows or strips that are close enough for biological interaction.⁸² Intercropping improves the efficiency of resource use; lowers the incidence of pests; and allows more effective management of cover crops. This can be a useful practice in OMM, particularly to introduce millets in those areas where other cash crops are currently grown.
- **Exposure visits to different blocks and districts for cross-learning:** While training are provided to farmers, SHGs, FPOs etc. on various topics, stakeholders felt that it would be beneficial for exposure visits to different blocks and districts to be undertaken by the beneficiaries to allow them to witness the activities being undertaken first-hand and have a more practical learning experience.
- **Training to SHGs for packaging, marketing, etc. and ensure participation of a majority of SHGs:** Currently SHGs are being trained to produce millet-based recipes. For them to produce marketable products, additional training on hygiene

standards, packaging, and marketing will be needed.

- **A cadre of experts for troubleshooting machine-related issues:** Several millet processing machines need specialized maintenance and troubleshooting. A cadre of mechanics should be created to ensure proper upkeep of machines and their continuous use.

Linkages

- **Apex body/ network/ federation at the district level to ensure market linkages, transfer of skills, etc.:** To mainstream millets across the State and Country, SHGs and producers will need to be provided with handholding support. Additionally, getting the private sector to invest in millet products will need concentrated effort. An apex body can provide a useful push in this direction.
- **Millet centered industrial park including all upstream and downstream industrial units for end-to-end millet processing, value addition and packaging:** The idea here is to provide an integrated infrastructure for the entire millet value chain in one location. Such a park will not only provide a platform for various millets-based units to operate under one roof but can also be used for demonstration purposes to encourage more entrepreneurs to invest in various aspects of the millet value chain.

⁸² <https://www.sare.org/publications/crop-rotation-on-organic-farms/guidelines-for-intercropping/>

8. Appendices

Research Framework

Research Theme	Research Questions	Sources
National Policy Initiatives towards Millet Promotion	<ul style="list-style-type: none"> • What are Gol’s policy initiatives regarding millets – focused on improving production, development of decentralized processing infrastructure, market development and promoting household consumption? • How has an enabling environment for millet cultivation been ensured? • What are some critical challenges to millets mainstreaming? How are these being addressed? • What policy gaps currently exist hindering millets mainstreaming? • What is being done to counter the mainstreaming of only certain kinds of millets such as Ragi? • What research areas regarding millets is the government focused on? • What convergence activities are being undertaken to mainstream millets? • Has attention been paid to the gender aspects of millet cultivation and towards strengthening the roles of women in the millets value chain? • What specific elements regarding the tribal population have been incorporated in the millets policies and what more needs to be done regarding this aspect? 	National level stakeholders
Development Journey of Odisha Millets Mission	<ul style="list-style-type: none"> • With what objectives did OMM start and what is its linkage with NFSM sub-mission on Nutri-cereals? • What kind of political commitment was received by OMM for its establishment both at the state and at the federal level? • Who are the federal and state-level stakeholders involved in the establishment and its institutional structure? 	State, District and Block level stakeholders

Research Theme	Research Questions	Sources
	<ul style="list-style-type: none"> ● What were the biggest obstacles in the uptake of millets? ● What were the findings of the baseline studies and how were they utilized in overcoming millet production and consumption challenges? ● How resources are mobilized and how did fund allocation is done for state and federal institutions? ● What were the challenges in adopting a comprehensive approach that includes production, processing, consumption, value addition, product development, and marketing? How were they overcome? ● What was the planning process, and what is the program delivery mechanism? ● What protocols/standard operating procedures have been defined and improvised by OMM, which can be used by other States? ● Describe OMM's role in achieving food and nutrition security in Odisha. 	
Reviving Millet Cultivation as Climate Resilient Crop	<ul style="list-style-type: none"> ● How has OMM led to improved productivity of millet crops? ● What technology and international best practices for improving productivity in the State were considered and adopted? ● What is the operational model of custom hiring centers? How did they help in reducing the post-production drudgery associated with millet production especially with smallholder farmers? ● How were the traditional skills in millet production of South and West Odisha's farmers utilized? ● What is the role of the community resource person cadre in extending last-mile farmer support and disseminating knowledge? How feasible is the CRP model for scale-up and replication by other States? ● What specific interventions were taken to promote household-level millet consumption in urban and small towns? 	National and State level stakeholder

Research Theme	Research Questions	Sources
	<ul style="list-style-type: none"> ● How can millet production help farmers overcome climate-related challenges? ● What is the learning of implementing programs through farmer producer organizations? ● What role did research play in improving millet productivity, especially by promoting seed diversity? ● How did OMM regulate remuneration for millet crops to encourage more farmers? What role did farmer incentives play in this? ● What are some of the benefits of growing millets that have emerged (examples - reduced agricultural water demand, greenhouse gas emissions, and energy use)? 	
<p>Mainstreaming Millets in Safety-Nets</p>	<ul style="list-style-type: none"> ● What is the enabling policy and legal environment for introducing millets in PDS? ● How has OMM aligned the procurement & distribution of millets with the priorities of the farmers, end users, government policy and priorities of key stakeholders? ● What were the critical elements of Direct Benefit Transfer introduced by OMM for the adoption of improved agronomic practices for millets? How was the DBT implemented? ● How was convergence achieved with ICDS and PDS for the inclusion of millet in different supplementary nutrition programs? ● What was the response to including Ragi in ICDS? Why was it restricted to 7 districts? What is the plan for scale-up across the state? ● Explain the advantages and constraints in the use of the Millet Procurement Automation System (M-PAS). ● Detailed process flow study of procurement of Ragi at MSP at scale through Millet Procurement Automation System (M-PAS), distribution through fair price shops and SHG's and utilization and utilization at home and Anganwadi centers? 	<p>National and State, District and Block and Community level stakeholder</p>

Research Theme	Research Questions	Sources
Gender & Inclusion in Odisha Millets Mission	<ul style="list-style-type: none"> • What is the response of women in the areas where millet adoption has shown success? Has it led to improved quality of life in terms of reduced drudgery, better nutrition and improved livelihoods? • What are the key gender and inclusive development issues and constraints that OMM faces and how are they addressed? • How was inclusion ensured in consumption campaigns? • Did OMM's activities lead to inclusive development by improving the livelihood of women and marginalized groups? • How has the mission engaged with the tribal community, especially women? • What is OMM's approach to enhancing access and equity for target populations? • What are the gender relations that could affect the achievement of sustainable results for millets mainstreaming? • How has the decentralized processing of millets been streamlined? 	State, District and Block & Community level stakeholder
Multistakeholder Partnership and Multi-Department Convergence-	<ul style="list-style-type: none"> • Who were the main stakeholders involved in the planning of OMM? What were some critical considerations when designing the mission? • What are the specific roles are undertaken by WASSAN, NCDS and Govt of Odisha? • How have issues related to marketing, processing loss of nutrients, capacities and community empowerment been resolved? • Has OMM's unique architecture of Multistakeholder partnership a) positively impacted farmers' livelihood, b) improved functionality of supply chains, and c) is sustainable? 	National and State level stakeholder
Scale-Up and Replicability in Other States of India and Countries in the Region/ Elsewhere:	<ul style="list-style-type: none"> • How can millet mainstreaming be replicated in other states/ countries and under what conditions? • What are the various strategies, tools and modalities, including policy seminars, advocacy dialogues, in-field demonstration, and research partnerships to trigger the potential replication? 	International, National and State level stakeholder

Workshop Proceeding Report

Proceedings Report – Multi-Stakeholder Workshop

Assessment and Documentation of Good Practices, Lessons Learned and Preparation of Policy Briefs for Millets Mainstreaming - Odisha Millets Mission

Date : 27 August 2021

Time : 9.30 AM – 05.30 PM

Venue : Krushi Bhavan Auditorium, Bhubaneswar

Objective

The objective of the workshop was to understand the perspectives of a diverse set of stakeholders on the following issues:

- OMM's objectives, its components, journey, and program delivery mechanism.

- OMM's program design & implementation, budgetary allocations, departmental convergence, partnerships, and capacity development to recommend a scalable operational model.
- OMM's bottom-up participatory approach to mobilize farmers and households for improving production and consumption respectively, and experiences/processes of OMM's integration in social safety-nets.
- District level innovations, best practices and lessons learned.

Attendees

The attendees of the validation workshop consisted of representatives from the Department of Agriculture and Farmers' Empowerment, Govt. of Odisha, World Food Program (WFP), WASSAN, NCDS, IPE Global, Block Agricultural Officers (BAO) and Assistant Agriculture Officers from each of Odisha Millets Mission's implementing districts. The detailed list of participants is provided in *Annex1*.



Agenda

Time	Session	Resource Person
09.30 – 10.00 am	Registration	
Inagural Session		
10.00 – 10.10 am	Introduction & Context Setting	Department of Agriculture and Farmers' Empowerment, Govt. of Odisha
10.10 – 10.20 am	GoO-WFP Collaboration: Contributions to improved food and nutrition security	Deputy Country Director, WFP, India
10.20 – 10.30 am	Objectives and scope of WFP-OMM Partnership – Introducing IPE Global	WFP India
10.30 – 10.40 am	Perspectives of OMM in Agri Department	Commissioner-cum-Secretary, DA&FE
10.40 10.45 am	Vote of thanks	Key Nodal Officer, OMM
10.45 -11.00 am	Tea-break	
Technical Session - I		
11.00 – 11.20 am	Study Methodology and Expected Outcomes	IPE Global team
11.20 – 12.00 pm	The OMM model and GoO perspective	Joint Director of Agriculture (Nodal Officer) OMM
	Overview of activities of SPMU, OMM (Highlights of key achievements, success factors and capacity gaps)	Scheme Officer, OMM
12.00 – 12.30 pm	Overview of activities of WASSAN (Highlights of key achievements, success factors and capacity gaps)	WASSAN Representative
12.30 – 01.00 pm	Overview of activities of NCDS (Highlights of key achievements, success factors and capacity gaps)	NCDS Representative
01.00-1.30 pm	Lunch break	
Technical Session - II		
01:30- 03.00pm	Presentation by District teams (15-20 mins each, 5 - 6 Teams). Each presentation will cover the following 3 areas: <ul style="list-style-type: none"> ● An overview of millet promotion activities in the district ● Best practices, innovations, field learnings etc. ● Key challenges/barriers being faced in implementation and from perspective of sustainability 	BAOs/AOs Representatives of Facilitating Agencies
	03.00-05.00pm	Group Work and Synthesis
5.00- 5.30 pm	Wrap up, next steps and closing	IPE Global and WFP Team

Key points from the discussions

Inaugural Session:

1. **Opening Remarks** *Himanshu S. Bal, State Coordinator, WFP, Odisha*

Mr. Bal welcomed all the participants and set the tone for the workshop. He thanked the officials from the department of agriculture and farmer's welfare, representatives from implementing and research agencies, BAOs and AAOs from the districts and colleagues from WFP and IPE Global for their time.

2. **Welcome Remarks** *Sri Hiranjan Mohanta, Jt. Director Agriculture, OMM*

Joint Director Agriculture moderated the workshop and provided an overview of its purpose and agenda. He encouraged everyone to provide their inputs freely as the purpose of the workshop was to learn from each other and improve the OMM initiative further.

3. **Introduction & Context Setting** *Dr. M. Muthukumar, IAS, Director, Agriculture and Farmers Welfare*

The Director provided an overview of OMM and expressed his pleasure at OMM's success in motivating farmers and building their confidence. He shared that expansion of OMM to a further 60-65 blocks, beyond the current 84 blocks, is in the works. He mentioned the health benefits of all types of millets and how massive procurement and distribution activities were being undertaken for its mainstreaming. He also stated that while farmers are knowledgeable and aware, it is critical that knowledge sharing between districts and states is undertaken. He ended his address by stressing that the documentation exercise of OMM should be a learning exercise so that mid-

term correction of the program can be undertaken, and the team must also focus on identifying gaps in program design and implementation.

4. **GoO-WFP Collaboration: Contributions to improved food and nutrition security** *Eric Kennefick, Deputy Country Director, WFP*

Mr. Kennefick shared details about WFP's work in food security, ending hunger in all forms, supporting smallholder farmers, and building sustainable & resilient food systems. He also explained how the agency's work aligns with the Sustainable Development Goals (SDGs). He appreciated the effort made by the Government of Odisha and implementing agencies to mainstream millets, a drought-resistant crop, under OMM.

5. **Objectives and scope of WFP-OMM Partnership** *Pradnya Paithankar, SDG Manager, WFP*

Ms. Paithankar acknowledged and appreciated GoO's foresight in mainstreaming millets, even before they were in focus by other States. She shared her experience in the field and how she witnessed innovations driving the productivity and profitability of millets. The role of technology in the future expansion of OMM was also highlighted by her. She expressed how 2023 being the international year of millets presents us with an opportunity to take our learnings to a global forum and how this documentation process will contribute to it. She finished by describing the workshop objectives and introducing IPE Global Limited.

6. **Perspectives of OMM in Agri Department** *Sri Suresh Kumar Vashishth, IAS, Commissioner-cum-Secretary*

The Commissioner-cum-Secretary started by describing OMM's journey and how it was started when a declining trend

in millet cultivation was seen 5-6 years ago. He stated how high the stakes are with regard to the program and how program monitoring is being done at the highest level in the State. He appreciated the increase in acreage and yield that is seen due to OMM and how as a result of millet cultivation, climate-related stress has reduced. He also reiterated that the workshop needs to be learning-oriented with a focus on areas of improvement for the program.

Technical Session 1

7. **Study Methodology and Expected Outcomes** *Vinit Pattnaik, Team Leader, IPE Global*

Mr. Pattnaik provided an overview of the documentation exercise being undertaken and its aim to take stock of the achievements made by OMM, the operational model followed, plans and lessons learned since its launch. He focused on the learning principle of the exercise and emphasized that this is not an evaluation being undertaken. He explained the methodology, phases of the assignment and the mixed-method research approach being adopted that includes primary data collection in the form of Key Informant Interviews (KIIs), In-depth Interviews (IDIs), Focus Group Discussion (FGDs) and observations from the field combined with a document and literature review to corroborate the primary data. He went on to share the current stage of the exercise and how primary data collection is currently being undertaken, which will pave the way for a top-line findings workshop in September.

8. **Program Delivery and OMM success,** *Sri Hiranjan Mohanta, Jt. Director Agriculture, OMM*

PD-ATMA gave an in-depth review of the program delivery at the State and district

level. He mentioned that the bottom-up participatory model of the mission has provided satisfactory results till now and continues to grow daily. He further added that the success of OMM is recognized globally and therefore to assess the best practices, lessons learned, and challenges of the mission, the World Food Program (WFP) has partnered with the Government of Odisha. He concluded by saying that this assessment will be helpful to disseminate the OMM model nationally and internationally.

9. **OMM journey so far and way forward,** *Kalpana Pradhan, Scheme officer*

Scheme Officer, OMM spoke about the thinking behind designing OMM and the efforts incorporated to make it a success. She further said that the goal of the mission is to include millets in the farm and on the plates of the country thus making it a food habit. She further added that the journey of OMM was started in 2017-18 from 7 districts and currently is in its 4th year of implementation. The area under coverage has also increased to 84 blocks in 15 districts. Looking at the success of the program and the budget outlay of 570 crores, it can be extended for the next five years, covering another 64 blocks. She concluded by highlighting best practices like usage of organic manure and the cycle weeder in millet cultivation which have increased the yield of millets from 5 quintals/hectare to 12 quintals/hectare.

10. **Regional Coordinator WASSAN,** *Prakash Mallick*

The WASSAN representative shared the partnership model of OMM. He said that OMM is a one-of-a-kind program where Government, Academia & Civil Society Organizations are on a mission to revive millets on the farm and on the plates. Therefore, the partnership model of OMM is one of the critical factors behind

its success. He further added that the partnered organizations are continuously working on the capacity building of relevant stakeholders. Before the launch of OMM, the implementation was delayed. However, since 2017 partnering organizations are working in close coordination to execute OMM effectively. He explained the roles and responsibilities of WASSAN including capacity building training of master trainers, development & design of IEC materials, coordination with concerned district-level officials, and announcement audio, street play script, etc. He concluded by stating a few achievements of WASSAN in the last 4 years such as organizing 1752 events and conducting training covering 8.4 lakh stakeholders.

11. Sr. Research Scientist, NCDS, Chittaranjan Dash

State Coordinator NCDS started by sharing the objectives of OMM and the role of NCDS. He said that the role of NCDS as a research secretariat is to conduct baseline surveys, midterm evaluations, third-party end-line evaluations, and make policy-level recommendations. He also shared their analysis on the declining production and consumption of Ragi before the launch of the OMM program. On these lines, he mentioned that Ragi is considered as the food for poor people and therefore people are reluctant to make it a food habit, thus reducing its consumption and production. He concluded by stating that OMM has many success stories including the replacement of cotton production by millets production in some areas in the state.

12. AAO Koraput, Rudramadhab Naik

AAO Koraput started his presentation by stating that millets are multipurpose crops, which can be used as food, feed, and fuel. Additionally, the consumption

of millets can reduce malnutrition among children, and it is also good for health. He shared the implementation model of OMM in the Koraput district, which involves multiple facilitating agencies (FA) like DHAN foundation, PRADAN, Pragati etc. As an achievement, he said that over three years, OMM has expanded to 10 blocks of Koraput and covers 22,000 farmers and 40 custom hiring centers (CHCs). He concluded by stating several challenges faced by the district team in implementing the program i.e. mountainous terrain with steep slopes, non-availability of millets in ready to eat (RTE) & ready to cook form, and processing and marketing of millets.

13. BAO Nuapada, Himanshu Mahapatra

BAO Nuapada explained the journey, achievements, and challenges of OMM implementation. He mentioned that in Nuapada, OMM is being implemented in 3 out of 5 blocks and is currently covering over 5000 farmers. He further elaborated on the bottom-up approach followed by the team which includes enrolment of millet farmers as shareholders, empowering the CBOs/FPOs, engaging with PVTGs – ChuktiaBhunjia community and assuring livelihood support for the community. These interventions have increased the millet coverage to 6802.4 hectares in the district in the last 4 years.

14. Secretary, Ahinsha club, Siba Prasad Sahoo

Secretary, Ahinsha club started by explaining the geography of the district, as it comprises of two sub-divisions, 12 tehsils and 12 blocks. The OMM program has covered 405 villages, 95 panchayats and 5 blocks in the district. He detailed out several activities involved in millet promotion like restoring and improving household-level consumption through campaigns, food festivals, dissemination of leaflets, booklets, videos, training

on recipes, block-level and district level workshops, providing support to WSHGs/ FPOs for establishing processing units. He also shared the team's experiences with setting up enterprises at cluster level for promoting local consumption and improving productivity by promoting locally acclimatized varieties, setting up community seed centers, building capacity on agronomic practices, organizing exposure visits, and setting up kiosks and millets on the wheel in five blocks for promoting millet-based food products. He concluded by saying that all these efforts led to the procurement of 3989.46 quintals of ragi in the last 2 years.

15. CREFDA Mayurbhanj, Dhaneswar Mahanta

CREFDA Mayurbhanj spoke about the journey of OMM planning and implementation in Mayurbhanj and mentioned that at present out of 36 blocks 3 are covered under OMM. He added that Mayurbhanj was the first district to establish the District Program Management Unit (DPMU) and 1st to start Millet on wheels in Odisha. He mentioned that before the launch of OMM, only 7 kiosks (small outlets for the promotion of millet-based products) were operational. This number has gone up to 10 fully operational outlets after the launch of OMM.

16. AAO Rayagada, Gajapati, Bhabendra Mahanta

AAO Gajapati said that 4 blocks in the district are covered under OMM as the millet production requires low inputs and organic fertilizers. He explained about the technologies like the System

of Millet Intensification (SMI) and Line Transplanting (LT) that are being used in the district to increase the yield of millets. He named the facilitating agencies in these 4 blocks and explained the process of OMM implementation on the ground. He concluded by stating the major challenges of OMM implementation are the unavailability of heavy-duty (minimum 10 quintal/hour) ragi threshing machines and dearth of processing/ threshing units for other millets and marketing.

17. AAO, Bolangir, Amrith Lugin

AAO, Bolangir described how despite the ongoing pandemic, the area under millet cultivation has increased because of the awareness of the program, availability of five tine cultivators and inclusion of social media like YouTube and WhatsApp. He concluded the presentation session by saying that in the coming years, to meet the objectives of OMM, backward and forward integration of millets will need to be focused.

Technical Session 2

18. Group Work

The group work was based on the six core OMM themes, groups were formed to discuss the following three questions:

1. What initiatives and innovations have been undertaken regarding your theme?
2. What challenges remain and what action can be undertaken to mitigate these?
3. How can the sustainability of these initiatives be ensured?

Each group was facilitated by a WFP or IPE representative. The key findings of the group work are shared in the table below.

Groups and Themes	Initiatives and innovations undertaken	Challenges and Mitigations	Sustainability of the initiatives
Group 1- Improving Millet production and its value chain	<ol style="list-style-type: none"> 1. System of Millet Intensification (SMI) 2. Improved Agronomic Practices 3. Incentives to farmer 4. Post- Harvest Technology (Ragi Thresher) 5. Primary Processing Unit 6. Awareness & Training 	<ol style="list-style-type: none"> 1. High Sloppy land- Soil & Water Conservation 2. Disaster/ Climate Change- Ensuring critical irrigation facilities 3. Quality Seeds- Seed Production & Conservation of Indigenous Seeds 4. Harvesting- Mechanization 	<ol style="list-style-type: none"> 1. Scaling-up production (agronomic practices, seeds, post-harvest technologies) 2. Focus on promotion of other millets (Little Millet, Foxtail Millet, Barnyard Millet, Sorghum, Pearl Millet, Brown top Millet) 3. Establishment of proper marketing system- Packaging & branding 4. Soil and Water Conservation through Natural Resources Management. 5. Strengthening of Community Institutions (FPOs, CBOs, SHGs)
Group 2- Increasing Millet Consumption	<ol style="list-style-type: none"> 1. Established flour machine for ragi processing 2. Opened Kiosk Center at Block level/District 3. Running food van in operational/ nearby areas 4. Organized food festivals in operational area 5. Inclusion of Ragi Ladu in AWC. 6. Distribution of Ragi in PDS 	<ol style="list-style-type: none"> 1. Technologies for value addition and processing- Capacity building training & awareness 2. Establishing value addition and processing unit- Establish small scale processing unit at GPs level 3. Market promotion- Market promotion through Mart/ Food stalls 	<ol style="list-style-type: none"> 1. Massive awareness camps for adoption of food habits. 2. Inclusion of millets in government-initiated training center/ hostels, hospitals, and different institutions. 3. Increasing ragi quantity in PDS and reduce rice slowly. 4. Skill development training for WSHGs on millets recipe, value addition and processing. 5. Small scale enterprise development should be given focused. 6. Special support both technical and financial to SHGs/ Producer Group/FPOs on millets-based business

Groups and Themes	Initiatives and innovations undertaken	Challenges and Mitigations	Sustainability of the initiatives
Group 3- Use of Technology in the Millet Value Chain	<ol style="list-style-type: none"> 1. Power Tiller tractor- used for cultivation, tillage, sowing and weeding 2. Plant Protection 3. Cycle Weeder 4. Irrigation support 	<ol style="list-style-type: none"> 1. Lack of source of irrigation 2. Packaging 3. Supply chain 4. Unrealized potential of technology 5. Electricity 	<ol style="list-style-type: none"> 1. Incentivization, credit facility, convergence 2. Convergence through MGNREGS for creation/ renovation of irrigation source 3. Solar reversible energy 4. FPO should be strengthened 5. Capacity building of the users group 6. Technological changes and Training to operator 7. Branding and moisture proof packaging
Group 4- Reviving Millets as a Climate Resilient Crop	<p>Little Millets</p> <ol style="list-style-type: none"> 1. High Price in Local Market 2. No irrigation/ pesticide 3. High Demand in the market 	<ol style="list-style-type: none"> 1. Lack of improvised variety of seeds- Easy access of an improved variety of seeds 2. MSP not available-MSP for millets must be fixed 	<ol style="list-style-type: none"> 1. MSP for all millets 2. The strong market linkage between farmer & govt./ private 3. Investment in R&D 4. Promotion of bio/ organic inputs 5. Technology inclusion/ processing/ digital environment access/ solar
Group 5- Mainstreaming Millets in Safety-Nets	<ol style="list-style-type: none"> 1. Ragi Ladoo as a part of Hot Cooked Meals at AWC 2. Sorghum-Ragi Ladoo as morning snacks in MDM on a pilot basis 	<ol style="list-style-type: none"> 1. People don't want to take ragi or ragi products in ragi consumption/ production belts- 2. Ragi should be provided in PDS in Urban belts/ not ragi cultivating belts 	<ol style="list-style-type: none"> 1. Use cultural context in safety security schemes. Can introduce millets instead of rice in schools and AWCs. 2. Make millets based healthy products that will appeal to children 3. Marketing of other millets also needs to be addressed 4. Easily available ready-to-eat food options need to be promoted for increasing household-level millet consumption.

Groups and Themes	Initiatives and innovations undertaken	Challenges and Mitigations	Sustainability of the initiatives
	<ol style="list-style-type: none"> 3. 1 kg Ragi as a part of PDS in OMM districts in both urban and rural areas 	<ol style="list-style-type: none"> 3. People sell millets given in PDS in the markets 4. Shelf life of laddoo can be an issue (7 days only) 	<ol style="list-style-type: none"> 5. Advertising/ branding of millet products for promoting sales. 6. The volume of millets procured, sold, and processed is currently very less. We need to increase volume to reach out to the entire state and also promote the standardization of products. 7. Processing instrument availability is a concern both for Ragi and other millets.
<p>Group 6- Gender & Inclusion in Millets Cultivation and Value Chain</p>	<ol style="list-style-type: none"> 1. Due to cycle wider, it helps in reducing drudgery 2. Improves the Income generation through different SHGs 3. Improves their socio-economic status 4. Gets proper training and knowledge 	<ol style="list-style-type: none"> 1. Limited Training/ awareness- more awareness to be done 2. Limited Infrastructure- More infrastructure to be developed 3. Limited women-friendly machineries- Introduction of women-friendly machinery 4. Language barrier- IEC activities to be done in local tribal language 	<ol style="list-style-type: none"> 1. Proper training, market, processing unit to be done 2. FPO should be strengthened 3. More focus to be done on the export of millets 4. Popularization of millets through different food security government schemes

List of Participants

S.No.	Name of participant	Designation and District
1.	Ashok Ku. Kar	BAO, Bangiriposi
2.	Sisir Ku. Bishoyi	AAO, Patrapur
3.	Tapas Ch. Roy	AAO, Dasmantpur
4.	Hemanta Ku.	BAO, Rajgangpur
5.	Rohita Ku. Mishra	BC, Keonjhar
6.	Rudramadhab Naik	AAO, Koraput
7.	Prakash Ch. Mallik	OMM regional Co.
9.	Ankit Sud	HOU SOI WFP
10.	AmrithLugun	AAO, Bolangir
11.	SuryakantaSethy	AAO, Gajpati
12.	Pradnya Pathankar	WFP
13.	Nitin Ku. Hota	Research Asst. NCDS
14.	Dr. Chittaranjan Dash	SRO NCDS
15.	S.N. Kumar	BDC, Rayagada
16.	Dillip Ku. Mohanty	BAO, Nuagaon
17.	Dr. Kumud Ch. Behera	Director, Ganjam
18.	GyanaranjanPanigrahi	AAO c/o CDAP(R)

S.No.	Name of participant	Designation and District
19.	S. Bheema Rao	Secretary VIEWS
20.	PK Dalai	TL Surakhya, Gajapati
21.	Prasanta Ku. Mohanty	ABC,OMMGanjam
22.	Bironchi N. Mohapatra	SecretaryCPWS,Nuapada
23.	Suresh Ku. Rout	Secretary,Pallivikash,Nuapada
24.	Brundaban Behera	BAO,Daringbadi
25.	Sarat Ku. Baral	Gram Swaraj, Mayurbhanj
26.	Jagannath Durga	ABC SAHARA, Nabrangpur
27.	Herman Bera	ABC Sundargarh
28.	SasikantaBardhan	Add. Co., Sundargarh
29.	NabakishorSethy	BAO, Jashipur
30.	Pranay Sinha	PPO, SSTC, WFP
31.	Siba Prasad Sahoo	Secretary,Ahinsha club Bargarh
32.	Saroj Rn. Pattnaik	Secretary PROGRESS
33.	Debabrata Mallik	BDC, Anugl
34.	AmreshRoutray	AAO, Keonjhar
35.	Himansahu Ku. Mohanty	BAO, Nuapada

S.No.	Name of participant	Designation and District
36.	Rajkishor Swain	AAo, Ganjam
37.	Tapas Rn. Pradhan	AAO, Ganjam
38.	Srimanta Khuntia	IPE Global
39.	Shradha Das	IPE Global
40.	Lipika Patra	IPE Global
41.	Kriti Gupta	IPE Global
42.	Bijaya Ku. Nayak	RC DHAN Foundation, Koraput
43.	Ramesh Ch. Swain	Sr. Program Manager CYSD
44.	Rakesh Ku. Nayak	BPC, OMM TSRD
45.	Kunjabala Pradhan	Program officer LWA
46.	Bipin Bihari Jena	BPC JhumpuraKeonjhar
47.	Bhabendra Mahanta	AAO Mohana Block, Gajapati
48.	AnirudhaTarei	Polosara
49.	Ratikanta Mohanty	AAO Keonjhar
50.	Divya Tiwan	M&E Office
51.	D. Jagannath	President SWWS, Gajapati
52.	Chandra Mohan Chand	BAO Langigarh block, Kalahandi

S.No.	Name of participant	Designation and District
53.	Purnendu Partha Sarathi Panda	BPC,OMM, Langigarh, Kalahandi
54.	MahendraPorida	BC Jagruti, Kandhamal
55.	Satyanarayan Mallick	Prog. Coordinator ,Kandhamal
56.	NilakanthaPorida	AAO, Nabrangpur
57.	Dhaneswar Mahanta	CREFDA Mayurbhanj
58.	Ajit Ku. Pradhan	Member Secretary, Lokoshakti
59.	Kishor Ch. Dubey	AAO, Malkangiri
60.	Vinit Pattnaik	Associate Director IPE Global
61.	Sudarshan Behera	BAO, Paikpur
62.	Deeptimayee Singh	AAO Kishorenagar Anugul
63.	Sabyasachi Hanuman	DC WASSAN, Kandhamal

List of interviews and focus group discussions

District	SN.	List of Transcription Documents	Type
Kandhamal	1	FGD_CHC_SHG_Baliguda_Kandhamal	FGD
Kandhamal	2	FGD_SHG_Baliguda_Kandhamal	FGD
Kandhamal	3	IDI_AAO_Baliguda_Kandhamal	IDI
Kandhamal	4	IDI_AAO_Raikia_Kandhamal	IDI
Kandhamal	5	IDI_CDAO_Kandhamal	IDI
Kandhamal	6	IDI_DC_WASSAN_Kandhamal	IDI
Kandhamal	7	IDI_FA_Baliguda_Kandhamal	IDI
Kandhamal	8	IDI_FA_Raikia_Kandhamal	IDI
Kandhamal	9	KII_CRP_Baliguda_Kandhamal	KII
Kandhamal	10	KII_CRP_Raikia_Kandhamal	KII
Kandhamal	11	KII_FPO_Baliguda_Kandhamal	KII
Kandhamal	12	KII_FPO_Raikia_Kandhamal	KII
Kandhamal	13	KII_TDCCOL_Baliguda_Kandhamal	KII
Kandhamal	14	KII_IndividualFarmer_PratimaPradhan_Raikia	KII
Kandhamal	15	KII_IndividualFarmer_SibaramPradhan_Raikia	KII
Kandhamal	16	KII_IndividualFarmer_Goura Chandra Digal_Raikia	KII
Kandhamal	17	KII_IndividualFarmer_PravakarDigal_Raikia	KII

District	SN.	List of Transcription Documents	Type
Kandhamal	18	KII_IndividualFarmer_MinatiMalik_Baliguda	KII
Kandhamal	19	KII_IndividualFarmer_ResimaMalik_Baliguda	KII
Kandhamal	20	KII_IndividualFarmer_LaxmanMalik_Baliguda	KII
Kandhamal	21	KII_IndividualFarmer_NuramaniMallik_Baliguda	KII
Keonjhar	22	FGD_MaaHingulaSHG_Kaunrikala_KeonjharSadar	FGD
Keonjhar	23	FGD_Seedcentre_Baradapal_KeonjharSadar	FGD
Keonjhar	24	FGD_CHC_Jhumpura_Keonjhar	FGD
Keonjhar	25	FGD_SHG_Jhumpura_Keonjhar	FGD
Keonjhar	26	IDI_FA_Jhumpura_Keonjhar	IDI
Keonjhar	27	IDI_AAO_Jhumpura_Keonjhar	IDI
Keonjhar	28	IDI_CDAO_Keonjhar	IDI
Keonjhar	29	IDI_DC_WASSAN_Kandhamal	IDI
Keonjhar	30	IDI_FA_KeonjharSadar	IDI
Keonjhar	31	KII_DC_ICDS_Keonjhar	KII
Keonjhar	32	KII_DMF_Keonjhar	KII
Keonjhar	33	KII_DSWO_Keonjhar	KII
Keonjhar	34	KII_KrishnaSHG_Keonjhar(Rago ladooprocessing unit)	KII
Keonjhar	35	KII_M-PAS (Exclusive)	KII

District	SN.	List of Transcription Documents	Type
Keonjhar	36	KII_RadhakhusnaSHG_Keonjhar(Ragi laddoo mixing unit)	KII
Keonjhar	37	KII_Rinky_Panda_Value addition (Case Study)	KII
Keonjhar	38	KII_Seedcenter_Jhumpura	KII
Keonjhar	39	KII_TDCCOL_Keonjhar	KII
Keonjhar	40	KII_AWW_Kaunrikala_KeonjharSadar	KII
Keonjhar	41	KII_CRP_BadalSahu_Khuntapada_KeonjharSadar	KII
Mayurbhanj	42	FGD_BinodiniSHG_Bangiriposi	FGD
Mayurbhanj	43	FGD_MaaHingulaSHG_Jashipur	FGD
Mayurbhanj	44	FGD_MaaSaraswatiSHG_Jashipur	FGD
Mayurbhanj	45	FGD_Maa Situla SHG_Bangiriposi	FGD
Mayurbhanj	46	IDI_BAO_Bangiriposi	IDI
Mayurbhanj	47	IDI_AAO_Jashipur	IDI
Mayurbhanj	48	IDI_DC WASSN	IDI
Mayurbhanj	49	IDI_FA_Bangiriposi	IDI
Mayurbhanj	50	IDI_FA_Jashipur	IDI
Mayurbhanj	51	IDI_SchemeOfficer_Mayurbhanj	IDI
Mayurbhanj	52	KII_AWW_Jashipur	KII

District	SN.	List of Transcription Documents	Type
Mayurbhanj	53	KII_CRP_Shamsundarpur_Bangiriposi	KII
Mayurbhanj	54	KII_CRP_Badagaon_Bangiriposi	KII
Mayurbhanj	55	KII_IndividualFarmer_Bangiriposi	KII
Mayurbhanj	56	KII_TiffinCentre_Bangiriposi	KII
Mayurbhanj	57	KII_LAMPS_Bangiroposi	KII
Mayurbhanj	58	KII_PDS_Jashipur	KII
Mayurbhanj	59	KII_IndividualFarmer_Jashipur	KII
Mayurbhanj	60	KII_Individual Farmer (MandiaMaa)_Jashipur	KII
Nuapada	61	FGD_Ekata Producer Group_Boden	FGD
Nuapada	62	FGD_Jay Maa Baishnodevi_Komna	FGD
Nuapada	63	FGD_Maa Dharani SHG_Komna	FGD
Nuapada	64	FGD_MaaSubhalaxmiSHG_Boden	FGD
Nuapada	65	IDI_DC WASSAN_Kandhamal	IDI
Nuapada	66	IDI_FA_Boden	IDI
Nuapada	67	IDI_Schemeofficer_Nuapada	IDI
Nuapada	68	KII_DwarsaniFPO_Boden	KII
Nuapada	69	IDI_FA_Komna	IDI
Nuapada	70	KII_DhanisBag_IndivisualFarmer_Nuapada	KII

District	SN.	List of Transcription Documents	Type
Nuapada	71	KII_MaaSunadeiFPO_Komna	KII
Nuapada	72	KII_IndividualFarmer_SunitaSabar_Komna	KII
Sundargarh	73	FGD_GangpurFPO_Rajgangpur	FGD
Sundargarh	74	FGD_GitaSHG_Kuharamunda	FGD
Sundargarh	75	FGD_SaniaSHG_Kuharamunda	FGD
Sundargarh	76	IDI_BAO_Kuharamunda	IDI
Sundargarh	77	IDI_BAO_Rajgangpur	IDI
Sundargarh	78	IDI_CDAO_Sundargardh	IDI
Sundargarh	79	IDI_DC WASSAN_Sundargardh	IDI
Sundargarh	80	KII_DMF_Sundargardh	KII
Sundargarh	81	IDI_FA_Rajgangpur	IDI
Sundargarh	82	IDI_FA_Kuharmunda	IDI
Sundargarh	83	KII_JyotiDanga_Kuarmunda	KII
Sundargarh	84	FGD_JyotiSHG_Rajgangpur	FGD
Sundargarh	85	KII_Agrawal Millet Flour Mill_Rajgangpur_Sundargarh	KII
Gajapati	86	FGD_Farmers_Mohana_Gajapati	FGD
Gajapati	87	FGD_Farmers_R.Udayagiri_Gajapati	FGD
Gajapati	88	FGD_Farmers_Jalibadi_Mohana_Gajapati	FGD

District	SN.	List of Transcription Documents	Type
Gajapati	89	FGD_SHG_S.Gudisahi_R.Udayagiri_Gajapati	FGD
Gajapati	90	IDI_DC WASSAN_Gajapati	IDI
Gajapati	91	IDI_FA_R.Udayagiri_Gajapati	IDI
Gajapati	92	IDI_FA_Mohana_Gajapati	IDI
Gajapati	93	KII_IndividualFarmer_BalaramPaik_Mohana_Gajapati	KII
Gajapati	94	IDI_BAO_Mohana_Gajapati	IDI
Koraput	95	FGD _Farmers_Dadiapadar_Baipariguda_Koraput	FGD
Koraput	96	FGD_Farmers_Yubrajpetavill _Semuliguda_Koraput	FGD
Koraput	97	FGD_SHG_Billeigudavillage_Semuliguda_Koraput	FGD
Koraput	98	FGD_Farmer_Kandapadapadar_ Baipariguda_koraput	FGD
Koraput	99	IDI_FA_Baipariguda_Koraput	IDI
Koraput	100	IDI_CDAO_Koraput (Scheme Officer)	IDI
Koraput	101	IDI_FA_Semuliguda_Koraput	IDI
Koraput	102	IDI_AAO Simuliguda_Koraput	IDI
Koraput	103	IDI_TapasRoy(AAO) &Bijay Naik (DHAN)_koraput	IDI
Koraput	104	IDI_FPO_Baipariguda_Koraput	IDI
Koraput	105	IDI_RC_WASSAN_Koraput	IDI

Odisha Millet Mission – District Good Practice Template

Name of the District	
Point of Contact (Name)	
Point of Contact (Phone Number)	
Type of Innovation (Production/Value Addition/Consumption etc.)	
Coverage (No. of Blocks and Villages)	

Objective

Please state the aim and objective of the intervention

Activities Undertaken

Please list down the specific tasks and activities undertaken in detail

Resource Requirement

Please state the inputs (human, material, and skills) are needed for the intervention

Training Requirement

Please list down the type of training and recipient of the training needed for the intervention

Impact

Please share the results from the intervention (quantitative wherever possible)

Lessons Learnt

Kindly share the lessons learned from the intervention process

Budget and Costing

Please share the cost of each component for the intervention