

# Women in Local Food System: A Study of Millets in Nagaland and Odisha

A Thesis submitted to Indian Institute of Technology Guwahati in partial fulfilment of the requirements for the degree of

Doctor of Philosophy



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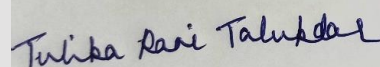
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## Declaration

I hereby declare that the thesis entitled “**Women in Local Food Systems: A Study of Millets in Nagaland and Odisha**” is the result of an investigation carried out by me in the Department of Humanities and Social Sciences, IIT Guwahati, India, under the supervision of Dr. Rajshree Bedamatta, Professor (Economics), Department of Humanities and Social Sciences, Indian Institute of Technology Guwahati.

In keeping with the general practice of reporting observation, due acknowledgement has been made wherever the work described is based on the findings of other investigations.



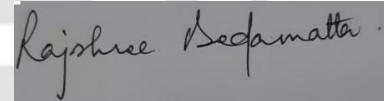
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## Certificate

This is to certify that the thesis entitled “Women in Local Food System: A Study of Millets in Nagaland and Odisha” submitted by Tulika Rani Talukdar for the degree of Doctor of Philosophy in Development Studies in the Department of Humanities and Social Sciences, Indian Institute of Technology Guwahati, embodies bonafide record research work carried out under my supervision. The collection of materials from secondary and primary sources has also been done by Tulika Rani Talukdar herself. All assistance received has been duly acknowledged. The present thesis or any part thereof has not been submitted to any other University for any degree or diploma.



(Professor Rajshree Bedamatta)

Supervisor

August, 2024

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## List of Abbreviations

AAO	Assistant Agriculture Officer
AAY	Antyodaya Anna Yojana
ASHA	Alliance for Sustainable and Holistic Agriculture
ATMA	Agriculture Technology Management Association
BoD	Board of Director
CBO	Community Based Organization
CEO	Chief Executive Officer
CHC	Custom Hiring Centre
CMSC	Community Managed Seed Centre
CRP	Community Resource Person
CSB	Community Seed Bank
CSIR-CFTRI	Council of Scientific and Industrial Research– Central Food Technological Research Institute
CSO	Civil Society Organization
DA&FE	Department of Agriculture and Farmer’s Empowerment
DA&FP	Directorate of Agriculture & Food Production
DAC	Department of Agriculture and Cooperation
DBT	Direct Benefit Transfer
DDS	Deccan Development Society
DHAN	Development of Humane Action
DPMU	District Project Management Unit
FA	Facilitating Agency
FAQ	Fair Average Quality
FGD	Focus Group Discussion
FPO	Farmer Producer Organization
FS	Food Sovereignty
GP	Gram Panchayat
HYV	High Yielding Variety
ICAR-IIMR	Indian Council of Agricultural Research-Indian Institute of Millets Research
ICDP-CC	Integrated Cereals Development Programmes in Coarse Cereals based Cropping System Areas

ICDS	Integrated Child Development Services
ID	Identity
IFPRI	International Food Policy Research Institute
IGMSY	Indira Gandhi Matritva Sahyog Yojana
INSIMP	Initiative for Nutritional Security through Intensive Millets Promotion
IPR	Intellectual Property Rights
JDA	Joint Director Agriculture
KRRS	Karnataka Rajya Raitha Sangha
KVK	Krishi Vikas Kendra
LAMPCs	Large Area Multipurpose Cooperatives
LS	Line Sowing
LT	Line Transplanting
LVC	La Via Campesina
MDM	Mid-Day Meal
MFG	Millet Farmer Group
MGNREGA	Mahatma Gandhi Rural Employment Guarantee Act
MINI	Millet Network of India
MPU	Millet Processing Unit
MSP	Minimum Support Price
MSSRF	MS Swaminathan Research Foundation
NAIS	National Agricultural Insurance Scheme
NCDS	Nabakrushna Choudhury centre for Development Studies
NEN	North East Network
NFSA	National Food Security Act
NFSM	National Food Security Mission
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Product
OMM	Odisha Millets Mission
OUAT	Odisha University of Agriculture and Technology
PDS	Public Distribution System
PPV&FR	Protection of Plant Varieties and Farmer's Rights Act 2001
PRADAN	Professional Assistance for Development Action
PRIs	Panchayati Raj Institutions
PVT	Participatory Varietal Trial
RADP	Rainfed Area Development Program
RKVY	Rashtriya Krishi Vikas Yojana
RRA-N	Revitalization of Rainfed Agriculture-Network
SAU	State Agriculture University

SFAC	Small Farmers Agribusiness Consortium
SHG	Self Help Group
SMI	System of Millet Intensification
SPMU	State Project Management Unit
TDCCOL	Tribal Development Cooperative Corporation of Odisha Limited
TPDS	Targeted Public Distribution System
VAW	Village Agriculture Worker
VC	Village Council
WASSAN	Watershed Support Services and Activities Network
WS	Women Society
WSHG	Women Self-Help Group
ZBNF	Zero-Budget Natural Farming
HPC	High Powered Committee
D-MC	District Monitoring Committee
N-PMAFSC	National Project Management Advisory and Fund Sanctioning Committee
PIA	Program Implementing Agency
CBBO	Cluster Based Business Organizations
NPMA	National Project Management Agency
NCDC	National Cooperative Development Cooperation
SLCC	State Level Consultative Committee
DLCC	District Level Consultative Committee
RI	Resource Institute
POPI	Producer Organization Promoting Institutions
NAFED	National Agricultural Cooperative Marketing Federation on India Limited
FCI	Food Corporation of India
NABARD	National Bank for Agriculture and Rural Development
MPAS	Millet Procurement Automation System
OTELP	Odisha Tribal Empowerment and Livelihoods Program
CYSD	Centre for Youth and Social Development
NBPGR	National Bureau of Plant Genetic Resources
SSTL	State Seed Testing Laboratory
ORMAS	Odisha Rural Development and Marketing Society
DME	Department of School and Mass Education
GDP	Gross Domestic Product
MMA	Macro Management of Agriculture
PM FME	Prime Minister Formalization of Micro Food Enterprises
MoFPI	Ministry of Food Processing Industries

ODOP	One District One Product
PESA	Panchayats Extensions to the Scheduled Areas Act
ASA	Action for Social Advancement
KHABCoFED	Kolli Hills Agro-biodiversity Conservers Federation
ITDA	Integrated Tribal Development Agency
CAVS	Chinnaya Adivasi Vikas Sangam
GMO	Genetically Modified Organisms
PUCL	People's Union for Civil Liberties
THR	Take Home Rations
APMC	Agricultural Produce Market Committee
APDS	Alternative Public Distribution System
VDB	Village Development Board
CPR	Community Property Resources
OLM	Odisha Livelihood Mission
WTRC	Wet Terrace Rice Cultivation
NFSM-CC	NFSM Coarse Cereals
IFAD-FOCUS	International Fund for Agriculture Development-Fostering Climate Resilient Upland Farming Systems
SARS	State Agrciulture Research Station
FST	Foundation for Social Transformation
MAKAAM	Mahila Kisan Adhikar Manch
MRC	Millet Resource Centre
WRC	Wet Rice Cultivation
JRC	Jhum Rice Cultivation
KALIA	Krushak Assistance for Livelihood and Income Augmentation
BALARAM	Bhoomihina Agriculturalist Loan and Resources Augmentation Model
DMF	District Mineral Foundation
CDAO	Chief District Agriculture Officer
MIS	Management Information System
ADPC	Additional District Program Coordinator
DPMU	District Project Management Unit
BAO	Block Agriculture Officer
FS&CW	Food Supplies & Consumer Welfare
WCD	Women and Child Development
MSME	Micro, Small and Medium Enterprise

## Abstract

Following the food price rise in the 1990s and the subsequent food crisis, the political project of "food sovereignty" started taking centre stage through the *La Via Campesina*, a farmers' movement for asserting the human right to food. The food crisis of the 2000s gave further momentum to the movement of farmers fighting to overturn the onslaught of neoliberal policies and laying focus on the revival of the local food system. Food sovereignty as a movement or a political project has not taken much root in India as in the West. However, certain 'lost crops', such as millet is being brought into the mainstream as a resilient and a representative crop of local food system. In a bid to re-imagining themselves as supporters of small and marginal farmers while foraying into the market of food value chains, various commercial enterprises have been using the term "food sovereignty" for millet based packaged items.

Millets form the staple diet and are a part of mixed crop systems in India, especially in communities belonging to rain-fed regions of the country. In addition to being used as a human food crop, it serves various other purposes, such as poultry feed, livestock fodder, and substantiating bio-fuel needs (Saxena, 2020). However, millet cultivation started declining in India in the 1960s when attention shifted to high-yielding varieties of seeds in the rice-wheat system. The area under production and the productivity of millets reduced considerably (Meena et al., 2021; Rao et al., 2021). The systematic promotion of mono-crops, like rice and wheat, to provide food and nutrition security to the starving millions, coupled with its inclusion in the Public Distribution System (PDS), further neglected the cultivation and consumption of millets (Mondal et al., 2016).

In recent years, a revival of millet cultivation has received mainstream attention from state and national governments, civil society organizations, commercial enterprises, and a few sections of the general public. Moreover, legislations such as National Food Security Act of 2013 and National Food Security Mission in 2014-15 has given recognition to millets as one of the nutri-

cereals with a policy focus on enhancing production, consumption, and inclusion in the PDS of the country.

Women play a significant role in the sustenance of millet crops. Women's engagement is seen as crucial in reviving millet based biodiverse farming. Historically too, women have been at the forefront of millet cultivation.

Different varieties of millet are grown in different parts of India. However, distinctively, some of the tribal regions of the country have held on to millet cultivation for years. I have studied the millet ecosystem in Nagaland and Odisha in the backdrop of the National Nutri-cereals Mission that has highlighted millet as a critical crop requiring policy attention. I chose to study the states of Nagaland and Odisha for the following reasons. Millet cultivation and consumption is a staple among many tribes of Nagaland. However, millet production is mainly at the household level without aiming for a marketable surplus, which has impacted the area under cultivation. A civil society organization (CSO), Northeast Network (NEN), is actively leading millet revival with the help of community participation, particularly women farmers. Similarly, large parts of Odisha, most significantly the tribal pockets have cultivated and consumed millet crops since the longest time. Odisha, was one of the first states to initiate a state-supported mission, called the Odisha Millet Mission (OMM), to systemically intervene in millet production, processing, and marketing through an elaborate institutional process.

In the above context, the OMM of Odisha and the NEN-led millet revival in Nagaland is taken under consideration, intending to understand the role of women's collectives in sustaining and reviving millets. This study follows a non-governmental organization, North East Network (NEN) in Nagaland and their millet program in the state, which is without support from the state government. Whereas the study follows a millet revival initiative in Odisha, which enjoys the support of the state government.

Odisha is the first state in the country to take up a millet revival program in a state government led top-down approach backed by an Institutional Framework in place. Nagaland has a millet production and consumption history, but the revival initiatives does not follow a Mission led

approach. This thesis studies the revival of millets as a food sovereignty crop in two different setups. One led by a state government and another by a CSO in two tribal regions of two different states. This thesis attempts to see whether the initiatives undertaken in both states reveal similarities with the food sovereignty framework. Can these initiatives be considered an effort to build and strengthen local food systems promoting the production and consumption of diverse crops around sustainable practices and climate-resilient measures inclusive of vulnerable indigenous populations?

The chapters 3 and 4 is about Nagaland. The actors associated with the millet ecosystem in the Phek district, the significance of jhum, and how millet is intertwined with the decision about what to cultivate in the jhum land is analysed in chapter 3. The role of the village council, women's society, and other actors is elaborated in chapters 4. The chapter 5 discusses the Odisha model of millet revival that follows a convergence and collaborative network of various actors from the state to the village level. To understand community networks and the role of women, the site of inquiry was the Koraput district. In Odisha, we see a systematically designed millet intervention at work that has focused on production, processing, consumption, public distribution, and marketing. How women farmers thrive in this ecosystem and bear the burden of the drudgery of work is elaborated in chapter 6. Chapter 7 focusses on work and functioning of FPOs in the select blocks of Odisha. In the final chapter 8, I provide a comparative analysis of Nagaland and Odisha and assess their closeness to food sovereignty as a framework outlined from the review of literature in Chapter 1.

Significant difference is found between the millet revival model followed in both states, mainly in their approaches. The initiatives in both states highlight three underlying factors that resist corporate agriculture promoted by the neoliberal regime. These are also the similarities found in both the models:

1. The initiatives acknowledge the timeless contributions, traditional knowledge, and practices of women farmers in sustaining millet cultivation and thus place women in leadership positions to steer the millet movement.
2. Both models promote a local crop, emphasizing the revival of local agrobiodiversity using sustainable resources.

3. The programs are heavily centered on community ownership of the millet revival and millet-based food system placing small and marginal farmers at the centre stage of the program.

However, Odisha follows a top-down model, and Nagaland follows a more participatory approach to intervention at the community level. The Odisha model has strong bureaucratic support focusing on convergence and collaboration between diverse actors, documentation of best practices, farmer-producer organizations, and technical support to women's self-help groups. Within five years, the Odisha model has established an institutional framework, thereby creating community-based institutions and strengthening women livelihood opportunities promoting women entrepreneurship around millets. The OMM has mainstreamed millets emphasizing not only production and yield but also linking consumption, value addition and procurement aspects to support millet growers. Nagaland's participatory approach is ailing due to a lack of state government support, an internal development agenda of shifting from jhum cultivation to a more settled form of agriculture with a focus on cash crops that can bring competitive returns to the state's investments, and a slowly changing agrarian practice of moving towards individualized plots of land and shortages of labour required for labour intensive crops such as millet. This concludes our thesis with an argument that state's intervention is crucial to protect farmer's livelihood first by creating an enabling environment to revive millets that benefits the stakeholders involved. Promoting food sovereignty should be consistent with strengthening farmer's position within food and agriculture system.

# Chapter 1

## Introduction and Review of Literature

The global food crisis of 2007-2008 marked by a sharp rise of food prices, growing inequality between various classes of people and massive displacement of rural poor indicates the failure of the frame<sup>1</sup> of food security to solve the problems of growing poverty and hunger. Moreover, the global corporate regime has implications in a range of negative economic, social, cultural and environmental consequences primarily to developing countries. A particular destructive impact is evident on agricultural communities especially the food producers and consumers. Diversified food and market system characterizing the economy of developing countries has now been shifted to dominance of two or three major crops.

Millets largely considered as ‘orphan crops’ and consumed by poorer sections of the society in India, millets were neglected due to food security concerns prioritized through Green Revolution focusing on monocrops such as rice and wheat has pushed diverse millets-based food system to the sideline (Rao et al., 2021). Declining policy support to millets with respect to incentivizing production, absence of crop loans, crop insurance and low market value has further contributed to the decline in area under millet cultivation and subsequent disappearance of millets from agriculture system (DHAN Foundation and WASSAN, 2012). At present, millets have garnered considerable mainstream attention in the last decade from state and national government. Realizing its importance for nutritional security, the government of India has gazetted millets as “Nutri-cereals” since 2017 (Department of Agriculture, 2018). Similarly, millets have been made a central part in various central legislations since the year 2007.

Women play a significant role in preserving local food system which occupies a centre stage in the discourse of food sovereignty movement to claim control and ownership of food production system in the struggle against corporate control of economic system. However, female labour use in production, post-harvest operations and marketing of millets is considerably high. The

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<sup>1</sup> The term frame has been used in reference to a chapter authored by Fairbairn (2010) “Framing resistance: international food regimes and the roots of food sovereignty in a book titled “Food Sovereignty: Reconnecting Food, Nature and Community.

crucial role of women farmers in sustaining millet-based agrobiodiversity is not given due priority in central level schemes. Lack of research and substantial investments in creating an enabling environment to revive millets along with negligible state support in establishing processing infrastructure for post-harvest operations has burdened women farmers to deal with such limitations for decades.

Civil society organizations working for decades in rain-fed agriculture system in the country have shown us a way forward in reviving millets by achieving commendable results in empowering women farmers from the most marginalized and vulnerable communities through conserving, cultivating, commercializing and consumption of local varieties of millets adopting sustainable agriculture practices. The civil society network has been persistent in pushing the government to include millets in the definition of food crops along with its inclusion in National Food Security Mission, a mission guiding the framework of foodgrain production in the country. Inclusion of millets in the Public Distribution System of the country is another success of the civil society network in popularizing millets in the public culture.

Mainstreaming millets by emphasizing the entire value chain and not just improving productivity holds the key to revive millets not just on farms but also on plates. Women's involvement is defined by their leadership abilities in strengthening the local food system by safeguarding agro-biodiversity through conserving and exchanging local seeds and knowledge amongst farming communities in India. However, on account of the challenges faced by women in agriculture, many scholars have supported the idea of establishing women collectives as a strategy to leverage the benefits of collective farming to mitigate the challenges of landlessness and small holdings faced by individual women farmers (Agarwal, 2002, 2010, 2014; Alex, 2013; Jones, et al., 2012; Satheesh, 2008; Shah. 2012).

But the promotion model followed by the government is worrisome. Currently millet is promoted through productivity enhancement approaches through resource intensive methods (Department of Agriculture, 2018; Niyogi, 2020). Inclusion of millets in PDS has already come into effect but very few states are procuring millets from farmers. Emphasis on development of High Yielding Varieties (HYV) seeds, lack of research on indigenous varieties and loss of local varieties seeds with farmers owing to decades long neglect of millets has already displaced the seeds saving

culture among the diverse indigenous communities across the country. Moreover, promotion of major millets such as sorghum and pearl millet are overshadowing the prospects of various nutritious varieties of small millets such as little millet, browntop millet, barnyard millet, etc in diversifying the food system (Niyogi, 2020).

It is in this context that this thesis enquires into the millet revival models in India with respect to two states, Nagaland and Odisha. Millet revival initiative is being undertaken in tribal regions of both the states involving tribal community, the largest producer and consumer of millets in the country. The thesis explores the institutional framework for millet revival, actors associated, their roles and responsibilities and the convergence mechanism between various actors. It further examines block and sub-block level structure instituted and impact of the millet revival program on women farmers. Functioning of women collective's/farmer collectives in the form of FPOs is also explored. Finally, it brings out a comparative analysis between both millet revival models assessing similarities and differences, and whether women collectives and individual women beneficiaries are empowered or not to mainstream millets using the lens of food sovereignty framework.

The literature reviewed below first locates the issue of displacement of developing society's traditional food system, culture and the livelihood practices in international politics of food. This is followed by a brief explanation of the concepts of food frame, food regime, food movement and how did the frameworks of food security and food sovereignty emerge. These frames help explain the issues related to food in a particular time period. Then linkage between women, millets, local food system and food sovereignty is explored. The next section focusses on the national policies and programs on millets in India that covers the other state's and CSO's initiatives to promote millets in India. In the final section on literature review, I have tried to capture the debates and issues surrounding food sovereignty movement in India. The last section provides a brief of development scenario in the two states of Nagaland and Odisha.

### **1.1 International politics of food**

Since the early 1970s, 'a problem of scarcity' has been the reference point for explaining the problems of food situation globally. During the same time, food price inflation in the major-

grain exporting countries soared to a high level. Agrarian countries, who were self-sufficient in food, began depending on grain imports during the 1950s and 1960s. Food price inflation during 1970s had a negative effect on their balance of payment situation and national programmes (Friedmann, 1982). Restructuring of the world economy as a crisis point leading to a reorganization of production relations and distribution of grains throughout the world characterizes the 'International Food Order of the post war era. This order consists of specific policies and international arrangements constructed during the 1950s.

The operation of international food order maintained the position of grain surpluses, in the United States, which was well above the world effective demand for two decades from 1950s to 1970s (Gonzalez, 2011). The international food order encouraged a massive shift of surplus labor in agriculture to seek jobs in industries and restructured the world economy. This resulted in the situation of grain surplus in the United States, in effect of huge subsidies provided by the state to the farmers, that became a tool for building international relations and trade in the form of 'food aid' post 1970s (Friedman, 1982). American food aid transformed the world into wheat consuming society and influenced developing countries to follow the ideal of Americanism, which was to feed the hungry and sell wheat (Friedmann, 1982). Post 1970s, international food order collapsed causing increase in grain prices making food access out of reach of the people as real incomes were low. The problem, however, was made to look like the problem of food scarcity.

## **1.2 The frame of Food Regime versus Food Movement**

Food regime versus Food movement framework is the analytical tool proposed by Holt-Gimenez and Shattuck, 2011 to understand the political dynamics of food systems. The analytical tool captures the ideology, actors and institutions, issues and approach to the food crisis within the trends of food regime versus food movements that provide a solution to the growing problems of food and agriculture system in contemporary times.

### **1.2.1 Food frames**

The concept of food frames emerged from the ideas and struggles of social movements surrounding the issue of access to food. These frames help in understanding and provide

potential solutions to the challenges encountered in food regimes resulting from changes in political, socio-economic and cultural structures of an economy (Friedman, 2005; Fairbairn, 2008). Frames “examines how social movements deploy language and ideas to mobilize support for their efforts” (Fairbairn, 2010). The “Right to food” and “Freedom from hunger” are the two discursive frames that emerged during the food regime that immediately followed world war II.

The “right to food” is the first universally recognized legal framework for access to food, arose after consolidation of the post war food regime. The acute food shortage suffered by the European countries post world war II, gave birth to “right to food” which finds mention in paragraph one of Article 25 of the Universal Declaration of Human Rights (UDHR) enacted by the United Nations (UN) in 1948. The International Covenant on Economic, Social and Cultural Rights (ICESCR) provides a legal support to the right to food (Windfuhr and Jonsen, 2005).

### **1.2.2 Food regime**

Food Regime is understood as a “rule-governed structure of production and consumption of food on a world scale” (Friedmann, 1993) Food regime of the mid twentieth century is explained through the following illustration: “The postwar food regime was governed by implicit rules, which nonetheless regulated property and power within and between nations” (Friedman, 1993). The food regime, therefore, explains international relations of food and the world food economy. Food regime analysis by combining political ecology, political economy and historical analysis helps to explain the social, economic, ecological and international relations of food production and consumption and its effects on the global food system. These interrelations in turn are central to the development of global capitalism (Holt-Gimenez and Shattuck, 2011). Global spread of industrial agriculture, particularly oriented towards market development, through Green Revolution of the 1960s in developing countries by infusing High Yielding Varieties of a few cereals (rice, wheat, maize), as against the development of diverse farming and food needs of varied communities, intense use of subsidized fertilizers, pesticides, irrigation and machineries into the agriculture of developing economies led to weakening of peasant agriculture.

This led to intensification of class, gender, economic and regional inequalities across developing economies (Agarwal, 1994; Shiva, 1991). Large scale appropriation of livelihood resources such

as land for development projects, massive changes in agricultural operation (primarily infusion of technology-based inputs and machines in the market) rapidly changed the social and economic relations of peasants and indigenous communities with their land, cattle, commons, and increased the external dependence of subsistence peasants. This further pushed peasants in a fragile ecosystem of increasing debts, consolidation of land and finance in the hands of a few, deepening inequality, precarious livelihood, and food and nutrition insecurity.

Drawing from (Friedmann 1993), McMichael, 2009 has come up with the following food regime formulation. The first food regime spanned from 1870s to 1930s, characterized by imports of cheap grains from Southern and American colonies to feed the rapidly growing industrial population of European countries. The second food regime, from 1950s to 1970s is marked by flow of food grains in the form of 'aid' from the US to the Global South. Period from late 1980s onwards-the third food regime, characterized by the dominance of multi-national corporations, globalized meat production, fuel driven food and agriculture system is called the Corporate food regime (Holt-Gimenez, 2010).

The current phase of corporate food regime through neoliberal capitalist expansion unleashed Structural Adjustment Programs during the 1980s which substantially reduced the state's role. This largely unfolded through import liberalization, tariff reduction, elimination of protective price mechanisms, and destruction of national agricultural, research and marketing boards. The corporate food regime manifesting in the form of industrial food and agricultural system has wide reaching impacts over land, health and ecological system. The industrial food system has systematically destroyed the local forms of production and consumption through replacing the essential links of peasants with forests, commons, animal husbandry and ecological nature (Shiva, 2016a). The organic matter that has sustained food production and soil fertility for generations has been converted into pest that is supposed to be destroyed by using industrially produced chemical fertilizers and pesticides (Gonzalez, 2011) thereby destroying the soil fertility, agro and ecological biodiversity and unsustainable food production (Shiva, 1988; 2016a). Water pollution and depletion of underground water table, as a result of intensive irrigation, seen as essential to enhance production and thus efficiency. Widespread deforestation, contamination of water sources such as rivers and lakes, with industrial chemical and wastes, dependence on renewable resources such coal, and petroleum to produce fertilizers and pesticides have led to depletion of

natural environment. The biggest devastating impact has been on loss of biodiversity as farmers shifted from cultivating diverse traditional food crops to monoculture food crops such as rice, wheat and maize.

The current corporate food regime characterizes two main trends, the Neoliberal and Reformist. Neoliberal trend is rooted in 'intellectual tradition of economic liberalism and unregulated markets' driven by monopolies of agri-food corporations. Reformist trend is marked by periods of re-regulation of supply, markets, and consumption, in turn reproducing the corporate food regime (Holt-Gimenez and Shattuck, 2011). Food Enterprise, Right to Food, Freedom from Hunger, Food Justice, Food Security and Food Sovereignty are some of the food frames widely used in literature pertaining to solutions to the growing food challenges and environmental degradation.

The framework of Food Security, under the Reformist trend, is widely adopted as a measure for physical, social and economic accessibility to food. Food Security emphasizes maximizing food production without consideration of the conditions under which the food is produced, who produces them, how the food is procured as well as the environmental and health impacts of food production (Patel, 2009). In this thesis, the frame of 'Food Sovereignty' is applied to study two of the millet revival models initiated in the states of Nagaland and Odisha. The thesis evaluates in the comparative analysis chapter (last chapter) how close or not these two initiatives are to the framework of 'Food Sovereignty' in supporting women in their agrarian livelihoods, addressing food insecurity issues and emphasizing on local food to sustain the agrobiodiversity and economy.

### **1.2.3 Global food movement**

Global food movement encompasses formation of several local, national and international social movements concerned with food and agriculture. These movements characterize a rise in people's voice against the structural injustice, adverse health consequences and deterioration of environment in the current food system. These movement have demands that include land reforms and food sovereignty (Akram-Lodhi, 2013; Desmarais, 2007; Nyéléni, 2015.; Patel, 2009; Wittman et al., 2010), local food system, sustainable and agroecological agriculture (Allen, 2010; Robbins, 2015; Rosset and Martinez-Torres, 2012), and slow food and resilient food

system (Fontefrancesco and Corvo, 2019). Examples could include slow food movement, food sovereignty, Zero Budget Natural Farming, Agroecological movement and fair-trade initiative (Raynolds, 2012). Combined together, these initiatives form the alternative agriculture wing of the New Social Movements and Transnational Social Movements (Martinez-Torres and Rosset, 2010). Global food movements can be grouped under two broad trends. These are Progressive and Radical. Progressive trend comprises of practical alternatives to industrial agriculture and such as sustainable, agroecological and farmer to consumer community food networks. These offer solutions largely within the economic and political framework of the current capitalist food system. Examples under the Progressive trend could include Alternative Fair Trade, Slow Food movement, Community Supported Agriculture (CSA), Community Food Security movement, youth food and justice movement. The Radical trend calls for radical changes in the food system based on rights, entitlements, and advocacy for reforms and redistribution of livelihood resources, such as land, water and resources by engaging in social, economic and political resistance against the industrial food system. Examples could include Via Campesina, agrarian based food movements, International Planning Committee on Food Sovereignty, food justice and rights-based movements (Holt-Gimenez and Shattuck, 2011; Sage, 2014).

### **1.3 Food Sovereignty**

Transnational Agrarian Movements (TAMs) such as Food Sovereignty have originated from peasant struggles in Latin America. As a result of increasing liberalization of agriculture and trade in the 1980s which started impacting farmers negatively, radical peasant organizations came together in a Latin American peasant movement (Edelman, 2014). TAMs, primarily highlight peasants concerns and represent voices from the peasant community (Borras et al., 2008). A transnational peasant coalition called La Via Campesina (LVC)<sup>2</sup> founded by representatives of peasant organizations and other civil society organizations, staged protest against the liberalization agenda proposed by the General Agreement on Trade and Tarrifs (GATT) in 1992. Following up with the protest, LVC started working actively towards farmers

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<sup>2</sup> La Via Campesina is an international coalition and one of the largest social movements in the world of over 200 million small and medium-scale farmers, women farmers, indigenous labourers and migrant workers from over 70 countries fighting against the neo-liberalisation of food and agriculture. For more information, please refer to Via Campesina (2007). Nyeleni Declaration. Selingue, Mali: Forum for Food Sovereignty.

and indigenous peoples issues that led to introducing the concept of food sovereignty during the World Food Summit in 1996, at Tlaxcala, Mexico.

LVC defined Food Sovereignty as “the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity” (Via Campesina, 1996). Food sovereignty emerged against the backdrop of growing disappointment with the concept of “food security”, which aims to maximize food production without particular attention to how, where and by whom food is produced (Wittman et al, 2010). Food Sovereignty largely encompasses the demands, the experiences and struggles of the people affected by large-scale marginalization and vulnerabilities to changing national and international agricultural policy introduced throughout the 1980s and 1990s. The framework provides a platform for affected peasants and indigenous people leading to displacement from their own land, comprising largely of people dependent on land for the sustenance of their life (Wittman, 2011).

Range of membership by numerous national and transnational networks consisting of large NGOs and civil society networks have influenced the changing definitions and underlying meaning of food sovereignty from time to time (Louis, 2012). In 2007, an international forum on food sovereignty held in Nyeleni, Mali attended by 500 representatives from eighty countries defined food sovereignty as:

*“The right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming and pastoral and fisheries systems determined by local producers and users. Food Sovereignty prioritizes local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food Sovereignty promotes transparent trade that guarantees just incomes to all peoples as well as the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage lands, territories, waters, seeds, livestock and biodiversity*

*are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social and economic classes and generations.” (Via Campesina, 2007).*

Food Sovereignty emerged more as a critical alternative to the current narrow concept of food security is broadly defined as the right of local people to control their own food systems, including markets, ecological resources, food cultures, and production modes (Wittman, 2011). The frame of food security, as opposed to food sovereignty, does not concern itself with the conditions under which the food is produced, who produces them, how the food is procured as well as the environmental and health impacts of food production (Patel, 2009).

#### **1.4 Local Food System**

Discourse about the local food system (LFS) has taken centre stage in view of devastating impact of the capitalist agriculture on food and nutrition, climate, health, ecology and environment, natural resources, and social and economic relations. However, there is no consensus on the generally accepted definition of the term Local Food System, primarily due to varied interpretations of the term “local” scale (Enthoven and Broeck, 2021; Martnez et al., 2010). Food and Agriculture Organization (2018) defines Food System as a system that “encompasses the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded” (FAO, 2018). A Sustainable Food System provides food security and nutrition for all without compromising the economic, social and environmental components to generate food security and nutrition for future generations (FAO, 2018). Economic sustainability, Social sustainability and Environmental sustainability form the three foundational principles on which Local Food System is gaining immense popularity (FAO, 2018; Hendrickson and Massengale, 2022).

By LFS I mean the traditional land use pattern, rights, and practices within which the tribal people of Phek district in Nagaland and Koraput district in Odisha organize themselves. There is ample literature that informs us that the indigenous population are the preservers of traditional knowledge systems particularly in the context of agricultural practices. Millet is a part of everyday consumption among tribes in both my study districts. I want to understand how women

farmers and their families have coped with the changes taking place in local food system due to the intrusion of market; and whether or not state and civil society intervention is providing any remedy.

Hendrickson and Massengale (2022) defines Local Food System as “a local food system expands the economic interactions between food producers and food consumers to include social relationships and environmental management centered on a particular place” (Hendrickson and Massengale, 2022). In all the above definitions “local” is implied in engaging with food producing, processing and retailing in a particular geographical area encompassing the social and economic relationships between producers and consumers. A food system includes production of food for self and commercial purposes, processing, marketing, distribution, retailing and consumption. Connotations of a particular place, a community, or a region is associated with a local food system (Hendrickson and Massengale, 2022).

“Local” in the context of food system, is related to three aspects of proximity. These are geographical proximity indicating distance between production and consumption of food; relational proximity meaning close relationship between actors within the food system; and proximity in values for example, place of origin, traceability, quality, etc (Eriksen, 2013). However, LFS differs from the concept of SFSC (Short Food Supply Chain), but they are often used interchangeably.

The LFS in terms of distance between the source of production and consumption, market arrangements and the size of farms on which food is produced, is more developed in the US and in the Global North (Martinez et al, 2010). Social, supply chain characteristics and consumer preferences are the other widely used parameters to identify local food system in different contexts. The other characteristics to identify LFS include sustainable production and distribution practices, fair farm labour and animal welfare practices, who are the producers of the food, etc (Martinez et al, 2010). Local food systems are increasingly associated with small farms serving a particular place through social and economic relationships. Social embeddedness with respect to social connections, mutual exchange and trust are significant features in playing out the context of local food system (Hinrichs, 2000; Martinez et al., 2010). Distance between the source of production and consumption is a prime identifier of local food

system and various measures such as those of Direct Agriculture Marketing and the social re-embedding of food systems are used as strategies to address the distance issues.

Local Food System involves various stakeholders ranging from state, Civil Society Organizations, private players, value chain actors (such as producers, small vendors, intermediaries, market actors, and consumers) and communities. Governments and Civil Society Organizations have emerged as pivotal actors actively promoting local food systems over the past few decades (Enthoven and Broeck, 2021). Environmental and ecological benefits, increasing production, soil rejuvenation, sustainable alternative to industrial agriculture and social embeddness, livelihood sustainability of small and marginal producers, economic impacts and positive health and nutrition outcomes are some of the positive impacts highlighted by its proponents behind advocating for mainstreaming sustainable agriculture worldwide (Shiva, 1988; 1989; 2016; Rosset and Martinez-Torres, 2012; Khadse et al., 2018; Khadse and Rosset, 2019; Kumbamu, 2018; Chebrolu and Dutta, 2021; Kumar, 2021; 2022). Due to the varied context specific operation of local food system in different countries, literature suggests that there is no consensus on its uniform impact on social, economic and environmental aspects. Moreover, challenges such as lack of cross-country comparable data renders impossible the task of drawing generalizable conclusion that local food system is good for everyone. Impact of LFS on different social, economic and environment aspects is highly contextual on the food supply chain prevalent with critical differences across countries, product base and market structure (Enthoven and Broeck, 2021).

Food Sovereignty has strongly emerged as a framework for an alternative food and agriculture system by various rural and social movement particularly, transnational peasant movement like LVC for prioritizing the right of people to define their own food and agriculture system. Emphasizing local and national economies by empowering peasant and family farmer driven agriculture and building socially, economically and environmentally sustainable production and distribution system form its core strategy to resist and challenge the corporate food regime. Even though local food system was not explicitly mentioned in the early definitions of Food Sovereignty postulated by LVC (Desmarais, 2007) from 1996 to 2000, but the strategies to achieve food sovereignty through its framings such as defining food and agriculture policy at the

national level, and emphasizing domestic markets point towards strategizing local food system. Moreover, the Nyeleni Forum for Food Sovereignty (2007) identified local food system and have highlighted the importance of local producers, local market and local food initiatives as crucial to realizing food sovereignty (Robbins, 2015). However, local food system is not elaborated much beyond essentializing as a key factor in the discourse.

However, local food system remains a vague concept as the definition of food sovereignty is itself open to diverse interpretations, contradictory and a set of abstract principles difficult for practical ground realization (Patel, 2009). This vagueness is attributed to ‘complexity of representation’ of movement leaders and members in TAMs along with partial or zero representation of the groups of people whose demands the movement claims to represent (Borras, Edelman and Kay, 2008). Diverse class interests and contradictory opinion of actors across LVC and TAMs present further challenges in realizing practical realities of local food system (Borras, 2010; Borras et al., 2008).

Nevertheless, Alternative agrifood social movements have actively promoted food system localization as a possible solution to resolve environmental, social and economic issues inherent in the current food system (Allen, 2010; Robbins, 2015; Rosset and Martinez-Torres, 2012). Moreover, TAMs such as LVC’s framework of food sovereignty essentialize localization in the form of local production and local economies as a vital component to build alternative food system (Robbins, 2015). Food sovereignty views local food system as “ideally embedded in small-scale, peasant production using agro-ecological methods” (ibid).

Localization efforts focusing on particular and small scale emerged during the 1960s and intensified during the 1990s as a resistance strategy to the industrial control of food system by the neoliberal ideology. The argument for localization efforts is rooted in the question of ‘distance’ inherent in the current industrial food system (Robbins, 2015). The objectives of local food initiatives initiated in different countries primarily cater to providing market and processing support for local farmers, creating local jobs, promoting entrepreneurship opportunities, addressing climate change through incentivizing agro ecological production methods, etc. However, local food efforts are not prioritized towards ensuring social justice for the marginalized and historically oppressed communities (Allen, 2010). Local food programs are largely devoid of vast accounts of injustices and historical processes of colonialism,

exploitation, and extraction across social, economic, geographic and democratic sectors in developing economies. Acknowledging and taking into consideration the country specific historical processes of colonialism can ensure that the goals of equity and social justice reach communities in a particular locality. Fostering social change by rethinking neoliberal ideologies and structures is critical for agri-food movements to design and implement local food programs (Allen, 2010). Localization aspect of food sovereignty is a necessary condition but not sufficient to build an alternative food system. Not all local food initiatives are the replicas of an alternative food system proposed by the food sovereignty approach nor are they characterized as a part of the capitalist food system. Most local food systems exhibit characteristics of both the extremes and fall in between the two opposite ends occupied by capitalist food system on one end and local food system on the other. Differentiated characteristics of local food system make local food system initiatives fall in the continuum line of character, methods and scale (Robbins, 2015).

Adoption of agro-ecology<sup>3</sup> under localization efforts by the Rural Social Movements in the 90s, as a way of production, consumption and marketing in rural areas enable peasants to gain autonomy from market dependence for pre and post agricultural operations (LVC, 2007). The increased emphasis by rural social movements such as LVC, and various organizations representing the vision and culture of LVC, on adoption of agro-ecological principles is postulated as a step towards re-peasantization<sup>4</sup>. Re-peasantization is achieved by reclaiming the disputed spaces of the material and immaterial territories<sup>5</sup> as peasant territories (Rosset and Martinez-Torres, 2012).

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<sup>3</sup> Agro-ecology is understood as science and a set of principles guiding the agricultural practices to produce food in a non-chemical manner. Please see Rosset, P.M., & Martinez-Torres, M.E. (2012). Rural Social Movements and agroecology: context, theory, and process.

<sup>4</sup> Engagement of rural women, peasants, family farmers and indigenous people by utilizing principles of agroecology on diversified farming systems as a defensive process against the increasing control of rural spaces and resources by the agribusinesses and this process is termed as re-peasantization. Re-peasantization is described as a process through which peasants and indigenous rural people can move from dependency on market to source credit and input to produce food to relative autonomy by adopting agroecology. See (Rosset and Matinez-Torres, 2012).

<sup>5</sup> The dispute over material territories relates to the contestation with access, control, use and ownership of physical resources such as land, soil, water, biodiversity, infrastructure, etc.

Immaterial territory refers to the chain of ideas, theoretical concepts, ideologies and principles (Rosset and Martinez-Torres, 2012).

Critiquing re-peasantization, Soper (2020) maintains that emphasizing local foods system by peasants leads to essentializing peasants that disregard the interests of the millions of farmers who do not grow sustainable food for local economy. Peasant agriculture as the ecological way of food production obfuscates the class differentiation among the peasant categories and their struggle for government support to sustain their livelihood system. Further Soper (2020), contends that creating LFS through environmental sustainability ignores that certain peasants demand for access to resources to produce for export market and not use the resources for local production and consumption as postulated by food sovereignty movement. The author critiques against the 'peasant essentialism' that the TAM such as LVC and rural social movement actors propagates ignoring the heterogeneity of peasant class and term it as a political strategic tool by the movement actors. The author strongly notes that 'peasant agriculture should not be conflated with local agro-ecology' (Soper, 2020).

The food sovereignty movement emphasizes the discourse of localization with regards to local food system (Edelman et al, 2014; Holt-Gimenez, Patel and Shattuck, 2012; 2010; Pimbert, 2009; 2015; Soper, 2020; Wittman et al, 2010). Various alternate food system models have emerged in the global south, largely focusing on agro-ecology, localization (Martinez et al, 2010), equitable access (Chebrolu and Dutta, 2021) and building sustainable social and solidarity economies (Kumbamu, 2018), Zero Budget Natural Farming (Khadse and Rosset, 2019; Khadse et al., 2018), Food Sovereignty (LVC, 2005; Patel, 2009; Akram-Lodhi, 2013; Wittman et al, 2010) and Sustainable Agriculture. These models emphasize taking in place and network based context, issues and possibilities arising from regional food and agriculture system. The philosophical foundation of these models is guided by the principles of agro-ecology, democracy, inclusiveness, social justice, institutional innovations and socio-economic sustainability (Kumbamu, 2018; Chebrolu and Dutta, 2021).

However, in the Global South, local food system is understood from the perspective of transitions in the phases of agricultural development. Chebrolu and Dutta (2021) have emphasized the sustainable transitions in agriculture as a transformative innovation in the food system. Sustainability transitions is understood as a radical shift in scientific and technical knowledge, practices, values, and attitudes to new socio-technical systems (ibid). Sustainable

transitions in agriculture mark a shift from input-dependent industrial agriculture and involve focusing on socio-ecological dimensions, institutional reforms and innovations, building agency and changing relations between actors and social innovations to scalability (ibid). Sustainable Transitions in Global South stresses the need to engage with contextual issues and concerns arising from local arrangements in different places (Chebrolu and Dutta, 2021).

Zero-Budget Natural Farming<sup>6</sup> (ZBNF) signifies a social movement and a set of practices spread through peasant members and movement allies in 2002 in the state of Karnataka, India. ZBNF as an agro-ecological farming approach that grows food through improving soil fertility by removing the dependence of farmers on external inputs and credit markets to create independence from market structure (Khadse and Rosset, 2019). ZBNF is a rural movement which has membership spanning from urban middle class and that has rapidly spread among middle and small holding peasants. Convergence of ZBNF with the social organization of Karnataka, named Karnataka Rajya Raita Sangha (KRRS) has been a decisive factor in upscaling of the ZBNF. The ZBNF has now actively been taken up by many other Indian states like Andhra Pradesh, Kerala, and Himachal Pradesh.

Noteworthy is institutionalizing of ZBNF in state agriculture policy by the Andhra Pradesh government. By building ZBNF on a previously running agriculture program and leveraging on the strength of women collectives such as women SHGs and village level federations along with substantial bank-credit linkage is making the upscaling of the program effective in terms of providing additional income source and enhancing household food security. Supportive policy directives, adequate financing support and institutional changes are necessary to scale up sustainable agriculture. Emphasizing farmer focused methods such as participatory, farmer led and enabling learning system, creation of human and social capital along with farmer led approaches have been vital to policy backed transition to sustainable agriculture in India (Bharucha et al., 2002). However, association of ZBNF with Andhra Pradesh ZBNF (APZBNF)

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<sup>6</sup> Zero Budget Natural Farming (ZBNF), starting as a social movement in Karnataka in 2002 with its heavy presence especially among states of South India. The movement started at the grassroots level with combined efforts of peasant members and other movement supporting organizations. With agroecological principles and practices as its foundation, ZBNF is a farming approach that promotes growing food crops in an environment friendly and ecological manner. Please see Khadse, A., & Rosset, P. M. (2019). Zero Budget Natural Farming in India—from inception to institutionalization. *Agroecology and Sustainable Food Systems*, 43(7-8), 848-871.

is raising alarms over involvement of international funding agencies in APZBNF which is contradictory to visions of ZBNF to create autonomy from external sources. Need is to merge and work in collaboration with other forms of agroecology and develop group-based marketing approaches to scale up ZBNF in India (Khadse and Rosset, 2019; Khadse et al., 2017).

Khadse et al. (2018) observes that social factors such as networks, organizations, leadership, framing and discourse processes apart from focusing on farming practices are essential aspects for peasant movements to scale up agroecology approaches (Khadse et al., 2018). Centre for Sustainable Agriculture (CSA) that promotes social and solidarity economies strategizes through social innovations built on farmer's agro-ecological knowledge and institutional innovations such as organizing agricultural cooperatives and farmer groups along with creation of network-based coalitions at local and national level to influence civil society and state. CSA implements Community Managed Sustainable Agriculture (CMSA) by focusing on the economic and ecological dimension. By developing place-based activities such as building farmer's institutions, creating community based eco-enterprises, creating alternative marketing system and building networks to influence civil society and state agencies to incorporate the sustainable agricultural practices in agriculture policy discourse (Kumbamu, 2018).

## **1.5 Millets, Food Sovereignty and Women**

### **1.5.1 Contribution of millet to local agricultural production and food security before the onset of the Neoliberal order**

Millet is an indigenous crop native to tropical and sub-tropical lands. Millets, also known as ancient crop, form an integral part of subsistence agriculture practiced by indigenous communities in dry lands of India. Millets are small grained seeded plants, which are widely grown around the world. They are rightly called as wonder crops as water requirement for their growth is very less hence it holds considerable significance for semi-arid and rainfed agricultural areas. Millets are categorized into two groups (Millet Network of India, 2015; Rawat et al., 2021; Thaker and Dutta, 2016). The major group includes the commonly consumed varieties such as finger millet, pearl millet and sorghum. The minor group includes kodo millet, foxtail, brown top, little millet, barnyard millet, and proso millet (Fischer et al., 2016; Raina et al., 2022). By the nature of their easy adaptability to harsh climate, hilly agricultural regions and soil, requiring practically no inputs, they are often considered as climate resilient crops (WASSAN, 2012; Millet

Network of India, 2018).

Crops such as millets provide additional security in terms of grain, fodder, fibre, nutrition, health, livelihood and environment in an ecological way. Millets provide an excellent source of food and nutrition security particularly to households in dry and arid zones which is not suitable for growing any other crops especially the input intensive and ecologically demanding crops. Millets based biodiverse and mixed diet formed the largest food group prior to rice and wheat's entry into Indian food and agriculture system, especially in tribal hinterlands of India. In India, millets are used in traditional recipes for consumption purposes. Commonly used to make porridge, flatbreads, and baked items, its consumption varies from ragi porridge, an important staple in many tribal communities of India across states like Odisha, Kerala, and others to varied uses of minor millet for festive occasions in preparing special dishes, fermented drinks, traditional dishes such as chapati, roti, dosa, etc. and country liquor (Rawat et al., 2021; Tripathi and Vyas, 2023).

Indian agriculture is characterized by predominance of foodgrains in the cropping pattern. India constitutes 26.6% of the world's cropping area under millet making India the largest grower of millets in the world (Meena et al., 2021). India is the largest producer of millets in world (41.04%) followed by Niger (11.94%). From production perspective, area under sorghum, pearl millet, finger millet and total millets registered a positive growth during 1950-51 to 1980-81 and has subsequently declined post 1980-81. However, the production of total millets registered a positive growth from 1950-51 to 2011-2012 and this increase in production is mainly due to increase in yield per hectare during this period. Area under millets cultivation and its interaction with yield have adverse impact on production from 1950-51 to 2011-2012. Post 1980, growth in area under millets subsequently registered a negative growth (Malathi et al., 2016; Meena et al., 2021). Decrease of 80% area under small millets 46% for finger millet, followed by a 76% decrease in total production of small millets from 1961-1990 indicates the deplorable condition of small millets in India.

During 1962-65 to 1992-95, coarse cereals were the fifth crop in order that recorded the highest growth in yield and output after wheat, cotton, rapeseed and mustard and rice. However, 1980s showed major changes in cropping pattern of foodgrains in India. Area under wheat cultivation witnessed a phenomenal increase on one hand, whereas share of coarse cereals and pulses recorded a noted decline. This decline in area under coarse cereals to total cropped area is majorly recorded in northwestern states of Green Revolution belt and southern states and a small decline

in the central region (Bhalla and Singh, 1997). Apart from its consumption as a staple, its alternative uses include feed (cattle and poultry), alcohol and starch. Over the last six decades that is from 1950-51 to 2011-2012, contribution of millets in total foodgrain production of India reduced from 22.17% to 6.94%. Millets constituted a major crop grown in the era preceding Green Revolution. The Green Revolution shifted the focus to high yield varieties of mono crops such as rice and wheat.

### **1.5.2 Other crops taking over the ancestral practice of millet cultivation**

Millet cultivation is intensely associated with tribal culture primarily engaging tribal and indigenous communities in tribal regions. Indigenous communities engagement with millet ecosystem is credited with sustaining and reviving millet based biodiverse farming system along with preserving local seeds of diverse millet varieties and traditional knowledge of cultivation practices. The opening up of Indian economy to forces of global market in the 1990s has unleashed Neo-liberal economic reforms across crucial sectors. With the introduction of commercial crops such as cotton, wheat, eucalyptus, cashew and other plantation crops, neo-liberal economic regime has not only changed the economic sector but also brought about significant changes in socio-cultural sphere across different regions and class groups in India (Mohanty et al., 2023). Increasing commercialization is changing the agriculture and food system of the masses. Tribals are not left behind in the age of commercialization and their integration in market economy and commercial crop system is to meet the needs of education, health, farming inputs and to diversify livelihood sources. Importance of commercial crops, and good profit margins offered by commercial crops has shifted the outlook of households to choose commercial cultivation over food crops cultivation. Moreover, changes in social system of mutual cooperation and labour exchange to transactions of economic benefits within households to perform agricultural operations and materialism influenced by economic growth in tribal area inhabited by Kondh community have gradually enabled commercial crops to take over the practice of millet cultivation (Mohanty et al., 2023).

Furthermore, the Green Revolution was emphasized as the only way to achieve food security by increasing food production of food crops like wheat for the diverse population of India. In particular, the promotion of mono crops cultivation such as wheat, rice, and sugarcane (Finnis, 2008; Nelson et al., 2019) through various input and output measures by the government has

replaced the mixed crop farming system consisting of multiple cereals like millets, and pulses, oilseeds and other crops (Kumar, 2019; 2023). Agrarian policies undertaken by the government under Green Revolution, such as drastic falling of prices of traditional oils due to liberalized imports of soybean and palm oil and exclusion of pulses and oilseeds from support under green revolution resulted in farmers opting for rice, wheat and sugarcane that is included under the price, input, market and research and extension support of the green revolution framework. Moreover, the procurement system under PDS provided price support only to wheat and rice. This gave poor consumers access to cheap wheat and rice, that switched millet and gram consuming majority to wheat and rice along with shifting of area under millets and pulses to wheat and rice (Kumar, 2023).

### **1.5.3 Replacement of Millet and its effects on the Food System**

Food Sovereignty, often defined as the “right of local people to define their own food and agriculture system, including, market, ecological resources, food cultures and production modes” (Wittman, 2011). The underlying philosophy in the definition talks about autonomy of local population to frame their own food system and take control over social, economic, ecological, and environmental consequences intermingled with the production of food. Autonomy encompasses the ability of individuals or communities to make and control decisions related to food production and consumption guided not only by the principles of market but also aligning with the cultural appropriateness of food to local people, honoring their sense of well-being, identity and collective knowledge of food (Gould, 2004; Singh et al., 2017).

Industrial food system has implicated in domination of the ways in which food is produced and prepared, largely destructive to nature by using excessive chemical fertilizers and pesticides. Industrially produced food is increasingly becoming inappropriate for human consumption with reduced nutritional value and devoid of social connection between human, nature and ecology. Historical processes of colonization with its resource exploitative policies have largely devastated indigenous ways of producing, and consuming food through appropriation of land, commons and communal way of life.

Displacement of communal ways of growing and preparing food, central to the identity of indigenous communities, have increasingly made people dependent on market food creating a distance between the source and consumers. Moreover, increasing reliance on cash crops for

earning cash, as a result of Green Revolution, is subjected to ecological and financial risks leaving livelihood choices on a precarious scale (Shiva, 1991). Globalization of economies and liberalizing imports have flooded markets of developing economies with items such as refined sugar, packaged foods, coffee, white rice, etc, that has largely displaced most of the indigenous foods, having adverse health effects on local population.

Monocrop cultivation increasingly focusing on few cash and high market value crops in lieu of emphasizing diverse coarse cereals and other food sources, have reduced the importance of millets in household consumption. In particular, the reduced cultivation of nutritious minor millets varieties across various rainfed regions of India, has led to drastic disappearance of these crops that once formed the staple diet of the local people, with rice and wheat forming the main diet dominating as the lone food crop distributed through food distribution schemes of the country. Production for cash crop cultivation for integration with the market economy has taken over the autonomy of people to produce local food crops for better taste, dietary diversity and enhanced health outcomes (Finnis, 2008; Mohanty and Rajan, 2023). This transition has significantly impacted the agricultural biodiversity that is reflected in reduced household dietary diversity. The loss of dietary diversity has implications on losing control over fertility of soil and changing relationship of people with land by using fertilizers and pesticides to grow food. Moreover, increasing need to earn more cash is associated with expanding area under cultivation of cash crops that is only possible through measures of deforestation, changing local landscape and bringing fallow and grazing land and other sources of food such as forests, wastelands and common land under cultivation of high value crops.

The trends in the production of food grains since 1950s have significantly influenced the availability and consumption of food grains along with erosion of local food practices (Patnaik, 2017). The per capita availability of rice increased from 58.0kg/year in 1951 to 69.3 kg/year in 2017. Similarly, per capita availability of wheat increased from 24.0 kg/year in 1951 to 70.1 kg/year in 2017. On the other hand, production of other cereals such as millets and pulses have shown a declining trend. The trends in the production of food grains reveals an increase in production of finger millet from 1.70 MT in 1951-60 to 2.57 MT in 1981-90 but declined thereafter to 1.79 MT in 2011-2020 (Meena et al., 2021). Even though production of all millets except small millets has increased substantially during the period of 1950-51 to 2011-12 due to

an increase in yield, factors like rising incomes, growing urbanization and government policies favoring the production of wheat and rice is diverting the demand of millets from its consumption as staple to its alternative uses like feed (cattle and poultry), fodder, starch and alcohol. Alternative uses of millet now occupy more than 50% of millet production as against its consumption as a food source for humans (Malathi et al., 2016; Eliazar Nelson et al., 2019).

In terms of food availability, per capita net food availability has significantly increased in the context of rice and wheat. The per capita net availability of rice increased from 58.0 Kg per year to 69.3 Kg per year in 2017 and for wheat it increased from 24.0 Kg per year in 1951 to 70.1 Kg per year in 2017. However, decline in the per capita net food availability of millets from 40.0 Kg per year in 1951 to 27.0 Kg per year in 2017 and pulses over the years has caused a shift in consumption pattern of rural and urban households towards major cereals such as wheat and rice (Eliazar Nelson et al., 2019; Kumar, 2023).

Prior to 1960, Indian farmers grew diverse food crops across different soil type zones of the country, as a part of agroecologically suitable mixed cropping systems including cereals, pulses and oilseeds and other crops. But with the Green Revolution's package of credit, extension, input provision and fertilizer supply, farmers shifted their land producing diverse food crops to wheat, rice and other high value crops. The advent of the Green Revolution in the early 1960s in India has implicated in changing food scenario of the country (Finnis, 2008). Introduction of HYV seeds, fertilizers and enhanced irrigation facilities resulted in massive agricultural output of food grains, primarily, wheat, rice, and sugarcane in the north-western belt of India. This has resulted in significant decline in the area under cultivation for coarse cereals like millets and pulses restricting the consumption choices of consumers to mono crops like wheat and rice (Pandiyani et al., 2019; Kumar, 2023).

Exponential increasing production of wheat and rice led to domination of these crops on the Indian plate (John and Babu, 2021). In the name of creating food security for the masses, Green Revolution has created nutrition insecurity by skewing the food choices of the population to mono crops. Furthermore, fallow land, uncultivated land, common lands (grazing land, wetlands, forests, etc) were brought under mono crop cultivation under the incentives structure of Green Revolution Framework. This directly impacted the availability of food for many marginalized communities who depended on forests and uncultivated land for their food sources like fruits,

wild herbs and shrubs, greens, mushrooms and other forest products, that contributed significantly to their nutrition outcomes (Kumar, 2023).

The composition of Indian diet comprising mainly of wheat/ rice along with pulses, devoid of coarse cereals, fruits and vegetables and animal-based food items severely lacks in micronutrients such as iron, zinc, calcium, vitamin A, and protein. Even the rice and wheat distributed through PDS severely lack vitamins, minerals and other micronutrients required for maintaining proper nutrition (Kumar, 2023). Deficiency of these micronutrients among the population causes anemia, Keratomalacia, and blindness (Nelson et al., 2019). Anemia, an outcome of undernutrition among adults, resulting from inadequate consumption of iron rich diets has become a public health concern at present due to its increasing prevalence over time not only amongst adult women but also include children and adolescents. Other nutritional concerns include widespread persistence and high levels of child and maternal malnutrition despite rising incomes and increased food per capita availability (Kumar, 2023). With one-fifth to one-third of young children being malnourished reveals a high magnitude of stunting (Deaton and Dreze, 2009; Meenakshi, 2016).

Moreover, transition from consuming coarse cereals having complex carbohydrates to high glycemic index foods such as wheat and rice is shown to have increased incidences of diabetes amongst Indian population and anemia in Indian women (Pandiyani et al., 2019). As an aftermath of introduction of technology in food processing sector, excessive processing of rice and wheat has led to removal of nutritious layer containing essential nutrients like iron, and vitamin B. This led to loss of dietary fiber, vitamins, magnesium, minerals, phytoestrogens and phytic acids that protect against diabetes (Pandiyani et al., 2019; Kumar, 2023). With increased consumption of polished rice and wheat, Indians already face exponential risk of developing diabetes. Additionally, disappearance of nutritious grains such as amaranth, barley, sorghum, bajra, finger millet, and other whole grains from the diet of people have led to increased calorie intake at the cost of micronutrients, vitamins and minerals causing various health ailments such as obesity, malnutrition and other cardiovascular diseases. One of the major reasons behind increasing government and public attention towards reviving millets on plate is its contribution towards mitigating nutrition and addressing widespread health issues. Being rich in minerals and vitamins, phytoconstituents, and fibrous materials essential for normal growth, controlling diabetes and

overall health benefits of millets is widely documented (Eliazer Nelson et al., 2019; Nithiyantham et al., 2019).

Millet farming represent agricultural biodiversity sustaining which women farmers are key to building resilient community in the face of climate change and livelihood insecurity (AIMS, 2018). Reviving millet farming is gaining attention not only for its nutritional value but also because it represents the diversity and rich indigenous knowledge systems of our agricultural system (Satheesh, 2008; Millet Network, 2018). Deccan Development Society (DDS)<sup>7</sup> has been one of the pioneers in recognizing the importance of women farmers and thereby mobilizing women in agriculture. Acknowledging women's pivotal and immense contribution through decades in the struggle to sustain millet farming in India, has led to the creation of an entity "Millet Sisters" by DDS in the state of Telengana. Millet Sisters after few years of operation, came to be known as "The All India Millet Sisters" Network (AIMS) in 2016. AIMS is a network of millet sisters that represents the articulations, knowledge systems and leadership of women working at the grassroots in different parts of India.

## **1.6 National Policies on Millets in India**

### **1.6.1 Central institutions, schemes and impacts on millet promotion**

In earlier decades, post-independence, various millets-specific research institutes and directorates were established to cater to research on millets in the country. Indian Institute of Millets Research established in 1958; Directorate of Millets Development in 1971; and the International Crops Research Institute for the Semi-Arid Tropics in 1972 are few of the pioneer research institutes established to carry out extensive research on millets in the country (DHAN Foundation and WASSAN, 2012). However, millets were never given the same attention as was received by wheat and rice. The reason behind this is the largely prevalent centralized approach to national food security concerns through emphasizing the production and consumption of monocrops such as wheat and rice (DHAN Foundation and WASSAN, 2012). The All India Coordinated Research Project on Small Millets, formerly known as All India Coordinated Small Millets Improvement Project-AICSMIP, established in 1986 is one of the national-level initiatives launched concerning millets in the country. It was tasked with the responsibility to carry out planning, coordination

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<sup>7</sup> Deccan Development Society is a CSO working towards reviving millet based biodiverse traditional food system in the state of Telengana. The organization is explained in detail in later sections.

and implementing research in 14 centres to augment the production and productivity of seven small millets in the country.<sup>8</sup>

Initiative for Nutritional Security through Intensive Millets Promotion (INSIMP), introduced in 2011 as a sub-scheme of “Rashtriya Krishi Vikas Yojana” (RKVY), is the first comprehensive national program launched for millets development. It later got merged as a component of National Food Security Mission (NFSM) as NFSM-Coarse Cereals (NFSM-CC) from 2014-15 (Department of Agriculture, 2018). However, only districts with large crop area under millets (more than 10,000 ha area under sorghum and pearl millet, or more than 5,000 ha under finger millet or more than 2,000 ha area under small millets namely; barnyard, kodo, kutki, foxtail and proso) are eligible for support under the Scheme. The scheme came with a generic agricultural production enhancement approach with focus on input supply, neglecting the importance of other approaches to rainfed farming (ibid).

National Agricultural Insurance Scheme (NAIS), a Government sponsored crop insurance scheme under implementation in the country since rabi 1999-2000, provides insurance coverage and financial support to farmers in the event of crop failure as a result of natural calamities, pests and diseases. Millets are amongst the food crops which is provisioned under the scheme. Major shortcoming of such agricultural insurance schemes is the small and marginal farmer’s ignorance and their limited accessibility of such schemes (DHAN Foundation and WASSAN, 2012). The Rainfed Area Development Program (RADP) launched as a sub scheme of Rashtriya Krishi Vikas Yojana (RKVY) during 2011-12 to cater to the agricultural development needs of rainfed areas. The budget allocated for the scheme was Rs 250 crore. Though it was started as a holistic approach to rain-fed area development for the promotion of rainfed farming systems and integrated farming practices, there is no clear approach to promoting millets and farmers growing millets. Apart from finger millet and sorghum, other small millet finds no mention in the scheme (ibid).

The oldest national level scheme for supporting millets is “Macro Management of Agriculture” (MMA) operational since 2000. It includes 27 Centrally Sponsored Schemes which supports the agricultural development programs throughout the country. Millets are covered as a sub-category

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<sup>8</sup> For more information, please refer to [https://www.millets.res.in/aicrp\\_small.php](https://www.millets.res.in/aicrp_small.php)

of coarse cereals under the Integrated Cereals Development Programs in Coarse Cereals (ICDP-CC) based Cropping Systems Areas launched in 1994. Assistance is provided in the ratio of 90:10, 90% from central level, 10% being from states. Although the scheme provides extensive financial support to states, little has been utilized for millets. Among millets, finger millet is the only small millet receiving attention, other small millets are largely neglected (DHAN Foundation and WASSAN, 2012).

Sub-mission on Nutri-Cereals<sup>9</sup> as a component of existing NFSM-Coarse Cereals was launched since 2018-19. Coarse grains got positioned as “Nutri-Cereals” under the recommendation of NITI Aayog of the Government of India. Under the Sub-mission on Nutri-Cereals, low productivity districts, rain fed areas, fallow lands and waste lands were prioritized for cultivation, promotion and extension of improved technologies for increasing production and enhancing soil management (Department of Agriculture, 2018). In the year 2013, National Food Security Act (NFSA) was a significant step in covering “coarse cereals” as food grains. The act marks a paradigm shift from welfare to rights-based approach, where coarse grains were made available at a subsidized price of Re 1 (Department of Agriculture, 2018).

However, NFSM follows the green revolution approach towards promoting millets, where only select districts were undertaken for support under the Mission<sup>10</sup>. This has an exclusionary effect on farmers from others areas along with small and marginal farmers who are unable to afford input intensive cultivation. The strategy of the Mission is to promote millets in a mono-culture fashion adopting resource intensive approach for cultivation of millets that neglects the diversified farming practices of farmers. Moreover, no specific approach is being followed for improving consumption of millets (Department of Agriculture, 2018).

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<sup>9</sup> The Sub-mission guides the framework for production and marketing of millets in India. Launched with an outlay of Rs 300 crore for the year 2018-19 and implemented in 212 districts of 14 states, the Sub-Mission on Nutri-Cereals covers sorghum (Jowar), pearl millet (Bajra), finger millet (Ragi) and small millets such as little millet (kutki), kodo millet (kodo), barnyard millet (Sawa), foxtail millet (Kangni), proso millet (Cheena). Increasing production of nutri-cereals through area expansion and productivity enhancement in identified districts, strengthening seed supply system of nutri-cereals, enhancing post-value addition for better price realization to farmers are some of the objectives of the sub-mission.

<sup>10</sup> Only those districts having more than 10,000 ha area under jowar and bajra and 5,000 ha area for finger millet and 2,000 ha for small millets are included for support under the Mission.

Under the One District One Product approach (ODOP), each district<sup>11</sup> can choose a product to leverage the technical, financial and business support. Millet based products<sup>12</sup> appear to be one category of produce eligible for support. India declared the year 2018 as National Year of Millets to bring focus on benefits of millets. This was the first step towards emphasizing millets with a Mission approach for expansion of production and consumption. Sponsored by India and supported by more than 70 countries, United Nations General Assembly declare the year **2023** to be observed as the International Year of Millets. India is at the forefront of popularizing millets that aims at creating local and global demand for millets (see **Table 1.1**).

**Table 1.1** National institutions and missions on millets in India

Institutes and Schemes	Year of implementation
IIMR (IIMR)	1958
Directorate of Millets Development	1971
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	1972
The All India Coordinated Research Project on Small Millets (AICRPSM)	1986
Integrated Cereals Development Programs (ICDP-CC)	1994
National Agricultural Insurance Scheme	1999
Macro Management of Agriculture (MMA)	2000
Initiative for Nutritional Security IMP (INSIMP)	2011
Rainfed Areas Development Program (RADP)	2011-2012
National Food Security Act (NFSA)	2013
National Nutri-cereals Mission	2018
National Year of Millets	2018
International Year of Millets	2023

*Source:* Author's compilation

<sup>11</sup> The ODOP approach is adopted under a centrally sponsored scheme called the PM Formalization of Micro Food Enterprises (PM FME) launched in 2020 by the Ministry of Food Processing Industries (MoFPI) under the Atmanirbhar Bharat Abhiyan. The scheme provides financial, technical, and business support for the enhancement of existing micro food processing enterprises in unorganized segment of the food processing industry. The scheme adopts the One District One Product (ODOP) approach to reap the benefit of scale in terms of procurement of inputs, availing common services, and marketing of products.

<sup>12</sup> An ODOP product (agriculture product, cereal based or a food product widely produced in the district) is identified in respective states with the help of a baseline study.

## 1.6.2 State initiatives to promote millets- Karnataka, Maharashtra, Chhattisgarh and Andhra Pradesh

“Kodo kutki hatao soyabean lagao”<sup>13</sup> (meaning: stop cultivating local and minor varieties of millets and start producing soyabean<sup>14</sup>) a popular slogan in the central India during the early 2000s strongly encouraged millet farmers to move from cultivating millets to oilseed cultivation. In the past decade, millets have garnered considerable state and centre’s attention in adopting mission mode for its revival. Organic cultivation of millets is being promoted by many state governments including Karnataka, Odisha and Andhra Pradesh. This is a diversion, that I can see, from the Nutri-Cereals Mission of NFSM that emphasizes productivity enhancement approach with demonstrations of agricultural practices.

The most important aspect evident in the state programs is their convergence with state’s other schemes and the state’s willingness to learn from each other. Procurement at MSP to millet farmers is a positive start to encourage millet farmers. Collaboration of state government with and support from national research institutes such as IIMR and other development agencies for providing input assistance, processing, market development and capacity building assures overall development of the millet value chain. The learnings from these state government initiatives is that millets revival and promotion is looked at in a holistic manner and not just production centric. Apart from focusing on productivity enhancement issues, market linkage and value addition of millet-based products are also taken into consideration.

Amongst many states, the millet programs of following states, Karnataka, Andhra Pradesh, Maharashtra, and Chhattisgarh, which the government has initiated in their state budget are noteworthy.

*Karnataka:* Karnataka is a state known for its long history of millets. The Department of Agriculture looking after the production and promotion of millets extensively promotes organic and natural farming in the state since 2 decades now. A “State Policy on Organic Farming”

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<sup>13</sup> This slogan popularized during 2000s in central India implies to discard cultivating minor millets and shift to oilseeds cultivation. Green revolution replaced the coarse grains like millet and shift the emphasis to monocrops such as wheat and rice.

<sup>14</sup> Soyabean is one of the pre-dominant oilseed varieties in United States.

launched in the year 2004 has influenced many forthcoming schemes and programs to promote organic farming in the state. Adoption of Organic Cluster Formation Approach under Savayava Bhagya Yojana (SBY)<sup>15</sup> for agricultural produce in the state included millets. Implemented in 566 hoblis<sup>16</sup> in an area of 63,677 ha involving 53,829 farmers in Karnataka<sup>17</sup>, the project organizes the farmers into associations, develops marketing linkages and promotes organic cultivation of agricultural produce, which is ultimately managed by the state government.

Under the Raitha Siri Scheme launched in 2019-20, financial assistance of Rs 10,000 per hectare motivates millet farmers to cultivate minor millets in the state.<sup>18</sup> The state has been a pioneer in establishing a millet hub of the country along with organic farming has inspired and shaped the agricultural schemes of the state post 2004. Formation of 14 Regional Federations as a result, consisting of organic producers has facilitated value addition, marketing and processing facilities for agricultural produce including millets.

Zero-Budget Natural Farming (ZBNF) adopted by the State Department of Agriculture in 2018-19 and implemented in all the 10 agro-climatic zones of the state shows the willingness and commitment of the state government to promote local food crops through agro-ecology. ‘Sahaja Samrudha,’ an Organic Farmers Association of Karnataka grown into people’s movement for safeguarding agrobiodiversity, building sustainable villages and ensuring future food in an organic way<sup>19</sup> is a leading example of state’s collaboration with farmers by facilitating a complete value chain of millets procurement including marketing, eco-friendly packaging, distribution and quality maintenance (United Nations World Food Programme, 2021). Karnataka became the first state to include ragi and jowar in PDS system of the state through local sourcing and distribution and that has enabled Karnataka to spearhead the Millet movement in the country.

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<sup>15</sup> SBY started during 2013-14 is an extension of the earlier Organic Farming Village implemented at cluster level in coordination with NGOs to organize farmers of each project area into Organic Farmers Cluster.

<sup>16</sup> A cluster of adjoining villages

<sup>17</sup> Please refer for more information to <https://www.organics-millets.in/index.php>

<sup>18</sup> Raitha Siri is a scheme for farmers launched by the state government of Karnataka to encourage organic farmers to cultivate minor millets. For more information, please refer to the website. <https://www.indiafilings.com/learn/raitha-siri-scheme>

<sup>19</sup> Sahaja Samrudha is a group of people’s representatives that aim to promote sustainable agriculture and conserve traditional knowledge systems. For more details about Sahaja Smrudha, please go through their webpage. <https://www.sahajasamrudha.org/>

*Maharashtra:* The government of Maharashtra promotes millet cultivation through Pragati Abhiyan drive. Rapid decline in ragi production and its diminishing importance in people's diet encouraged a CSO Pragati Abhiyan to initiate the millet promotion program through introducing improved agronomic practices for ragi cultivation through awareness, training, and hand-holding farmers throughout cultivation, harvesting and processing stages in four tribal dominated districts of Nashik, Thane, Palghar and Raigad in collaboration with the state government. Implemented by the state Tribal Department in convergence with national and state schemes the program covers 2000 farmers of 50 villages to cultivate Jowar, Bajra, Ragi in 2000 acres of land to revive millet cultivation in areas under Panchayats Extensions to the Scheduled Areas Act (PESA), 1996 (Jog, 2019).

*Chattisgarh:* Millet Mission of Chattisgarh launched in September 2021 promotes millet cultivation by extending input assistance, procurement arrangements, processing and other benefits to farmers cultivating minor millets. The State Minor Forest Produce Federation facilitating collection, marketing, processing and procurement of kodo (pearl millet) and kutki (little millet) encourage farmers to cultivate minor millets in accordance with agro-ecological conditions favorable for their growth. An MoU signed between IIMR and the District Collectors from 14 districts for Millet Mission extends support and guidance to farmers of the state for increasing the productivity of millets like Kodo, Kutki and Ragi<sup>20</sup>, help in technical know-how, availability of high quality seeds, providing employment to farmers, women and youths, and establishment of seed bank in the state (Drolia, 2021). Inclusion of minor millets in state food programs along with procurement at MSP is a step further in the direction of increasing production and creating demand for these nutritious millets.

Incentivizing millet cultivation by providing an input assistance of Rs 9,000 per acre and Rs 10,000 for farmers choosing millets cultivation over paddy is creating a positive environment to promote millets cultivation in the state. Association of CSO named The National Institute of Women, Child and Youth Development and WSHGs in working with over 500 farmers in eight villages of Pendra district to cultivate millets on 0.2 hectare each and spreading awareness about

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<sup>20</sup> These are the local and abundant varieties found across India with different local names in different states of India.

the benefits of growing and consuming millets reflects the significance of involving local communities in reviving a lost food crop (Niyogi, 2021).

*Andhra Pradesh:* Comprehensive Revival of Millets Program initiated in collaboration with the Department of Agriculture, Government of Andhra Pradesh in tribal and dryland areas in February 2016 is taken up in 7 districts of the state in collaboration with civil society partners on ground. Guided by a CSO, WASSAN, as the lead technical agency and covering an area of 30,351 ha, the program with support from National Food Security Mission work on increasing millet acreage, production and productivity, address processing constraints, providing assured marketing for the produce, and work on value addition aspects. Prioritizing exploring the local millets varieties through conducting Participatory Varietal Trials (PVTs) (Niyogi, 2020) ensures that farmer preferred variety of seeds is selected and multiplied for distribution to other farmers for mass production. (Niyogi, 2020). By involving WSHGs in cultivation, promotion and consumption of millets, women farmers are encouraged to take up millet farming. Organizing village-level seed festivals has been significant in supplying farmers with different seed varieties along with exchanging seeds within communities (Niyogi, 2018).

### **1.6.3 Civil Society Organizations initiatives in millet promotion**

In some states, like Odisha, Andhra Pradesh, Telengana, and Tamil Nadu, program is implemented with the support of a non-profit organization. The focus areas of non-profit organizations in reviving millets in these states is conservation and promotion of local agrobiodiversity through involving local communities to make it a sustainable initiative. Whereas, at national level, policies focusing on cultivation, consumption, processing, marketing and value addition of small millets is negligible.

In the tribal Mandla district of Madhya Pradesh, the non-profit Action for Social Advancement (ASA) intervening in around 30-40 villages facilitates processing infrastructure and procuring processing units to ease the cleaning of millets marks the ongoing efforts of the government of Madhya Pradesh to encourage millet farming. However, processing of small millets still remains a big challenge (Niyogi, 2018).

MS Swaminathan Research Foundation (MSSRF), an organization in Namakkal district of Tamil Nadu working with poor women since 1994 in rural areas has contributed towards enhancing livelihood opportunities by promoting traditional millet farming through women collectives. MSSRF's engagement for the past two-three decades in the district in the fields of agriculture, food security, nutrition, and conserving and promoting local agro-biodiversity has involved local communities to work towards their development. Under the program to conserve small millets in Kolli hills, Community Seed Banks act as a seed and knowledge exchange network by institutionalizing the CSB as a community resource (King, Kumar and Padulosi, 2015).

Another intervention of MSSRF caters to marketing of minor millets. Market access for underutilized crops such as millets and their local varieties is ensured through market development through collective action. Collective action involves women collectives such as SHGs in charge of procuring millet from farmers; de-husking and processing and to manage value addition process before sending the products to the retailers (Gruère, Nagarajan and King, 2007). The Kolli Hills Agro-biodiversity Conservers Federation, commonly known as KHABCoFED, a social enterprise comprising of self-help groups, farmers interest groups, and millet farmers from villages of Kolli Hills in Namakkal district of Tamil Nadu market millets. The federation manages and promotes local agro-biodiversity comprising of local small millets varieties. The underlying principle of the federation rests upon the “farm to fork” ideology of the “four C”, which include, conservation, cultivation, commercialization and consumption of the region's local produce. Majority of the federation's members include women, which sustains and improve women's livelihoods (King, Kumar and Padulosi, 2015).

A collective enterprise “The Neelamma Talli bakery” run by Chinnayya Adivasi Vikas Sangam (CAVS) in Srikakulam district of Andhra Pradesh presents an alternative wherein production and the value chain of millet is revived to improve nutrition of women and children in tribal areas of Andhra Pradesh. The bakery supplies ragi and multigrain biscuits to school children of the Integrated Tribal Development Agency (ITDA) hostels and government schools in Srikakulam. At a time when government was propagating and encouraging farmers to go for mono-culture, CAVS in the past two decades, strengthened collective institutions and revived millet cultivation in 200 acres by encouraging the Gram Sabha to collect traditional seeds of the region. CAVS is

one of the organization to introduce improved cultivation practices such as Guli Ragi<sup>21</sup> and SMI techniques to improve the productivity (The Logical Indian, 2019).

### **1.7 Farmers, Access to Food, and Alternative Agriculture in India**

Food sovereignty is still a new concept in India when it comes to its usage in practice and discourse within the context of food movement or its intersections with other sectors such as agrarian studies, political economy of development, livelihood studies, and food security. The narrative of food sovereignty is limited in use either by policy makers or in the common platform involving community groups, the public or the small scale community organizations working in rural areas. Under this sub-section, major actors, points of contention and trends surrounding or related to food issues and food sovereignty are highlighted.

The role of NGOs, CSOs and their coalitions has been pioneer when it comes to articulation of cultivation, conservation of indigenous species, production and consumption related aspects of millets and other such diversified crops of rainfed agriculture predominant areas, at the state and national level (Saxena, 2020; Raina et al, 2022; Trivedi, 2022). Some of the coalitions of CSOs and its networks that played a crucial role in mainstreaming the concerns of sustainable agricultural livelihood and farmer's freedom include Revitalization of Rainfed Agriculture Network (RRA-N), Alliance for Sustainable and Holistic Agriculture (ASHA), Deccan Development Society (DDS) and MS Swaminathan Research Foundation (MSSRF).

The right to food discourse under the social security system backed by the 'rights based approach' with its foundation on giving power to the marginalized sections of the society secure access to food of its citizens (Dréze and Khera, 2017; Guha-Khasnobis and Vivek, 2007). The social security system specifically concerning access to food provides school meals in the form of Mid-Day Meals, Integrated Child Development Services (ICDS), food subsidies under Public Distribution System (PDS), and guarantee for employment under NREGA.

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<sup>21</sup> Guli method of finger millet cultivation was developed by the farmers of Haveri district of Karnataka. This method has substantially contributed to yield enhancement due to increased number of tillers per plant. For more information, please refer to Triveni et al. 'Guli/Guni/Netti method: A boon to Finger millet cultivation in virgin fertile soils'. All India Coordinated Research Project on Small millets. Agricultural Research Station, Andhra Pradesh. [https://www.millets.res.in/pub/2021/one\\_8th\\_Book.pdf](https://www.millets.res.in/pub/2021/one_8th_Book.pdf)

The NFSA, 2013 consolidates the food provision legislations in India. The act ensures the right to food for its citizens through the PDS. This act provides for food and nutrition security through four existing programmes. They are: Targeted Public Distribution System (TPDS), the Integrated Child Development Services (ICDS), the Mid Day Meal (MDM) and the Indira Gandhi Matritva Sahyog Yojana (IGMSY)<sup>22</sup> (Puri, 2017; Pingali et al., 2017; Mitra and Rahman, 2017). Millets is included as a food crop to be distributed under Public Distribution System (PDS) in India. Inclusion of millets in NFSA would boost the livelihood of millet growers in rainfed areas along with ensuring nutrition security of the masses by diversifying the food basket of procurement from wheat, rice and sugar to include millets, oilseeds, and pulses. Assured MSP for millets and other cereals would shift the land under cash crop to producing millets (Banerjee, 2011).

Raju et al. (2018) observe that the scheme of millet procurement introduced by the Karnataka government in 2013-14 and its distribution through PDS did not meet with success. Between 2005-15, area under millet has declined in the four districts of Dharwad, Mandya, Gadag and Tumkur. Even after farmers reporting MSP to be higher than the open market price and the government offering 20-25% bonus on the MSP of finger and sorghum, low levels of procurement from farmers, limited opening window of procurement channel at the current level of production low distribution of millets along with rice consumption replacing millet consumption are some of the difficulties encountered in procurement and distribution of millets under PDS in Karnataka. Delays in payment received by the farmers is the primary reason farmers do not wish to sell to government (Raju et al, 2018).

The farmer's protests at the national capital demanding to repeal the new farm legislations passed in September 2020 witnessing mass farmers and leadership participation across different north Indian states of Punjab, Haryana, and Western Uttar Pradesh is one of the largest farmer's mobilizations against the corporate form of agriculture (Ramdas, 2021). Passing of new farm laws amidst the covid pandemic lockdown in 2020 in India, witnessed farmer's mobilization against the government's intention to privatize the agriculture market (Sinha, 2020). The major factor underlying overwhelming agitation by the population involved in farming in India is the

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<sup>22</sup> For more information on the provisions of these schemes, please refer to Dréze and Khera (2017). "Recent social security initiatives in India." World Development Review.

Guha-Khasnobis and Vivek (2007). "The rights-based approach to development: Lessons from the right to food movement in India.

major distrust expressed by farming communities on workings of the government for the welfare of the farmers (Agarwal, 2020). The major fears prevalent amongst Indian farmers is loosing on regulated price mechanism provided by the procurement of food grains at MSP and the domination of private players in the unregulated market.

Factors related to ecology, livelihood security, nutrition, equity, sustainability, and culture apart from focusing at improving efficiency of agriculture markets have emerged as the basis of agriculture reforms for farmers. Exclusive focus to promote agricultural marketing system would go against the agro-ecological diversity of India further deteriorating the conditions of small and marginal farmers which form 86% of India's farmers (Agrawal and Kumar, 2021).

Considerable ambiguousness surrounds the issue of understanding of farmer's rights in India. Farmer's right is widely understood in two scenarios. The first approach relates to the context of IPR. IPR defines farmer's access, and control over productive resources, especially rights related to use, sharing, exchanging and selling of seeds and the associated knowledge (Peschard, 2014; Bisht et al, 2018). The second approach views farmer's rights as a development right inclusive of wide range of concerns from food security, food sovereignty, livelihood security, to access to resources, etc (Bisht et al, 2018). The debate surrounding farmer's rights draws from its problematic relationship with Intellectual Property Rights (IPRs) over plant varieties. Even after PPV&FR becoming an act, its implementation in India is surrounded by controversies. Peschard argues that shortcomings in the implementation of PPV&FR relates to the ambiguous role played by the Indian state, which differs in its position with respect to farmer's rights in international forums and actions in domestic space. Contradictory actions taken by India in realization of the act and lack of political will on the state's part has led to the development of a major distrust between the NGOs, activists, farmers and the government (Peschard, 2014).

Several organizations working around the concept of food sovereignty have given directions to different components of the food sovereignty movement that connects the concerns of small and marginal farmers across India. Navdanya<sup>23</sup> a non-profit organization founded in 1987, work towards preserving open-pollinated seeds and educating farmers on agro-ecological farming methods (Trauger, 2015). The organization rejects the neo-liberal agricultural policies by

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<sup>23</sup> For more information, please see <http://www.navdanya.org/living-seed/navdanya-seed-banks>)

propagating knowledge sovereignty that emphasizes diversity in nature and polyculture while practicing sustainable agriculture and food sovereignty. Navdanya promotes conservation of traditional seed varieties, save them from extinction and support farming community towards conserving and cultivating the traditional varieties of crops in an agro-ecological manner (Trauger, 2015; Cruz and Fliert, 2022).

DDS a three and half decade old grassroots organization working in about 75 villages with women voluntary groups (women sanghams) is committed to making communities autonomous by building the foundation of local sovereignty by ensuring access to and control over local food production system (Dutta and Thaker, 2019). A major work of DDS focusses on reviving the lost crop, millet, as it forms an important part of traditional food system of the dalit and other marginalized communities in Zaheerabad. Millet got replaced with the introduction of major crops like rice and wheat in PDS (WASSAN, 2012; Women Sanghams of the DDS et al., 1999). Community Seed Banks, led by women sanghams, secure community access to and control over food production and consumption and create local food self-sufficiency (Patnaik, et al, 2017). The Biodiversity festival initiated in 1999 plays a significant role in celebrating farming culture of communities that strengthens the local knowledge system, displays diversity of local food system and importance of biodiversity conservation among local communities (Kumbamu, 2012; Mazhar et al, 2007).

The Millet Network of India (MINI), a network institutionalized by DDS in 2007 has been strongly associated with bringing out debates concerning millets in food and nutrition security in India since 2008. The network is known for its advocacy and pressurizing the government to include millets in Public Distribution System.

Alliance for Sustainable and Holistic Agriculture (ASHA) is a national based network of around 400 organizations (Kumbamu, 2018). Formed in 2010, these organizations having nationwide presence are mobilized to form an alliance around three core aspects of food, farmers and freedom. Strengthening agriculture based sustainable livelihoods by influencing central, state governments and civil society organizations to formulate policies related to sustainable agriculture forms the core strategy of ASHA. ASHA spearheads a food safety movement called 'India for Safe Food' that brings awareness amongst producers, consumers and the government

towards harmful effects of chemical pesticides and toxins in food, make government accountable to ensure access to safe food for all.

The Food Sovereignty Alliance of India, formed in 2013, presents a site of assertion whereby adivasis, dalits, peasants, fisherfolks and pastoralists are bridged together to defend their control over resources and food. The Alliance practice food sovereignty through engaging community in action and reflection processes and intergenerational sharing of knowledge. Various groups such as Adivasi Aikya Vedika, and the Dalit Mahila Sangham in Andhra Pradesh are struggling to assert control over their land and forest resources against the government's strategy to convert fertile tracts of land into GMO and pesticide intensive farming. Similarly, the Deccani Gorrela Mekala Pempakadarula Sangham has been organizing to sustain their rights to common property resources and traditional livelihoods<sup>24</sup>.

### **1.8 The context of Development in Nagaland**

The state of Nagaland operates and functions under the Article 371A of the Indian constitution. Under this article, union government grant special provisions to function under the customary laws governing the social and economic practices of people, the economic resources and overall development of the state. However, Nagaland primarily being an agriculture dependent society with negligible contribution towards the national GDP, characterizes a stage of stagnant economic development. With other states of the country adopting neo-liberal regime, aspirations of the state government to follow the path of neo-liberal development often collides with the inherent and dominant customary tribal institutions. The economy of Nagaland is crippled with poor infrastructure, high rates of unemployment and poverty (Kikon, 2015; Walling and Humtsoe, 2021).

Development discourse in the state has largely been concerned with militarization issues, internal security and development nexus, and troubled identity issues (Kikon, 2015; Mishra and Upadhyay, 2017 cited in Walling and Humtsoe, 2021) and troubled 'centre-periphery relations' (Walling and Humtsoe, 2021). The Indo-Naga political talks, doing the rounds for many years now, centres around claims of land and resources. However, noted academician writing

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<sup>24</sup> For a detailed information on more such groups practicing food sovereignty please refer to LEISA INDIA's article on Seeds of resistance for food sovereignty. <https://leisaindia.org/seeds-of-resistance-for-food-sovereignty/>.

prolifically on development issues of Nagaland, Kikon (2015) contend that demands for employment opportunities, equitable distribution of resources, and provision of and access to basic services and resources count significantly apart from the demands for a 'sovereign homeland' for development of the state (Kikon, 2015).

Before the conquest of Nagas by the British force, the life of a Naga revolved around his village, family and clan and organization of agriculture was the centre of Naga world with diversity between different tribes (Chasie, 2005). Advent of the British administration in 1832, and exposure of Naga society to outside world brought profound changes to the traditional structures and institutions followed by the Naga people. This led to the reduced autonomy of Naga-village state. Subsequent failure of centralized election system due to absence of proper education and lack of comprehension has left Nagas utterly confused about their identity and created a sense of insecurity in them about the change of events (Chasie, 2005).

Introduction of money economy and election system to elect the traditional leaders dismantled the egalitarian values of Naga society. Changes in the social and economic structures of the traditional Naga society, brought about by Christian missionaries with the introduction of modern education, church system and 'eviling' traditional practices have created identity issues further eroding the traditional belief system, which the Nagas held on to for a long period of time (Chasie, 2005). Post independence and Nagaland becoming a state, locals started seeing India as an external agent with a discriminatory approach towards Naga people. Under the influence of these changes in the way of living and Nagas unable to comprehend and assimilate the changes, locals retaliated for sovereignty from the government of India. Holding on to the cause of a common Naga identity influenced small factions to use violence and destruction to claim for an independent land as means to attain a sovereign state. This is making finding a common solution quite difficult in the event of Indo-Naga political turmoil (Chasie, 2005).

In similar context, Das (2020) demonstrates how evangelical work and subsequent adaptations of Christianity by the villagers of Yimchungrü in Tuensang district of Nagaland has impelled social change by control over land and labour by a monopolistic institution. The author further bases these changes on the adoption of a new faith rather by a simplistic "modernization project." Wide dissemination of Wet Terrace Rice Cultivation (WTRC) under a modernization project along with diffusion of a new faith by missionaries since the late 1950s has introduced rice as the

crop of the civilization. Rice cultivation that took place under individualized ownership of land linked to the changed labour relations by the church replaced millets, jobstears and maize cultivation in jhum lands whereby farming involves labour of the whole community (Das, 2020).

Contradictions and contestations resulting from collision of old tribal institutions and modern economic systems lie at the core of the failed attempts of the state government to take the state forward on the path of development (Chasie, 2005; Walling and Humtsoe, 2021). Apart from inaccessible hilly terrains and insurgent laden society, the lack of enabling environment for industrialization, and absence of required infrastructure obstructs the state to tread along the path of development. Moreover, the institutional structure of a tribal economy does not support the market led development processes in the state. Corruption prevalent the state, lack of accountability and people's non-cooperation with the state for development projects reflects people's distrust towards government as an external agency in their welfare (Walling and Humtsoe, 2011).

Issues of fragility, marginality, inaccessibility and heterogeneous culture and underdeveloped market and infrastructure are long been considered as the reasons behind backwardness of the northeastern region (Giribabu M, 2013). The Northeast India comprising of eight states of Assam, Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Arunachal Pradesh and Sikkim constitute 8% of the total land area and form about 4% of the total population of the country (Giribabu, 2013). The mixed farming system is the widely practiced form of cultivation with the production system being subsistence in nature and low cropping intensity (Giribabu M, 2013). The major question surrounding food and agriculture concern with issues of sustainable agriculture development with safeguarding biodiversity aiming to prioritize food security and protecting traditional food system of the region (Das and Basu, 2019)<sup>25</sup>.

Along with Shifting cultivation, locally known as Jhum cultivation, being the widely practiced and the main form of agriculture in the North East, the region displays diversity in types of farming systems practiced among the native communities. Settled cultivation (paddy and non-paddy based), plantation (traditional as well as cash crop based), homestead gardening, community farming system, agroforestry and traditional

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<sup>25</sup> For more information, please refer to "Agriculture and Food Sovereignty: Challenges and Opportunities in North East India. A Discussion paper by Focus on the Global South, ActionAid, Solidarity for Sustainable North East in Collaboration with Rosa Luxemburg Stiftung-South Asia. (2019).

kinds of jhum cultivation constitute diverse farming systems that contribute to rich agrobiodiversity of the region. These farming systems exhibit an intimate connection with land and nature that intersects with socio-cultural life of the inhabitants (Das et al., 2012).

The debate on jhum cultivation has two aspects. The first argument comprising of scientists and administrators considers Jhum farming to be primitive and ecologically destructive. They argue for shifting from jhum to more permanent forms of cultivation. The second view argues that shifting cultivation is grounded on ecological principles based on traditional knowledge developed by the communities over the years of coexistence with nature. According to them, jhum farming forms a sustainable method of cultivating diverse food needs of the households along with safeguarding traditional agricultural practices and indigenous crops (Das and Basu, 2019). However, the region is facing severe food insecurity issues as the production (6.5 million tonnes) falls short of meeting 8.5 million tonnes of requirement (ICAR, 2010 as quoted in Giribabu M, 2013). Moreover, wide variations among the states of NER (North East Region) in availability of food per capita, with highest being Arunachal Pradesh followed by extreme low in Assam and Mizoram further confirms the deplorable food accessibility scenario of the region. In spite of the northeastern region being endowed with abundant natural resources, food unavailability and its uneven distribution has together contributed to failure in access to food (Giribabu M, 2013).

Northeast India is known for its rich biodiversity and varied agro-climatic zone. Civil Society Organizations (CSOs) working with communities to strengthen community resilience against climatic and industrialized agriculture is highly active in northeastern India. North-East Society for Agroecology Support (NESFAS), is an indigenous grassroots organization established in 2012. Working closely with indigenous communities of Meghalaya and Nagaland in Northeast India on the wide ranging issues of food security and sovereignty, promoting local sustainable livelihoods, and health and nutrition aims to safeguard, revitalize and promote Indigenous Peoples Food Systems. While the Northeastern India is known for its biodiversity, diverse food varieties find its source in natural environment such as land, water, forest, etc. Safeguarding and promoting traditional food sources and seeds are the key areas where CSOs working on food system intervene. CARITAS India, a development organization is intervening in the seven states of north east through FARM Northeast program. Focusing on income generation activities through agriculture, local communities are empowered to revive traditional farming system, agricultural practices and traditional governance of the people belonging to the region.

However, due to current emphasis on market based cash crops and plantation drives in most of the states of NER, state governments are focusing on income generating activities on settled land. This persuades farmers to shift the attention from producing food crops to cater to market based cash crops based on profit.

### **1.9 Development context of Odisha**

Located in the eastern coast of India, the state presents a paradox in terms of being among the poorest states of India scoring lowest in social and economic indicators of development on one hand and the state being a rich possessor of mineral wealth and other natural resources on the other hand. The coastal-inland divide and the issue of upper and powerful caste dominance are the two aspects describing the political economy of development in the state. The spatial specificities of the economy and social structure of the state are the two lines to look at the post-colonial development scenario of Odisha (Mishra, 2023; Sarkar et al., 2022).

Geographical differences between coastal and interior areas, specific forms of historical transitions and the regional unevenness within the state define the spatial specificities of development in the state. While the dominance of upper castes and relative deprivation of the adivasis and dalits describes the unchanged social structure of Odisha that has shaped the processes of development in the state<sup>26</sup>. Disproportionate high concentration of poverty among the SC and ST groups in the interior belt of Odisha as compared to the coastal belt points to regional and social concentration of poverty in the state. Concentration of political power in coastal region, historical accounts of colonial regime, differences in geographical features and the in-flow of extractive capital into resource rich poor tribal areas have contributed to uneven development between tribal inlands and relatively prosperous coastal belt (Kumar, 2014; Mishra, 2023).

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<sup>26</sup> This section draws majorly from the work of Deepak. K. Mishra. For more information, please refer to the book chapter authored by D. K. Mishra, 2023 titled as, “The Political Economy of Poverty and Uneven Development The Case of Odisha, India. The book is titled as Global Poverty: Rethinking Causality.

Odisha's agriculture is mainly rain-fed with poorly developed irrigation facilities (Sarkar et al., 2022; Garg et al., 2022). Population belonging to Scheduled Tribes constitute about 23% and are mostly confined to the north-western and southern belt of the state. The Scheduled Caste group form 16% of the state's total population. Unlike the ST, SC's population is confined to four main districts of Balasore, Cuttack, Ganjam and Puri (Orissa Human Development Report, 2004). Population belonging to ST group derive their livelihood from traditional sources with a majority practicing forest gathering activities (Orissa Human Development Report, 2004). However, Odisha being the poor performer in all the social and economic development indicators (Mishra, 2023) and the state being ranked lowest in the Human Development Index according to Orissa Human Development Report (2004) reflects the grim scenario of poverty, starvation related deaths and chronic malnutrition prevalent in Odisha (Mishra, 2023).

Prior to 1947, colonial nature of revenue extraction system had neglected the rural economy leading to poor agriculture and industrial growth. Post-independence, uneven regional development, poverty and backwardness of tribal regions led to food insecurity issues (Sarkar et al., 2022). Establishment of dams, public sector industries and defense constructions in the period post India's independence from 1950s to 1980s have witnessed large scale displacement of tribal population along with land alienation. Post 1990s, adoption of mineral and extractive-industry based development strategy by the state attracted domestic and foreign capital to establish private mining industries. This invoked opposition by the indigenous tribal groups to large scale land acquisition by the state resulting in massive displacement of inhabitants from the tribal belt. Loss of livelihoods and commons and ecological destruction has been a defining feature of the development scenario of the state post 1950s (Mishra, 2023; Kumar, 2014).

Mishra, 2011, argues that the prevalent phase of large-scale displacement, de-peasantisation and dispossession<sup>27</sup> characterize the agrarian transition in rural Odisha. Linkages between the global process of capitalism and local economic and political processes of agrarian distress, social and spatial vulnerabilities including poverty and uneven regional development delineates the role of

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<sup>27</sup> Dispossession is explained through two processes. Firstly, it entails large scale displacement of people to establish major development and infrastructure projects such as dams, hydro power projects, etc. Secondly, it explains the process through which livelihood resources of people are systematically destroyed or are appropriated. See Mishra, D. K. (2011). Behind dispossession: State, land grabbing and agrarian change in rural Orissa. In *International conference on global land grabbing* (Vol. 6, No. 8).

the state in facilitating the process of land grabbing through coercion and alienation (Mishra, 2011). The state's reaction and manner of dealing with resistance struggles reveal the state's agenda of bringing development by attracting investment at the cost of welfare of its own citizens and natural resources. This reinforces the vicious cycle of poverty, backwardness and underdevelopment of resources rich poor tribal region (Kumar, 2014). Dispossession of tribal land mainly resulting from the continuous processes of state led development induced land alienation got accentuated with larger social and economic changes. These changes include development of transportation, privatization of land rights, and commercialization of agriculture and industrial development (Ambagudia, 2010).

Food insecurity challenges have been rampant across Odisha historically, with innumerable deaths in the great famine of 1866 (Sarkar et al., 2022). With, post-independence starvation deaths particularly in the southern tribal districts of Kalahandi, Koraput, Balangir, and Mayurbhanj (Ambagudia, 2010) has brought the issue of food insecurity in the tribal regions of Odisha at the centre of political and academic discussions. Low input use in agriculture followed by low crop yield, under-utilization of land along with diversion of cultivable land to non-agriculture uses pose serious threat to the food security scenario of the region. Execution of various land and labour schemes have failed to generate much improvement in agriculture, employment sector and the food security situation of the region. With time, sustenance with agriculture became difficult with high input prices, lack of market infrastructure, increasing fragmentation of land, and low productivity of staple crops like rice and millet. Poor performance of agricultural sector, basically subsistence by nature led to widespread incidences of poverty and malnutrition amongst children and women. Climatic hazards such as recurrent floods and drought have an added impact on the food production capacity of the region (Sarkar, Chakraborty and Mukherji, 2022).

Odisha is primarily an agriculture dependent economy with agriculture contributing 21.27% to the Gross State Value Added (GSVA). About 62% of the total workforce of the state is engaged in agriculture. Launching of State Agriculture Policy in 2019 along with initiating various programs supporting agriculture related interventions reflects commitment of the state to develop the farming sector in Odisha. There are three major programs launched focusing on developing the agriculture sector in the state. The first one is Krushak Assistance for Livelihood and Income

Augmentation (KALIA) that provides support to cultivators for cultivation, extending financial assistance to vulnerable agricultural households and promoting allied sectors for landless agricultural households. The second one is Bhoomihina Agriculturalist Loan and Resources Augmentation Model (BALARAM) launched by Agriculture department in collaboration with NABARD to facilitate credit to farmers engaged as sharecroppers through Joint Liability Groups. Odisha Organic Mission coordinates the organic farming promotion in the state. Organic Farming Policy is a step further in the direction of scaling up of organic farming as a sustainable alternative model.

Odisha Millets Mission (OMM) is implemented since 2016-17 to revive millet in tribal areas. In 2020-21, 47000 hectares of land is being covered under improved agricultural practices in partnership with 76 NGOs in 76 blocks of 14 districts. The third one is the formation and promotion of FPOs and Agriculture Production Cluster projects for a comprehensive development of the agriculture sector through enhanced production, value addition, and regulated marketing (Department of Agriculture and Farmer's Empowerment, 2020-21).

Agriculture is the mainstay of the Odisha economy, but due to poor quality of the soil, agricultural growth is quite low. Constraints to agriculture growth is restricting the ability of rural population to diversify the crop base resulting in mass poverty. Low agricultural growth is the major cause behind food insecurity in the state. With a higher proportion of poor in rural Odisha than urban (rural poverty is twice as urban), Scheduled Tribe (ST) community, amongst all the social classes, are found to be the most food insecure, followed by Scheduled Castes (SC). Moreover, with 50% of state's cultivable area under Highland areas, low water intensive crops such as millets, pulses, vegetables, and maize and other forest-based products are the major crops grown considered as 'minor crops' (Behera and Penthoi, 2017).

In Odisha, food security programs include subsidized distribution of food grains through PDS, State Nutrition Programs such as through ICDS, tribal hostels, Mid-Day Meals (MDM) and food for work programmes. Kumar et al (2017) points out to some of the recent initiatives undertaken by the state to improve governance of Public Distribution System. These recent initiatives include expanding PDS coverage to eligible beneficiaries over the last 20 years, and reforms such as setting up mobile PDS vans, model fair price shops and computerized tracking of movement of foodgrains (Kumar et al, 2017; Kohli et al, 2017). These initiatives have had positive impact on an increased eligible beneficiaries able to access and

reap enhanced benefits from the system with increased share of PDS cereals and calorie advantage. One of the outstanding positive outcome can be seen in reduced unauthorized leakages from the system from 85.8% in 1993-94 to 73.4% in 2004-05 to 11.4% in 2011-12. Moreover, consumption of PDS cereals and calorie intake is reported to have substantial gains for marginalized groups such as Scheduled Castes and Scheduled Tribes in comparison to general castes. Management of the PDS outlets by the community institutions such as SHGs and other NGOs bring in transparency, community participation and accountability into the system (Kumar et al, 2017). However, Kohli et al (2017) contends that agriculture and livelihoods are the challenging areas for the state to perform better. Insecure access to land and lack of land tenure rights have made it difficult for farmers to make sustenance from agriculture. A UNDP, 2008 report as quoted in Kohli et al, 2017 reports that landlessness is still the persisting, particularly in areas of high tribal population. Transfer of agricultural to non-agricultural land, absence of land records, shift from food crops to cash crops and non-food crops, and subsequent decrease of traditional varieties of food crops like millets, pulses, and rice are the other significant challenges.

Along with this, many Civil Society Organizations (CSOs) in Odisha have been actively integrated, by the state, and working in close collaboration with government agencies such as Odisha Livelihood Mission (OLM) and others into rolling out the provisions of adopting Natural Farming and Sustainable Agriculture schemes in the state. Many of these schemes run in convergence mode with other state and central sponsored schemes. These schemes majorly focus on reducing market dependence of farmers for inputs and credit to become self-reliant, improve the soil quality, adopting nature and soil friendly crop protection measures, crop diversification and improving health and nutrition outcomes of people from marginalized communities. For example, mention must be made of MSSRF's intervention in the state to preserve local breeds of local food crops such as millet through research and development. Farming System for Nutrition (FSN) approach, brainchild of MS Swaminathan, was initiated in the state in 2014. The FSN approach basically integrates a combination of crop production measures such as promotion of kitchen gardens for fruits and vegetables, livestock and poultry development and setting up of small fisheries for overall health benefits and addressing the problem of malnutrition (Rukmani et al, 2018).

Literature on global food movement has mainly centered around shifting attention from industrial agriculture and mode of production and consumption to sustainable agriculture. The

way food is produced and marketed along with an active participation of producers and consumers in the choices they exercise holds significance in claiming sovereignty over agriculture and food system. Promoting local economy and agriculture is envisaged not only to revive the environment and social aspects but also to, in the words of Pollan (2010) ‘decentralise the global economy’ (Pollan, 2010). It is in this context that reviving local crops such as millets, grown and consumed widely, in semi arid tropical regions of Asia and Africa has garnered mainstream attention in the wake of global environmental issues. Millet, often considered as climate resilient and a wonder crop, has low water and input requirements and provides security in terms of food and nutrition along with fodder and livelihood to a majority of small and marginal agriculture workers.

The problem lies in the fact that millet is often being promoted in India as an ‘urban elite food choice’ than emphasizing its significance for meeting food, nutrition and livelihood needs of the food producers. Lesser quantity of millets being distributed through food distribution system in India as compared to other food crops such as rice and wheat, coupled with its tastes, low public preference and inadequate knowledge regarding its culinary aspects are some of the problems that millet missions are currently facing. Civil Society Organizations role in retaining this important crop alongwith several others in the northeastern and other parts of India is significant enabler in taking control over food system. The Global food movement is one such social movement which addresses diverse set of concerns ranging from social, environmental, economic, health, political and safety issues.

### **1.10 The Research Objectives and Research Questions**

Following are the research objectives and questions for the study

**Research Objective 1:** To understand and assess millet intervention strategies of Nagaland and Odisha.

**Research Question 1:** Who are the actors and stakeholders associated with production, distribution, consumption and marketing of millet?

**Research Question 2:** How does coordination for millets take place between the state, civil

society and people?

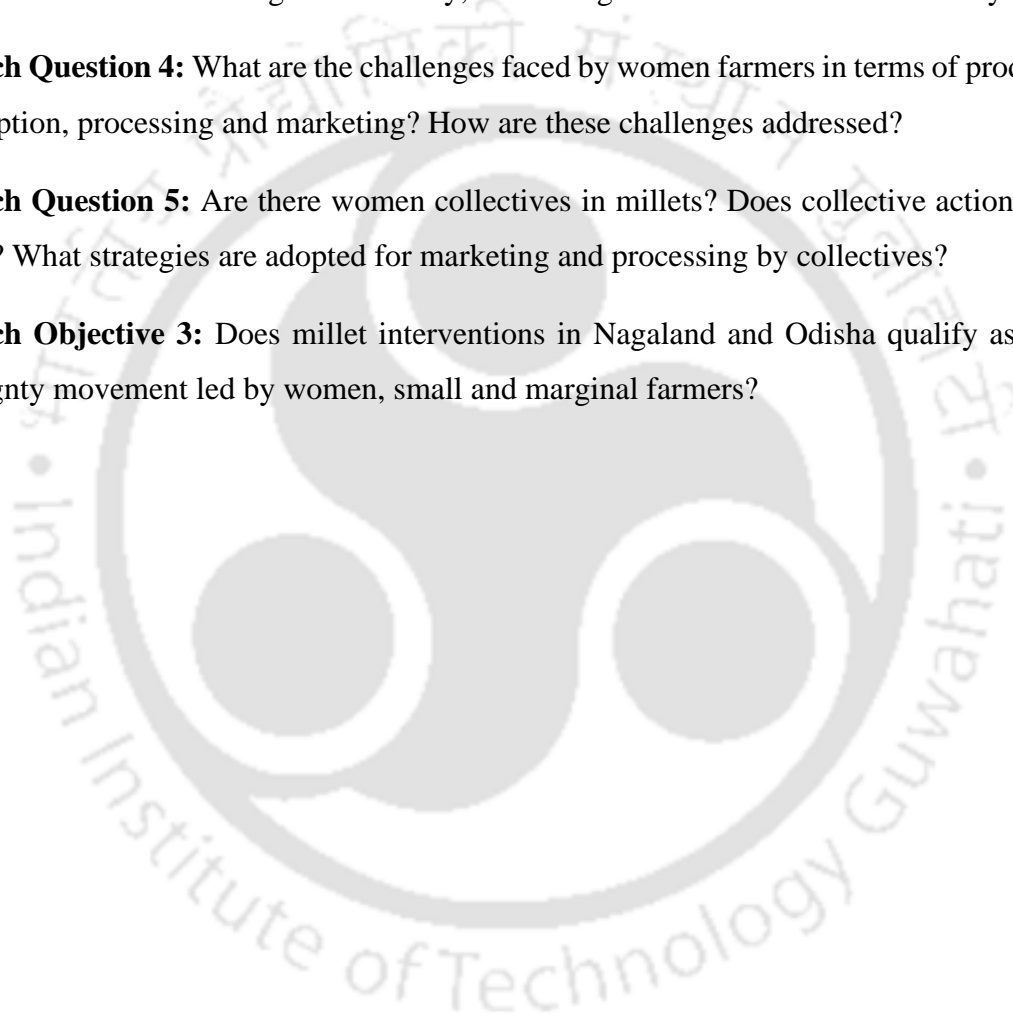
**Research Objective 2:** To study the role of women in the millet ecosystem of Nagaland and Odisha.

**Research Question 3:** Where and how are women engaged in the millet ecosystem? Are women at the forefront to revive the lost crop and the associated biodiversity? If yes, how significant is millet intervention in ensuring food security, well-being and control over local food system?

**Research Question 4:** What are the challenges faced by women farmers in terms of production, consumption, processing and marketing? How are these challenges addressed?

**Research Question 5:** Are there women collectives in millets? Does collective action benefit women? What strategies are adopted for marketing and processing by collectives?

**Research Objective 3:** Does millet interventions in Nagaland and Odisha qualify as a food sovereignty movement led by women, small and marginal farmers?



## Chapter 2

### Methodology and Description of Study Area

This chapter presents methodology adopted for the study and description of the study area. Two states of India are chosen for the study. The study locations are set in Phek district of Nagaland and Koraput district of Odisha. Section 2.1 elaborates the methodology adopted to undertake the study of women in the local food systems of Nagaland and Odisha. Section 2.2 introduces us to the study location in Nagaland, methods employed to carry out the study and a note on actors and stakeholders interviewed. Section 2.3 describes the study location in Odisha and the methods employed to undertake the field work.

#### 2.1 Methodology of the study

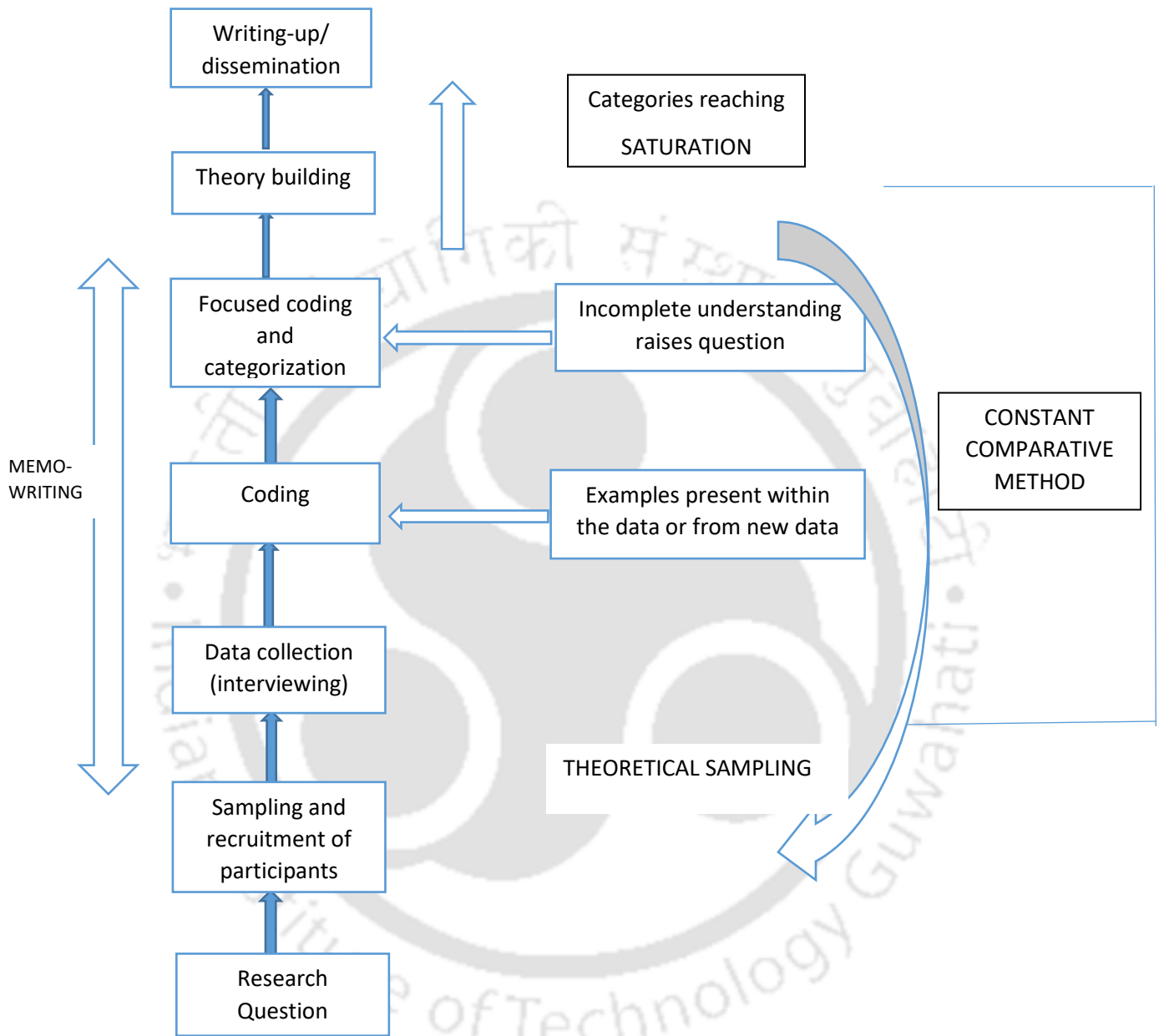
The study uses the qualitative research<sup>28</sup> that involves collecting data for the study through qualitative (open-ended) methods. The study adopts the Grounded theory<sup>29</sup> design of qualitative research, as specified in Creswell, 2014 for data collection and analysis for this study. Grounded theory is a theory development process based on data collected from the ground through qualitative research (Corbin and Holt, 2005). In this design, a researcher collects data (views of participants) involving multiple stages of data collection, and goes back and forth between the data, its analysis, and the concepts and theory and drawing interrelationships of categories of information (Creswell, 2014). Grounded theory is inductive in nature, meaning it builds a detailed understanding of phenomena or constructs new theory based on the data collected from the ground. **Figure 2.1** describes the stages involved in grounded theory design of qualitative data

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<sup>28</sup> Qualitative research method following the method specified in (Creswell, 2014).

<sup>29</sup> Grounded theory is a qualitative research design that comes from the discipline of Sociology (Creswell, 2014). Developed by two sociologists, Barney G. Glaser and Anselm L. Strauss investing the social processes of death and dying in a hospital in the United-States in the mid-1960s. For more information, please refer to Tweed and Charmaz. (2011). “Grounded theory methods for for mental health practitioners. Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners.

**Figure 2. 1** A representative diagram of a grounded theory design in qualitative data collection and analysis



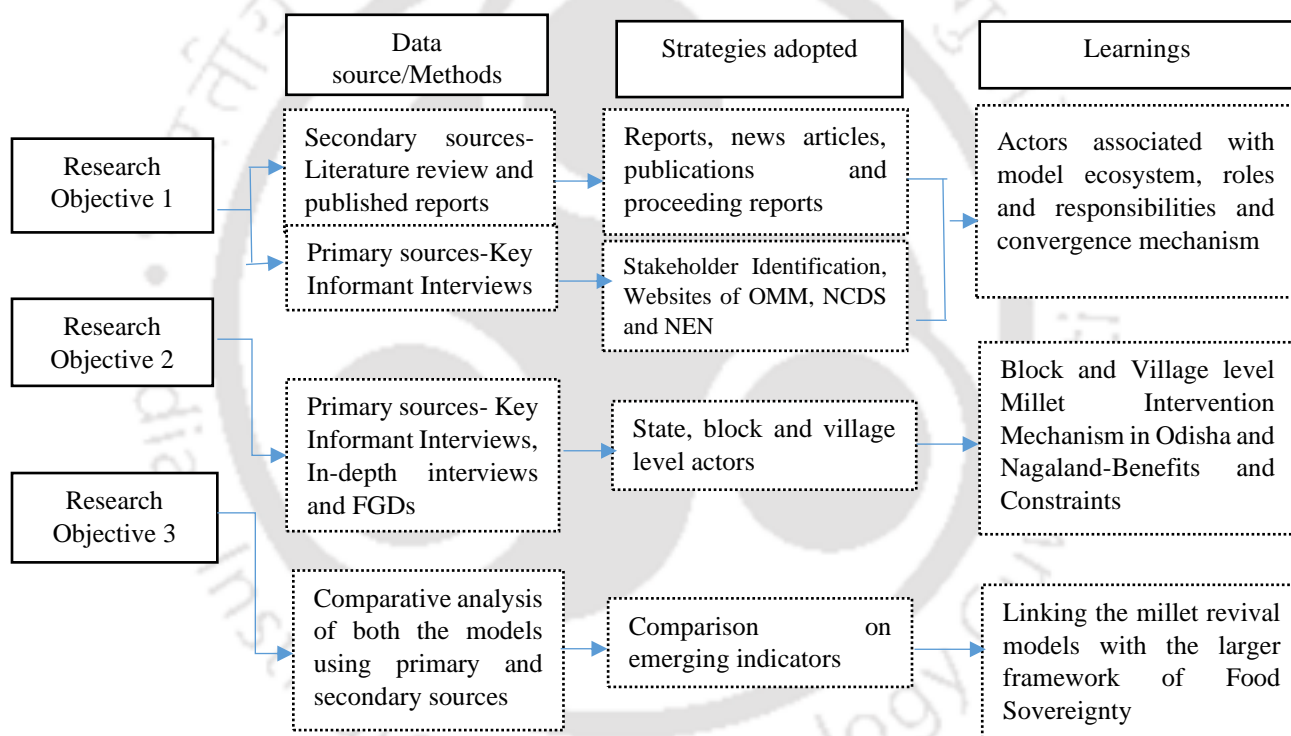
Source: Adapted from Tweed and Charmaz (2012).

### 2.1.1 Research Design

To address Research Objective 1, literature review was conducted and stakeholder identification

and Key Informant Interviews were carried out. Literature review was conducted by reading through reports, news articles, journals, publications, and proceeding reports of OMM meetings, Government of Odisha. Websites of OMM, NCDS, NEN have also been used for the research. Literature review helped in understanding the governance structure in place for the top-down approach of OMM along with identifying the actors engaged in millet intervention in Nagaland. Following Key Informant Interviews, FGDs and In-depth Interviews were carried out at block and village level to address Research Objective 2. Research Objective 3 is addressed by incorporating learnings made from studying the first two research objectives.

Figure 2. 2 Study Design



### 2.1.2 Methods and Strategies involved in Data Collection-Odisha and Nagaland

The fieldwork for the study was conducted in intervals of varying duration between August 2019 to October 2022 spanning over both states. The state of Odisha was visited thrice for the study. In September 2019, visit was made to Bhubaneswar, the capital of the state, to take in-depth interviews with the stakeholders involved. In-depth interviews were carried out to acquire

information on the working and implementation status of the program. These stakeholders work at state level for planning and implementing the government program of Odisha Millets Mission.

The stakeholders mainly involved Nabakrushna Choudhury Centre for Development Studies (NCDS) as the State and Research Secretariat of the program, WASSAN (a CSO based in Hyderabad), the Program Secretariat, government departments of Agriculture and Farmer's Welfare, MISSION Shakti, and Odisha Livelihood Mission (OLM). The Second field visit was made to Lamtaput block, Koraput district for a duration of 14 days from 08<sup>th</sup> March 2020 uptill 22<sup>nd</sup> March 2020 to understand how the program is impacting the women millet farmers and their collectives, if any, few days before the nationwide lockdown was imposed in India. The third field work to Odisha was made on 18<sup>th</sup> September to 16<sup>th</sup> October 2021 for a duration of 3 weeks. For the third field work, the researcher selected five blocks of Kundra, Lamtaput, Borigumma, Boipariguda, Nandapur in Koraput district to understand the functioning of block and village level community-based institutions and the engagement of different groups of farmers with the millet ecosystem.

Before embarking on the visit, requirements of the visit were shared with the Team Leader of the Facilitating Agency (PRADAN) and field study was carried out with the support of the professionals from FA. During this visit, stakeholders involved in implementing the program on ground were interviewed. Team Leader and Block Coordinator of PRADAN, LAMPCs (agency involved in procurement of finger millet), Community Resource Persons (CRPs) working under PRADAN, official from ATMA, Women Self-help Groups, etc.

The state of Nagaland was visited twice to conduct the field work for the study. The first field visit was made on 19<sup>th</sup> August 2019 for a week till 26<sup>th</sup> August 2019 to interview government officials from Agriculture Department and NEN professionals in Kohima, Program Executive (working on millets promotion in NEN) and in Chizami block, Phek district. The second field visit was made for a period of 3 weeks from 11<sup>th</sup> April uptill 02<sup>nd</sup> May 2022 in Meluri and Khumiasu villages of Phek district. During this time, the researcher took the help of Ms. Poviewi, to assist in conducting interviews and FGDs with women farmers from the community. 3 online interviews were conducted on 09<sup>th</sup> and 10<sup>th</sup> October 2022. On 09<sup>th</sup> October 2022, online interview was conducted with Program Coordinator of NEN, Chizami. On 10<sup>th</sup> October 2022, 2 online

interviews were conducted with Village Development Board (VDB) member in Chizami village and Secretary of Women Society, Chizami village.

**Table 2.1** Timeline of field work carried out in Nagaland

NAGALAND					
Year	Month	District	Blocks	Stakeholders	Data collection tools
2019	August (7 days) 19 <sup>th</sup> -26 <sup>th</sup> August	Kohima, Phek	Kohima, Chizami	Government officials (Department of Agriculture), NEN professionals (Project Executive, Program Coordinator, State Coordinator)	Key Informant Interviews
2022	April (3 weeks) 11 <sup>th</sup> -02 <sup>nd</sup> )	Phek	Meluri Chizami	Women Society, WSHGs, Women Collective, Village Council Secretary, Individual Women farmers	FGDs, KIIs
2022	October (Online interview) 09 <sup>th</sup> Oct 2022	Phek	Chizami	Program Coordinator of NEN	Online face to face interview
	10 <sup>th</sup> October	Phek	Chizami	VDB member Secretary, Women Society	

**Table 2.2** Timeline of field work carried out in Odisha

ODISHA					
Year	Month	District	City/Blocks	Stakeholders	Data Collection Methods
2019	September (7 days) 9 <sup>th</sup> -16 <sup>th</sup>	Khordha	Bhubaneswar	Government representatives (Dept. of Agriculture, MISSION SHAKTI, NCDS, WASSAN), WSHGs	Key Informant Interviews
2020	March (14 days) 8 <sup>th</sup> -22 <sup>nd</sup>	Koraput	Lamtaput	WSHGs, FAs in Lamtaput, LAMPCs, CRPs, Dept. of Agriculture	In-depth interviews, FGDs, KIIs
2021	September-October (4 weeks) 18 <sup>th</sup> September-16 <sup>th</sup> October	Koraput	Lamtaput, Boipariguda, Borigumma, Kundra, Nandapur	WSHGs, FAs, Individual Women Farmers, CRPs, Department of Agriculture, Community Based Institutions	In-depth interviews, FGDs, KIIs

Data for the present study were gathered by employing primary qualitative methods. Semi-structured interview schedule, informal conversations, and Focus Group Discussions were used to collect the data. An interview guide was used to conduct Key informant interviews with key informants from relevant government departments. Key informant interviews were useful in understanding ground-level information on how the program is carried out, focus areas of OMM, and challenges encountered while implementing the program. Focus Group Discussions were conducted with Women Self-help Groups and Community Resource Persons working under the FPO structure of Odisha Millets Mission. These FGDs were carried out to understand the perception of women in groups towards millet revival initiative of the government, challenges encountered in production, consumption and marketing of millet and how the program is impacting women Self-help Groups on ground.

Qualitative primary methods are employed to perform Stakeholder Analysis. By doing the Stakeholder Analysis, I have understood the kinds of implications resulting from concerted efforts of different stakeholders at different levels (state and community) towards sustaining and mainstreaming millets. To understand the institutional framework, Stakeholder Analysis, for the study, is conducted in two ways.

First, literature review is conducted. In this, reports, news articles, publications and proceeding reports of government meetings were studied and analyzed. Online websites of the two key stakeholders out of three, that is, Odisha Millets Mission (OMM) and an academic institute, Nabakrushna Choudhury Institute of Development Studies (NCDS) were checked and analyzed. Second, stakeholders were identified with the help of the first step. These stakeholders are categorized as state level actors (government departments, Research and Program Secretariat), block level actors (Facilitating Agency and Agriculture department) and sub-block level actors (FPOs, individual women farmers, Women Self Help Groups, and Community Resource Persons). Similarly, literature review for the state of Nagaland was carried out. Journals and grey literature was referred to. Background information was undertaken to gain a preliminary information about the interventions carried out by NEN.

*In-Depth Interviews:* In Nagaland, 20 in-depth interviews were carried out with individual women millet farmers, 10 in Meluri and 10 in Khumiasu. In-depth interviews were carried out with the Key informants from the relevant departments. In-depth interviews were conducted

across all three levels: state, block and sub-block level. Participants for in-depth interviews included 8 President and Secretary of the FPOs from the five blocks, Key persons from 5 WSHGs responsible for managing the Community Institutions, and 30 Individual Women Farmers.

*Key Informant Interviews:* In Nagaland, 11 KIIs were conducted at the state, block and village level. These KIIs were conducted with Agriculture officer, Department of Agriculture, State Coordinator and Program Coordinator (NEN), 2 Programme Executives (Millet program, NEN), VC Secretary (Meluri village), VC (member, Khumiasu village), and Agriculture officer (Meluri village) and 1 Women Society Secretary and 1 VDB member from Chizami and 1 President, Women Society in Meluri. In Odisha, 15 Key Informant Interviews were carried out at block level with Team Leaders and Block Coordinators of FAs from respective blocks, agriculture officer from ATMA, and District Coordinator (DC). 5 Key Informant Interviews were conducted with State Coordinator from WASSAN, Team Leader from Mission Shakti, officials from NCDS, and State Coordinator and Agriculture Officer from Department of Agriculture and Farmer's Empowerment, Government of Odisha.

*Focus Group Discussions:* FGDs were conducted primarily to understand the perception of and engagement of women farmers with the millet ecosystem in both the states. In Nagaland, 5 FGDs were carried out, 2 FGDs in Meluri and 3 FGDs in Khumiasu village. In Meluri FGDs were conducted with women collective formed by NEN, and an elderly women group engaged with millet farming. In Khumiasu village, FGDs were conducted with 1 Women Society and 2 WSHGs (see **Table 2.1**). In Odisha, Focus Group Discussions were carried out with WSHGs and CRPs working under the FPO structure of the OMM. 5 FGDs were conducted with five groups of CRPs from 5 blocks (see **Table 2.1**). 20 FGDs were conducted with WSHGs from 5 blocks. In Nagaland, 5 FGDs were carried out. 2 FGDs in Meluri and 3 FGDs in Khumiasu village (see **Table 2.2**).

**Table 2.3** The study layout in Nagaland

Participants	In-depth interview: Individual Women Farmers Focus Group Discussion: Women Self-Help Groups (SHGs), Women Collectives Key Informant Interviews: Department of Agriculture, State Coordinator, Advisory member and Program Coordinator on Millets (North East Network), and Secretary of Village Council.
Sample size	20 In-depth interviews, FGDs, 11 Key Informant Interviews (KIIs). Key Informants are officials from Agriculture Department at Kohima and Meluri, Program Coordinator and Program Executive from NEN. Meluri: 2 FGDs, 10 In-depth interviews. Khumaisu: 3 FGDs, 10 in-depth interviews Chizami: 2 in-depth interviews, 3 KIIs.
Methodology	Secondary sources: Reports; news and magazine articles; documents prepared by NEN. Primary sources: In-depth interviews; Focus Group Discussions; and Key Informant Interviews.
Semi-structured Questionnaire Themes	NEN's engagement and approach with revival of millets, women collective's work with millets, stakeholders work regarding millets promotion.

**Table 2.4** The study layout in Odisha

Participants	<p>In-depth interview: Farmer Producer Organizations (FPOs), Community Institutions (Custom Hiring Centre, Community Seed Bank) and Individual Women Farmers.</p> <p>Focus Group Discussion: Women Self-Help Groups (SHGs) and Community Resources Persons (CRPs).</p> <p>Key Informant Interviews: Facilitating Agencies (FAs), Agriculture Technology Management Agency (ATMA), District Coordinator (WASSAN), NCDS, Government departments (Mission Shakti, WCD; and Directorate of Agriculture and Food Production (DAFP).</p>
Sample size	<p>Village level: 8 in-depth interviews with Farmer Producer Organizations (FPOs), 5 in-depth interviews with SHGs looking after Community Institutions (CHC, CSB); 30 In-depth interviews with Individual Women Farmers, 20 FGDs in 5 blocks with Women SHGs, 5 FGDs with Community Resource Persons (CRPs) from 5 blocks.</p> <p>Block level: 15 KIIs (Team Leader and Block Coordinators (under OMM) of FA; Agriculture Technology Management Agency (ATMA); and District Coordinator).</p> <p>State level: 5 KIIs (WASSAN; DAFP; Mission Shakti; and NCDS).</p>
Methodology	<p>Secondary sources: Reports; news articles; publications of Government of Odisha on OMM; Brief papers; and proceedings of Government departments of Odisha meeting on OMM.</p> <p>Primary sources: In-depth interviews; Focus Group Discussions; and Key Informant Interviews.</p>
Semi-structured Questionnaire Themes	<p>Support provided under the program, benefits derived from OMM, challenges of processing and marketing, Roles and responsibilities of different stakeholders, production and consumption of millets, procurement and farmers registration, and functions of collectives.</p>

## 2.2 Actors and Stakeholders

Since the terms actors and stakeholders are used frequently in the study, these two terms are briefly touched upon. Since the terms are Actors are an important entity in any development intervention. However, in the development literature the terms ‘actors’ and ‘stakeholders’ have often been used and referred to interchangeably. The term ‘actor’ refers to a category of person who performs a specific function within a system or process (Long, 1990). Whereas, the term ‘stakeholder’ is used to identify those actors who have a stake or an interest in an issue (Lelea et al., 2014). Stakeholders are identified as primary stakeholders, secondary stakeholders and interest groups.<sup>30</sup>

Primary stakeholders<sup>31</sup> are those persons and groups who are ultimately affected, either positively or negatively. These includes intended beneficiaries. Individual farmers, women self-help groups, FPOs/CBOs, private players and Facilitating Agency come under Primary stakeholders. These primary stakeholders operate and are present at village and block level.

Secondary stakeholders<sup>32</sup> are intermediaries in the process of delivering aid to primary stakeholders. Secondary stakeholders are the ones who are in position of power through fund flow, control of resources and access to important relationships and convergence across agencies. They influence the program through their decision-making power, resource distribution and access to knowledge and information and governance related aspects.

Interest groups<sup>33</sup> are those groups whose work interests and areas of expertise have a significant influence over the government initiative to revive millets. They are the expert and research based

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<sup>30</sup> Stakeholders are categorized based on the work of Lelea et al., 2014. Please see Lelea, M.A., Roba, G.M., Christinck A and Kauffman, B. (2014). “Methodologies for Stakeholder Analysis. For Application in Transdisciplinary research projects focusing on actors in food supply chains.”

<sup>31</sup> Primary stakeholders do not possess much power to influence decision making or planning policy outcome but are an important group to bring about a change in the perception of people towards millets as an important food crop in rural and urban areas.

<sup>32</sup> Secondary stakeholders have the highest power to influence decision making and policy development. The secondary group comprises of government departments. They have a much higher influence and their level of interest is the same as of primary stakeholders as millets intervention is a top down approach. In the later stage, once the program withdraws, they will have lower interest than the primary groups. More details about secondary stakeholders is provided in Chapter 3 and 5.

<sup>33</sup> These groups are national and state based groups. These interest groups are The DHAN Foundation, SSTL, ICAR-IIMR, University of Cambridge, OUAT, CSRI-CFTRI, NBPGR and The Millet Foundation. Interest groups are those individuals or groups who have an interest or a stake in the overall goal the program tries to achieve

organizations who support the Millets Mission with agriculture technology, seed and plant development, processing specifications, millet recipe development, food and nutrition development aspects of millet crop systems. Interest groups extend support to secondary stakeholders to achieve policy outcomes towards various aspects related to reviving millets (see **Table 2.3**).

### **2.3 Challenges encountered during field work**

Since both the field sites of the study are non-native to the researcher, the research encountered challenges on multiple levels during different phases of field work. Firstly, the COVID-19 lockdown was a period of confusion as it posed several questions on completion of the field work for the researcher. The nationwide lockdown along with travel restrictions was imposed right after the preliminary studies in both states were conducted. The researcher could not visit the field to collect data from women farmers for almost a year and half. A time gap of almost 18 months is noticed between the preliminary visit and the final visit. The COVID-19, created a fear of contracting the virus again<sup>34</sup> in researcher to travel to field locations once the travel restrictions were lifted. The researcher, herself, had to take precautionary measures, while being diagnosed positive with COVID-19 during May, 2021. The travel restrictions were lifted with a mandate to produce two doses of vaccination certificate, with a difference of 3 months from taking the first dosage. However, some dos and don'ts had to be followed throughout the travelling period. This contributed to a significant time loss in conducting field visits. The researcher had to face difficulty and spent almost 3 months in finding a translator for both the states. It required a great deal of negotiation with personal contacts to find and convince the translator to do the work. Moreover, after reaching the respective state, commuting via the local means of transport was challenging as that increased the chances of contracting the virus. However, the field study was resumed once the travel restrictions were lifted.

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<sup>34</sup> Since the researcher had caught the virus and was declared COVID positive in May 2021 and kept in isolation once during the period.

**Table 2.5** Table showing categories of actors and the levels of their relationship with the millet revival program

<b>Actors (categories)</b>	<b>Links</b>	<b>Influence</b>	<b>Interests</b>	<b>Importance</b>	<b>Level of participation</b>	<b>Potential impact</b>
Primary stakeholders	<ul style="list-style-type: none"> <li>• Implementing/ reporting relationship</li> <li>• Information exchange</li> </ul>	<ul style="list-style-type: none"> <li>• Implementing organizations</li> <li>• Limited power to influence key decisions</li> <li>• Good understanding and supportive relationship with beneficiaries</li> </ul>	<ul style="list-style-type: none"> <li>• Social status and acceptance</li> <li>• Larger benefits to the community</li> <li>• Program objectives in line with their organization's objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Important to the project success</li> <li>• Facilitation and implementation</li> <li>• Involved in developing policy objectives and framework.</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of the program</li> <li>• Delivery of program activities</li> </ul>	<ul style="list-style-type: none"> <li>• Increased workload</li> <li>• Challenges in awareness generation</li> <li>• Often conflicting with other projects or activities at the block level</li> </ul>
Secondary stakeholders	<ul style="list-style-type: none"> <li>• Formal and hierarchical</li> <li>• Supportive</li> <li>• Funding relationship</li> </ul>	<ul style="list-style-type: none"> <li>• Funding of the program</li> <li>• Policy development, finalizing action plans and monitoring</li> <li>• Control of resources and forging convergence</li> </ul>	<ul style="list-style-type: none"> <li>• Achievement of targets and results</li> <li>• Control over funds and activities</li> <li>• Leveraging convergence</li> </ul>	<ul style="list-style-type: none"> <li>• Very important</li> <li>• Provider of enabling resources</li> </ul>	<ul style="list-style-type: none"> <li>• Planning</li> <li>• Policy guidelines and development</li> <li>• Approval and finalizing of action plans</li> </ul>	<ul style="list-style-type: none"> <li>• Top-down approach</li> <li>• Inclusive approach</li> </ul>
Interest Groups	<ul style="list-style-type: none"> <li>• Supportive or collaborative relationship</li> </ul>	<ul style="list-style-type: none"> <li>• Has no power to influence the program.</li> <li>• Contributes their expertise towards betterment of primary groups</li> </ul>	<ul style="list-style-type: none"> <li>• Extending their collaboration in knowledge exchange</li> <li>• In alignment with their broader interests</li> </ul>	<ul style="list-style-type: none"> <li>• Not important to the program success</li> <li>• Crucial for research related to program objectives</li> </ul>	<ul style="list-style-type: none"> <li>• Collaboration in delivering expertise knowledge and innovations</li> </ul>	<ul style="list-style-type: none"> <li>• Positive impact as expert organizations work within agro-ecological environment suitable for farmer's context</li> </ul>

Source: Author's compilation

## 2.3 Nagaland

Nagaland is one of the eight states in the North East region of India. The state shares its boundary with the state of Assam in the west, Myanmar (Burma) on the east, Arunachal Pradesh and part of Assam on the North and Manipur in the south (Nagaland State Human Development Report, 2016). Nagas, as often the indigenous inhabitants of Nagaland are called, belong to multi-ethnic groups and sub-groups. The state has sixteen (16) administrative Districts, inhabited by 17 major tribes along with other sub-tribes<sup>35</sup>. These tribes have their own governance systems and land-use practices (Jamir, 2015). The state is spread over an area of 16,579 square kilometers and the total population of Nagaland is 19,78,502. The state is predominantly rural with 82.26 percent of its population residing in villages, where the communities derive sustenance from the use of natural resources (Jamir, 2015).

Agriculture plays an important role in the social, cultural and economic life of the Nagas<sup>36</sup>. Nagaland economy is a predominantly agriculture-based economy with 71.14 percent of the population dependent on agriculture (State Human Development Report, 2016). Land holds crucial significance for economic relations of production and consumption (Shimray, 2020). Shifting cultivation, widely referred to as Jhum in the region, is the dominant land-use practice across Nagaland. Shifting cultivation is an integral part of the life of a Naga.

### 2.3.1 Governance at the village level

Nagaland is inhabited by 16 major tribes and numerous other sub-tribes. These tribes differ from one another by language, customs, traditions and systems of governance. The village is the most important institution in the socio-cultural life of a Naga. A Naga village functions as a well-defined, compact and self-sufficient society with its own local governance structure. The Naga village, is governed by its local governance system through the Village Councils guided by the customary laws of Nagaland (Government of Nagaland, 2016).

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<sup>35</sup> For more information on the tribal groups, please refer to Official state portal, Government of Nagaland. Accessible from <https://www.nagaland.gov.in/pages/nagaland-profile>

<sup>36</sup> Naga is referred to here as inhabitants of Nagaland. For more information, please refer to Shimray (2020). "Relation of the Traditional Economic System and Ecology: The Case of a Naga Community".

The governance structure differs from tribe to tribe. Each Naga village is sovereign in its functions like owning and governing its own resources, plan and execute development activities, and maintain jurisdiction. The traditional system of Village Council was given legitimacy by the Nagaland Village and Area Councils Act 1978 to act as a local self-governance institution. The members of the Village Council (VC) are chosen by villagers in accordance with the prevailing customary practices. The Chairman of the Council is chosen from amongst the members of the Council. The Village Councils and their subsidiary Village Development Board (VDB) are two institutions of decentralized governance across Nagaland. Article 371 (A) provides constitutional legitimacy to the local governance structure of Nagaland (Jamir, 2011).

### **2.3.2 Rationale behind selecting Nagaland for the study**

Our literature survey on millet production and consumption in India revealed that historically, the Nagas have grown millets widely. However, due to multiple reasons such as the easy availability of paddy due to its popularity, state backing the production and consumption of rice with incentives and subsidies, and changing land and agricultural practices in Nagaland, the production and consumption of millet in Nagaland has drastically reduced.

Moreover, millet being an important crop, used to be cultivated and consumed widely in the entire north-eastern region. The state of Nagaland featured predominantly in the initiative towards reviving millet-based biodiverse farming. More importantly, the millets revival initiative is led by a women's rights organization, North East Network (NEN), Nagaland team, with its headquarters based at Guwahati, Assam. This was a major consideration for the selection of Nagaland, which coincided with the requirement of the study to understand and analyze the millet revival initiative, being led by a Civil Society Organization (CSO). Further North East Network (NEN) is a member organization of Millet Network of India (MINI) since 2010, which means that civil society supported millet intervention initiative in Nagaland is not a new phenomenon.

### **2.3.3 The district Phek**

The district is situated in the south-eastern part of Nagaland surrounded by Myanmar in the east, Manipur state in the south, Kohima district on the west and Zunheboto district on the north (Census of India, 2011). The district has a total population of 163,418 persons as per 2011 census,

comprising 83,743 males and 79,675 females and covers an area of 2026 sq. km. The female literacy rate is 72.21 percent against the male literacy rate of 83.66 percent. Phek is a rural economy with 84.96 percent inhabiting rural areas (Directorate of Economics and Statistics, Government of Nagaland, 2020). The district is inhabited by two major tribes, the Chakesang and the Pochury. Chakhesang is the amalgamation of three sub-tribes. The word Cha is derived from Chakrii (sub-tribe), Khe from the Kheza group and Sang from the Sangtam (sub-tribe) of the Chakhesang tribe. The Pochuries (Pochury) speaking people constitute the Pochury tribe. Agriculture constitutes the primary source of livelihood for the rural population, constituting 91 percent of the district's total population. The Pochury Naga tribe is recognized as one of the major tribes of Nagaland by the Government of Nagaland in 1990. Pochury Nagas has a population of 22,618 as per the census of India 2011 situated in east of the Phek district occupying 1,011 sq.km of area. The pochury tribe is mainly found in Meluri sub-division of Phek district (Government of Nagaland, 2009)<sup>37</sup>.

Phek district has eight blocks: Phek, Meluri, Sekruzu, Pfutsero, Kikruma, Chetheba, Chizami, and Weziho. Millet revival initiative started with Phek district and spread to four other districts of Tuensang, Shamator, Noklak and recently in Kohima in Nagaland. In Phek district, Chizami and Meluri are the two subdivisions or blocks in which NEN is overlooking the millet revival activities. I purposively settled for Meluri village under Meluri subdivision in Phek district, since the millet revival initiative started quite recently in 2018. Apart from Meluri, I also chose Khumiasu and Chizami villages for the study. The field work was extensively carried out in the villages of Meluri and Khumiasu, with a few select case studies from Chizami village.

#### **2.3.4 A Profile of the Study Villages in Nagaland**

The Meluri village is located in Meluri circle of Phek district. Meluri is the headquarter of the Pochury Naga tribe. The Pochury tribe are distributed in 30 recognized villages and four major towns of Meluri, Akhegwo, Wuziho and Phokhungri town. According to 2011 census, there are

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<sup>37</sup> For more information, please refer to Department of Planning and Coordination. (2009). "District Human Development Report Phek." Government of Nagaland. GOI-UNDP Project.

911 households in Meluri village. Under Meluri block, there are 31 villages (Census of India, 2011).

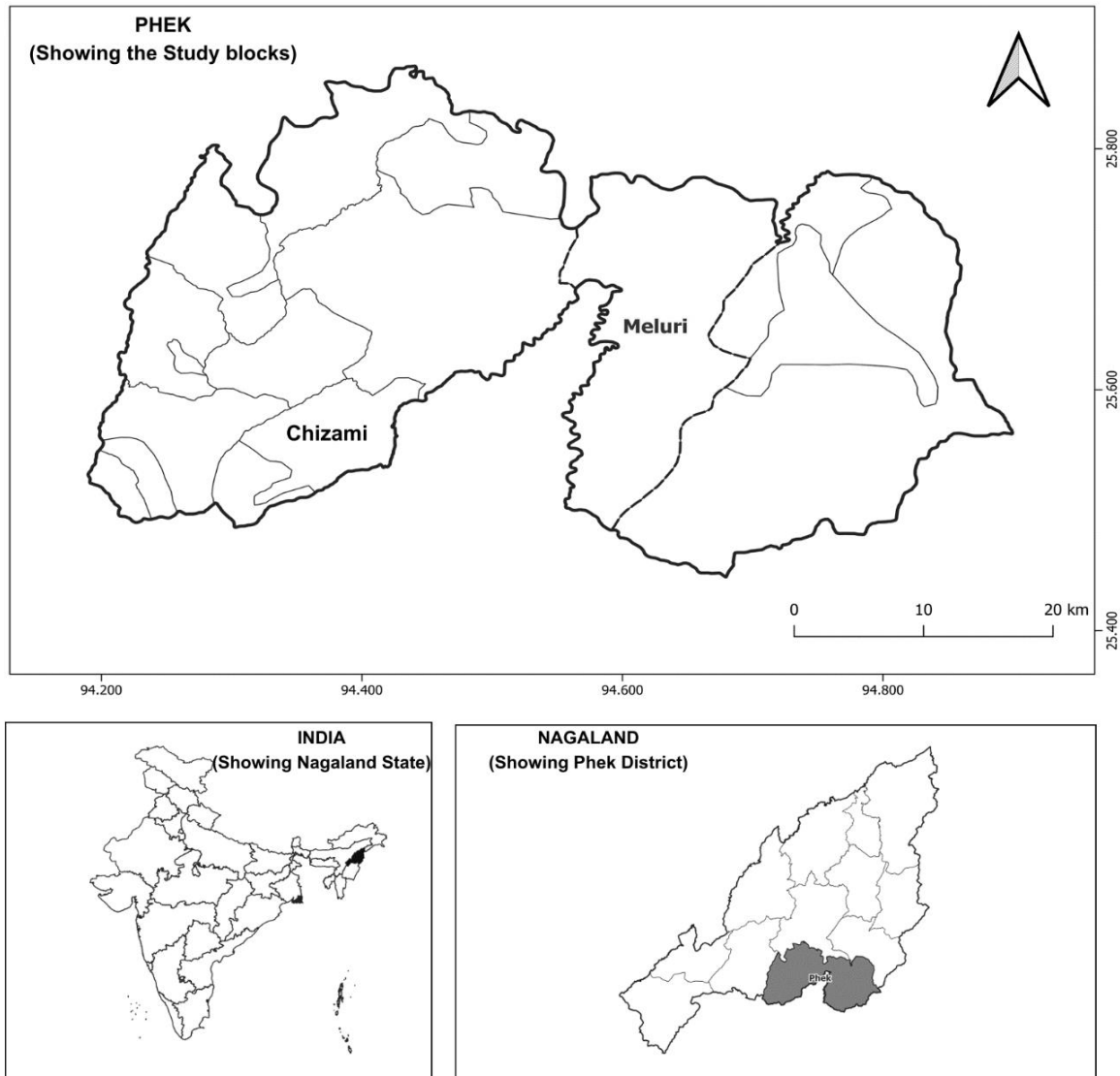
Khumiasu village is also located in the Meluri circle of Phek district. The total number of households is 90. The total population of the village is 407, out of which 215 are females and 192 are males.<sup>38</sup> The literacy rate in 2011 was 38.30% against the state average of 79.55% (Census of India, 2011).

Chizami village falls under the Chizami circle of Phek district. Total number of households is 586, with a population of 2592, 1303 are females and 1289 are males (Census of India, 2011). The literacy rate of Chizami village is 75.22% as compared to 79.55% of Nagaland. The Chizami village is predominant of the Chakesang tribe.

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<sup>38</sup> For more information, please refer to <https://www.censusindia.co.in/villages/khumiasu-population-phek-nagaland-267815>

**Figure 2. 3** Map showing study location in Nagaland



Source: <https://phek.nic.in/map-of-district>

## 2.4 Odisha

Situated on the east coast of India, Odisha was formed on 1<sup>st</sup> April, 1936. The state shares its boundaries with the state of West Bengal in the north east, Chattisgarh in the west, Andhra Pradesh in the south and the Bay of Bengal in the east. The coastal area constitutes plain area and the interior tribal belt form mountainous region. A significant share of population (22.85%) are Scheduled Tribes. There are 62 different groups of tribal communities including 13 Particularly

Vulnerable Tribal Groups (PVTGs)<sup>39</sup>. There are 93 groups of Scheduled Castes according to 2011 census (Ota et al., 2020). The administrative structure of the state comprises of 30 districts, 58 sub-divisions, 314 Community Development Blocks, 6209 GPs and 51,313 villages.

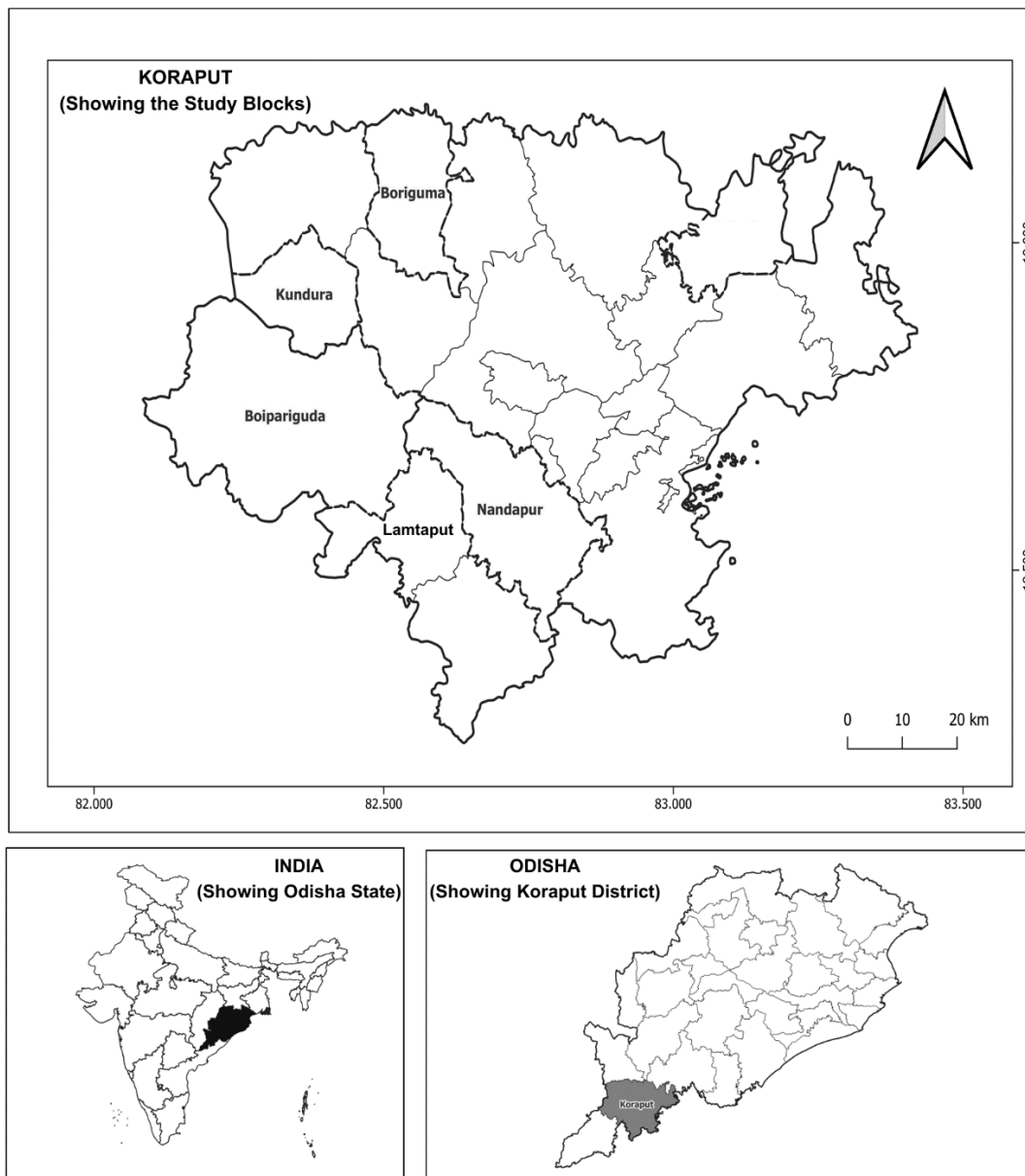
#### **2.4.1 Rationale behind choosing Odisha for the study**

While doing the literature survey on millets in India, Odisha figured predominantly as the state mainstreaming the millets value chain through a government approach adopting convergence mechanism among stakeholders from various sections. In particular, the institutional framework, the decentralized operation at the grassroots level and the people's institutions created to strengthen women's position in millet revival mechanism helped in framing the research questions to be studied for the thesis. This prompted us to select Odisha as one component of the study to understand the millet revival mechanism adopted by the state. The different approaches followed to revive millets motivated us to assess comparison of both the states using the approach of food sovereignty.

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<sup>39</sup> For more information, please refer to Academy of Tribal Languages and Culture and Scheduled Castes & Scheduled Tribes Research and Training Institute. (2020). "Tribal Atlas of Odisha". ST & SC Development Department. Government of Odisha.

**Figure 2. 4** Map of Koraput district shown in black in Odisha along with studied blocks



Source: <https://koraput.nic.in/map-of-district>

### 2.4.2 The District Koraput

Koraput district is located in the southern part of Odisha. The district, inhabited mostly by tribals, as they constitute 51% of total population of the district. The socio-economic indicators highlight Koraput as one of the laggard districts in the state of Odisha. It was the largest district in the state

until 1992. It was later divided into districts of Rayagada, Nawarangpur, Malkangiri, and Koraput. It is surrounded by Rayagada district and Srikakulam of Andhra Pradesh in the East, Nabarangpur district in the North, Malkangiri district and Bastar district of Chhattisgarh in the West and Visakhapatnam of Andhra Pradesh in the South. At present, Koraput comprises two sub-divisions of Jeypore and Koraput, 14 tahasils and 14 Community Development Blocks and 226 Gram Panchayats (District Planning and Monitoring Unit, Government of Odisha, 2017). Total number of Gram Panchayats in the district are 226 and there are in total 2045 villages (Census of India, 2011).

Agriculture, largely rainfed and subsistence, is the primary source of livelihood, as 83 percent of the population depends on it (Comprehensive District Plan, 2017-2018). Kharif (June-September) is the main cropping season. Paddy is the principal crop followed by finger millet, niger, maize, sugarcane and vegetables. The district administration has greater focus on the cultivation of horticulture crops, holding greater potential for production of fruits, vegetables, and spices. Cashew and coffee plantation are also prevalent in Koraput.

Finger and little millet are the major staple crops consumed in the tribal belt of Koraput district, next only to paddy. Finger millet, are primarily grown on marginal lands in the upland region, with few external inputs. It is either cultivated as an alone crop or intercropped with a mix of pulses, oilseeds and legumes under mixed cropping system (Pradhan et al, 2018).

The eastern ghat of Koraput district is a tribal-dominated region, and the entire region comes under the Schedule V area. The major tribes found in the region include Desia Kondh, Paraja, Gadaba, Amantya, Bhumia, Bhotara, Koya and Dhurua. Bonda, Didayi, Kutia Kondh, Dongriya Kondh, Saora, Lanjia Saora, Chuktia Bhunjia are the PVT groups found in Koraput district<sup>40</sup>. Apart from agriculture, people earn their livelihoods from wage employment, livestock rearing, and forest products. Bonda, Didayi, Kutia Kondh, Dongriya Kondh, Saora, Lanjia Saora, Chuktia Bhunjia form the PVT groups. There is a great degree of dependency on Common Property Resources (CPRs) such as forests, lands, hillocks and streams (Prakash et al, 2020).

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<sup>40</sup> For more details on the tribes of Koraput district, please refer to Ota et al., (2018). "Demographic Profile of Scheduled Tribes in Odisha (1961-2011)." Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI), Government of Odisha. (2018).

### 2.4.3 A profile of study location in Odisha

For the study, five Community Development blocks of Koraput district were selected. These blocks are: Lamtaput, Kundra, Boipariguda, Nandapur, and Borigumma. In these blocks, WSHGs and Individual women farmers are spread over various villages. In Lamtaput, 4 FGDs with WSHGs and 10 In-depth interviews with individual women farmers were undertaken. In rest of the 4 blocks, 4 FGDs with WSHGs and 5 In-depth interviews from each block were conducted.



## Chapter 3

### North-East Network and their Millet revival initiative in Phek district of Nagaland: Role of NEN and other associated Actors

In this chapter, I discuss the actors involved and their role in the millet ecosystem of Nagaland. North-East Network (NEN), a women's rights organization established in 1994 has been an active promoter of local food system, the associated biodiversity and empowering communities to defend natural resources, such as seeds, land, and forests. This chapter follows an NGO's (NEN) initiative with women farmers in farming and growing millet. The millet revival initiative in Nagaland influenced by the women centric work on millets by DDS in Telengana region and coordinated by the Millet Network India (MINI) engages other actors, primarily, Village Council, Women Society, Millet Farmer Groups, Millet Resource Centres and Community Seed Bank in upholding the millet based traditional farming system. These actors are categorized in **Table 3.1**.

Table 3. 1 Actors in Millet Interventions in Nagaland

Actors	Roles and Responsibilities
Millet Network of India	<ul style="list-style-type: none"><li>• Small time funding the program</li><li>• Mobilizes resources, capacity building workshops and building networks</li></ul>
NEN	<ul style="list-style-type: none"><li>• Forging collaborations with government, networks, and organizations</li><li>• Engaging women and youth in the community ownership projects</li></ul>
MRC	<ul style="list-style-type: none"><li>• Facilitating the exchange of exchange of experiences, knowledge sharing and direct interaction</li><li>• Hosts events bringing together various stakeholders</li></ul>
Village Council	<ul style="list-style-type: none"><li>• Allocation of land for collective farming by women</li><li>• Encourages and allocates resources to promote millet farming</li></ul>
Millet Sisters/WSHG	<ul style="list-style-type: none"><li>• Involved in production, consumption and marketing of millets</li><li>• Exchange learnings, knowledge and share problems</li></ul>
Women Society	<ul style="list-style-type: none"><li>• Encourages community to take up millet farming</li><li>• Crucial role to play in taking lead in undertaking millet farming</li></ul>
Community Seed Bank	<ul style="list-style-type: none"><li>• Preserving indigenous varieties of seeds</li><li>• Availability and timely accessibility</li></ul>

### 3.1 National Food Security Mission and Millet

In Nagaland, a grassroots organization the North-East Network (NEN) is leading the revival of millets-based bio-diverse farming systems involving local communities. To understand NEN's initiative in reviving millets in Nagaland, it is crucial to look at how India's National Nutri-cereals

Mission, a sub-component of the National Food Security Mission (NFSM) has rolled out, current engagement of NEN with the state government and an outline of the work of NEN in collaboration with the Millet Network of India (MINI).

The NFSM is implemented by the Department of Agriculture, Krishi Vigyan Kendra (KVK) and Agricultural Technology Management Agency (ATMA) in Nagaland. Women, small and marginal farmers are the major target groups under the intervention. The interventions covered under NFSM-Coarse Cereals (NFSM-CC) include cluster demonstrations on improved package of practices, high yielding variety (HYV) seed distribution, local initiatives like demonstration by NGOs in remote areas and assistance for custom hiring.

In 2018, under NFSM, in Nagaland, millets got approved for cultivation. Foxtail millet is the crop among the millet group that is grown predominantly. Foxtail millet is promoted under NFSM-CC to increase coverage area, improve production and productivity. Jobsteers is another type of small millet grown extensively across Nagaland but did not get approved for cultivation under NFSM. In 2018-19, widespread cultivation of millets happened in Mon and Kiphire district.

Under NFSM, local varieties for seed conservation are emphasized by acknowledging farmer's indigenous knowledge of millet cultivation. Integrated pest and nutrient management is prioritized to promote organic cultivation of millets. Agriculture officers from ATMA present at the village level support in extending services to targeted beneficiaries (i.e. women, small and marginal farmers) under NFSM-CC. The government of Nagaland has not integrated the implementation of NFSM-CC by involving civil society organisations (CSO), like NEN, who are working in the field of millet revival with MINI in Nagaland since 2010. It is evident that Nutri-Cereals Sub Mission under NFSM does not work in unison with any other state agency or CSOs.

### **3.2 North East Network and Millet**

The involvement of the state government in reviving millets amongst the community is minimal. As explained earlier, the Nutri-cereals mission is implemented in two districts within the state. The level of interaction between NEN and the state government is quite restricted. NEN reaching out to the agricultural department to request for assistance in promoting millet cultivation including the provision of machinery and support for processing technologies has met with limited success. The main reason for the lack of government support to millet growers is

attributed to insufficient funds. Government's failure to follow up on the provided processing machines reveals the state's passive approach.

*Two groups have got millet processing machines from the government and we are also trying to make them understand that this is a need, even these machines are not working properly and we need technical support in machine operation also. Things are very slow from the government side and that is again another struggle that we are facing. They keep saying that we don't have funds and there is nothing much that we can do. Its already been 5 years since we have got the machines. But we have not got technical support from the government and even for installation they did not come. We just got it under a subsidy thing<sup>41</sup>. Program Coordinator, NEN, 09<sup>th</sup> October 2022<sup>42</sup>*

NEN is invited to be a part of small programs of the state that acknowledges their expertise and knowledge with millet promotion amongst community on various occasions. NEN is a part of Scientific Advisory Committee with Krishi Vigyan Kendra (KVK), an extension body of Department of Agriculture, with members drawn from different relevant departments, farming community and from various NGOs. However, the committee is not exclusively for millets related discussion but to provide suggestions to annual action plans of government agencies. Through these platforms NEN pressurizes the government to work towards intensification of millet in the state. Women farmers are also often asked to be a part of various activities such as state level meetings involving various government agencies, exhibitions, road shows, etc that has contributed to increased awareness and exchange process regarding importance of reviving millet based traditional farming.

Government's engagement with local Village Council is in establishing marketing sheds in rural areas along the roadsides and also within villages to facilitate market structure to women farmers. Enabling market linkage between urban and rural areas is crucial to sustain the livelihood of women vendors in the local economy. Agriculture department is engaged in various programs

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<sup>41</sup> Drawn from Key Informant Interviews with NEN Program Coordinator, situated in Chizami block. Interviews were conducted in English language and then transcribed the interview in English by the researcher.

<sup>42</sup> Drawn from the second round of interview over telephone on 09<sup>th</sup> October 2022 at 3pm with NEN Program Coordinator. The interview lasted for around 90 minutes.

organized by NEN and similarly recommendations and inputs are exchanged between two agencies to address issues faced by farmers and communities.

*So besides engaging the government department for significant events when we are organizing some state level meetings, we also invite them for their recommendations and perceptions but other than that, very little coordination takes place with the state, especially around millets<sup>43</sup>. NEN Program Executive, Kohima on 20<sup>th</sup> August 2019<sup>44</sup>.*

Recent engagement of NEN with state government has been in relation with a project funded by IFAD-Fostering Climate Resilient Upland Farming Systems (IFAD-FOCUS) about fostering upland cultivation. The particular project brings multiple government departments to converge on agricultural development with an aim to shift people to settled agriculture by increasing the jhum cycle. However, the program is focusing on cultivating high value crops on jhum land and not on food crops like millet<sup>45</sup>. This confirms that the state intends to adopt market led strategy for development of the state rather than reviving millet based indigenous farming system to strengthen food security of the region. The engagement of NEN with the program is as a resource group to the team in establishing community seed bank to conserve locally grown seed varieties, and boosting the production, consumption and marketing of local food crops. These kinds of engagements see knowledge exchange and input sharing. However, no direct schemes or project is being granted to NEN to promote millet exclusively.

*Government has received input from us on CSB, where to get millet seeds from and they plan to replicate similar models across Nagaland. But apart from that there is very little engagement with the government. They may be promoting other kinds of cash crops, khollar or other high value crops but not crops like millets. Millets is one of the crop that people talk about but not much has been done. But we do network with other organizations like NGOs also. Lot of exchange learning and coming together has happened but not joint projects as such. Program Coordinator, NEN, 09<sup>th</sup> October 2022<sup>46</sup>.*

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<sup>43</sup> Drawn from Key Informant Interviews conducted in English with NEN professionals. Interviews were later transcribed in English.

<sup>44</sup> The interview was taken and transcribed in English by the researcher.

<sup>45</sup> For more information, please refer to <https://focus.nagaland.gov.in/?p=27>

<sup>46</sup> The interview was taken in english and transcribed by the researcher in english over telephone on 09<sup>th</sup> October, 2022.

Regular interactions and workshops are required for a louder voice to push and influence the government to support millet growers of the state. A recent workshop organized by NEN brought together government agencies, representatives from IFAD, state research institutions like State Agriculture Research institutes (SARS), agriculture universities, agriculture department, and farmers from 7-8 districts. Such kinds of knowledge and experience sharing platforms have sensitized government agencies along with other stakeholders towards contribution of women farmers in sustaining millet based collective farming system. There is a strong reliance of NEN on network building to draw ideas and central government's attention to the solutions addressing challenges of millet farming in the state.

*We have also been pushing our agenda to support with infrastructural development and small time processing machines dehusking machines to encourage them, to help them with facilitation of committing to millet market. In the workshop, Millet farmer groups also presented their issues and concerns, case studies, their best practices, as collectives what they are doing together to conserve and to promote traditional seed varieties, to promote millets.* State Coordinator, NEN, 21<sup>st</sup> August, 2019<sup>47</sup>.

*Of course our networking collaboration with state government will continue but the purpose and scope of our networking with other CSOs elsewhere in the country is also to how do we collectively present our state's issues related to the millet at national level and then we can also as a collective discuss what are the alternatives that is available to meet the challenges that we are facing.* Program Executive, NEN, 20<sup>th</sup> August 2019<sup>48</sup>.

### **3.2.1 Contextualizing the work of North-East Network (NEN) in Nagaland**

Realizing the importance of conserving and promoting local millet based agro biodiversity, from the perspective of food and nutrition security by NEN, led to a series of interactions of NEN with DDS during 2009-10. Deccan Development Society (DDS), is an organization working in

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<sup>47</sup> The in-depth interview with State Coordinator was taken during the 1<sup>st</sup> round of field study to Nagaland during the month of August 2019.

<sup>48</sup> The interview was carried out by the researcher in English language in Kohima during the 1<sup>st</sup> phase of field study. The interview was then transcribed by the researcher.

Telangana state, towards reviving of millets by collectivizing 5000 marginalized women farmers from various social groups. DDS, in continuation of its efforts to promote millets based rain-fed agriculture system, initiated Millet Network of India (MINI) in 2007. The Millet Network of India (MINI) functions as a network linking various civil society organizations and individuals dedicated to the revival of millet cultivation across different regions of India.

The collaboration between NEN and DDS commenced in 2009, when DDS invited NEN to be a part of a larger nationwide study on ‘Community Charter on Climate Change’ with the arrangement of a workshop in six villages within Chizami block of Phek district in Nagaland (Nagaland Post, 2019). The workshop centered around climate change issues affecting agricultural crops and its cultivation patterns faced by the community and mapped community’s responses to mitigate them. An in-depth study followed on the status of millets, conducted by NEN in 5 villages of Phek, Tuensang, Longleng and Kohima districts of Nagaland in 2011-12<sup>49</sup>. These villages are Chizami, Sumi, Enhulumi, Mesulumi, and Leshemi. The study was conducted to understand the status of millets, challenges and factors responsible behind decline in millet cultivation and consumption. In collaboration with the villages, workshops and meetings were held, and farmers were mobilized on the need to revive traditional agro-ecological methods of cultivation.

It was found that people have stopped cultivating and consuming millets resulting in decrease in value of millet, decline in production area and reduced significance of millets in jhum cultivation. One of the main findings of the study was the discovery of millets and other traditional varieties of paddy as climate resilient crops that have almost vanished from most of the villages of Nagaland. Recognizing millets as the future of food and farming by community and the community elders set the motion for NEN to initiate efforts towards building awareness and mobilizing communities around the importance of millet-based bio-diverse farming.

It was at this time when NEN realized the importance of reviving an indigenous crop and began working on millets and food systems in five villages of Phek district. Crucial role of women farmers in reviving and sustaining bio-diverse farming system was made central to millet revival initiative by NEN. Communities were organized in participatory approaches, with community

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<sup>49</sup> This section draws from the report by NEN on “Status of Millets in Nagaland”. A Study by North East Network. Supported by Deccan Development Society/Millet Network of India. December 2011- February 2012

sharing traditionally acquired knowledge in order to understand issues and challenges surrounding the practice of sustainable agriculture. Millet, emerged as a climate resilient crop providing health and cultural benefits that can sustain communities in the face of drastic climate changes. The community members themselves collectively recognized the importance of millet as a crop with considerable potential for the future<sup>50</sup>.

NEN since joining MINI from 2010 onwards, has been relentless in reviving and restoring the lost tradition of millet-based sustainable agriculture by reconnecting the farming communities of Nagaland with communities and stakeholders from other states of India. MINI, in the context of Nagaland, has been sensitizing and mobilizing communities by working with groups and organizations around the issues of ecology, sustainable livelihoods, governance, peace and community development.

In March, 2010, for the first time, millet ecosystem and its revival in Northeast India came to forefront with organizing the first North East Consultation on Millets, held at ICAR-NEH, Shillong, Meghalaya. Organized in collaboration with Foundation for Social Transformation (FST), a CSO based in Guwahati, Assam, North East Network (NEN), and Millet Network of India (MINI), the consultation observed deliberations on millet farming by participants from different sections of society such as economists, agricultural scientists, nutritionists, farmers practicing millet cultivation and representatives of NGOs working on food security and millet related issues (Foundation for Social Transformation, 2010). Appreciating millets for its relevance and potential for a nutritious food source, need for a study to understand the reasons behind its disappearance, its importance in the lives of people and its role to mitigate adverse climatic impacts was consented upon by the diverse stakeholders (The NE Millets Consultation, 2010). In 2011, a team from Nagaland, led by NEN, took part in India's first National Convention of Millet Farmers, organized at the University of Agricultural Sciences in Dharwad, Karnataka. Reasons behind decline in the popularity of millets owing to lack of labour in villages to cultivate millets were some of the concerns raised by the team. This set the path for a dialogue on revival of millets in the lives of the people in the Northeastern region.

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<sup>50</sup> This section is based mainly on insights derived from the report developed by NEN on the study conducted by NEN to understand the status of millets in Nagaland in 2011.

The consultation further led on to getting millets included in as nutri-cereals in National Food Security Act of 2013 with a provision of decentralized PDS. Following the persistent demand of civil society networks such as MINI to include millets in PDS and MDM scheme encouraged the government to act upon the status of millets in the country (AIMS, 2018). Thereby the first comprehensive scheme was launched on millets called the “Initiative for Nutritional Security through Intensive Millet Promotion” (INSIMP) aimed at promoting millets cultivation on an intensive scale. Below are some of the measures through which NEN aims to revive millet-based farming system.

### ***Cultural revival, bio-diversity festivals***

Celebrations related to agriculture and food crops grown hold a special place in the life of Nagas. The Biodiversity Festival marked to revive the culture of celebration of ‘etsube’<sup>51</sup> festival related to millet was lost amongst the community with decline in the production and consumption of millets. Millet festival holds importance for community spirit to invoke a feeling of collectiveness in cleaning the footpath leading to field as well as collective cleaning of village. In order to revive this tradition and to retain an important cultural aspect of community life, NEN has been organizing a few bio-diversity festivals annually in different villages of Phek district, starting from 2009. Due to the advent of Christianity, tradition of celebrating harvest festivals and millet was lost.

The underlying objective is to promote bio-diverse farming, where the emphasis is not only on millets, but on other crops also for a comprehensive approach to farming. These biodiversity festivals have supported revival of millets through seed exchange programs, highlighting and acknowledging the crucial role of women farmers in preserving traditional knowledge to protect biodiversity. The festival, has over the years, been a convergence of diverse stakeholders from farming communities both within and outside Nagaland, representatives of CSOs, CBOs, media, educational institutes and government agencies, to deliberate on issues related to biodiversity, sustainability, and food and farming systems (Eastern Mirror Nagaland, 2021).

### ***Seeds conservation***

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<sup>51</sup> Local name for millet.

NEN advocates for the preservation and conservation of seeds and has been working with community knowledge holders on the importance of seeds preservation. Preservation of indigenous seeds and fostering biodiversity has been one of their focal points. With NEN's encouragement, five seed keepers are identified from Chizami. With the support from NEN, Chizami Women's Society has established a seed bank in February 2018. Women are acknowledged as the custodians of seed. Seed selection, storage and preservation is mostly done by women farmers. Community Seed Banks exists in 10 villages of Phek district. CSBs are an important platform to exchange seeds, revive traditional seeds, enabling farmer's easy access to local varieties and safeguarding farmer's right over seed sovereignty (NEN, Annual Report, 2018-19).

### ***Capacity building***

Through exchange learning, in 2010, women farmers from Assam, Meghalaya, and Nagaland visited DDS with members of NEN, where women farmers could learn about the cultivation patterns of millets, different varieties and benefits of millets (Lulla, Trivedi and Wani, 2022). Various capacity building trainings, workshops and facilitating sessions organized by the NEN for knowledge sharing and strengthening of skills amongst the community has contributed to awareness building in the community.

### ***Youth development***

Through NEN Farm School, summer farm schools involve youth in understanding local culture and traditional food and farming systems in a week-long residential and experiential learning program. Through classroom and hands on training activities, youths are given learning exposure on the process of local food systems and community life through conserving local seeds and soil management techniques (NEN, Annual Report, 2018-19). Participatory video project in association with North-East Slow Food and Agro-biodiversity Society (NESFAS) and Insightshare, Oxford has proved to be a useful tool to educate and spread the message to community youth on basic filming and editing training enabling them to produce films on local culture, agriculture, livelihood, traditional knowledge, etc (Lulla et al., 2022).

### **3.3 Actors Facilitating Millet Interventions in Nagaland**

#### **3.3.1 Deccan Development Society (DDS)**

The DDS as an organization is working for three and half decades in about 75 villages with women's Sanghams (voluntary village level associations of the poor) in Sangareddy district of Telengana. Through these women sanghams, the society has revived and promoted the traditional millet-based farming along the lines Food Sovereignty, for over 30 years in the Zaheerabad region of Telangana. Treading along the path of creating local food sovereignty, the society organized the most marginalized sections like women from dalit communities and other vulnerable communities from rural areas around the revival of millets initiative. Through this, Alternative Public Distribution System was created based on the principles of local production, local storage, and local distribution. By this, women have been able to gain control over their local food and farming system (Mazhar et al, 2007).

DDS has been pioneer in influencing civil society organizations to work around the issues of millet involving women farmers. To give identity to women millet growers, it has been conducting various exposure visits engaging in learning workshops. It was in 2011-12, that a "Study on Status of Millets" was instituted by the Millet Network of India (MINI) of the DDS. This study was commissioned to understand the importance of millets in the lives and livelihoods of people and understand the concerns and issues behind the decline of millet cultivation amongst the MINI partners. It prepared the groundwork for future interventions in some states of India like Nagaland, Karnataka, North Coastal Andhra Pradesh and Odisha.

#### **3.3.2 Millet Network of India (MINI)**

MINI funds small activities and initiatives of NEN mainly with respect to organizing knowledge sharing workshops, capacity building workshops and training sessions. MINI supports organizations working with millet promotion by mobilizing resources, building network, and providing small grants to organize learning workshops. Working towards promoting awareness and building collaborative initiatives with the state to revive millet-based agriculture system

through state policies and programmes forms the core around the advocacy strategies of MINI (Millet Network of India, 2017).

However, very less financial support is received by NEN, even for the millet program, there was no full-time resource person to cater to the program implementation. Despite less financial assistance from MINI, there is a continued association of NEN with MINI. The association leads on one hand, promotion, awareness and education related activities at the community level. On other hand, engagement with relevant department to create visibility and to advocate for inclusion of millets into state level schemes or programs is ongoing at the state and national level.

A crucial component of NEN's engagement with MINI has been the knowledge generation from experience sharing with other partners along with influencing government to include millets in PDS and food policies of India. Coming together of partners in a collective way to advocate for farmer's rights, to promote millets and exchanging solidarity through connecting millet communities across the country have been the key deliverables of the association of NEN with MINI. In recent times, weakening of MINI due to changing political scenario, changed rules of funding to NGOs, the influence of leadership and the network going through a phase of transition has reduced the vibrancy of the network.

### **3.3.3 North-East Network (NEN)**

Founded in 1995 as a women rights group focusing on development and natural resource management issues, seeks to strengthen women's position on issues of biodiversity conservation, sustainable livelihoods and food and farming systems (NEN, Annual Report, 2019-20). The NEN has gained recognition as a pioneering organization in the northeast region, operating in three states, Assam, Meghalaya and Nagaland. In Nagaland, NEN initially began by raising awareness among women in Chizami village about reproductive health rights, particularly emphasizing preventive and basic curative aspects of women's health. Over time, NEN expanded its focus to include other factors influencing health, including social, economic and ecological aspects.

Promoting sustainable and traditional agricultural practices as a means to protect commons through awareness campaigns and capacity building workshops became a core area for NEN to

promote women's health and sustain women's livelihood sources. Through building local women's capacities and leadership skills, women members are encouraged to participate in decision making issues affecting community.

DDS's guiding ideology and principles served as a significant influence on NEN's initial years of work. Moreover, early interactions with some organizations and networks active on alternative agriculture such as Navdanya, MAKAAAM, Kalpavriksh, and Keystone in Nilgiris bolstered NEN's commitment to amplifying the voices of women farmers through using rights based advocacy. NEN's collaboration and networking with similar organizations dedicated to indigenous food system in the Northeast region have positioned NEN to extend its practices to other parts of the state.

NEN's active involvement plays a vital role in facilitating discussions with both the Indian Council of Agricultural Research-KVK (ICAR-KVK) and the state's agriculture directorate. These discussions aim to incorporate millets in the Public Distribution Scheme (PDS) and Mid-Day Meals (MDM) schemes in governmental schools and anganwadis. Communication with the government to retain government owned land for community farming by women farmers is an effort to revive jhum farming by the community against individualization of jhum lands. On occasions like, International Women's Day, International Day of Rural Women, World Food Day, Bio-diversity festivals, etc, NEN takes the initiative to foster dialogues between women farmers and government representatives. These dialogues focus on women farmer rights, sustainable food systems and traditional knowledge, with the aim of sensitizing government departments to ensure food and nutrition security of the people (Lulla et al., 2022).

#### **3.3.4 Millet Resource Centre (MRC)**

MRC was established in 2009 at Chizami village, Phek district, under the project "Empowerment and Food Sovereignty: Addressing the Rights of Women, Dalits, Adivasis by Regaining the Lost Place of Millets", MRC emerged from NEN's engagement with DDS. MRC plays an important role in bringing stakeholders engaged around millets promotion together. Functioning as an information hub, MRC facilitates the exchange of experiences, knowledge sharing and direct interaction between communities and subject experts. Through MRC, activities and meetings are organized for women farmers to reinforce concerns related to food sovereignty.

MRC actively generates and disseminates information on millets, food sovereignty and agronomic issues through various means, including print and audio-visual media as well as lecture cum demonstration series in partnership with various agencies in the state. Additionally, MRC hosts events, bringing together women farmers, community leaders, members of different village bodies, from different backgrounds, communities and tribes to exchange information on agriculture, health, and other critical aspects of village life. As part of the Biodiversity festival, MRC also exhibits different crops including millets and traditional varieties of paddy and other locally grown crops, a tradition that has been ongoing since 2010.

### **3.3.5 Village Councils**

Village Council acts a local self-governance institute functioning under the traditional system of governance responsible for management of resources and economic and political activities at the village level. Each village in Nagaland being a democratic republic unit has its own governance system and laws under the VC, members of which are appointed by the villagers according to the prevailing customary laws (Jamir, 2011). The Nagaland Village and Area Councils Act 1978 permits Village Council to act as a local self-governance institute (Jamir, 2011). Article 371 (A) of the Indian constitution provides constitutional legitimacy to the customary laws and procedures to deal with civil and criminal cases in Nagaland.

Participation of women members in VC and other such traditional tribal institutions is restricted as women in naga society are devoid of rights and social sanctions to join any decision making bodies (Jamir, 2011). This reflects the patriarchal approach of the naga society wherein, property and inheritance rights along with women's participation in planning and decision making bodies is curtailed. Due to NEN's involvement and encouragement, 2 women became members of the VC in Chizami village and two more women members were included as VC members in 2015.

The Village Council (VC) possesses the authority to create plans for development of the village and carry out development projects either independently or in response to government requests (Jamir, 2011). The Village Councils and their subsidiary Village Development Board (VDB) are the two important institutions of decentralized governance across Nagaland. The significance of the VC becomes evident in matters related to agriculture and resource management. This includes

making decisions about agricultural practices such as jhum cycles, allocating land to specific clans, choosing crops for cultivation, determining land usage in conjunction with clan and seasonal planning and other significant agricultural choices.

*Millet was very much important once upon a time. But due to climate change and technological impact, slowly we are losing the agricultural practices. But with the support of NEN, we and our younger generation is slowly learning about the importance of millets cultivation. So we in the VC and VDB, together with NEN, are trying to improve millet cultivation in the village. We are also discussing and putting some announcements to cultivate millet and since NEN is giving classes on nutritional values of millet, so we are collaborating with them. VDB member, Chizami village, 10<sup>th</sup> October, 2022<sup>52</sup>.*

However, with respect to millets, involvement of NEN with Village Council is limited. VC members are invited by NEN to be a part of their annual biodiversity festival. Activeness and strong leadership of women collectives from village to village define their level, extent and effectiveness of engagement with the VC. If the women collective of a particular village is active in highlighting and addressing village level issues, then their engagement brings efficiency to development of the village.

*It depends from village to village. In some villages there is very little engagement with VC. We get this prior informed consent from the VC about intervening in their village and after which we may engage VC in the programs to be part of the biodiversity festival or to be part of some programs other than that there is not direct engagement with the Village Council. NEN Program Coordinator, Chizami block, 09<sup>th</sup> October 2022.*

*So in villages where women collectives are active or there is an able leadership, they are able to engage with VC more in terms of influencing them to allocate them land for such, to encourage the community to participate in collective farming together. So that is why it depends very much on women's group at the ground. NEN Program Executive, Kohima, 20<sup>th</sup> August, 2019.*

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<sup>52</sup> The interview with VDB member in Chizami village was taken over telephone on 10<sup>th</sup> October, 2022. The researcher conducted the interview in English and the interview was later transcribed in English for further data analysis.

VC in Khumiasu village, under MGNREGA, an agricultural scheme promotes cultivation of different crops such as millets and other vegetable crops. Meluri VC has allocated a plot of land to cultivate millets and vegetables in 2022. VC in Meluri village has been encouraging households to cultivate more of millets. Moreover, 2023 being International Year of Millets, specific activities promoting millet cultivation by VC are on the pipeline.

### **3.3.6 Millet Sisters**

Millet Sisters is the general term given by NEN to women collectives formed under NEN that also includes the WSHGs involved in production, consumption and marketing of millets. Millet Sisters are a group of millet women farmers formed to discuss marketing opportunities and exchange learnings, knowledge and share problems.

### **3.3.7 Women Society**

Women Society as a formal group of women members ranging from 15-30 is a part of governance structure of each village. Women Society are recognized as women collectives by the communities and the state. But women groups or collectives do not form Women Society. Women groups are an informal group. In some villages, these women society have taken up production and conservation of local landraces of millet but it necessarily does not form a part of their activity. Women Society exhibit power over social, cultural and agricultural decisions of the village. Sometimes Women Society is an entry point of NEN to begin working with a larger community.

Members of the women collectives do individual farming in their own fields but also engage in collective farming by leasing in a plot of land on rent or donated by the VC. Engagement of Women Society with Village Council is important to influence VC to allocate them land for collective farming and to encourage the community to participate in collective farming together. Women collectives acts as a platform for NEN to not only promote biodiversity crop but also to bring in a larger discussion of how to safeguard seeds, crop diversity, local food self-sufficiency and collectively discuss the challenges affecting women farmers.

Women Society in Meluri village started with millet cultivation with the group's formation in the year 1982. But the group could not continue with cultivating millets. Lack of time, hard labour involvement and little remuneration received were the reasons behind not cultivating millets anymore. The Women Society supports other millet growers by conducting learning workshops and training sessions. Apart from this the Women Society is engaged in doing community work in the village.

*Since the women society does not have any funds we cannot help the women farmers financially but what we can do to support them is by encouraging them and by holding seminars in order to motivate and help the women through our words even though we cannot help them financially. We buy rice and soaps and give to the elderly people in the village and do some community work.* President of Women Society in Meluri village, 17<sup>th</sup> April 2022<sup>53</sup>.

However, in Chizami, the village from where NEN started off its work, Women Society is found to be quite active. The Women Society is actively associated with issues related to women's development. The Women Society started working around women's health issues during the 1990 when it was first established. Since then, the Society has engaged itself with food and nutrition security and livelihood issues. NEN's engagement with these collectives is in the form of knowledge sharing, facilitating meetings, conducting leadership trainings, capacity building and building networks.

### **3.3.8 Community Seed Bank**

A Community Seed Bank (CSB) was established in 2015 in Chizami village with community initiative and the support from NEN. The community members mobilized and encouraged by NEN to preserve indigenous seeds from drastic climatic change and natural hazards, the community along with village elders and farmers documented the varieties of available traditional seeds. Each household contributed some stored seeds of each specific variety of crop and thus the CSB was established. The underlying purpose of establishing the CSB was preserving

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<sup>53</sup> The researcher introduced herself to the President of the Women Society and the members. The researcher took help of the field assistant/translator Ms. Poviewi, to conduct the FGD since the women members did not understand and could not communicate in English. The interview was then transcribed from pochury language to English by the field assistant, who is a local woman from Meluri village.

common resources of indigenous communities ensuring its availability and timely accessibility in case of natural hazards.

*CSB was initiated by NEN. They are our backbone and pillar and through them we came this far. We have some objectives, we have some rules and we maintain register. For all those things we have a committee to look after the CSB. VDB member, 10<sup>th</sup> October, 2022 (Telephonic interview)<sup>54</sup>.*

*Even though we have the tradition of seed keeping at the individual household level, younger generation are no longer interested in seed saving and storing because it is easily available from the market. A lot of people are picking up market seeds, government supplied seeds. People still retain traditional seeds but not so much importance is given. So looking at all these aspects, collectively we decided that NEN can provide the knowledge and input and can the women society take the lead on building this as part of community asset. Program Coordinator, NEN, 09<sup>th</sup> October 2022 (Telephonic interview)<sup>55</sup>.*

Encouraging community to take ownership of their food and farming system is a sustainable way of creating community awareness and making them resilient against the onslaught of market forces holds importance along the lines of achieving food sovereignty on ground.

*By starting CSB we have to protect and promote our traditional diversity to gain resilience in the context of climate change. To take ownership of our local food system as many outside varieties of food have started coming into the market. We want to ensure food security of the farmers, gain autonomy over food and increase the production of millets and other food grains. Since the younger generation is less and less interested to get back to farming, through CSB, we want to pass down the knowledge of preserving seeds to younger generation and to share the ideas and encourage them to start the same. Secretary, Women Society, Chizami, 10<sup>th</sup> October, 2022 (Telephonic interview).*

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<sup>54</sup> The interview was taken over the telephone and recorded in English. The interview was then transcribed in English by the researcher.

<sup>55</sup> The Key Informant Interviews with government officials from Agriculture department in Kohima, Women Society Secretary, VDB member, Secretary of VC, and NEN Professionals were conducted by the researcher in English and interviews were transcribed in English by the researcher.

Each household contributed some stored seeds of each specific variety of crop and thus the CSB was established. Chizami Women Society alongwith leading the collective seed preservation initiative has also contributed towards securing wage parity and inclusion of women members in decision making bodies that is the Village Council. In Phek district, there are 10 Community Seed Banks but only 4-5 are still functional whereas other Seed banks are not in good shape. Lack of strong leadership and motivation are the reasons behind some of the other CSBs not performing well. In the initial years, CSBs remain vibrant, however with NEN gradually withdrawing, the community starts losing interest as either the tenure of the initial leaders and group members provided with training and input support get over or their experience and knowledge could not be transferred to the next group. This resulted in breakdown and group members lacking enthusiasm to move forward with the responsibilities of the CSB.

### **3.4 Chapter Summary**

The chapter discusses the millet revival initiative led by a women's rights organization, NEN working in Phek district of Nagaland since 2010. A member organization of large national network such as Millet Network of India and All India Millet Sisters working on issues of millet farming, NEN is mobilizing women collectives and communities in rural areas to take control of local food system through reviving millet based traditional farming system which is gradually declining in the advent of cash crop-based agriculture in the state.

Role of various actors, such as Village Council, Women Society as part of being local self-governance structure holds power in terms of allocating resources such as land and organizing market structure and mobilizing community to cultivate millets. Village Council play an encouraging role along with allocating resources and channelizing fund to promote millet farming in the village. Active association of the Women Society with village level issues also plays a key role in influencing VC to take up millet related agenda during the agricultural season. Cultural revival such as organizing biodiversity festival, advocating for seed conservation through establishing Community Seed Banks, capacity building, knowledge sharing workshops, awareness and education approach, training events and involving youth are some of the strategies adopted by NEN in an effort towards making the community aware of the importance of sustaining traditional agriculture.

However, lack of dedicated financial help from MINI or any other major funder constrains NEN's capacity to support women in promoting millets. But NEN is found to be expanding millet work in other districts of the state which indicates a positive step towards millet revival in the state. An important part of the association of NEN with national networks working on millets has been their combined learning through experience sharing along with collectiveness in advocating for the rights of farmers, to promote millet and exchange solidarity through connecting millet communities across the country.

In the next chapter I turn attention to how women engage in the millet ecosystem in Meluri and Khumaisu villages of Nagaland. NEN is the only actor that plays a significant role in revival of millet in the studied villages. The involvement of NEN and the lack of any significant government support in sustaining production and processing of millet in Nagaland is examined. The impact of changing agricultural and livelihood practices, particularly jhum cultivation on millet production and consumption is also examined.

## Chapter 4

### Millets and Women in Nagaland

Studies on millet in India basically ranges from trends in production and consumption, with specific focus on nutritive value of different varieties of millet and their contribution to food and nutrition security challenges. In these studies, contribution of and challenges faced by women farmers in sustaining a lost crop like millets is neglected. Often not studied is the perspective farmers hold about the millet crop, the choice they exercise in terms of whether to grow millet as a food or cash crop and the factors inhibiting the production and consumption of millets in a traditional economy like Nagaland. It is in this backdrop that the present chapter discusses the role of women and their decisions to produce and consume millets in a local food system milieu which is increasingly oriented towards production of cash crops for maximizing profits. This chapter follows an NGO's (NEN) initiative with women farmers in farming and growing millet.

As elaborated in Chapter 2, the study location is Phek district, in the villages of Meluri, Khumaisu and Chizami. Villages Meluri and Khumaisu were extensively covered by conducting FGDs and in-depth interviews. Village Chizami was selectively covered. The information on agriculture practices is thus largely based on information I have from Meluri and Khumaisu villages. Section 4.1 discusses the significance of jhum and millets cultivation in Nagaland based on the narratives of women farmers in the two villages. Focus is on how millet production and cultivation is on a decline due to decimation of jhum practice. Section 4.2 examines women's engagement with millets in the larger context of millets intervention and declining jhum farming in Nagaland. I also assess the challenges faced by women farmers in production and processing of millets in the study location. Section 4.3 discusses the women collectives work and NEN's association with women's groups. Challenges faced by NEN is explored in section 4.4. Section 4.5 summarises the chapter<sup>56</sup>.

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<sup>56</sup> Note: Names of the interviewees (block and village level) has been kept anonymized throughout the thesis. However, certain Key Informant Interviews taken with Key Informants have ben divulged by the researcher. Time and place of the interview is added in the citations and highlighted.

## 4.1 Jhum and Millets in Nagaland

Nagaland is primarily an agriculture dependent economy with 71.14 percent of the population dependent on agriculture. The land and local environment, particularly the food system and forests, form the basis of the Nagas' social, cultural and economic system (Shimray, 2020). The Naga culture, ceremonies, beliefs and festivals are all associated with agriculture practices and food crops (Nagaland State Human Development Report, 2016). The traditional form of shifting cultivation widely followed by inhabitants ensures food security, sustain livelihoods, manages traditional cultural practices and conserves agro-biodiversity of the local communities inhabiting the region (Nakro, 2011).

Shifting cultivation is widely practiced in Meluri and Khumiasu villages and forms an integral part of social and cultural life of the local people. Festivals and social occasions are attuned to the activities involved in shifting cultivation. Meluri and Khumiasu villages have a jhum area of 12 circles. Cultivation in jhum circles are done in sequence and the land is allocated to the household or clan for cultivation by the Village Council in collaboration with the Village Chief. The Village Chief, an important institution in the village, in consultation with the village elders decides every year which jhum circle to cultivate. The Village Chief makes a local ritual marking the onset of agricultural season in the village<sup>57</sup>.

The month of March begins the agriculture season in Nagaland with the cutting and clearing of forests. This is followed by the burning of forests in the first or second week of April. Farmers construct houses in the field for the purpose of staying during the agriculture operations as paddy fields are at a distant location and farmers mostly commute to their fields by walk. The sowing of millets and cereals such as paddy is done on the first day of the month of May. However, vegetables such as yam, maize are sown in the third week of April after the ceremonial sowing of the seeds done by the elder womenfolk of the villages. Fields are irrigated in the month of June. Paddy and soyabean are planted during the month of July. In August, millet is harvested and men sow naga dal. In the last three months of the year, paddy and yam is harvested and the

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<sup>57</sup> Drawn from the interview with the Secretary of Village Council of Meluri village. Interview was conducted in English and transcribed in English by the researcher.

harvest brought from the field to home. These agriculture activities are most frequently getting delayed under the influence of climate change.

*Firstly, we will clear the forest by cutting down the big trees. Then in the last week of March we usually burn the forest but this year due to the weather we could only burn it at the second week of April. Then after burning the forest we check to see if the field is fully and properly burned. If not we again burn it by ourselves in our own fields. Then after we have done all these we start planting and sowing the seed and different vegetables in the following months. FGD with a representative of WSHG in Khumiasu village, 20<sup>th</sup> April 2022<sup>58</sup>.*

*At first, we clean the forest that we are to cultivate, then we burn the forest. After burning the forest, we clear off the burned woods and then sow our seeds. We regularly visit our fields and weed them and also check if the crops are infested by pests or if they are damaged by the wild animals. Since most of the crops which we cultivate are all harvested at different intervals of time we harvest them and then sow a different crop in that place. FGD with a representative of WSHG in Meluri village, 17<sup>th</sup> April 2022.*

Since jhum field is a multi-cropping system, variety of crops are grown one after the other, harvests of which ensures food availability at household level along with some surplus to sell. Millet cannot be understood as a lone crop. The multi-cropping pattern of various crops at different seasons, involving multiple farmlands has millet as its core and is referred to as the *millet-based biodiverse food system* of the region. This traditional system of millet-based biodiverse farming is built on agro-ecological principles and practices founded on diversity using multiple crop field types, such as jhum fields, kitch, hen gardens, and terrace rice fields (see also

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<sup>58</sup> In Nagaland, to carry out the field work, the researcher has taken the help of a translator, Ms. Powievi for the purpose of conducting interviews in Meluri and Khumiasu village as it involved interaction majorly with community people from an Indigenous tribe named 'Pochury.' People belonging to this tribe speak Pochuri language, mainly inhabiting Meluri block. Powievi helped the researcher in conducting interviews along with transcribing the interviews conducted in Pochuri to English. Powievi belongs to Pochury tribe from Meluri village in Meluri Block, Phek district. She had recently passed her Master's degree in English, at the time of conducting interviews, from a state government college in Kohima, the state capital of Nagaland. The researcher introduced herself and the purpose of the visit to community members. The researcher opened the interview and asked the questions in English which were translated in Pochury language and communicated back and forth between the community and the researcher. Ms. Powievi later helped the researcher in transcribing the interviews recorded in Pochury language to English.

Trivedi, 2022). This type of farming system is not dependent on any external resources such as fertilizers or chemicals and crops are grown in an organic way.

*We sow/plant different varieties of crops in the field. They are intercropped and we do not sow just one crop. We sow millet, maize, paddy too suitable for dry field, beans of different varieties, pumpkins, cucumber, watermelon, brinjal, chillies of different types too. We also plant yam which is also of different varieties. FGD with a WSHG in Khumiasu village, 20<sup>th</sup> April 2022.*

*We sow and plant all types and varieties of crops. Some of the common crops are yam, which is like the main food plant for us, pumpkin, maize and other pulses, creepers plants beans, peas etc... in our field we intercrop all sort of plants and do not focus on just one crop. FGD with an elderly group of women farmers in Meluri village, 19<sup>th</sup> April 2022.*

*On Terrace fields the main crop that is grown is paddy. Along with paddy we grow beans, soyabean, brinjal, and chillies. We plant these crops not inside the paddy field but on the side of the fields. FGD with Women Society in Khumiasu village, 20<sup>th</sup> April 2022*

The harvested crops are stored in the granaries built outside the village in groups. Jhum agriculture is labour intensive and the changes in administration and new generation taking up other income generating activities and migration of people from rural to urban areas is leading to a shortage of labour. As a result, less and less land is being brought under shifting cultivation (see also Chukhapa, 2021). Millet has significance in the cultural history and community life of villagers in Phek district. Celebrations in Nagaland being centered around agriculture and food crops, before sowing and harvesting practices reflect the interconnection of millet in the communal life of nagas. In earlier times, to compensate for shortage of rice in households, millet often used to be cooked along with rice and consumed. Millet being expensive, is also cultivated for commercial purposes by women.

*During festivals or any gatherings people make wine from millet. They cook millet and eat it. Shared a woman farmer during an in depth interview from Meluri village, 18<sup>th</sup> April 2022.*

*Millet has indeed helped in securing food security at home but since we consume rice mostly, millet has become a secondary source of food for us. But it also did help our forefathers.*  
Individual woman farmer from Khumiasu village, 21<sup>st</sup> April 2022.

*We get money from selling the millet and this has helped us in funding for our children's education and also we use the money to pay for basic necessities in and around the house.*  
Shared by Women group in Khumaisu village, 21<sup>st</sup> April 2022.

#### **4.1.1 Current status of millets**

As understood from the narratives of women farmers in the previous section, it is ascertain that millet serves as an important food for the inhabitants of Nagaland. However, at present, millet production and consumption is in subsistence stage in Phek district. Even though its production and consumption has substantially declined in recent years, people are able to relate to millets mostly in terms of its health benefits and having importance during ancestral times. Mostly respondents relate to millets as a crop that used to be consumed in bulk by their ancestors but has reduced considerably in the present times. Our study participants are aware of the benefits of consuming millet, particularly in terms of health benefits and its inter-generational importance. Millet has traditionally been passed on from mother to daughter at the time of marriage and thus its cultivation holds tremendous traditional significance. However, the conditions encouraging revival of millet farming is surrounded with myriad changing social, economic, cultural, political and ecological factors coupled with absence of State support.

*It is an important food for us, as it can be used as a medicine or can be used to treat problems such as diabeties, cancer and even when we are feeling feverish too we make millet porridge and eat it.* Shared by Women group in Khumaisu village, 21<sup>st</sup> April 2022.

*We have been cultivating millet for a long time for consumption purpose. Our parents have encouraged us to cultivate millet so that it does not disappear completely as it is a really important source of food and can be used to treat many health related problems.* Shared by Women group in Khumaisu village, 21<sup>st</sup> April 2022

Its significance is varied when it comes to its benefits and usage. However, millet cultivation has been part of the culture of Nagaland for a long time, mainly for self- consumption purpose. Millet was not cultivated for marketing purposes. Ancestors and community elders place importance on millet cultivation to prevent it from disappearing completely. This is the reason millet cultivation, even if in small quantity, is still continuing among the farming communities of Nagaland. Although millets consumption has gone down rapidly but some communities still cultivate millet as a part of tradition. However, respondents were found to be enthusiastic about the prospects of continuing millet cultivation as it possesses immense benefits. Since, millet is expensive in the local economy, it is mainly cultivated by women farmers for commercial purposes also.

*Now not everyone is cultivating millet as compared to the olden days. So the cultivation of millet had decreased by a great amount.* Shared an elderly woman farmer cultivating millets from Pochury community in Meluri village, 19<sup>th</sup> April 2022.

*We have been cultivating millet for a long time for consumption purpose. Our parents have encouraged us to cultivate millet so that it does not disappear completely as it is a really important source of food and can be used to help many health related problems.* Shared a woman farmer during FGD with Women Collective in Khumaisu village, 21<sup>st</sup> April 2022.

Because of its cultural affinity, certain cultural activities or festivals associated with millet used to be celebrated in parts of the state where it is mostly grown. However, no particular festival is associated with millets. Millet is always intercropped with maize and cucumber saplings. Pulses are also inter-cropped with millet. The various crops produced in jhum fields, along with millet, contribute to maintaining the agro bio-diversity of the region. This could be the reason why there is no particular festival associated only with millets. However, from the interviews of the community participants, it is revealed that, the celebration of harvests of agricultural crops, followed by the holding of feasts amongst the community reflects the close association of crops and communal lives of naga people. Participants also acknowledged the fading of cultural and agricultural practices associated with millet farming with the advent of Christianity.

*There is no such thing as millet festival. In Meluri we do not have harvest festivals. Yes, back in the olden days our forefathers might have celebrated it but ever since the coming of Christianity all the old practices and customs are slowly fading away.* Shared an elderly woman farmer from Pochury community in Meluri village, 19<sup>th</sup> April 2022.

*We do not have a specific festival for millet only. Back in the olden days the family or the individual who produces the most harvest used to cook meat, fish and all sort of good foods and give a big feast to the whole community. We call it 'azhie', the feast which is given to the village. A woman farmer from Women Collective in Meluri village, 14<sup>th</sup> April 2022.*

#### **4.1.2 Declining jhum and millet cultivation**

Reasons behind declining millet cultivation and production in the state are often intertwined with state policy, changes in economy and climate change, modernization, availability of different livelihood options and opening up of economy to market and cash economy. With the decrease in jhum cultivation and increase in settled agriculture, millet production has considerably declined. Earlier 30-40 families used to cultivate together in 20-30 acres. Now it has declined to 15-20 families cultivating in 4-5 acres (see also Trivedi, 2022). Thus, decline in millet cultivation in Nagaland is also due to a decline in collective community farming. By decline, it is meant that, number of families carrying out jhum cultivation has declined along with the size of land under the jhum cultivation.

The scale of jhum has decreased as people have more access to high value crops. This decrease has come with the state government discouraging jhum cultivation because of their belief that jhum cultivation destroy forests and contributes to global warming. For development reasons as well as to reduce pressure on land due to increase in population in Nagaland, state government is promoting cash cultivation such as rubber and teak plantation on jhum lands to promote settled agriculture. Moreover, with increasing aspirations of people to earn cash income, farmers have increasingly shifted to individualized agriculture producing vegetables and other high value cash and horticulture crops. Due to lack of encouragement from state and central government to sustain and promote traditional forms of agriculture, community practices such as jhum is on a decline.

*At the same time there is no support or encouragement from state or agencies to support farmers to sustain this kind of traditional agriculture. There have been efforts taken by the state to bring the farmers to get into settled agriculture. A lot of farmers are encouraged to*

*get into horticulture crops, many projects are there which supports such practices. Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.*

*Also with the jhum, we see that it is also a collective practice, it can not be done by a single individual. It has to be an entire clan or community that gets into jhum cultivation. When there is a breakdown of this kind of family and community agriculture and community relations, everybody has more livelihood options. Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.*

### ***Increase in women's responsibilities and shortage of family labour***

With a decline in collective community farming, jhum activities like, slash and burn, harvest and post-harvest tasks, distributed amongst men, women and youth, have now fallen entirely on women. This has resulted in overburdening of women with work not only in household front but also in fields. This is leading to the decline in collective community farming and the non-availability of men as family labour to help in jhum fields. In addition, changes in family size, from a size of 6-10 children in an average Naga household to 2-3 has led to shortage of family labour and is a discouragement to farmers to grow millet. Accessibility to cash in a subsistence-based agriculture economy like Nagaland has encouraged people to turn to the market to buy food.

*Earlier there was clear gender roles like men have to slash and burn (in jhum fields) and women have to sow but now there has been some changes. With men moving on to other livelihood options, workload of women has increased not only in household chores but also in fields. Women are taking roles of men also but men are not sharing the work load of women. Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August, 2019.*

*After sowing the seeds, the women do most of the work like weeding, cleaning of the fields, and even binding of the paddy plants to protect them from storms. During harvest season everyone again helps out. A woman farmer from Khumiasu village, 22nd April 2022.*

### ***Unsupportive government policies***

Unsupportive central government policy is also one of the biggest factors deterring shifting cultivators from practicing such traditional forms. Central government initiated some new crops through schemes and programs with the intention to encourage farmers to shift to an alternative land use pattern (Jamir, 2015). Gradual transition from cultivation of food crops on jhum fields to cash cultivation, horticulture plantation and livestock feed is also seen in respect of declining millet cultivation. This is inevitably leading to wiping out the local food diversity of Nagaland (Trivedi, 2022). With this, transition is evident from traditional forms of agriculture to commercial farming inducing settled agriculture. State government is increasingly focusing on enhancing income of small scale and marginal farmers through implementing cash crop schemes and livestock keeping measures. Increasing commercialization is also leading to decline in millet cultivation. Lack of encouragement, incentives, technological support and policy focus facilitating primary processing are some of the other factors that discourage farmers to grow millet.

*If it is so hard to process, if the birds are eating like this, they have got a lot of other choices like rice and vegetables that are coming and there are lot of choices in the market that is coming from outside.* Shared Program Coordinator, NEN, 21<sup>st</sup> August, 2019.

*Many farmers say that the reason they don't want to cultivate even if they are aware of its benefits is that they do not get any kinds of support from the government. We are not talking only of financial support, but also of technological support like processing machines for de-husking of millets. If it is readily available then I am sure people would not mind going for millet cultivation. There are also some kind of ecological issues with regard to pest and bird attack on the millet fields.* NEN State Coordinator, 21<sup>st</sup> August 2019.

### ***Ecological issues***

In addition, ecological issues such as pest, bird and animal attacks on millet fields also constrain the ability of farmers to take risks of bad harvest. Farmers are willing to take risks of cultivating millet, if collective farming is restored in jhum wherein size of the land is bigger than an individual land. In addition, availability of other livelihood opportunities is making menfolk shift from agriculture-based livelihood such as terrace and jhum farming, to service sector income

generating activities like construction, driving, and other wage works. Pest and bird attacks increases if millet is cultivated in small scale. Hence to ensure food security of the region, reviving jhum lands or collective form of farming hold significance.

*In the first year we got a good harvest but the previous year we didn't get much harvest because the area where we cultivated the millet was very far and also the birds ate all the seeds so we couldn't get much harvest. We don't know what will happen but we hope that we will get good harvest this year.* A woman farmer from Meluri village, 20<sup>th</sup> April 2022<sup>59</sup>

*What happens is after cleaning the field, millet seeds are sown and just before the harvesting, birds will come in and eat them off. It is a very discouraging sight for a farmer. After waiting for several months, cleaning the field together, then finally farmers found that they are not able to harvest. In that scenario it is very discouraging for them.* Shared Program Coordinator, NEN, Chizami block, 21<sup>st</sup> August, 2019.

*Also with the jhum, we see that it is also a collective practice, it can not be done by a single individual. It has to be an entire clan or community that gets into jhum cultivation. When there is a breakdown of this kind of family and community agriculture and community relations, everybody has more livelihood options.* Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

#### ***Younger generation not interested in farming***

Younger generation do not prefer to do agriculture related work in the field in comparison to the older generation. With the younger generation moving to urban places and outside state for educational and income-earning opportunities, they seldom return to rural areas to pursue agriculture as a source of livelihood. This is one of the reasons for the shortfall in labour to carry out jhum cultivation.

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<sup>59</sup> The interviews with Women SHGs in Meluri and Khumiasu village, and Women Collective and elderly women group in Meluri village were conducted with the help of translator, Ms. Poviewi. Ms. Poviewi helped in translating the questions asked by the researcher in English to pochury language and translate the answer received in pochury to English. Ms. Poviewi also helped in transcription of the interviews recorded in Pochury language to English.

*The decline in the production of millet is not due to climate change or any natural cause but due to the fact that the younger generation has become too lazy to work in the field. Younger generation people do not want to go to field and do agricultural work. The production of millet started declining during the early 1990s. Shared a woman farmer from Millet Farmer Group in Meluri village, 17<sup>th</sup> April 2022<sup>60</sup>.*

*The older generation was much more involved in millet farming than the younger generation is today. Because rice production is increased, we tend to millet less now and also we have so many educated people who are more focused on working in offices and looking after their children that there is rapid decrease in the production of farm harvest. Since today's generation likes to go to office and not to field. Shared by a woman farmer from Millet Farmer Group in Meluri village, 17<sup>th</sup> April 2022.*

#### ***Palatability of millets***

Palatability of millets is another reason leading to decline in millets cultivation. Disliking the taste of millets and limited knowledge of innovation and idea of taste apart from traditional ways of consuming discourage people to consume millet and hence cultivate it. Availability of rice through PDS and setting up of de-husking machines in rice mills even in the remotest village of Phek district act as incentives for farmers to grow rice. Exorbitant transportation costs in Nagaland, being a hilly state, and the unavailability of government transportation also limit the movement of goods and products from one place to another unless it is a cash crop like maize, rice or rubber or poultry feed. This has implications on development of market for millets in a large scale.

*Another reason why farmers are not consuming is they are also lacking the idea of taste. How one can innovate different recipes and products out of millets, so that kind of knowledge is also limited. That is why they have this perception that rice is much tastier and millet is not tasty at all. Or it is too expensive. Shared State Coordinator, NEN, 21<sup>st</sup> August 2019.*

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<sup>60</sup> Ms. Poviewi helped the researcher in conducting the interviews and FGD with community people in the Meluri and Khumiasu village and transcribing the interviews recorded in Pochury language to English.

## 4.2 Millet Production and Women's Work

### 4.2.1 Production challenges

#### *Changing livelihood practices have replaced the need for millets*

Millet is acknowledged as an important crop having various benefits, amongst the community. Challenges with respect to production can be related to less yield and production of millets to meet the growing demand of millets in the state. Many reasons could be attributed to this. Availability of other livelihood options in slow transformation of subsistence economy to cash economy is drifting people away from practicing agriculture.

*A lot of people are moving away from agriculture, terrace paddy, and jhum. There is definitely less participation of people in agriculture. As a result, community as a whole is not food secure.* Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

Moreover, the production and consumption of rice as the major cereal has completely replaced the need for growing and consuming millets. Especially with the state government encouraging and promoting horticulture, cash and vegetable cultivation, importance of millets has reduced in the diet of people. The below narrative also points out that migration of newer generation to urban areas for study and other purposes exposes them to other employment opportunities. This results in shortage of labour to contribute to agricultural work producing less farm harvest.

*Ever since we started working to cultivate paddy, the production of millet has decreased. And also we cannot give our whole time in millet cultivation since it is not our primary source of food now. Back in the olden days millet was regarded as the main source of food because rice was scarce but now rice has become plentiful and enough for everyone to eat.* An individual woman farmer in Meluri village, 18th April 2022.

*Production of paddy has increased a lot, because back in the olden days there were not much paddy fields as the population was also less and because of that they cultivated only in a small area but now since the population has increased, the areas for cultivation has also become vast. A woman farmer from Meluri village, 18<sup>th</sup> April 2022.*

### ***Increased risk of farming due to reduction in shared responsibilities***

With the reduction in number of households doing collective farming, production of millets is also declining. Moreover, individual cultivation of millets increases the risk of crop failure owing to bird and animal attacks. Increased privatization of jhum lands also reduces the consciousness among the people to cultivate collectively, share risks and harvests collectively. These reasons contribute to unwillingness of farmers to cultivate millets.

*There are also some kinds of ecological issues with regard to pest and bird attack on the millet fields. Now there are lesser number of farmers and the scale of cultivation is shrinking like when there is a small number of farmers cultivating millets in a small patch of land, then the risk is there as in a greater number of birds will go and attack that particular crop in a particular season. Because there is not much food for them elsewhere. So the losses for farmers is quite high. Program Coordinator, NEN, 09<sup>th</sup> October 2022<sup>61</sup>.*

Lucy, a farmer from Meluri village in her 40s, a mother of 2 children practices jhum farming on jhum land and possess 3 individual paddy farmlands. From her narrative, it can be evoked that women farmers are aware of the importance of collective farming on jhum lands that can revive millet cultivation in the village.

*If it's a collective thing or size of the jhum is much bigger and everyone is cultivating it then we all are willing to take risks. But just few of us are interested and our jhum lands are very small now and men are also not really helping us. In-depth interview with a woman farmer in her 40s from Meluri village, 19<sup>th</sup> April 2022<sup>62</sup>.*

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<sup>61</sup> Telephonic interview taken with NEN Program Coordinator on 09<sup>th</sup> October 2022 in English. Interview was recorded and later transcribed in English by the researcher.

<sup>62</sup> The name is anonymized. In-depth interview was conducted with the woman from Meluri village on 19<sup>th</sup> April 2022.

### *Climate change*

Climate change and erratic rainfall is another reason leading to decline in production of farm harvests. A good harvest depends on adequate amount of rainfall and soil conditions as old land gives less yield. It is also seen that the women farmers possess knowledge regarding decline in production of millets. Condition of the soil and the year in general determines whether the farmers will have a good or bad harvest. Passing down of land since many generations reduces soil fertility that also leads to low yield.

*One major factor which has led to the decline in production rate is mainly because of the climatic change. If there is no proper rain the crops and plants wither and die away. Another factor is the animals and pests. Wild boar and stag are the two animals which usually cause troubles in our fields. Instead of just eating the vegetables, they trample on them and cause severe damage to the crops. A woman farmer from WSHG in Khumiasu village, 20<sup>th</sup> April 2022.*

*And the production also depends on the soil condition and even the year in general. if year is good then the production will also be good and if not, it will be bad. A woman farmer from Meluri village, 18<sup>th</sup> April 2022.*

#### **4.2.2 Processing Challenges**

Millet is one of the hardest grain and women are known to primarily associate with manual processing of millets. The manual process is time consuming and labour intensive on the part of women. One of the primary reasons for the decline in cultivation and consumption of millets in Meluri and Khumaisu villages of Phek district is lack of government support to facilitate processing technology to millet growers. Moreover, manual processing of a large quantity of millets for marketing purpose also makes it a difficult process and takes a toll on women's health.

*For processing we really face quite a big challenge. Because like we said earlier our group is required to do the manual work by ourselves. Our group have a processing machine but it is too small and on top of that it is on loan. We are yet to pay the amount to NEN. Since*

*the machine is too small we can process only a small amount of millet so we pound it by ourselves. A women farmer from women collective in Meluri village, 18<sup>th</sup> April 2022.*

*Since we do not have the processing machine yet, we have to do it by ourselves which takes up a lot of energy. Our bodies ache for all the pounding and if it was just for our own sake then it will not be that tiring but since it is for marketing purpose, we have to pound hundreds of kilos which often takes up days of our time. A woman farmer from Women Society in Khumiasu village, 20<sup>th</sup> April 2022.*

### ***Lack of government support in processing***

The role of state government is limited when it comes to facilitating the processing infrastructure to millet farmers. State government's intervention is crucial if the millet revival initiative is to be up-scaled in Nagaland. As a result of NEN's interaction with the government, two Millet Farmer Groups got supplied with millet processing machines eight years ago, but the machines stopped working completely. There were no follow-ups on technical assistance required for the installation and operation of processing machines. Guidance for the proper operation of these processing machines was not delivered to millet farmers.

*We are also trying to make the government understand that this is a need, even these machines are not working properly and we need technical support in machine operation also. State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019*

Things appear to be slow from the government's side. Fund crunch is another challenge, which the government is facing due to which the department is not able to support millet growers of the state. Even though there is acknowledgement and recognition that reviving millet is important but government's efforts in millet revival seems to be limited. Apart from discussing things, nothing much seems to be fruitful.

*When we are talking of support we are not talking only of financial support, but also talking of technological support like primary processing, like de husking of millets. If processing facilities are readily available, then I am sure people would not mind going for millet cultivation. Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019*

*Our focus is on communities but we have realized that until and unless government supports this technological aspect and other things, it becomes really difficult.* Shared State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

### ***The drudgery of millet processing and work burden on women***

For millet cultivation it is the women's labour that is employed extensively. Ploughing of the land is manually done with spades. In the beginning of the year, during Jan-Feb, firewood is collected and cut by both women and men. As the paddy fields are at a distance from the village, houses and granaries are constructed in the field to oversee and stay at during the agriculture season. In March, cutting and clearing of forests for jhum land farming is mainly done by men. This is followed by burning of the forests, clearing and cutting down the big trees and scrubs. This process is collectively performed by the community members. During April, preparation of land is mostly done by women in terrace fields and then sowing of multiple vegetable and crops like potato, beans, maize, tomato, onion, and pumpkin take place. Millets and paddy are sown in the beginning of May. From sowing to harvesting, women visit the field three times to clear the weeds, check if millet plants are growing or not, to maintain appropriate distance between the millet plants and to clear the scrubs and bushes from the field. Harvesting is done when millets become ripe. Harvesting is followed by threshing of the bunches. Millet seeds are kept for drying for 2-3 days and then manual pounding of the millet is done by women collectively. Various rounds of pounding are followed to remove the outer cover of the millet seed. This is followed by winnowing and removing the shaft.

Processing of millet crop is cumbersome and involves drudgery of work. The burden of work is mostly on women farmers. The intensive labour use and drudgery makes millet produce expensive in the local markets. Selling price of a kilogram of sticky and non-sticky variety of foxtail millet in the local market is Rs 100, which is much expensive compared to the local market price in other regions of the country (for example, in Odisha elaborated in Chapters 5 and 6). Lack of technological support for post-harvest operations of the crop involves considerable time and labour of women to manually clean up the grain in order to make it consumable. Not only the post-harvest requirements are tedious, the entire engagement of women with millets ecosystem is labour intensive. This could be the reason that women farmers try to cash in on the

expensive millets and neglect the self-consumption part of it, as consumption of millets has gone extinct in many parts of the state. Millet is expensive in the state due to lack of processing facilities and technologies, making it non-consumable by growers.

*But at the community level, even though they may be cultivating but one reason is also that it is very expensive for a lot of people to afford. So even though they are aware about it, they will not really consume it.* Shared State Coordinator, NEN, 21 August 2019.

*Since millet processing is very tiring, millet is also expensive. We sell millet for 100₹ a kilo and it is a good deal considering all the hard work that we put into processing it.* A woman farmer from Meluri village, 14<sup>th</sup> April 2022

Also because of availability of other crops and vegetables to consume, millets are not cultivated every year by the women farmer respondents. Women farmers practice rotation of crops to maintain the fertility of soil.

*We do not cultivate millet every year, sometimes we will cultivate potatoes or cabbages or nagadal too. But when we cultivate millet, we mostly do cultivate it for marketing and commercial purpose.* Shared by Women group in Khumaisu village, 21<sup>st</sup> April 2022.

### **4.3 Women Collectives**

This section aims to bring out the forms of collectivities assimilated with the socio-cultural practices as well as community and political institutions of the greater naga society. These forms of collectiveness provide food security through access to land and resources, social security, ecological and economical support as produce and losses are shared equitably. NEN's nature of work with women collectives aligns with the principles of food sovereignty. Responses of Women Society and SHGs in Meluri village engaged in millet farming reveal that women are cultivating millet in their individual fields. Allocation of a collective plot of land to women groups is important in order to increase the yield of millets by adopting climate resilient ecologically sustainable and economically productive agricultural practices. Constraints that abound the

group's functioning amid lack of supportive environment towards millet farming severely constricts women's ability to scale up millet farming in the region.

#### 4.3.1 NEN's work with Women Collectives

The work of NEN with women collectives is concerned with making women farmers gain autonomy and control over the local food system by having own seeds, safeguarding own land, soil and water. This approach of NEN promoting millets based biodiverse farming in the state resonates with the principle of Food Sovereignty framework wherein, the control of producers and consumers over the local food system is emphasized. The idea behind NEN promoting women collectives in the villages is to strengthen the women's leadership over local food system so as to encourage other village members to conserve, produce and consume millets.

*Our plan is strengthening collectives so they are also informed and in turn inform community leaders and community level rules and regulations and policies. So giving them knowledge and information and skill at the same time, we also want to enhance their livelihoods and lives. It's a holistic approach that we are taking. We are not into money making and marketing. We want them to understand the larger context. We want them to understand the whole system of food and that's why our work with women farmers is to gain more autonomy and control over the food system, what kind of food to grow.* State Coordinator, NEN, Chizami block, 21st August 2019.

Work with millets is not restricted to a particular group or a community, but with all the communities residing in a village. Due to difficulties involved in making SHGs, efforts are made to collectivize women farmers in the villages. In the intervening villages Women Societies are recognized as women collectives by the communities and the state. These women collectives are the entry points for carrying out the millet revival work by NEN. Ideas are shared and discussed with these women collectives. The women collectives are not engaged solely with millet farming but practice jhum farming at a collective level.

*“These women collectives are not exclusively for millets. We engage with these collectives on diverse topics but mostly on agriculture, food, sustainable livelihoods, etc. Through these we also talk about millet and they are also coming together to cultivate millet besides the family farms.”* Program Coordinator, NEN, Chizami block, 09<sup>th</sup> October 2022.

Principles of food sovereignty is promoted to encourage community to take control over own traditional food system through invoking larger discussions with village leaders and community members over issues of safeguarding seeds and crop diversity against the intrusion of market-based economy and changing climate patterns.

*We also see to it that what are the challenges that the farming community is facing. So we take this women's collective as a place where we can collectively share and discuss and highlight these kinds of issues also with the larger scheme of governance in the village.*  
Program Executive, NEN, Kohima 20<sup>th</sup> August 2019.<sup>63</sup>

NEN's partnership with women collectives involves more of knowledge sharing, technical help, facilitating some exchange programs, exposure visits, resource mobilization and seeds sharing. NEN's nature of work with women collectives, aligns with the principles of food sovereignty however, efforts to revive millets is constricted by financial constraints and a community led education approach in a background of rapid transition towards market-based economy, wherein individual choices of a farmer is shaped by the opportunities available to cater to market based decisions. The initiative lacks in creation of marketing opportunities for the farmers. Moreover, the program implementers accept that the focus of their approach is not on large scale marketing but to promote local production, consumption and marketing of local food products at a local level. Conflict between the traditional millet based mixed farming system and mono cropping system lies at the core of the ideological battle faced by NEN professionals in expanding millet production mainly for marketing purposes. As for NEN, consumption of millets needs to be prioritized before appropriation of millet by the market led forces.

*But we have not done anything for marketing main thing that we have done is encouraging its production and consumption. Also we have not gone to that stage of production for marketing and all but especially production of cash crops is for the market, especially food crops and all its for subsistence and not for the market.* State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

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<sup>63</sup> The interview with the Program Executive was taken on 20<sup>th</sup> August 2019 by the researcher in English during the 1<sup>st</sup> phase of field study to Nagaland in Kohima.

*What we are very much careful is that we cannot sell everything and first its consumption that will be challenge. If millets are excessively produced, then it might lead to mono culture way. If government pushes this mass production thing then we can help farmers with the marketing, so that's what forces from outside are putting.* State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

The larger aim of NEN through the millet program in Meluri village is to create a local economy by linking local producers with the local market system. This economy can produce food for people who do not farm for themselves and are dependent on local farmers for their food needs. Working in urban informal places to secure spaces for women vendors to sell their produce and to connect them with rural women producers who supply them with raw materials is an important part of the food chain sustaining local agriculture and local economy.

*The aim of the project is to recognize millet as climate change complaint crop something that ensures food and nutrition security. This is part of the larger indigenous food system that we are promoting and we are promoting not just one type of millet but millets based biodiverse farming system. Its about securing rights of both local people over their own food system and how do they sustain this and ensure that they have secured their rights over the seeds and this food which has cultural significance attached to it besides addressing food and nutritional security. It is mostly about that.* Program Coordinator, NEN, 09<sup>th</sup> October 2022.<sup>64</sup>

#### ***Millet Farmer Group and WSHGs in Meluri***

The Millet Collective was established in 2018 under the initiative of NEN. Initially comprised of 23-25 members, however, the group's current membership has dwindled to just 15 individuals. Labour intensive nature of millet cultivation coupled with insufficient profits and a lack of government support led some of the members to quit the group. This reflects that in absence of sufficient support and rice replacing the need for producing and consuming millets has made it difficult for the women group to revive and sustain millet farming.

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<sup>64</sup> The telephonic interview was taken by the researcher on 09<sup>th</sup> October, 2022 in English and transcribed the interview in English.

*When we first started the group there were around 23-25 members but because of the lack of funds and financial support from the government most of them left because it was a job which required much manual work. And there was nothing to gain. At present we have around 15 members. Women Collective in Meluri, 18<sup>th</sup> April 2022.*

*Not every group receive financial support, in some groups they get some help from the Agriculture department but other than that we have not yet got any help. A woman farmer from WSHG in Khumiasii village, 17<sup>th</sup> April 2022.*

*Our group has not received any support from anyone. The first year when we started this collective, we were given 30 thousand so that we could set up our group and help us on our feet. But it was loaned to us so we had to pay back the money the NEN. Apart from that we are yet to receive any financial help from the government. On top of that our husbands are even complaining and pressuring us to just stop because we are not gaining any profit as compared to the work that we do. A woman farmer from Women Collective in Meluri village, 18<sup>th</sup> April 2022.*

However, some SHGs are formed by the government to promote vegetable and other cash crop cultivation. These groups are supplied with seeds of different types of vegetables and crops to increase their cultivation to enhance income generating opportunities of small scale farmers.

*When we first started our group the department gave us 10k and gave seed of millets and sorghum. Now they do not support us financially much but we receive seeds of different crops yearly. Last year we got cabbage seeds and beans. We cultivate them and sell them and that is what helps our group to grow financially. A woman farmer from WSHG in Khumiasii village, 21<sup>st</sup> April 2022.*

Moreover, lack of processing facilities also limits cleaning of large quantity of millet to be supplied for marketing purposes by women farmers. Physical pain and time and energy consumption are the two factors raised by women farmers which hinders the mass production of millet.

*But for processing of millet, since we do not have the processing machine yet, we have to do it by ourselves which takes up a lot of energy. Our bodies ache for all the pounding and if it was just for our own sake then it will not be that tiring but since it is for marketing purpose, we have to pound hundreds of kilos which often takes up days of our time. A woman farmer from Women Collective in Meluri village, 18<sup>th</sup> April 2022.*

*For processing we really face quite a big challenge. Our group has a processing machine but it is too small and on top of that it is on loan. We are yet to pay the amount to NEN. Since the machine is too small we can process only a small amount of millet so we pound it by ourselves. A woman farmer from Women Collective in Meluri village, 18<sup>th</sup> April 2022.*

Amidst the challenges surrounding difficult environment for growing millet, women farmers are determined to continue millet cultivation and are hopeful of receiving some help and support from the government. Millet revival is a recent initiative of NEN in Meluri village and many more farmers are expected to take up millet farming coming forward as VC is emphasizing millet farming in Meluri and Khumiasii village.

Women Collectives also play a crucial role in mobilizing and encouraging community members to cultivate millet. Women farmers have expressed the opinion that if millet farming is incentivized along with provision of technological support that can contribute towards motivating farmers to cultivate more of millet.

*We encourage them and try our best to convince them to cultivate millet. And we think that this year many of us might be cultivating millet and it might boost the growth of millet production as compared to the past years. A woman farmer from WSHG in Meluri village, 19<sup>th</sup> April, 2022.*

*Financial help is the most important thing which should be provided to our group because it becomes very difficult to continue millet cultivation even if do not receive any monetary help from government. Even if we do sell millet we gain no interest. As for processing of millet, we have a machine but it's too small and takes a lot of time to process even a kilogram of millet. So if a bigger processing is provided it will be very much helpful for us. Maybe if all these sort of help are provided then other women might also get motivated and we might*

*be able to promote more of it than it is now. A woman farmer from Women Collective in Meluri village, 18<sup>th</sup> April 2022.*

The activities done by the group is mostly farming based and the group undertake cultivation of other vegetables and crops along with millet to sustain themselves. The work in the field is done collectively by the women farmers based on manual work. Labourers are not hired indicating lack of resources with the women's group to do so. Owing to millet being expensive, it is mostly cultivated by the groups for commercial purpose.

*Ever since our group started in 2011, we have been cultivating millet. We do not cultivate millet every year, sometimes we will cultivate potatoes or cabbages or nagadal too. But when we cultivate millet, we mostly do cultivate it for marketing and commercial purpose. A woman farmer from Women Society in Khumiasii village, 22<sup>nd</sup> April 2022.*

*The work which we do in our collective is mostly manual work. We do not hire laborers since we do not have the means to do it too. We work in the field and all the members do the work together. Apart from millet we also cultivate some other crops so that we can get little fund and contribute to the collective. We do all the work like sowing, weeding, harvesting, processing and marketing. A woman farmer from Meluri village, 18<sup>th</sup> April 2022*

Women farmers are benefitted from millet cultivation. Enthusiasm is observed amongst women farmers to continue growing millet for commercial purpose since it fetches a good price in the market.

*As far as we are now and for how we are selling millet it is reasonable for us. Since we are a new group and are selling only for a few years we want to attract more customers and only after we have a stable amount of regular customers only then we will also be able to increase the rate of millet. Also the rate can only be changed by the Village Council. We would like to continue cultivating millet for as long as our bodies are able to work. We can see increase in income from millet cultivation even if it is just a small amount. A woman farmer from Women society from Khumiasii village, 21<sup>st</sup> April 2022.*

*We do get financial gain by marketing millet and we also cultivate millet because money that we get from selling millet is used for our children's education and daily supplies of everyday life. A woman farmer from WSHG in Khumiasii village, 21<sup>st</sup> April 2022.*

#### **4.4 Millets and Challenges faced by NEN**

Increasing aspirations of local people towards earning fast cash, income and individualization of land, biodiversity, forests, and resources against the food crop producing traditional farming system is creating challenges for NEN to mobilize farmers to return to collective form of food producing farming system. Financial support in huge numbers and facilitation of easy access to credit to the SHGs formed under state rural livelihood missions and other such agricultural schemes has made people used to money as a way of fulfilling basic needs and survival. Expecting cash incentives from NEN make farmers seldom interested in community farming practices and knowledge delivered by NEN.

*Our people have got used to handout and access to credit. Through that culture people are only looking at what am I getting out of it. They only look at what I am getting as an individual but they do not look at the larger good of the community. How will that benefit their community in long term? People these days do not value information and knowledge as much as they value cash. This is a challenge for us as an organization to sustain the interest of such groups. State Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.*

Community driven nature of NEN's approach to reviving millet poses as a challenge as work with community becomes difficult to monitor. Different orientation of NEN's intervention than "identified beneficiary" orientation of government projects leaves little financial help with NEN to distribute it to different groups of farmers the organization works with.

*Our intervention is community driven and we work with women collectives, women farmer groups, and women society. So off course there are challenges we cannot entirely work with and it becomes difficult to monitor when we have to work with the entire society. Its so big, in order to have monitoring system in place 25 women farmers from different khels are brought together into a collective. We provide help as a group so that the group can make*

*use of it collectively and not one individual.* Program Coordinator, NEN, Chizami block, 21<sup>st</sup> August 2019.

Building rapport with community takes over a year as things do not get implemented immediately as communities are sometimes not receptive. Involvement of dynamics in intervening a community is challenging as different local tribal institutions have to be taken into consent before starting any new work in a community. In addition, lack of government support for millet growers, along with absence of other organizations in the state to collaborate work with on sustainable agriculture and local food system also makes it challenging for NEN to sustain and revive the traditional millet based biodiverse agriculture.

#### **4.5 Chapter Summary**

The chapter explores the challenges faced by NEN in their struggle to achieve food sovereignty in the state through revitalizing millet based biodiverse system involving community farming. An important part of the association of NEN with such national networks has been their combined learning through experience sharing along with collectiveness in advocating for the rights of farmers, to promote millet and exchange solidarity through connecting millet communities across the country.

Millets form the basis of multi cropping pattern of various crops such as pulses, vegetables, maize and paddy at different seasons involving multiple farmlands. Millet is basically acknowledged as having importance for food security during ancestral times but its significance has reduced considerably owing to rice replacing cultivation and consumption of millets in a big way. Declining importance of shifting cultivation in the lives of people is connected to reduced status of millets as a food crop. Increased privatization has converted Jhum lands into settled agricultural lands covered with extensive cultivation of cash crop, horticulture and plantation that resulted in decline in collective millet-based farming. State's policy to encourage settled agriculture and increase state's revenue through market-based investments in agriculture sector is the prime driver encouraging farmers to cultivate commercial crops. Millet cultivation in Nagaland is in the stage of revival through community mobilization and government promoting millet cultivation in some pockets of the state.

Decrease in Jhum cultivation, shortage of family labour, unsupportive government policies, ecological issues of bird attacks, and lack of processing facilities ails millet farming in the state. Reduction in collective farming because of decrease in jhum cultivation, climate change, apathy of the government to support millet growers and post-harvest processing difficulties are some of the challenges faced by women farmers in growing millet even though enthusiasm is found amongst women farmers to cultivate millet for commercial as well as consumption purposes on the provision of state support.

NEN's partnership with women collectives involves more of knowledge sharing, technical help, facilitating some exchange programs, exposure visits, resource mobilization and seeds sharing. In Meluri village, the Women Collective formed by NEN with 23-25 members in 2018 had some members quitting the group due to insufficient returns and a lack of government support. Amidst the challenges surrounding difficult environment for growing millet, women farmers are determined to continue millet cultivation and are hopeful of receiving support from the government. However, women collectives are struggling to revive the crop without effective state support. Even though women farmers are producing less yield, millet farming provides income security. Millet being an expensive crop in Phek district fetches good profit to millet growers. Millet revival is a recent initiative of NEN in Meluri village and many more farmers are expected to take up millet farming coming forward as VC is emphasizing millet farming in Meluri and Khumiasii village.

Financial resource constraints of NEN, increasing aspirations of local people towards earning fast cash and expectation of people from NEN towards receiving individual benefits create challenges for NEN to mobilize farmers to revive collective form of food producing system. Different orientation of NEN's intervention than "identified beneficiary" orientation of government projects leaves little financial help with NEN to distribute it to different groups of farmers the organization works with. Moreover, increased enthusiasm of villagers in the beginning to cultivate millet turns slowly into practicality and the interest to revive millet is lost in the end.

The discussion on production challenges highlights several factors responsible for declining yield and production of millets in Nagaland. These include changes in livelihood practices, increased farming risks due to reducing shared responsibilities, a decline in collective farming, rising ecological risks and climate change impacts. Even though, women farmers do not necessarily face challenges in production on a direct level, nevertheless these factors indicating a shift from local

economy to a market dependent economy in Nagaland, significantly affect production choices of farming communities, especially, women. Women are increasingly losing control over jhum lands along with decisions being swayed over which crops to grow. Millet, typically grown as a mixed crop with other food crops, involves women predominantly. Women being primarily associated with food crops, shift in emphasis from food crop to cash crop cultivation facilitated by Individual land ownership directly impacts women through changing land use systems and food choices. Moreover, labour shortages at household level severely restrict women's ability to go for labour intensive crops such as millets in the backdrop of State's limited support over such crops. Despite being intensely involved in agricultural operations, women are losing autonomy over local food crops and their production and consumption choices amidst changing food practices, land use and ownership governed by the larger State policy framework of market integration.



## Chapter 5

### Odisha Millet Mission: Actors and Institutional Framework

This chapter explores the actions underlying the convergence mechanism between Odisha Millet Mission (OMM) actors and the governance structure required to implement activities at each level under the Mission. The chapter has six sections. Section 5.1 sheds light on the significance of millet crop in Odisha. Section 5.2 discusses the OMM's organizational structure and how the program has evolved since its inception. Section 5.3 outlines the framework of OMM and the actors involved in the intervention mechanism. Section 5.4 discusses the top-down decentralization intervention process. In Section 5.5 I examine the convergence areas across intervention verticals of OMM. Section 5.6 concludes with a summary.

Odisha Millets Mission is an initiative of the Government of Odisha that began in 2017 with the explicit objective of reviving millets on farms and plates. Millet is widely consumed in many parts of Odisha. However, as in many other parts of India, millet production and consumption have drastically reduced due to policy attention on rice and wheat. Odisha Millet Mission is India's first comprehensive state-led intervention to revive Millet by engaging diverse actors. A decentralized institutional framework is thus a crucial aspect of the program. This chapter aims to uncover the diverse actors engaged in this intervention process and understand the framework.

The OMM is supported by diverse set of actors. This chapter uses various abbreviations for the sake of brevity. It is useful to highlight the abbreviations used in this chapter before moving on to the rest of the sections. (See **Table 5.1**)

**Table 5.1** List of Actors and their abbreviations used in Chapter 5

State	HPC	High Power Committee for Mission on Millets
	DA&FE	Department of Agriculture and Farmer's Empowerment
	WCD	Women and Child Development
	P&C	Planning and Convergence
	P&RD	Panchayat and Rural Development
	ST&SC Devp.,	Scheduled Tribes & Scheduled Castes Development, Minorities and
	M& BCW	Backward Classes Welfare Department
	DA&FP	Directorate of Agriculture and Food Production
	NCDS	Nabakrushna Choudhury Centre for Development Studies
	SPMU	State Project Management Unit
	WASSAN	Watershed Support Services and Activities Network
	LAMPCS	Large sized Adivasi Multi-purpose Cooperative Society Limited
	TDCCOL	Tribal Development Co-operative Corporation of Odisha Limited
	DPMU	District Program Management Unit
	ORMAS	Odisha Rural Development and Marketing Society
	IIMR	Indian Institute of Millets Research
	CSIR-CFTRI	CSIR-Central Food Technological Research Institute
	DME	Department of School and Mass Education
	MSME	Micro, Small and Medium Enterprise
	FS&CW	Food Supplies & Consumer Welfare
SSTL	State Seed Testing Laboratory	
NBPGR	National Bureau of Plant Genetic Resources	
OLM	Odisha Livelihood Mission	
OUAT	Odisha University of Agriculture and Technology	
DHAN	Development of Humane Action Foundation	
District level	PD, ATMA	Project Director, Agriculture Technology Management Agency
	CDAO	Chief District Agriculture Officer
	ADPC	Additional District Program Coordinator
	AAO	Assistant Agriculture Officer
Block level	FA	Facilitating Agency
	AAO/BAO	Assistant Agriculture Officer/Block Agriculture Officer
	BDO	Block Development Officer
Village level	FPO	Farmer Producer Organization
	CBO	Community Based Organization
	CRP	Community Resource Person
	VAW	Village Agriculture Worker

### 5.1 Millet Crop in Odisha

Millets are traditional food crop grown in rain-fed regions of Odisha. It is an important staple food of the tribal communities. The different varieties of millet produced in Odisha are Ragi (finger millet), jowar (sorghum), bajra (pearl millet), and small millets (foxtail, little, kodo, proso, and barnyard millet among others) (Jena and Mishra, 2022). However, the area under millet cultivation has considerably declined in Odisha in the recent decades. The 1960s and 1970s show

growth in production of millets mainly on account of increase in area but recorded negative growth in yield. Decline in area and yield of millets started since 1980s in Odisha, especially for minor millets. Shift in area under millets in the 1980s to other cereals, mainly paddy and other crop groups points to the displacement of coarse cereals. This phase also coincided with the beginning of Green Revolution, which although did not take off in Odisha started showing its impact in movement towards rice cultivation.

In 2016-17, area under ragi had declined to 1.83 lakh hectares from 2.48 lakh hectares in 1990-91. This resulted in decline in yield from 10.23 quintals per hectare in 1990-91 to 8.96 quintals per hectare (OMM, 2019-20). Distribution of rice at subsidized price through PDS, provision of minimum support price (MSP) for rice and wheat, lack of incentive for growing other cereals, post-harvest processing challenges, lack of organized market for millets and competition from other cash crops are the reasons responsible for the downfall of millets in Odisha (OMM, 2019-20).

## **5.2 The OMM Program of Odisha**

The OMM began in the agricultural year of 2016-17 with targeted focus on millet revival in tribal areas of Odisha. In 2020-21, 47000 hectares of land was covered under millet following improved agricultural practices, in partnership with 76 NGOs in 76 blocks of 14 districts (Department of Agriculture and Farmer's Empowerment, 2020-2021). One of the ambitious objective of the OMM is formation and promotion of Farmer Producer Organisation (FPOs) and Agriculture Production Cluster projects with a view to enhancing millet production by improving value addition, and regulated marketing (Department of Agriculture and Farmer's Empowerment, 2020-21).

The Department of Agriculture and Farmer's Empowerment initiated the "Special Program for Promotion of Millets in Tribal Areas of Odisha" in 2017. Recognizing the decline of millets, the Planning and Convergence Department<sup>65</sup>, and Nabakrushna Choudhury centre for Development

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<sup>65</sup> Planning and Convergence department is a key department of the Government of Odisha. More details on the department are provided in the later sections of the chapter.

Studies (NCDS)<sup>66</sup> in partnership with Revitalizing Rain-fed Agriculture Network (RRAN)<sup>67</sup> and Alliance for Sustainable and Holistic Agriculture (ASHA) Network<sup>68</sup> organized a collaborative multi stakeholder consultation to evolve a strategy for revival of millets in Odisha. Participants in the consultation meeting included officials from various government departments.<sup>69</sup> Additionally, more than 35 civil society organizations, farmer collectives and activists collaborated in the consultation process (Odisha Millets Mission, 2017-18).

The proposal for the OMM went from the NCDS to the Government of Odisha, and an announcement was made in the budget speech of 18 March 2016 regarding the intention of the government to revive millets. Subsequently a Memorandum of Understanding (MoU) was signed between the Directorate of Agriculture and Food Production (DAFP), NCDS, and Watershed Support Services and Activities Network (WASSAN). The OMM is a result of tripartite agreement between three different entities. The partnership is between the government of Odisha, NCDS, an academic institute and WASSAN, a Civil Society Organization (see **Table 5.2**). The roles and responsibilities of the entities involved is described in the next section. The program was implemented in kharif 2017 in 27 blocks across seven districts that were selected for millet intervention.

**Table 5. 2** Major Partners of the Odisha Millet Mission and their Roles and Responsibilities

Sl.No.	Partners	Roles and Responsibilities
1	Government of Odisha	<ul style="list-style-type: none"> <li>• Multi-department high power committee</li> <li>• Policy making and development of guidelines</li> <li>• Convergence with line departments</li> </ul>
2	NCDS	<ul style="list-style-type: none"> <li>• Makes state level policy recommendations</li> <li>• National and International partnerships with TIGRESS (RCUK)*, World Food Program (WFP), PACE University (US), Central scientific and food technology research institutes (CSIR-CFTRI), Indian Council of Agricultural Research-Indian Institute of Millet Research</li> </ul>

<sup>66</sup> Nabakrushna Choudhury centre for Development Studies (NCDS) is an academic institute set up by the Government of Odisha in collaboration with the Indian Council of Social Science Research (ICSSR) under the Ministry of Human Resource Development, Government of India.

<sup>67</sup> Revitalizing Rain-fed Agriculture (Network) is a network of civil society organizations, researchers, practitioners and policy makers working for the betterment of agriculture in rain-fed regions of the country.

<sup>68</sup> A CSO in India towards the sovereignty of food, farmers, farm based livelihoods.

<sup>69</sup> Government departments include Department of Agriculture and Farmer's Empowerment, Department of Panchayati Raj, Department of ST, SC and Minorities Welfare and Department of Women and Child Development.

3	WASSAN	<ul style="list-style-type: none"> <li>• Inputs in program design and coordinate with national, state, district and block level actors</li> <li>• Capacity building and training with the support of FAs</li> <li>• Program implementation and facilitation</li> </ul>
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Note: Transforming India's Green Revolution by Research and Empowerment for Sustainable Food Supplies (Research Councils UK) is a knowledge exchange partnership program between United Kingdom and India in the areas of crop sciences, hydrology, social science and policy (source: <https://tigr2ess.globalfood.cam.ac.uk/>).

The Government of Odisha claimed doubling of production, yield and returns in areas under OMM and demand from communities for expansion to other blocks. In 2018-19, the state government extended the program to 65 blocks. An additional seven blocks were added in the tribal-cum-mining affected areas of Keonjhar district with the support of District Mineral Foundation in 2018. Several more blocks were added in different phases, taking the present number to 177 blocks in 30 districts of the state.<sup>70</sup>

The program envisages a comprehensive revival of millets by emphasizing not just increasing productivity of millets, which has been the focal point of many other government agricultural schemes till now, but also simultaneously mainstreaming the consumption and marketing by creating a demand for millets in both rural and urban areas. Popularizing millets in urban and rural areas and its inclusion in State Nutrition Programs is a major strategy of the government to make millets a part of mainstream culture. The program also incorporates procurement and distribution channel to procure millets at MSP providing a better price support to farmers, improved agronomic practices, investing in improving soil health, identification of improved seed variety, and processing technologies. This comprehensive program works along five verticals.

1. **Production:** Improving productivity of millets crop systems and make them profitable.
2. **Consumption:** Increase household consumption of millets by 25% to enhance household nutrition security and to create demand for millets with focus on women and children.
3. **Processing:** Provision of millet processing technologies at the district and blocks levels
4. **Procurement and Distribution:** Inclusion of millets in State Nutrition Programs and Public Distribution System.

<sup>70</sup> The data on expansion of OMM in different blocks of Odisha mentioned here were collected based on repeated discussions with actors in different phases of field work in Odisha in September 2019, March 2020 and September 2021.

5. **Marketing:** Developing millet enterprises and establishing market linkages to rural/urban markets with focus on women entrepreneurs.
6. **Promotion of millets:** Promoting millet enterprises at Gram Panchayats and Block level to ease processing at households and for value added markets.

### 5.3 Actors in the Institutional Framework of OMM

Actors involved in the institutional framework of OMM are at the state, district, block and sub-block level (village level) (see **Table 5.1**). Also, a detailed description of their roles is tabulated in the form of a matrix. (see **Table 5.3**).

**A. State level:** The actors at the state level include:

- i. High Power Committee for Mission on Millets
- ii. Department of Agriculture and Farmer's Empowerment, Government of Odisha
- iii. Directorate of Agriculture and Food Production (DAFP), Odisha
- iv. State Project Management Unit, SPMU
- v. State Secretariat for OMM – Research Secretariat (NCDS) and Program Secretariat (WASSAN)

*i. High Power Committee for Mission on Millets*

The OMM follows a top down approach to millet promotion. This is evident in the formation of the High Power Committee for Mission on Millets. The committee is formed under the chairmanship of Development Commissioner (DC) cum Additional Chief Secretary (CS), Government of Odisha and Principal Secretaries of key line departments such as Agriculture and Farmer's Empowerment, Women and Child Development (WCD), Panchayati Raj Department (P&RD), ST and SC Development, and Minorities and Backward Classes Welfare. The Directorate of Agriculture and Food Production, is the member-convener of the committee (Guidelines of OMM, 2016).

The High Power Committee meets once in six months to discuss and form governance and policy related aspects of the program. Policy related decisions have significant influence on the state

nutrition program to include millets, cost structure and exploring market linkages for millet-based enterprises as well as inclusion of millets in PDS. The committee also approves different inter-departmental convergence and collaborations (Guidelines of OMM, 2016).

*ii. Department of Agriculture and Farmer's Empowerment, Government of Odisha*

Department of Agriculture and Farmer's Empowerment, Government of Odisha is the administrative department for implementation and funding for the program. The department is responsible for policy making, development of guidelines and allocation of funds. A committee formed under the chairmanship of Principal Secretary, DA&FE, including officials such as the Special Secretary, DA&FE, the Additional Secretary, Agriculture and Farmers Empowerment Department, the Director of Agriculture and Food Production, the Director of NCDS, the Nodal officer, and representatives from NFSM, review and make necessary amendments to the existing guidelines, and collaborations. The committee meets every month to review the progress of the program. The department also looks after involvement of all actors following a participatory approach (Guidelines of OMM, 2016).

*iii. Directorate of Agriculture and Food Production (DAFP), Odisha*

The Directorate of Agriculture and Food Production, Odisha is the nodal agency for administration, monitoring and implementation of the program. The department oversees the funding and matters relating to physical and financial review. The Directorate undertake decisions regarding finalization of policy for state level action plans for implementation of the program. Finalizing action plans that require convergence with other schemes and departments is overseen by the Directorate. The Directorate reviews the program on a monthly basis and take decisions necessary for implementation of the program (Annual Report, OMM, 2017-18).

*iv. State Project Management Unit, SPMU*

The State Project Management Unit works under the Directorate of Agriculture & Food Production and is headed by Joint Director of Agriculture, Millet and Integrated Farming, for overseeing management of the program. Departmental agriculture officers and one Junior Assistant support the SPMU regarding OMM matters. The responsibilities of the SPMU include timely liaisons, documentation, data analysis, integration of data and timely communication with

concerned actors regarding implementation of the program. The SPMU also reviews the guidelines, annual action plans and allocates budget for different components of the program. The responsibility of the SPMU includes reviewing and monitoring the progress on a fortnightly basis with the Program Secretariat/Research Secretariat. The SPMU reports to the Mission Director of the OMM (Annual Report, 2017-18).

v. State Secretariat for Odisha Millets Mission: Consists of Research Secretariat and Program Secretariat

a. Research Secretariat

The Nabakrushna Choudhury Centre for Development Studies (NCDS) in collaboration with the Directorate of Agriculture and Food Production hosts the State Secretariat for the program. The research work of the NCDS is carried out by a team of researchers. NCDS works on actionable research related to policy development on millets. This covers inclusion of millets in state nutrition program, processing related specifications, market linkage development and production of millets. NCDS coordinates with various actors and organizations to ensure smooth implementation and to undertake different research studies. Moreover, NCDS brings out Policy Briefs to develop insights about the key findings from implementation of the OMM. NCDS's research collaboration involves developing baseline indicators, conducting mid and end term evaluations, and impact assessments having significance for the program implementation. NCDS plays a crucial role in millets promotion by formulating plans and expanding urban campaign on millet consumption to various cities of Odisha.

b. Program Secretariat

WASSAN anchors the Program Secretariat. Program Secretariat is responsible for developing program processes and design including:

- i) Program implementation, process manual and policy guidelines.
- ii) Capacity building modules; identifying Community Based Organizations (CBOs) and resource persons and extending support to Facilitating Agencies (FAs) at the field level.

The Program Secretariat supports the Program Director at Agriculture Technology Management Agency in verification of technical and financial documents submitted by the Facilitating Agencies, as well as supporting convergence with district administration. They prepare relevant reporting formats and manage the Management Information System (MIS) of the program. Monitoring of the program implementation through regular field visits, developing Monitoring and Evaluation reports, document experiences in form of publications, brochures, success stories for information dissemination on the program is looked after the by the Program Secretariat. The Program Secretariat also extends support to the Facilitating Agencies at the block level.

**B. District level:** The actors at the district level include:

- i. District Program Management Unit (DPMU)
- ii. Program Director, Agriculture Technology Management Agency (PD, ATMA)

i. District Program Management Unit (DPMU)

The DPMU functions under the head of Chief District Agriculture Officer (CDAO). The team consists of Assistant Agriculture Officer/Block Agriculture Officer, District Program Coordinator and Additional District Program Coordinator (ADPC) from Program Secretariat and accountant, DPMU. The process of selection for FAs and CBOs/FPOs as well as agreements with the FAs and CBOs for program implementation in the district is anchored by the DPMU. The DPMU issues necessary instructions to the district, block and village level agriculture officers for supporting the implementation of the program. The DPMU reviews the program bi-monthly, developing district wise milestones, action plans and timelines for the program in consultation with Program Secretariat and facilitate convergence to meet district level action plans. After reviewing the program, the DPMU submits the Monthly Performance Report and other reports to the SPMU. Based on the performance, a decision is usually taken to renew the Memorandum of Agreement with the FA. The DPMU can make justifiable amendments to technical and financial protocols of the program based on the local situations.

ii. Project Director, Agriculture Technology Management Agency

Agriculture Technology Management Agency (ATMA) is the nodal agency and program administrative unit at the district level. It forms a tripartite agreement with Facilitating Agencies (FAs) and Community Based Organizations (CBOs) which characterizes the decentralized program implementation mechanism. It receives program funds from the state and release them to FAs and CBOs as per the action plans approved by DC and DM cum Chairman ATMA. It reviews the functioning of the program on monthly basis with the support of Program Secretariat WASSAN at the district level. It ensures compliance of financial and other reports, reviews FAs work with support from Program Secretariat (Guidelines of OMM, 2016).

**C. Block and Sub-block level:** Actors at the block level include:

- i. Block Agriculture Officer (BAO)/Assistant Agriculture Officer (AAO)
- ii. Facilitating Agency (FA)
- iii. Project Implementation Agency which can be a Community Based Organisation (CBO) or Farmer Producer Organisation (FPO)
- iv. Community Resource Person (CRP)

*i. Block Agriculture Officer (BAO)/Assistant Agriculture Officer (AAO)*

The BAO/AAO of the Block extends support to the FA in technical matters, convergence and review of the program and reports the progress to the PD, ATMA cum DDA. The BAO/AAO oversees the block level activities of the program. Responsibilities are assigned to the block level technology officers for field level monitoring of the program activities. To ensure the proper reporting of millet related block level crop statistics in the reports is the responsibility of the BAO/AAO. Capacity building programs, crop experimentations and supervising and supporting the field days are the other tasks carried out by the BAO/AAO (OMM, 2022).

*ii. Facilitating Agency (FA) for project facilitation*

An NGO/CSO, active in the block is chosen as FA through a process of selection taken up by ATMA and Program Secretariat. A tripartite agreement is signed between the FA, CDAO and the Program Secretariat for effective implementation of the program. The FA team for implementation of the program consists of a Block Coordinator, one Additional Block Coordinator, and one accountant. CBO assists FA in undertaking the activities of the program at

the village level. Prior engagement of the FA with millet community and farmers give an advantageous position to the FA in implementing the program. FA supports CBO by conducting technical trainings related to productivity enhancement, farm mechanization, millet recipe development, exposure visits, FPO establishment, and capacity building (OMM, 2022).

FA assists CBO in achieving the physical and financial targets of the program by conducting weekly/fortnightly review meetings with CBO. Coordination with various other actors such as Assistant Agriculture Officer (AAO), LAMPCs, Block Development Officer (BDO), and Agriculture Technology Management Agency (ATMA) at the block level and TDCC and WASSAN at the state level ensures accountability and transparency in the program implementation. Formation of village level institutions such as Community Seed Centre (CSCs), Bio-input processing unit, Custom Hiring Centre (CHC), Farmer Producing Organization (FPO) at the Gram Panchayat (GP) level ensures access of resources along with providing ownership and control over productive resources to the community.

iii. Project Implementing Agency (Community Based Organization or Farmer Producer Organization)

The Community Based Organization (CBO) can be a farmer group or Farmer Producer Organization (FPO) or Self-help group (SHG) or any other community institution which is based out of village is the project implementation unit. The CBO implements the program with support of Facilitating Agency, Village Agriculture Worker and Assistant Agriculture Officer in the respective block. CBO implements the activities as detailed in the guidelines of OMM. CBO facilitates community mobilization and selection of beneficiaries for program implementation. CBO gets registered as FPO (Operational Guidelines, Government of Odisha, 2022).

iv. Community Resource Person (CRP)

CRP is chosen by the CBO/FPO. Community Resource Person (CRPs) are the interface between the program formulators and the farmers, wherein their involvement in demonstration of improved agronomic practices contributes to an increase in yield. CRPs undertake selection of beneficiaries and mobilize farmers for millet cultivation, capacity building, exposure visits and other activities. CRPs do the data entry by collecting their documents and overseeing their

activities as per the requirements or procedures for different activities under the OMM in the mobile application. CRPs assist FA in organizing various village level meetings, trainings, capacity building workshops, exposure events, etc for awareness creation. Regular tracking of farmers is updated in the daily CRP register.



**Table 5.3** A Matrix of Actors involved in OMM Intervention, Odisha

Level	Agency/Actors	Responsibilities
Sub-block level	Community Based Organization	<ul style="list-style-type: none"> <li>• Implementing the program.</li> </ul>
	Village Agriculture Worker	<ul style="list-style-type: none"> <li>• Work in the village level.</li> <li>• Supports and reports the progress to Block AAO.</li> </ul>
Block level	Facilitating Agencies (FAs)	<ul style="list-style-type: none"> <li>• Facilitating, monitoring and supporting CBO in implementation.</li> </ul>
	Assistant Agriculture Officer	<ul style="list-style-type: none"> <li>• Supports FA in technical matters, convergence and monitoring the program.</li> <li>• Coordinates, support and report to PD, ATMA.</li> </ul>
District level	District Collector and District Magistrate, DPMU, ATMA	<ul style="list-style-type: none"> <li>• Program administration, facilitates funding to FAs and CBOs, monitoring, convergence and coordinating with district level actors.</li> </ul>
	PD, ATMA	<ul style="list-style-type: none"> <li>• Nodal agency and program administrative unit at district level for implementation.</li> <li>• Reviews functioning of the program as well as FAs work on monthly basis.</li> </ul>
	WASSAN (Program Secretariat)	<ul style="list-style-type: none"> <li>• Convergence and Governance.</li> </ul>
State level	State Secretariat: i) Research Secretariat (NCDS)	<ul style="list-style-type: none"> <li>• Policy development on millets.</li> <li>• Processing related specifications.</li> <li>• Market linkage development</li> <li>• Expansion of urban campaign on promotion of millets.</li> <li>• Coordinating collaboration with various actors to ensure smooth implementation.</li> <li>• Conducting pre and post program implementation studies such as baseline study, mid-term and end-term evaluation.</li> </ul>

	ii) Program Secretariat (WASSAN)	<ul style="list-style-type: none"> <li>• Developing program processes and design including program implementation, process manual and policy guidelines.</li> <li>• Developing capacity building modules, extending support to FAs.</li> <li>• Facilitates convergence with various actors across departments at state and district level.</li> </ul>
	SPMU headed by JDA, Millet	<ul style="list-style-type: none"> <li>• Administration and monitoring of the program.</li> </ul>
	Directorate of Agriculture and Food Production	<ul style="list-style-type: none"> <li>• Nodal agency for administration, monitoring and implementation.</li> <li>• Overseeing funding and matters relating to physical and financial review.</li> <li>• Finalization of policy and state level action plans relating to intervention verticals of the program.</li> <li>• Integration and convergence with other schemes.</li> </ul>
	Department of Agriculture and Farmer's Empowerment	<ul style="list-style-type: none"> <li>• Administrative department for implementation and funding of the program.</li> <li>• Policy development and Guidelines for implementation.</li> <li>• Involvement of various actors in a participatory approach.</li> </ul>
	Mission on Millets Committee	<ul style="list-style-type: none"> <li>• Governance and policy related aspects of the program.</li> <li>• Inter departmental approvals and sanctions.</li> </ul>

Source: Odisha Millet Mission literature and discussions with actors, field study, 2019-2022

From the above discussion it is evident that the Odisha Millet Mission is an ambitious program that has brought together diverse actors, and in the process tried to create a convergence model with the explicit objective of reviving millets at all levels. Apart from the above outlined actors at the state, district, block and sub-block levels, our interviews showed that various collaborations who are not direct actors of the program were also carried out.<sup>71</sup>

#### **5.4 Top-Down and Decentralized Approach to Millet Revival**

The OMM follows a decentralized approach to mainstreaming a lost crop like millets in Odisha. The decentralized approach is largely due to a participatory outlook adopted for evolving the design of the program. The OMM is supported by an institutional architecture of cooperation and partnership between three actors concerned with the state of millets in the region. This architecture is governed by working together of government departments, civil society organizations including community-based organizations at the village level, and an academia institute, in formulating and implementing the program. Within the larger framework of OMM program guidelines, the implementation mechanism is a deliberative process, at each stage, that is regularly monitored, evolving and accommodative of field-level changes.

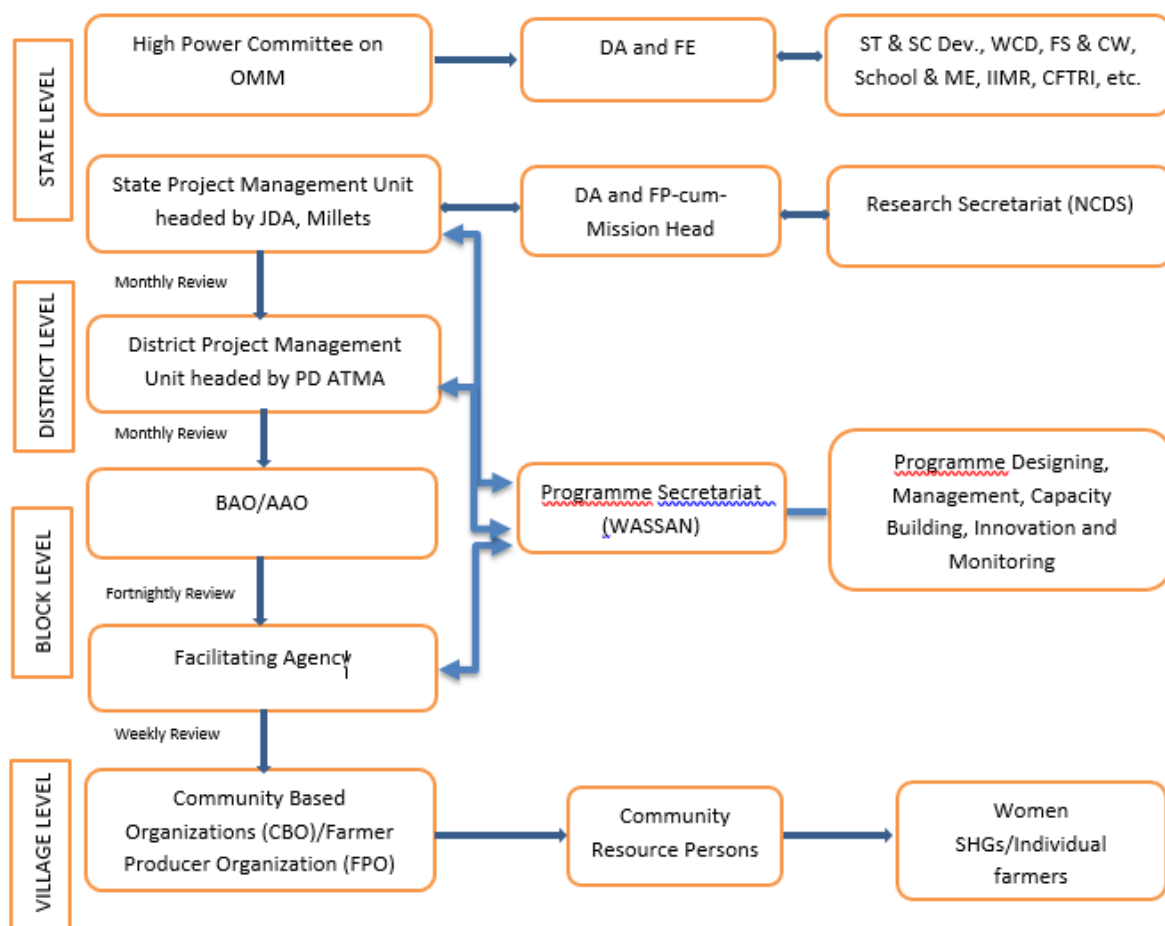
At the village level, saving and sharing seeds, setting up decentralized processing facilities, establishing Community Seed Bank (CSB), Custom Hiring Centres (CHCs) and bio-input manufacturing units, procurement of millets by FPOs and WSHGs and empowering women in the millet value chain by creating livelihood opportunities, are some of the directions undertaken with an aim to decentralize the approach to revive millets. The FPOs, CRPs and WSHGs/Individual farmers are the agencies engaged with the millets ecosystem at the sub-block or village level. The extension body of the Department of Agriculture and Farmer's Empowerment, ATMA, in each district and block coordinates the program implementation as the administrative head, supporting the monitoring activities and channelizing the fund disbursement to the FAs and CBO/FPO. NCDS and WASSAN constitute the nodal agencies for the overall coordination of the program by involving in research, program, policy guidelines and capacity building design. A High Powered

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<sup>71</sup> Please refer to Table A5.1, A5.2, A5.3, A5.4, A5.5 in appendices for diverse set of actors converging at state and national level.

Committee consisting of government departments is overall responsible for the program management<sup>72</sup> (Figure 5.1).

**Figure 5. 1** Decentralized Program Delivery Mechanism of OMM – From State to Village Level



Source: Government of Odisha, “Guidelines for implementation of Special Program for Promotion of Millets in Tribal Areas of Odisha” (2016).

Under the OMM implementation framework, activities that directly impact the farmers begin at the block level. A Block therefore constitutes the program unit of OMM. The program is implemented in tribal areas on a “contiguous cluster basis.”<sup>73</sup> It is earlier discussed that the OMM intervenes along six verticals. They are summarized as shown in the **Table 5.4**.

<sup>72</sup> For more information, please see, Garg, S., Muthukumar, M., Balam, D., & Mohanty, B. (2020). “A transformative food system for mainstreaming sustainable diets. In Routledge Handbook of Sustainable Diets.

<sup>73</sup> The term is adopted by the OMM. 3-4 contiguous villages form a cluster.

**Table 5.4** Implementation Activities Across Six Verticals of the OMM at the sub-Block level

<b>Intervention verticals</b>	<b>Activities undertaken</b>
Production	<ul style="list-style-type: none"><li>• Improved agronomic practices like System of Millet Intensification, Line Transplanting, Line Sowing, Intercropping</li><li>• Community Managed Seed System (CMSS), Custom Hiring Centres (CHCs)</li><li>• Developing Seed farmers</li></ul>
Processing	<ul style="list-style-type: none"><li>• Setting up decentralised processing unit at Gram Panchayat and block level</li><li>• Setting up of units for value addition</li></ul>
Marketing	<ul style="list-style-type: none"><li>• Establishing and promoting FPOs.</li><li>• Promotion of millet value addition enterprises</li><li>• Market facilitation by promoting millet tiffin centres and millet shakti cafes</li></ul>
Consumption	<ul style="list-style-type: none"><li>• Restoring and levelling household consumption in rural areas</li><li>• Introduction in State Nutrition Program (Integrated Child Development Scheme, Mid-day Meal, Integrated Tribal Development Agency welfare hostels)</li><li>• Promotion of millets in urban areas and small towns</li></ul>
Procurement and Distribution	<ul style="list-style-type: none"><li>• TDCCOL is the state procurement agency for ragi under OMM.</li><li>• Inclusion of millets in ICDS, MDM, PDS, ITDA hostels and various events</li></ul>
Promotion of millets	<ul style="list-style-type: none"><li>• Promotion of millets through women entrepreneurship in millet shakti cafes and millet tiffin centres.</li><li>• Promotion through value addition activities.</li></ul>

Source: Author's compilation

### **5.5 Actors and Convergence Areas across Intervention Verticals of Odisha Millets Mission**

There are four intervention verticals across which the actors converge.

- i. Inclusion of millets in state nutrition program
- ii. Improving productivity
- iii. Procurement and marketing
- iv. Processing and value addition.
  - i. *Inclusion of millets in State Nutrition Programs*

Considering the inclusion of millets in state nutrition programs as a crucial subject, the state line departments such as Department of Planning and Convergence, Department of Agriculture and Farmer's Empowerment, ST and SC Development Department, Women and Child Development Department (WCD), Food Supplies and Consumer Welfare (FS&CW), Micro, Small and Medium Enterprise (MSME), and Department of School and Mass Education (DME) along with national actors such as IIMR and CSIR-CFTRI converge for recipe development, procurement of millets and inclusion of millets in anganwadi centres. Central institutes such as IIMR and CSIR-CFTRI partake in conducting research activities regarding identifying and developing local landraces, provide technical specifications for millet machinery and conducting studies on recipe development under ICDS.

Department of Women and Child Development and Mission Shakti has a major role to play in the inclusion of millets under State Nutrition Programs. In collaboration with Mission Shakti, WCD, engagement of SHGs for promotion of millet products through Millet Tiffin Centres in rural areas as well as Millet Shakti Cafes in urban areas sustains and promotes women's livelihood through reviving a local crop. WASSAN and FAs invest in conducting trainings for SHG members, anganwadi workers, popularizing millets through awareness campaigns, organizing millet food festivals and establishing millet tiffin centres in rural areas and millet cafes in urban areas (see **Table A5.1** in appendices).

ii. Improving productivity

For improving productivity, Department of Agriculture and ATMA at the district and block level along with State Agriculture University converge on preserving landraces and technicalities of improving production. Areas of convergence include providing technical support in the form of improved practices, and identification and preservation of landraces. WASSAN, FAs and CBOs collaborate for facilitating state, district, block and village level meetings, events and capacity building workshops. Capacity building trainings and workshops form a biggest component of the program to bring together various actors on a common platform by reviewing the work done, challenges, suggestions and building the understanding and commitment to the program (see **Table A5.2** in appendices).

iii. Procurement and Marketing

Department of ST&SC, Minorities and Backward Classes Welfare, Department of Food Supplies and Consumer Welfare, Department of Women and Child Development and Mission Shakti, Odisha Rural Development and Marketing Society (ORMAS), NCDS, WASSAN and Facilitating Agencies and Community Based Organizations converge for processing, procurement, value addition as well as exploring market linkage for millet. TDCCOL is the state marketing agency for procurement of millets and was responsible for managing procurement related operations in the state. LAMPCs were involved in procurement prior to empanelment of FPOs to procure ragi. Documents for verification of farmer's registration, storage and online payment to farmer's account is managed by the LAMPCs in respective blocks. State Civil Supplies Corporation manages the distribution of processed millet through their established distribution network to anganwadi and schools for their inclusion in state nutrition programs. ORMAS explores the market linkage and seeks collaboration for branding and selling of millets through tie ups with private dealers. FPOs at the village level oversee the procurement process, undertake farmer's registration and support awareness generation for ragi procurement. Selling and supply of processed grains, managing millet based enterprises is collectively done at the FPO level (see **Table A5.3** in appendices)

iv. Processing and Value addition

Processing and value addition is a crucial component of millet value chain emphasized under the OMM. A Committee on processing comprising representatives from state agriculture department, agriculture university and CSOs collaborates on developing small millets processing machines to facilitate easier post-harvest processing operations and development of millet products. NCDS and WASSAN create awareness regarding processing and value addition in addition to exploring partnerships with local food vendors to include millets in their regular business. KVK/OUAT and IIMR and other SAUs are involved in delivering training to WSHGs and entrepreneurs related to development of small processing machines and millet products to create business opportunities for women collectives. At the village level, FA extends facilitation and training support to village level functionaries such as FPO members, CRPs, PRIs and VAWs regarding implementation of processing related activities and establishment of institutions (see **Table A5.4** in appendices).

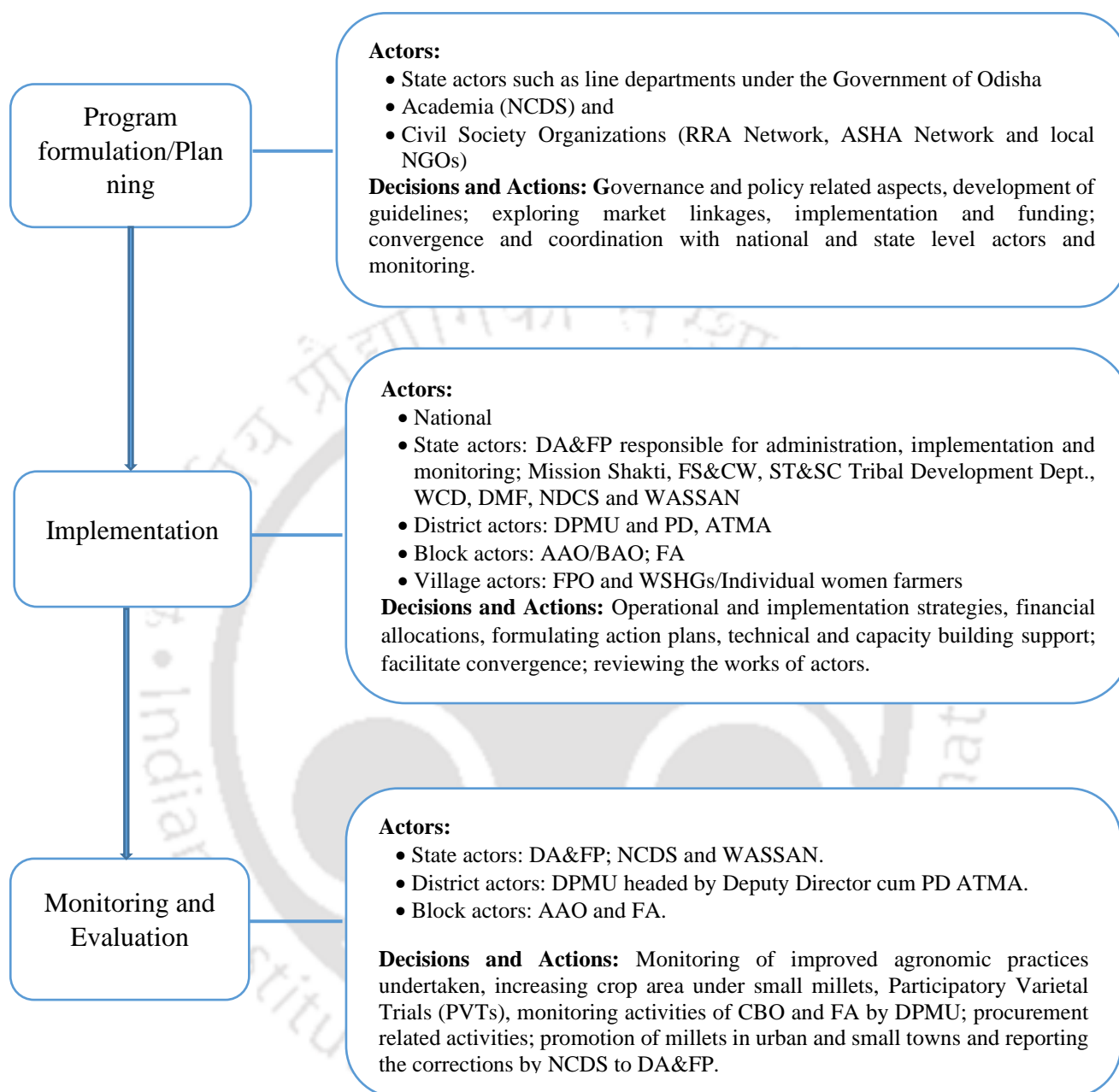
### 5.5.1 Convergence Framework and its Adaptation

Convergence and collaboration is operationalized in different degrees and through different levels from state to district to block to village level. Convergence and collaboration with more actors is being operationalised as the state government plans to integrate other state schemes with OMM and also to extend area coverage under program implementation. The convergence framework considers the convergence played out between actors across sectors at various levels and their decisions and actions. In this section, Convergence framework, adopted from IFPRI, 2012 is adapted to three levels of the program framework, which is setting the program guidelines, program implementation and monitoring and evaluation (see **Figure 5.2**). Below is a detailed description as to how convergence is played out between actors and actors.

#### *Consultation in evolving the program and its guidelines at the State level*

The program initiated by the government of Odisha in 2017 focussed on revival of millets to mitigate the prevalence of widespread malnutrition; rising climate change issues, and leveraging multiple benefits of millets cultivation. During the consultation, participants highlighted the importance of revitalizing millet cultivation and investing in millets due to their significant impact on various health, environmental and food-related challenges. It was agreed among the Civil Society Organizations that any program developed should prioritize the well-being of small farmers. Inclusion of millets in ICDS, PDS and welfare hostels, establishing processing units and market linkages and awareness creation about importance of millets was suggested by the participants. There was an unanimity to increase the yield of millets to make it sustainable, conserve local varieties and maintain sufficient seed stocks and to arrest land degradation in order to revive millets cultivation. Different line departments like Department of Women and Child

**Figure 5. 2** Framework for assessing extent and nature of multi stakeholder convergence



*Source:* Adopted from International Food Policy Research Institute, IFPRI, 2012.

Development expressed their willingness to consider incorporating millets into ICDS and experiment with millets in departmental programs.

ORMAS also displayed eagerness to promote and sell millets in urban markets through collaborations with private dealers. The program is funded under National Food Security Mission (NFSM) coarse cereals category. The primary objective behind initiating the program is to provide support to millet growing farmers through production enhancement approaches; public procurement; decentralised processing facilities; promoting consumption in rural and urban areas, and promoting farmers collectives. The program evolved as a strategic action plan involving intersectoral collaboration and convergence with different line departments, actors at various levels (state, district, block and village) in response to these challenges. The six verticals and action areas through which convergence and collaboration is taking place in these verticals is shown in the **Table 5.5**.

In order to revive millets joint efforts, collaboration and convergence with other schemes related to millet promotion as well as coordination from various line departments and expert organizations is forged. Several mechanisms are in place to facilitate regular coordination which includes state and block review monitoring meetings, capacity building for actors by the Program Secretariat, learning workshops as well as organizing meetings for proposing new activities and convergence plan with actors. Other activities include cross sectoral coordination meetings regarding fund issue; convergence with similar works of other schemes; strategies to mitigate challenges incurred during implementation; making changes in the guidelines; policy corrections and recommending corrective measures.

**Table 5.5** Table showing action areas through which convergence and collaboration is taking place

S.No.	Verticals	Action areas	Stateholders involved
1.	Promoting household consumption	<ol style="list-style-type: none"> <li>1. Building prestige in consumption of millets through organizing cooking competitions and celebration of local millet based food cultures.</li> <li>2. Exposure to various recipes through a process of training, food festivals and campaigns.</li> <li>3. Promotion of ready to eat foods with millets such as bakery items and other such enterprises.</li> <li>4. Awareness building programs on nutritional values of millets.</li> </ol>	<ol style="list-style-type: none"> <li>1. DAFP, WCD</li> <li>2. ATMA</li> <li>3. NCDS and WASSAN.</li> <li>4. Facilitating Agencies and Community Based Organizations.</li> </ol>
2.	Setting up decentralized processing facilities	<ol style="list-style-type: none"> <li>1. One Processing Unit/enterprise per cluster of villages/GPs.</li> <li>2. One pulveriser per Gram Panchayat.</li> </ol>	<ol style="list-style-type: none"> <li>1. IIMR, OUAT, DA&amp;FP, WCD, OLM, DHAN foundation, The Millet Foundation.</li> <li>2. NCDS and WASSAN.</li> <li>3. Private players like processing enterprises.</li> </ol>
3.	Improving productivity of millet crops	<ol style="list-style-type: none"> <li>1. Establishing Community Managed Seed Centres.</li> <li>2. Improved agronomic practices.</li> <li>3. Community Seed Centres.</li> <li>4. Custom Hiring Centres.</li> <li>5. Community Resource Persons.</li> </ol>	<ol style="list-style-type: none"> <li>1. Directorate of Agriculture and Food Production.</li> <li>2. ATMA</li> <li>3. Facilitating Agencies and Community Based Organizations.</li> <li>4. NCDS and WASSAN.</li> </ol>
4.	Promoting farmers collectives and marketing	<ol style="list-style-type: none"> <li>1. Promotion of FPOs one per block.</li> <li>2. Promotion and accessing of markets within the block and district.</li> <li>3. Opening up special outlets for farmers and promotional campaigns.</li> </ol>	<ol style="list-style-type: none"> <li>1. NABARD for formation of FPOs to leverage production and marketing.</li> <li>2. MSME, ORMAS, APICOL, whoesalers and retailers.</li> <li>2. ATMA</li> <li>3. Facilitating Agencies and Community Based Organizations.</li> <li>4. NCDS and WASSAN.</li> </ol>

5.	Inclusion of millets in State Nutrition Programs and Public Distribution System	<ol style="list-style-type: none"> <li>1. A pilot program on inclusion of millets in ICDS.</li> <li>2. Procurement of Ragi through state procurement agency.</li> <li>3. Distribution through ICDS and PDS.</li> </ol>	<ol style="list-style-type: none"> <li>1. IIMR, CFTRI as expert organizations.</li> <li>2. Directorate of Agriculture and Food Production, different line departments under Government of Odisha.</li> <li>3. Program Secretariat (NCDS and WASSAN).</li> <li>4. Facilitating Agencies and Community Based Organizations.</li> </ol>
6.	Popularizing millets in urban areas	<ol style="list-style-type: none"> <li>1. Managing millet food stalls by interns with NCDS.</li> <li>2. Recipe training events and food and exhibition stalls.</li> <li>3. Establishing and promoting millet-based enterprises.</li> <li>4. Making millet products available in Bhubaneswar.</li> </ol>	<ol style="list-style-type: none"> <li>1. Directorate of Agriculture and Food Production.</li> <li>2. NCDS</li> <li>3. WASSAN</li> <li>4. Mission Shakti, Department of Women and Child Development .</li> </ol>

Source: Author's compilation

However, a point to be noted here is that in the first year of intervention in 2017-18, focus was mainly on finger millet (ragi) which comprised 95.7 per cent of area and 97.8 per cent of produce. Nearly 90 per cent of the targeted area (45000 hectares) was planned to be under ragi and remaining 10 per cent of the area (5000 hectares) was planned to be under other millets (Jena and Mishra, 2021). This step has further neglected the cultivation and consumption of minor varieties of millets. Finger millet is popularized due to ease in processing of ragi as compared to other varieties of millets like proso or barnyard millet. Better market demand of ragi due to people's acceptance has led to popularization of ragi over other minor millets. Lack of availability of good quality seeds and diminishing traditional knowledge of cultivating minor millets further poses hindrance in promoting minor millets.

Multiple issues cropped up during procurement at the districts level. The issues in procurement can be seen across districts like Kalahandi, Gajapati, Kandhamal, Koraput, Malkangiri, Nuapada, Rayagada, Sundergarh (Directorate of Agriculture and Food Production, Odisha, Bhubaneswar, 2019). In the first year of procurement of ragi under OMM that is 2018, less number of farmer's registration, near absence of estimation of surplus production for sale at procurement centres, inadequate labor and infrastructure facilities at procurement centres, lack of awareness of Fair Average Quality (FAQ) norms amongst farmers, poor involvement of Community Based Organizations, poor Community Resource Person (CRP) mobilization, lack of awareness amongst farmers about procurement of ragi were some of the issues and challenges in implementation of the program. Insufficient awareness for procurement of ragi; delay in fund releases to farmers, CRP, CBO and FA; poor performance of Facilitating Agencies; non-satisfactory progress of capacity building programs; poor financial expenditure under the program have delayed achieving some of the targets during initial years of program implementation (DAFP, 2019; Nayak et al., 2019).

***Collaboration and convergence in implementation at the district, block and village level***

District Level Governing Board under the chairmanship of District Collector looks after the implementation and monitoring of the program at district level. The governing body reviews the program bi-monthly, develops district wise milestones, action plans and timelines of the project in consultation with Program Secretariat, and facilitate convergence across its extension functionaries to meet district level action plans. District Agriculture Officer/Assistant Agriculture Officer collectively decides while selecting Facilitating Agencies at the block

level. District Level Procurement Committee comprises of district level functionaries and they coordinate with line departments like TDCCOL, Department of Food Supplies and Consumer Welfare and Mission Shakti and Department of Women and Child Development for procurement level activities and for inclusion of millet snacks in ICDS, PDS and welfare hostels. District level officials coordinate across sectors through review meetings, collaboration workshops with different actors and line departments, training sessions as well as capacity building workshops of various districts and block level functionaries. District Agriculture Officer (DAO)/Assistant Agriculture Officer (AAO)/Village Agriculture Worker (VAW) are involved in monitoring the progress of activities by Facilitating Agency and Community Based Organization. District Agriculture Officer (DAO) reviews the millet program during monthly AAO conference. At district level, such review meetings are held under the chairmanship of PD, ATMA; Deputy Project Director, ATMA/ Scheme Officer of Millet Mission for monitoring, review and progress of the program. These functionaries are also responsible for achievement of the targets at the district level.

At the block level, Assistant Agriculture Officer (AAO) extends support to the Facilitating Agency in technical matters, convergence and review of the program and reports the progress to the PD, ATMA cum DDA. During regular monthly meetings at block level, activities performed, outcomes delivered, targets completed and villages covered are reviewed by agriculture functionaries under ATMA, members from Facilitating Agency, Nodal CBO member, CRPs and OMM staff. The Program Secretariat WASSAN provides coordination, regular process monitoring, training, process development, technical and capacity building support to Facilitating Agency for implementing the program at the village level. CBO/FPO is facilitated with handholding support from the FA to enable the CBO to function as a self-sustainable organization. A good understanding of the nature of work and support mechanism demonstrates close interpersonal relationship among the FA professionals and the villagers.

At the village level, interpersonal communication drives the relationship of mutual exchange and sharing between the CBO/FPO workers and the villagers. Community Based Organization (CBO) or Farmer Producer Organization (FPO) forms the Program Implementing Agency. Regular review of the work done by CRP is assessed by the Facilitating Agency. Facilitating Agency calls for CRPs meeting once a month where findings related to what task was given, how much of it is completed, how many villages covered, kinds of work done and challenges faced are shared by the CRPs. Program Secretariat provides training to CRPs on improved

agronomic practices, how to increase yield, creating awareness about millet procurement on how to sell their produce, and procurement procedures.

### *Monitoring and Evaluation of the program*

Program Secretariat (WASSAN) is responsible for regularly monitoring the program implementation at the state level. District Level ATMA Governing Board monitors the program bi-monthly at the district level with the support of PD, ATMA. Project Director, ATMA reviews the program on monthly basis with support of Program Secretariat at district level to ensure progress of the program as per deadlines and milestones through review meetings at the district level as well as through PD, ATMA at the block level. At the block level, Facilitating Agencies regularly reviews and monitors the work of Community Based Organizations (CBOs).

At the state level, Directorate of Agriculture and Food Production reviews the fund utilization of Research Secretariat and Program Secretariat as well as of other Project Implementing Agencies. At the district level, ATMA conducts Quarterly Review of CBOs/FAs and submit the quarterly report to the Directorate of Agriculture and Food Production. Many problems have come up related to fund releases in implementation of the program in the first two phases of the program implementation. As a delayed release of funds by more than 6 months in the first phase of the program implementation, most of the FAs have experienced problem and hence delay in achieving targets of the program components. Non-availability of district level ATMA officials as resource persons for capacity building plans and other technical issues such as non-adherence to specific norms relating to submitting of bills, non-submission of action plan by the ATMA at district level are the other factors (Mishra and Patra, 2018).

Specific targets to be achieved for the program under different intervention verticals of production, processing, marketing and distribution, consumption, and value addition and promotion of millets are clear and well defined. Certain initiatives have been taken for ensuring transparency and accountability. This includes developing web portal by Program Secretariat with login IDs for every FAs and ATMA for project reporting. A Monthly Progress Report (MPR) comprising a Statement of Expenditure (SoE) is uploaded every month by FA for monitoring purposes. Mobile Application for Farmer's Database and Monitoring has also been developed for uploading of regular progress data of farmers by Community Resource Persons.

Various types of data collected by CRPs at the village level along with photographs of the beneficiaries gets transferred to a program tracking sheet which is accessed by the administration at the state level (Annual Report, OMM, 2017-18). Policy Briefs, the course corrections initiated by the Research Secretariat NCDS are the suggestions of NCDS based on real time feedback addressing concerns raised in the implementation of the program.

## 5.6 Chapter Summary

This chapter discussed the institutional architecture of the Odisha Millets Mission. The OMM is a government program initiated in 2017. The framework of OMM evolved from a collaborative multi stakeholder consultation, called for by the Planning and Convergence Department, in collaboration with civil society network working on millet system in rain fed regions of the country. The program is a comprehensive initiative and the first of its kind to focus on the entire millet value chain with specific focus on enhancing the consumption to create a demand for the lost crop amongst the rural and urban dwellers. Three key actors among the host of others include the Government, NCDS, an academic institute and WASSAN, a Civil Society Organization.

The structure of the program implementation is spread across four different levels that is at the state, district, block and sub-block level (village level). At the state level, two administrative lines exist through which program implementation takes place. One line of governance constitutes the set-up of government line departments. DA&FE is the nodal agency for administration, monitoring and implementation of the program. Secretary level representatives from different government line departments constitutes the High Power Committee. The HPC primarily deals with and approves the governance and policy related decisions of the program. Directorate of Agriculture and Food Production and SPMU forms the crucial departments of the implementation and monitoring of the program. The second administrative line comprises of the State Secretariat for Odisha Millets Mission. Together they are responsible for action research related activities and developing program processes, designing program implementation and policy guidelines.

At the district level, DPMU along with ADO/AAO/BAO and other agriculture officials carries out the coordination required for implementation of the program. Facilitating convergence with other district level line departments is also looked after by the DPMU. PD, ATMA is an

important actor as it converges into an agreement with FA and CBO/FPO which characterizes the decentralized program implementation mechanism. PD, ATMA mainly channelizes funds from the state to the FA and FPO.

The block level activities are overseen by the BAO/AAO that extends technical supervision to the farmers and FA professionals. The block level action plans of FA and FPO are channelized through BAO/AAO. FA adopts cluster-based approach to increase the outreach to farmers and mobilize them to adopt agronomic practices to increase millet yield. Coordination of FA with various other actors such as Assistant Agriculture Officer (AAO), LAMPCs, Block Development Officer (BDO), and Agriculture Technology Management Agency (ATMA) at the block level for program implementation and TDCC and WASSAN at the state level ensures accountability and transparency in the program implementation.

FPO or CBO is the village level institution for implementing activities of the program. Working in conjunction with the CRP, these organizations facilitate the community mobilization and the selection of farmers for program implementation. Through their sustained involvement with the villagers, both FPO and CRP ensure that collectivity through income generation activities of FPO benefits farmers through the Millet Mission.

The decentralized approach to mainstreaming millets in Odisha mainly caters to the institutions created at the village level for sustainable revival of millets. The institutional architecture is governed by working together and collaboration of three entities, the Government department, CSO including CBO at the village level, and NCDS in formulating and implementing the program. At the village level, FPOs and WSHGs have been significantly mobilized and encouraged in the millet value chain thus creating livelihood and entrepreneurial opportunities. Support services to the institutions created at the village level include facilitation of decentralized processing unit, value addition unit within the FPO premises, millet procurement at MSP, bio-input manufacturing unit, farm services at affordable rates, other forms of market linkage through FPO such as seed selling, value added products, selling clean and processed millet, etc. ATMA is the administrative head that coordinates the program implementation, monitoring and fund disbursement to the FPO and FA in each district. Government committee takes the overall responsibility for the program management.

The OMM operative model is based on convergence and partnership between key government departments, CSOs, academic institutions, farmer collectives, and CBOs. An agreement with

Mission Shakti, WCD is leveraged for promotion of millet entrepreneurship, millet awareness campaign and preparation and inclusion of ragi laddoos in ICDS through engaging WSHGs, thereby strengthening their livelihood opportunities. Moreover, managing community seed centre, custom hiring centre and other community based institutions established to deal with resource constraints enables women to be in leadership position to revive millet movement.

The OMM intervenes along six verticals. They are production; processing; marketing, consumption; procurement and distribution; and promotion of millets. By focusing on the different aspects of millet farming, the government has laid the importance of reviving the millet value chain. Establishing diverse seed centres, Custom Hiring Centres, and adopting improved agronomic practices are strategized to increase yield. Setting up of decentralized processing units at the GP and block level for destoning, de-hulling and pulverization enables the women farmers to access the processing facilities to supply clean product to government and other actors at a higher place. FPO at the block level acts as the facilitator of input and output supply chain. Emphasis on increased consumption of millets at household level through awareness campaigns and organizing food festivals and inclusion of ragi laddoos in ICDS is an appreciative step to create a demand for millets in the society. Procurement of millets at MSP incentivize millet farming. Promotion of millets in urban and rural areas through engagement of WSHGs in entrepreneurial opportunities is a step towards creating acceptance for millets in food habits.

FS&CW is converging to supply millets to PDS and ICDS. TDCCOL is responsible to handle the procurement activities. Central institutes such as IIMR and CSIR-CFTRI have been instituted to cater to millets research and development. They provide expertise knowledge with regards to landrace and nutritious breed development, millet recipe development and technical specifications for millet processing machineries.

The production, processing, procurement and marketing and promotion verticals are intervened through converging with state and national level expert organizations. Convergence and collaboration is operationalized in different degrees and through different levels from state to district to block to village level. These three levels are consultation in evolving the program and its guidelines at the state level; collaboration and convergence in implementation at the district, block and village level and monitoring and evaluation of the program.

## Chapter 6

### **How Decentralisation Works at the Block and Village Level in Koraput District: Do Women Gain?**

In this chapter, the functioning and its impacts through engagement of various block and sub-block level stakeholders created under the OMM in revival of millet ecosystem is studied. I further discuss the engagement of women farmers with the millet ecosystem, see how their engagement has sustained millet farming and how women are benefitted from the OMM.

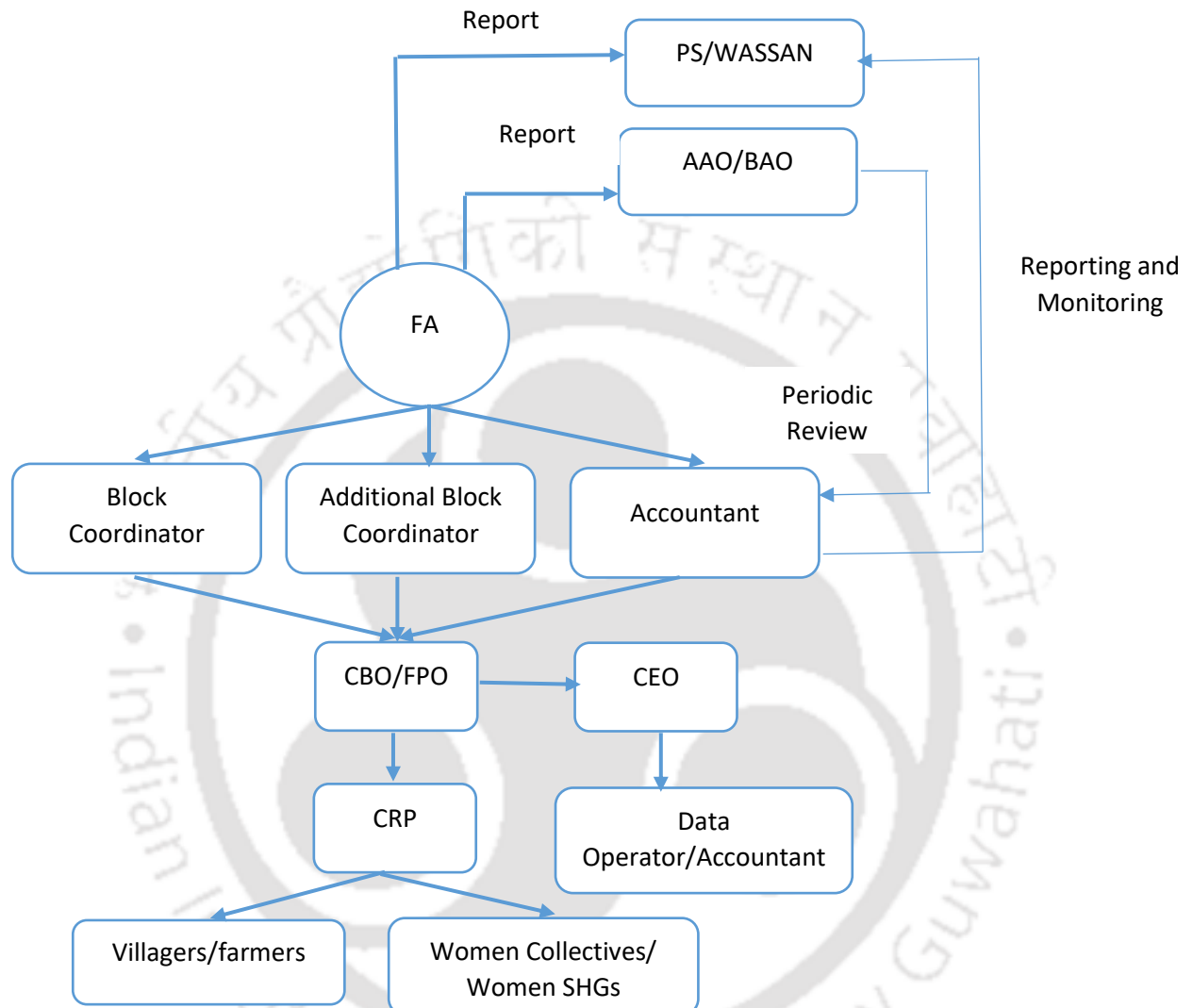
This chapter is divided into following sections. Sections are divided according to the themes emerged from doing thematic analysis. Section 6.1 discusses the role and engagement of Facilitating Agency with millet and community under the OMM. Section 6.2 deals with seeds preservation reflecting the indigenous knowledge and challenges faced by women farmers. Section 6.3 explores the constraints of women farmers with production, processing, marketing and procurement of millets. Section 6.4 looks into whether women farmers have benefitted from engaging in millet farming or not. Section 6.5 explores the opinion of farmers about the Millet Mission. Community Resource Person under the OMM plays an important role in facilitating the program at the village level and hence their role is explored in section 6.6. Engagement of women farmers with millet ecosystem is discussed in section 6.7. Section 6.8 and Section 6.9 discusses the challenges faced by FA and the constraints of farmers related to Millets Mission.

#### **6.1 Role and selection process of Facilitating Agency (FA)**

FA plays a crucial role in facilitating the program at village level. Facilitating Agency is a Civil Society Organisation situated at the block level having presence at the village level. The FA works with local farmers/Community Based Organizations (CBOs) and develop their capacities. Monitoring of implementation of the program, and supporting CBO by conducting technical trainings related to productivity enhancement, farm mechanization, millet recipe, exposure visits, FPO establishment, capacity building and awareness programmes are key deliverables of the FA as a part of the engagement process. Village and review meetings, mobilizing village headman or Sarpanch at the Gram Panchayat (GP) level, Krushak Sathis (or farmer friends), village ward members, Community Resource Persons (CRPs) and members of

CBO strategizes the involvement of formal and informal village level functionaries in ownership of the program at the ground level (see **Figure 6.1**).

**Figure 6.1** FA and its coordination mechanism at the block and village level



Source: Author's compilation

The selection process of the FA involves a committee consisting of members from ATMA and Program Secretariat WASSAN. An expression of interest is floated and an organization can apply to work in maximum of two blocks in a district and three blocks at a state level. A form is then submitted by the NGO with supporting documents like pictures and documents showing proof of doing some millet related work with the community. A committee at the district level does the sorting of organizations and based on their shortlisting organizations are called for presentation. This is followed by field verification by the committee. In field verification the

committee talks to the community, see their office and their work. Presentation score and field score is added together and the NGO scoring the highest gets selected as Facilitating Agency to work in that particular block.

### 6.1.1 Engagement of the Facilitating Agency with the millet crop and community

FA creates awareness with different awareness material, facilitate the process of farmer registration for millet procurement and facilitate farmers to bring their produce to the mandis<sup>74</sup> for selling it under procurement system. FA monitors that there is an effective usage of funds as well as targets are met. In **table 6.1**, FAs working in the respective blocks is given.

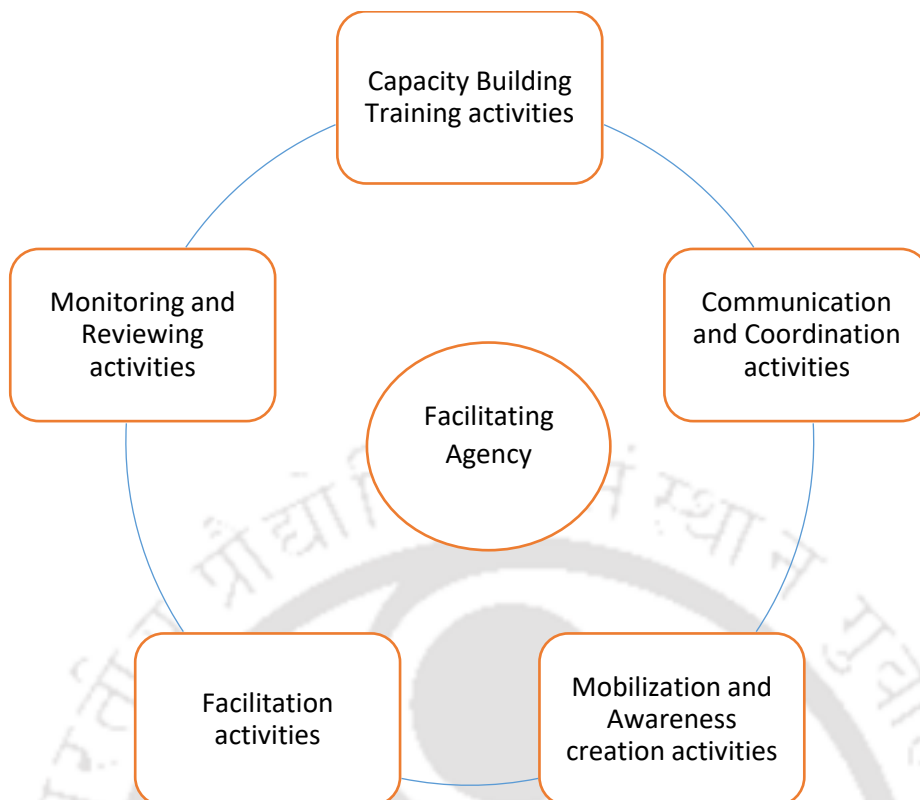
**Table 6. 1** Facilitating Agency and the Blocks they intervene in

Block	Facilitating Agency
Lamtaput	PRADAN
Kundra	MSSRF
Boipariguda	CYSD
Borigumma	HARSHA TRUST
Nandapur	PRAGATI

Source: Field study, 2019-2021

**Figure 6. 2** Pictorial representation of responsibilities of Facilitating Agency

<sup>74</sup> Procurement collection centres



Source: Author's compilation

Supporting the formation of village level institutions such as CHC, FPO at the GP level along with facilitation work of managing and training CBO/FPO to look after the functioning and operation of these institutions grooms the CBO to function as an independent and self-sustainable entity (see **Figure 6.2**). Weekly or fortnightly review meetings with the CBO/FPO overlooks the implementation process. FA looks into the adoption of technology by farmers in the villages and enables the farmer to use the improved technology. Team Leader of the FA (MSSRF) in Kundra, says,

*Under millets mission there is a very specific role of Farmer Producer Organization and Community Based Organization. CBO is working at the ground level. FA is different. FA is taking technology to the people with the help of CBO and CRPs. So the mandate is we have to take the technology to the farmers and train them on how to adopt the technology. Because handholding training is very important for them. If you show them once they will not understand. Every time you have to tell them the process that they need to do*

*starting from land development to harvest*<sup>75</sup>. Prashant Parida, Team Leader of MSSRF, Jeypore, Kundra. (20<sup>th</sup> September, 2021)<sup>76</sup>

The above excerpt expresses the rigor and continuous interaction involved in the provision of handholding technological support by FA to the tribal farmers. With a complete change in the millet cultivation process of broadcasting followed earlier by the millet growers, technology adoption requires new methods to be followed. Land development, seed treatment, application of manures, raising nursery bed, etc are the steps taken before sowing millet seeds. The process of promoting improved millet cultivation practices require coordination with various other stakeholders such as AAO<sup>77</sup>, LAMPCs, Block Development Officer (BDO), and Agriculture Technology Management Agency (ATMA) at the block level and TDCC and WASSAN at the state level. The involvement of various stakeholders including the FA, AAO, LAMPCs, BDOs, ATMA, TDCC, and WASSAN further strengthens the implementation and success of the millet cultivation process.

NGOs selected as FAs have been working with millets and the community from much before the government started the state program of Millets Mission. The contribution of the FAs lies towards introducing improved agronomic practices to the farmers much before the Millets mission was initiated. For example, PRAGATI, an FA operating in Nandapur block of Koraput district, has been actively involved with farmers in the region. In Nandapur, mixed millets cultivation is widely followed, where seeds of different millets are mixed and sown together. This approach ensures the availability of different local varieties of ragi (finger millet) for consumption, as each variety is harvested seasonally in different phases. With the encouragement of PRAGATI in Nandapur, for mono cultivation of finger millet, a change in cultivation practices followed by farmers is witnessed among farmers. While showing some resistance, farmers have started adopting solo cultivation of finger millet.

*In 2010, PRAGATI started Systematic Millet Intensification (SMI) on trial basis but there were challenges as they were cultivating mixed millets and they were not ready to cultivate solo crop. Tribal farmers in Odisha have never done the solo cropping before. Seedlings*

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<sup>75</sup> The researcher conducted the interview with the respondent by herself in hindi. The interview was then transcribed from hindi to English by the researcher.

<sup>76</sup> The interviews with Team Leaders of FA, representatives from Government department, State Coordinator from WASSAN, professionals from NCDS, Agriculture Officer from ATMA, block level officials were conducted by the researcher in hindi and later transcribed in English by the researcher.

<sup>77</sup> Fullforms of the abbreviations used are depicted in Table 5.1. Please see **Table A5.1, A5.2, A5.3, A5.4** in appendices for a detailed description and their contribution towards fulfilling the program objectives.

*of small millets were transplanted and row to row transplantation was done by following transplanting method which is a change from earlier broadcasting method. That was a challenge and a bit difficult for the farmers to do. My team made the farmers understand through village meetings and took them on exposure visit to Vizianagram in 2010. Gradually that thing was up scaled. In 2017, Millets Mission was launched. Our aim through Millets Mission is promotion of millets. Mr. Ramanujan, Team Leader of PRAGATI, Padwa, Nandapur (28<sup>th</sup> September, 2021)*

It is in this context that Facilitating Agency's engagement with millets and the farming community becomes significant. The focus of such works is quite similar across different FA working in different blocks of Koraput district. The main objective of such NGOs working with the communities is to double the income of farmers by promoting enhanced agronomic practices, offering technical support, knowledge transfer, and improved agricultural techniques. Improving food security of the Koraput region, that had previously faced rampant problem of food insecurity, emerged as the overarching concern of the NGOs working to increase production of millets.

*From PRAGATI we were focusing on doubling the income of farmers through SMI, SRI, and potato cultivation. We were providing technical support, know-how and improved agricultural practices to the people here from before. Since 2010 we were doing SMI and 4000 farmers have been associated with us through millets cultivation. When Millets Mission came in April 2017, we connected some of those farmers with the Millets Mission. Mr. Ramanujan, Team Leader of PRAGATI, Padwa, Nandapur (28<sup>th</sup> September, 2021)*

#### **PRADAN's intervention with millet in Lamtaput block**

In the wake of prevailing food insecurity and decline in millet production during the 1990s and 2000s, PRADAN started millet farming work in Lamtaput during 2012. Drawing inspiration from a project in Chattisgarh that focused on SRI methods of millet cultivation, PRADAN Team Leader, in consultation with Odisha Tribal Empowerment and Livelihoods Programme (OTELP) of ST and SC Development, Minorities and Backward Classes Welfare Department, Government of Odisha, devised a strategy for millet intervention. PRADAN started with 100 households in 2012 to demonstrate the quality of millet cultivation. Three significant

breakthrough were influential in encouraging farmers to do millet cultivation. Increase in productivity from 4 quintals to 13-16 quintals per acre; reduced input utilization in terms of seeds and expenses and finally reduction of women's drudgery with the introduction of cycle weeders for weeding reduced the labour intensive task of weeding. As a result of these breakthroughs, the number of households engaged in millet cultivation increased from 100 in 2012 to 500 in 2013. This demonstrated the growing interest and acceptance of millet farming among the local community.

*PRADAN focusses majorly on livelihood issues but before initiating livelihood activities we thought that since food security is a major challenge in here, and if we look at food security, millet plays a very big role in addressing the food insecurity challenge. So leaving paddy, we thought of intervening in millets as millets is something which local people here cultivate as a part of culture. Mr. Sashank, Team Leader of PRADAN, Lamtaput (8<sup>th</sup> March, 2020).*

#### ***MSSRF's engagement with millets and community in Kundra block***

MSSRF intervened with millets and the community in Kundra block to rejuvenate millets from the status of orphan crop and promote them as a valuable crop. One of the key focusses of MSSRF is to conserve the genetically diverse millet ecosystem and promote biodiversity in order to ensure the benefits reach the local community. With MSSRF's intervention productivity of millets got increased from 2-3 quintals to an average of 7-8 quintals in an acre. Improved agronomic practices and improved technology led to an enhancement in the yield of finger millet. To support farmers in adopting these improved practices, the organization offers comprehensive training on entire package of practices starting from land preparation to post harvest. Additionally, MSSRF encourages the engagement of some SHGs and Community Based Organizations (CBO) in value addition activities related to millet. This promotes millet consumption in the region and helps increase the demand for millet-based products.

#### ***HARSHA Trust's engagement with millet and community in Borigumma block***

Distribution of rice through the Public Distribution System at a subsidized rate of Re.1 shifted the farmers from millet cultivation to rice cultivation and consumption. This led to reduction in land area under millet cultivation. Millets cultivation got restricted for self-consumption

purposes. Launching of Plantation Mission during 2005-2006 by the Department of Horticulture motivated farmers to convert their uplands to horticulture plantation. Eucalyptus, cashew and coffee were widely cultivated under the horticulture scheme. Farmers belonging to tribal community possessing large plots of land were supported with facilitation costs and other forms of assistance by the horticulture department to make horticulture an attractive livelihood for farmers. Increased incidences of malnutrition and nutritional deficiencies were reported with reduced consumption of millets, vegetables and leafy stuffs. HARSHA Trust engaged with people and encouraged them not to shift to cash crop entirely but slowly increase the area under millet cultivation. The establishment of the Millets Mission brought about a significant increase in awareness about millets on a large scale. With the implementation of improved agronomic practices, farmers have experienced an enhanced yield comparable to that of an acre of paddy land. HARSHA Trust continues to work closely with community, raising awareness about the nutritional benefits of millets as well as various recipes that can be prepared out of millets.

***PRAGATI's engagement with millets and community in Nandapur block***

In 2010, PRAGATI initiated the System of Millets Intensification (SMI) with millet farmers on a trial basis. However, there were initial challenges as farmers were not prepared to cultivate millets as a solo crop. Understanding and implementing transplantation methods on the field posed difficulties for the farmers. With the technical extension and training support and exposure visits of farmers to other places, the initiative gradually gained traction and was scaled-up. Through the adoption of SMI methods, the yield of millet significantly improved from 2-3 quintal per acre to 6-9 quintals of finger millet per acre. Average yield of finger millet in Nandapur block in 2020-21 is 8.5 quintals per acre.

***CYSD's engagement with millets and community in Boipariguda block***

The CYSD started millet promotion work in 2016 by converging with ATMA and WASSAN under the partnership with OMM. Under the Integrated Farming System (IFS) approach, CYSD employs agro-ecological methods to ensure quality production. Integrated Farming approach sees integrating different strategies such as agronomic practices, allied agriculture, horticulture, value addition and enterprise promotion. Apart from millets, CYSD promotes vegetables, cereals, pulses oilseeds and high value crops. Institutional building, agronomic practices and adopting cluster approach has contributed to enhanced milles production.

## 6.2 Seeds Preservation-Indigenous knowledge and challenges

### 6.2.1 Community Managed Seed Centres

Establishing CMSS to improve the productivity of millets aims at ensuring easy accessibility to quality millet seeds for farmers. Local seeds of farmers get destroyed due to various factors such as natural disasters, pests, diseases, or inadequate storage facilities. The Community Managed Seed Centres serve as important hubs for conserving indigenous seed varieties, purify and multiply good performing local seed varieties to lessen farmer's dependence on government supply or traders.

The CMSS consist of a main Seed Centre and maximum of 3 sub-Seed Centres at the block level. These centres are important for the multiplication, conservation and distribution of the varieties particularly preferred by the farmers in the village. These Seed Centres produce and supply locally preferred quality seeds. 'Seed Farmers' are trained, developed and specialized for multiplication, conservation and spread of new seed varieties. Farmers accessing the seeds from these centres are required to replace the seeds they take with four times the quantity taken.

However, the challenges such as inadequate infrastructure to keep seeds, financial constraints, delay in disbursement of funds and other related issues hinder the effective storage and management of seeds in these areas, especially in Kundra and Borigumma block. This also has a chance of ruining the seeds. WSHGs are entrusted with overall management and operation of community-based institutions like the Community Seed Centre and Custom Hiring Centre at the village level. CSCs and CHC are usually located at a WSHG member's house and runs as a business model generating revenue on hiring basis by farmers. The geographical location of village, distance from millet producing clusters, need and convenience of farmers and availability of storage space are deciding factors for the establishment of Community Seed Bank and Custom Hiring Centre at village level. These seed banks store seeds of not just millets but of diverse crops.

*We keep paddy seeds, mandia, (finger millet called locally) vegetable seeds, pulses. Seeds have become ruined as there was no repair done to the seeds bank. Because of too much heat the seeds have gone bad. Millet seeds have been transferred to another house. For repairing, there is no support from the government. No office support also. Room agreement will be signed this year (in 2021) so the room rent will be coming*

*from the government. The rule is if someone takes 2 kg of paddy seeds or any kinds of seeds then they have to return 4 kg paddy seeds in the next season.* said a woman farmer from WSHG managing the Custom Hiring Centre and Community Seed Bank in Kundra. (Goloriguda village, Kundra block 22nd September, 2021)<sup>78</sup>

*We have CHC and seed centre. Scientifically good location is required for seed centres. And in this area for seed bank getting a room on rent for Community Seed Bank is not possible. And that's why we are not able to find a suitable room like that. That's why we are trying to find a house for that but we are not able to find and that is why we are not been able to construct a seed centre for two years now.* Said Block Coordinator under OMM in Harsha Trust in Borigumma block on 07<sup>th</sup> October, 2010<sup>79</sup>.

### **6.2.2 Women farmer's-Process of storing seed and custodians of indigenous knowledge**

Women farmers play a significant role as custodians of seeds and possessor of traditional knowledge related to seed storing practices, seed quality, and seed treatment methods. Their expertise in these areas is crucial for ensuring the preservation and quality of millet seeds. Participation of women farmers in these tasks indicates the active involvement of women farmers in the pre and post-harvest processes. The agricultural operations are interlinked. The women farmers interviewed are reported to be using the local seeds reflecting their knowledge and understanding of the suitability and performance of these varieties. The process of seed extraction and storage process is extremely crucial for maintaining seed quality. Post harvesting of millets, sorting and cleaning takes place in the field itself. After harvesting, good quality ragi seeds are usually kept aside for sowing purpose in the next agriculture season. Seeds from the mother finger of the plant are extracted for sowing purpose. It is in the context of increasing millet yields and sustaining millet cultivation that women's knowledge about sowing seed extracting, seed storing, seeds preservation and seed treatment holds importance. The excerpts below show how women farmers are engaged in the process of storing millet seeds and knowledge of seeds.

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<sup>78</sup> The researcher was assisted by Mr. Abhir Panji, Development Assistant, PRAGATI (FA) in Nandapur. The researcher introduced herself and informed the purpose of the visit to the community. The researcher asked the question in hindi which was half understood by the community people. Mr. Abhir translated the question into desia language (local language spoken by Bhumia tribe in Kundra block) and translated the response in hindi to the researcher. The researcher recorded both the interviews and transcribed the ones in hindi to English.

<sup>79</sup> The researcher conducted the interview in hindi and later transcribed the recording in English.

*In the context of seeds, female and male fingers are different. Male seeds have less fingers or branches as compared to female seeds. I bring only female seeds. Because female seeds give better production. So I don't cut the whole crop. I cut only the upper part from where the fingers start growing. I store female fingers in clay pots for the purpose of seeds production. Male fingers are used for consumption.* Said a woman farmer aged 45 during in-depth interview in Badlipur village, Lamtaput block<sup>80</sup>03<sup>rd</sup> October, 2021.

*After harvesting we do sorting and cleaning in the field itself. We do the sorting through big sieve so that the bad seeds fall down and good seeds remain on the sieve. After this we bring good seeds in big packet from the field and will store it at home. It will remain good even with cover also.* Said a woman farmer aged 50 during focus group discussion in Badlipur village, Lamtaput block on 03<sup>rd</sup> October, 2021<sup>81</sup>.

*We use two bags for the purpose of storage of seeds. We keep it in a big bag and cover the lid so that moisture does not enter. We keep it like that. It does not spoil for 3 years also.* Said a woman farmer aged during in-depth interview in Boipariguda block on 24<sup>th</sup> September 2021.

Harvesting process demonstrates the traditional knowledge women farmers hold relating to extraction of seeds. Proper harvesting process holds importance in the view of enhancing the post-harvest millet value chain. Millet primarily being grown in agro-ecological conditions without dependence on external resources such as seeds and chemical inputs for cultivation is inherent with farmer's traditional knowledge needing integration with government programs for promoting millets. It is also noted that land rotation and change of seeds takes place every 1-3 years to get a better yield. Different, usually the local varieties of seeds are used every year to enhance the yield of millets.

*If one year we are cultivating millet in a particular piece of land, then next year we won't do it in the same land. After 3 years, we won't use the same seeds of millets. We use different variety of seeds for growing millets. Either seeds or land needs to be changed. If we don't change seeds and even if we are following new practices, then production will*

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<sup>80</sup> The researcher took the help of FA (Facilitating Agency, basically an NGO) named PRADAN in Lamtaput block, Koraput district in reaching out to villages and connecting with respondents. Abhimanyu, Assistant Block Coordinator for the Millets Mission assisted the researcher in her interviews with the respondents.

<sup>81</sup> The researcher took the help of Community Resource Person, Sridhar Kissa (associated with OMM in PRADAN, Lamtaput block). Mr. Sridhar translated the responses from desia language (local language spoken by the gadaba tribe in Lamtaput block) in hindi on spot to the researcher. The researcher recorded the discussion in desia and hindi language and transcribed the hindi part to English.

*be less. If one type of seeds is used continuously at the same land, then also productivity declines. If we are cultivating 'sonadei' variety of millet, at the same piece of land, then 1<sup>st</sup> year productivity will be good, 2<sup>nd</sup> year it will be less and third year it will be lesser than previous years. So either we need to change seed or the land piece.* A woman farmer during a FGD with a WSHG in Barengpari village, Nandapur block on 28<sup>th</sup> September, 2021.

*We are collecting seeds from the mother finger for the purpose of keeping seeds. After keeping seeds aside whatever comes we cut it and keep for consumption. We cut and keep the mother panicle aside in a separate place. We keep 10-20 kg for seeds production. We do not purchase seeds from outside. We use local variety seeds.* Said a woman farmer during focus group discussion in Kundra block on 21<sup>st</sup> September 2021<sup>82</sup>.

However, it is observed that some farmers need better quality seeds for sowing purposes. Seed production and identification of local landraces are effective strategies to improve the quality of seeds without bringing any external inputs to address the challenge of lack of quality seeds.

*Yes, we use local seeds. But it would be better if we could get better quality seeds. There is no seeds distribution from OMM.* Said a woman farmer during focus group discussion in Borigumma on 06<sup>th</sup> October 2021.

Mechanization has significantly impacted the harvesting process, particularly with the assistance of tractors and other automotive machines. However manual harvesting of millets is still practiced. In addition to manual grinding, rice mills are also used to prepare ragi powder. Two methods are commonly employed when it comes to cutting the millet crop. The first method involves cutting only the upper part of the crop leaving the roots on the field. This requires less labour for post-harvest operations since the entire plant is not harvested. The second method entails cutting the crop until the bottom, including the roots or cutting the crop till bottom. In this method, post-harvest operations are more extensive as additional labour is required. The below excerpts show the amount of labour invested in harvesting and post-harvest operations.

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<sup>82</sup> The researcher took the help of Chief Executive Officer (CEO) of the FPO (Bamandei Farmers Producer Company Limited) in Kundra block, Ms. Sushmita Pradhan, to assist in conducting the interview and the FGDs in the villages of Kundra block. The responses were translated in hindi by Ms. Sushmita on spot and the researcher transcribed the recorded responses in hindi to English.

*After cutting the crop we will let the crop remain in the field and let it dry. That is the practice. But if we cut the upper part of the crop and bring home then it needs to be dried. There are two ways to cut it. But if we cut it till the bottom then we leave the crop to dry on the field. At the time of consumption, we need to dry it again and then cover can be removed. If you dry it then cover will be removed fast. And then it will be washed and dried again and then it can be made in powder form at home manually by grinding the grain. This is the traditional way of doing it. But in today's times, we are also going to rice mill to make it in powder form.* Said a woman farmer during focus group discussion in Lamtaput on 01<sup>st</sup> October 2021.

### **6.2.3 Challenges with local seeds**

During the initial years of starting of OMM, Community Seed Centres were not initiated in any of the block. There was also a lack of widespread adoption of seed cultivation practices in the region. The already available seeds are described as poor in quality. Mixing of seeds results in loss of varietal purity and genetic diversity leading to loosing of indigenusness of seeds having implications on adaptability of the seeds. These challenges are evident in following excerpts.

*Now what has happened is that all our seeds have got mixed up. At one place only you can find different varieties of millet. If 80% of millet is the variety that you have grown, then 20% will definitely be some other variety.* Said Development Assistant, PRADAN, Lamtaput.

*The main idea behind doing nursery is nowadays a lot of variety seeds gets mixed up. Suppose 'sonadei' and 'bhairabi' two different varieties gets mixed up, then both the seeds will have different finger shapes at the same land. So if farmers cultivate a single variety then it will be easier to cut, will be indigenous and local variety. It won't be a mixed variety. Many seeds have got mixed up and that is a problem now. Indigenusness, taste of the variety and properties will differ. So mixing of seeds is a problem.* Mr. Pratap Jena, Development Assistant, PRADAN, Lamtaput on 20<sup>th</sup> September 2021.

There is no restriction on usage of seeds by the farmers. Farmers are free to use their preferred variety of seeds. OMM invests considerably in seed research and development. PVT is conducted on the farmer's field which allows selection, production of local variety of seeds

with their purification and multiplication on farmer's field along with their distribution and conservation in seed centres.

FPO as a collective purchases seeds in bulk from farmers to distribute seeds to other farmers who want to cultivate that particular variety. The FPO subsidizes the cost of seeds provided to the farmers. However, many farmers have expressed the need for obtaining good quality seeds from external sources.

*If we can get good seeds of mandia (finger millet or Ragi) then it would benefit us. We do not have many varieties of seeds. We have only 2-3 variety of seeds. So if we can get good variety of seeds then we are interested in cultivating millets.* Said a woman farmer during in-depth interview in Lamtaput on 02<sup>nd</sup> October 2021.

#### **6.2.4 Seed treatment**

Seed treatment marks the beginning of engagement process of women farmers with millets cultivation. Seed treatment is a preventive measure from pests and diseases to ensure purity and increase yield (Lessons from Odisha Millets Mission, 2021). The process of seed treatment or the process before making nursery of millet seed is followed differently amongst farmers. Women farmers are provided with training support in making bio-organic manure to do the seed treatment along with its application on the soil. Seeds are also tested by the women before raising nursery bed. This reflects the Millet Mission's commitment to promote millet farming in an agro-ecological environment using sustainable resources without much dependence on market for external resources. Bio-organic manure for seed treatment is prepared using raw, organic and available materials in village areas. The basic ingredients required for making bio-organic manure are cow dung, cow urine, termite soil and other local resources.

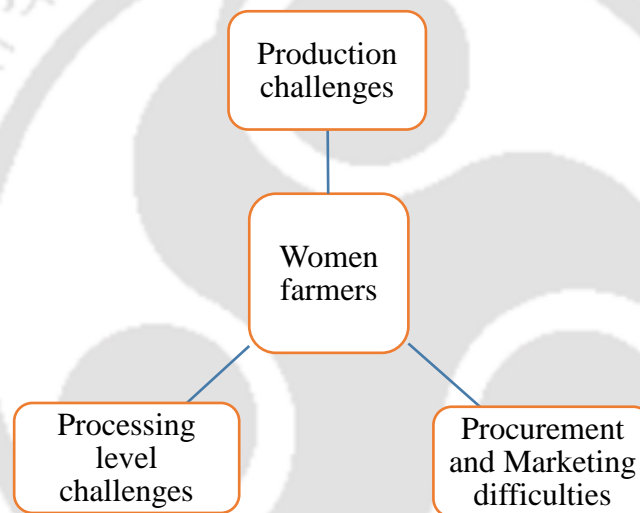
*“We do beejamrut which is seed treatment and then we dry it in shade for half an hour or 1 hour. For beejamrut, we cover the seeds put over the soil bed made with cow dung. Then we protect the seeds by covering it with leafs so that birds don't eat. After the seedlings come we remove the leaf cover. Community Resource Persons also come and guide us to make and apply handikhat. In 1 litre handikhat 20 litres of water must be mixed and sprinkled to the seedlings so that no pests and diseases can attack. And within 18-22 days we do transplantation.”* A woman farmer during focus group discussion in Nandapur on 27<sup>th</sup> September, 2021.

*“We are doing nursery seed treatment with cow dung, urine and termite soil. After seed treatment is done, seed is kept in shade. After that we make the nursery and let the seeds become saplings in 15-16 days. When the plant becomes 10 by 3 foot and 6 inch, then we start transplanting after 15-16 days.”* A woman farmer during focus group discussion in Lamtaput block on 01<sup>st</sup> October, 2021.

### 6.3 Challenges faced by women farmers

There are three main domains in which women farmers face challenges. These are Production challenges, Processing level, and Procurement and marketing difficulties (see **Figure 6.3**).

**Figure 6.3** Pictorial representation of challenges of women farmers in millet ecosystem



Source: Author’s compilation

#### 6.3.1 Challenges with processing

One of the reasons behind decline in consumption of millets amongst rural households is difficult processing environment of millets. Involvement of women’s drudgery in manual processing of millets is the primary reason behind decline in millet cultivation. From farmer’s side, lack of availability of quality seeds, inadequate knowledge on appropriate agronomic practices for better productivity, inadequate knowledge on process of proper harvesting, threshing, packing and storing methods, lack of processing facilities and poor prevailing price of millets in local market are some of the challenges faced by the farmers (see **Figure 6.4**) (OMM, 2018).

*Millet processing require a lot of drudgery. The drudgery is being wasted on women of the family, particularly the old age women. Women mostly do millet processing manually and it is a hard task.* Shared Assistant Agriculture Officer, Odisha Millets Mission, Department of Agriculture and Farmer's Empowerment, Bhubaneswar, Government of Odisha, 12<sup>th</sup> September, 2019<sup>83</sup>.

*Millet processing is a difficult job which women farmers experience. The ragi thresher supplied to use can de-seed only 25-30kg of ragi in an hour. The thresher cannot de-seed more than that. It is a wastage of time since many women come with quintals of ragi to process. And at present only 1 ragi thresher is provided at the Gram Panchayat level. We are expecting some more to come. So it results in most women processing millets manually.* Shared a CRP during in-depth interview in Kundra, 23<sup>rd</sup> September, 2021<sup>84</sup>.

However, lack of local processing units at village and block level is one of the biggest challenge faced by women farmers when it comes to processing of small millets. Because of lack of processing facilities, especially for little millet and foxtail millet, known as *suan* and *kangu* respectively locally, these nutritious breeds are getting produced primary for commercial purposes. Little millet is sold to local traders during weekly haat (local market place) at a rate of Rs 30 per kilo during offseason and Rs 20-25 during harvesting season. In Lamtaput, little millet processing machine is provided by organizations like DHAN Foundation.

*Now we are doing the processing only for finger millet. We are not doing processing for little or foxtail millet. In Kundra, production of foxtail millet is negligible. Only few farmers are cultivating foxtail millet for their own consumption. Little millet is produced more in Kundra. But the challenge with little millet is that we do not have any processing and marketing facilities for little millet. That's why middlemen from outside come and they purchase little millet from farmers.* Shared Development Assistant, MSSRF in Kundra on 20<sup>th</sup> September, 2021.

*Main problem is we don't have the processing technology for cleaning millets. That is a major concern. Farmers can do manual processing for a small quantity but we need millets in large quantity in order to make it marketable. If we give millets in large*

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<sup>83</sup> The interview with AAO was conducted in hindi by the researcher and transcribed from hindi to English. The Key Informant Interviews such as with state level actors (NCDS, WASSAN, Agriculture Department officials) and block level actors (AAO, BAO, Team Leader, FA, Block Coordinator, Community Resource Persons was conducted by the researcher in English and hindi and later transcribed the interviews to English.)

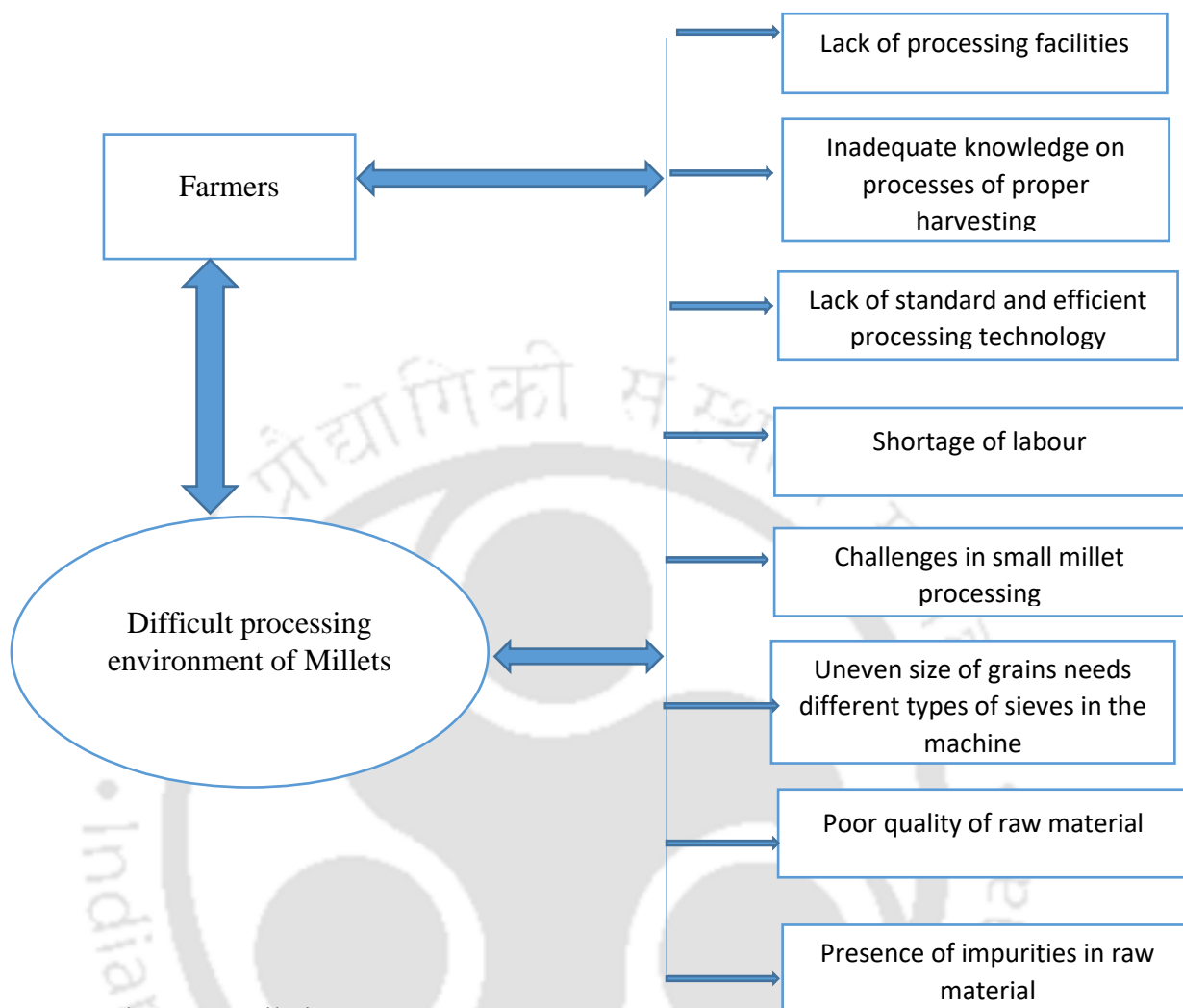
<sup>84</sup> The interview with the CRP was conducted in hindi and later transcribed in English by the researcher.

*quantity to farmers for manual cleaning, then a huge labour is required. It is time consuming and costly exercise. It is not cost effective.* Chief Executive Officer of Farmer Producer Organization in Nandapur block on 30<sup>th</sup> September, 2021.

At present, finger millet is processed through paddy de-huller in the absence of proper technology for millet processing. Shortage of labour is another challenge that constrains the farming operation of small and marginal farmers. In addition, burden of activities on women during agricultural season restrict women farmers from cleaning millets in large quantity unless it is for commercial purpose. Lack of time constraints women's mobility to go to a different village and access the facilities. Typically, women members of neighborhood are called in to assist in post-harvest and cleaning operations. Labour is not employed for processing related activities. Usually for self-consumption purpose, women farmers clean ragi manually. The below excerpts reflect the urgent need for proper infrastructure in place for post-harvest operations.

*We do not employ labour for processing. We do the work by ourselves. When its season, we get busy in work. Because in this season only we have to do all the work. We have to look out for paddy, millets, potato, almonds, etc. We have to finish the work before rain comes as there is no irrigation facility. That's why we do the work by ourselves. We process ragi by using paddy huller by giving 1 rs. To do the winnowing we do it manually. We take the help by calling women from nearby households. In order to de-seed huller is required. Right now rice huller is utilized by the people.* said a woman farmer during in-depth interview in Nandapur on 27<sup>th</sup> September, 2021.

**Figure 6.3** Pictorial representation of Processing level challenges



Source: Author's compilation

*Proper drying of ragi seeds enables ragi thresher to separate the seeds from the plant properly. The cleaner machine is in a different village. It becomes difficult for women to travel to a different village and get the ragi cleaned. Now we clean it at home. If the quantity is more then we use tractor to separate the seeds from the plant. Otherwise for consumption at home we use stick to make ragi powder. Shared a woman farmer during focus group discussion in Kundra block on 22<sup>nd</sup> September, 2021.*

Little millet from Koraput district is exported to Nasik in Maharashtra. Most of the little millet is getting sold outside the state due to lack of proper processing support for it in the state. Lack of MSP for little millet is another reason which leads farmers to distress sell little millet to local

traders at a low price. The argument given for not fixing MSP for little millet and processing it yet is high price of little millet and its unaffordability by the government.

*Little millet tastes like rice but we cannot consume little millet as there is no mill to process it and it is very difficult to manually process little millet. So we sell little millet. LAMPCs does not procure little millet. We sell it to business people. 1 killo sells for Rs 30. During harvesting time, the rate is 20-25, but during offseason the rate is 30. Local trades come and take the product from us. If the Farmer's organization gets started, we can sell little millet to the company.* Said a woman farmer during focus group discussion in Lamtaput on 02<sup>nd</sup> October, 2021.

Because of uneven size of the finger millet, it is difficult for the processing machine to clean the ragi. Moreover, due to the presence of impurities and foreign materials in raw material reduces the lifespan of processing machines. Also ragi threshers are reported to be small in size which is not able to meet the processing needs of raw material. Rice mill is usually preferred by farmers as an option to clean ragi than to clean through ragi threshers provided as it consumes more effort than manual processing.

*We got 10 threshers last year (in 2020) in kharif for the block. Thresher is not able to clean properly. The size of the mandia (ragi) is not uniform. Sometimes the size is big, sometimes its small. The small cleaning machines are not able to clean ragi properly. We have given the threshers to self-help groups. Not all people can come at the same place to get their ragi clean. So we give it to some people in one village and then farmers get it shifted to another village. Mostly people get their ragi cleaned in rice mills.* Shared Chief Executive Officer of the FPO in Borigumma block 06<sup>th</sup> October 2021<sup>85</sup>.

*Farmers are saying that thresher does not clean the ragi once. We need to put ragi five times, and repeat the process then only clean ragi comes. In thresher more effort is required but through manually less effort is required.* Shared Block Coordinator, HARSHA TRUST, Borigumma block on 05<sup>th</sup> October, 2021.

A summary of challenges in processing environment is presented in **Figure 6.4**.

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<sup>85</sup> The interview with the CEO of the FPO in Borigumma was conducted in hindi (researcher understand and can speak hindi) and later transcribed to English. Hindi language is used widely across India.

### 6.3.2 Production challenges

#### *Reluctance of farmers to adopt improved practices of millet farming*

During the initial period, farmers were reluctant to adopt the improved methods of production because of various reasons. Improved practices<sup>86</sup> are introduced under the Mission for their significant results in improving soil quality with regular usage of bio-organic manure and water, promoting crops in an environment friendly cropping system. Time consuming, labour intensive, complex weeding tasks and an expensive process were the reasons for farmer's reluctance to adopt the methods for millet cultivation. It was challenging for Facilitating Agencies and Community Resource Persons to convince farmers to adopt improved methods of agronomic practices and cultivate millets solo during initial days in 2016-2017. Several benefits are reported with adopting improved practices such as increase in quality and quantity of yield, development of more fingers as compared to earlier, less weeds, decreased input requirements and thus reduced cost with no harm to environment.

In Koraput district, 18047 number of farmers have adopted improved agronomic practices such as SMI, LS, LT, and intercropping methods in 2020-21 in 10 implemented block covering 7715.56 Ha area (see **Table 6.2**). This is an increase from 2575 number of farmers covering 1060.5 Ha of area in 2017-18 when OMM was implemented in 7 blocks as 3 additional blocks were added in 2019 in Koraput. However, by following these improved agricultural practices, the yield has significantly increased compared to before. Highest yield recorded in Odisha by the SMI method was 34.0 q/ha and average yield by the SMI method was 20-24q/ha in 2017-18 (see **Table 6.3**). Average yield obtained for finger millet by introducing improved agronomic practices (combined SMI, LS, LT and Intercropping) for 2017-18 has been

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<sup>86</sup> Four types of improved agronomic practices are introduced by the OMM. These are **SMI, LS, LT and Intercropping**. **SMI** is an agro-ecological approach that consists of improved package of practices to produce more by utilizing endogenous processes and depending less on external resources for millet cultivation.

**Line Sowing** involves sowing finger millet seeds in lines. Spacing of 22-30 cm between lines and 8-10 cm between the crops is maintained.

**Line Transplanting** involves raising the seedlings in nursery beds and transplanting them onto the field after 4 weeks.

**Intercropping** is a method in which various types of crops are grown simultaneously on the same piece of land.

18.63q/ha against the state average of 8.77q/ha (Annual Report, Odisha Millets Mission, 2017-18).

*Before 2001 in an acre people used to get maximum of 2-3 quintals of ragi. When we started using SMI, the yield slowly started increasing. Per acre from 2-3 quintal some people started getting 6-9 quintal. In the last year, some people got 15 quintals. Average yield in 2020-21 is 8.5 quintals per acre.* Responded Team Leader, PRAGATI in Nandapur block on 27<sup>th</sup> September, 2021.

*Earlier the yield wasn't good. We used to simply broadcast the seeds and for that weeds used to come in huge quantity. For weeding we required 10-15 labourers. Sometimes it used to take 1-2 months to do the weeding. At that time, rice was not provided to us. During dushera time people here face food shortage and get difficulty in accessing food. So people were not able to eat and sell mandia. 15 years before this was the situation. Whatever mandia we grow was used to sell in the market to purchase other items such as vegetables required for household.* Shared a woman farmer during focus group discussion in Litiput village, Lamtaput block on 01<sup>st</sup> October, 2021.

*Earlier there was problem in convincing people. They were saying it is time consuming and it will take distance. Farmers were not able to believe that keeping this much distance between saplings will fetch a good yield. But now after seeing the production farmers are fine. 50% farmers were saying this only.* Said a CRP during in-depth interview in Nandapur on 28<sup>th</sup> September 2021.

*For production, organic manure was not there and weeding was a challenge. We only used to do broadcasting before and weeding was done manually.* Shared a woman farmer during focus group discussion in Nauguda village, Kundra block on 21<sup>st</sup> September, 2021.

**Table 6. 2** Summary of area coverage under Improved Agronomic Practices in Kharif 2020-2021 across all districts

Districts	Blocks	Farmer covered	Method wise achievement (Area in Ha.)				
			SMI	LT	LS	Inter-Cropping	Total
Bargarh	5	8349	1315.9	224.5	711	4	2255.4
Bolangir	4	7698	2196.43	499.7	266	4	2966.13
Gajapati	4	6140	494.1	345.3	1402.21	53.4	2895.01
Ganjam	4	4847	1655.08	288.7	57.1	3	2003.88
Kalahandi	4	6923	1916.14	299.4	1491.39	2.5	3709.97
Kandhamal	7	11964	1220.9	893	2382	511.1	5007
Keonjhar	7	2236	768.57	58.4	252.7	18.6	1098.27
<b>Koraput</b>	<b>10</b>	<b>18047</b>	<b>4598.5</b>	<b>1848.2</b>	<b>1098.26</b>	<b>170.6</b>	<b>7715.56</b>
Malkangiri	4	8426	251.4	3865.9	304.8	14.7	4436.8
Mayurbhanj	3	3335	713.6	459.4	231.8	11.1	1415.9
Nabarangpur	5	5283	558.5	773.9	708.3	4.6	2045.3
Nuapada	3	3472	792.26	598.14	233.4	5.4	1629.2
Rayagada	8	10694	1993.2	2400.5	1637.8	31.7	6063.2
Sundargarh	8	6317	235.57	1625.53	661.36	122.6	2645.06
<b>Total</b>	<b>81</b>	<b>103731</b>	<b>18710.15</b>	<b>14780.57</b>	<b>11438.66</b>	<b>957.3</b>	<b>45886.68</b>

Source: Annual Report, Odisha Millets Mission, Reviving millets in farms and on plates, 2020-21

**Table 6. 3** Summary of area coverage under Improved Agronomic Practices in 2017-18

S.No.	District	No of blocks	Improved Agronomic Practices in Ha.				No of Farmers benefitted
			Target	Kharif	Rabi	Total	
1	Koraput	7	1372	1029	31.5	1,060.5	2575
2	Malkangiri	4	784	615	32.0	647.0	1563
3	Gajapati	4	784	447	183.6	630.6	1769
4	Rayagada	4	784	300	51.4	351.4	797
5	Nuapada	3	588	239	25.6	264.6	266
6	Kalahandi	4	784	202	13.8	215.8	477
7	Kandhamal	4	784	145	24.8	163.6	583
	<b>Total</b>		<b>5880</b>	<b>2977</b>	<b>362.7</b>	<b>3,333.5</b>	<b>8030</b>

Source: Annual Report, Odisha Millets Mission, Reviving millets in farms and on plates, 2017-18

Labour shortage during transplantation of millet saplings is a challenge as most of the labour is consumed for paddy cultivation during rainy season. Absence of farm mechanization such as lack of tractors to thresh ragi and conveyance and transportation problems to move between places creates hindrance in access to resources.

*Labour is also a challenge as if it rains everyone will be engaged in paddy cultivation and there is a very short time left for transplanting by raising the seedlings. So labour during that time becomes so short that paddy always get the priority.* Shared District Project Coordinator, Jeypore, Koraput district on 10<sup>th</sup> October 2021.<sup>87</sup>

*Now we get tractor to thresh ragi seeds earlier we never used to get tractor also to thresh ragi. Some people are using machines also. There were communication problems also. People who could afford to go to block level only those people could get the tractor. But tractor was not available in villages before.* Shared a woman farmer during an in-depth interview in Lamtaput block on 03<sup>rd</sup> October, 2021.

#### ***Shifting of land from food crops to cash crops***

Another prominent challenge evident which is a potential contributor to less orientation of farmers towards millet farming is the continuous reduction in area under millet cultivation. The transition from cultivating food crops to more profitable options like cash and horticulture crops illustrates the aspirations of the farmers to generate cash revenue. However, this decision to prioritize cash crops contradicts the goal of establishing a local food system as advocated by the food sovereignty approach. It also indicates the incorporation of tribal farmers into the market economy.

*Before 2017, people used to cultivate only paddy. Those who had some land left they will give it to horticulture department to do plantation or they used to grow eucalyptus. They used to do vegetable in small quantity. Borigumma is a hub for mango cultivation in Odisha. 55% of the upland is under horticulture department. In rest of the land we are trying to convince people to cultivate millets.* Shared Block Coordinator, Borigumma block on 06<sup>th</sup> October, 2021.

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<sup>87</sup> The interview with the District Coordinator was conducted in hindi and later transcribed in English.

*We never had so many horticulture products here 10-20 years back. Our land used to be vacant back then. Then from eucalyptus people started earning income. So many farmers got diverted to eucalyptus cultivation. And horticulture department also started giving support for plantation to farmers. Some people got diverted there as well. Slowly and gradually millets cultivation started declining.* Biswaranjan Jena, Team Leader, HARSHA TRUST, Borigumma block on 06<sup>th</sup> October 2021.

Due to the lack of market support for food crops, many farmers in the state have shifted to cash crop cultivation or converted their land for horticultural plantations or have taken up some other income generating activity. One notable example is the “Pat Bhairavi Self-help Group”, formed in the year 2000 consisting of 18 members belonging to Bhunia Scheduled Tribe in Goloriguda village in Kundra block. The group is engaged in fish farming as their livelihood activity in a leased pond owned by the Panchayat. The members of the Self-help Group grow paddy in lowland areas, while maize and sugarcane are cultivated in the middle land. Due to absence of marketing support for millets, farmers in this village have shifted from millets to other cash crops. Eucalyptus is another crop for which productive land is being diverted and it is extensively grown in both the lowland and upland areas of not only Kundra block but also the entire Koraput district. Additionally, the horticulture department is involved in cashew and coffee cultivation, as the soil in Koraput is highly suitable for the production of these crops.

*We are not doing millets on much land. We are only doing it for consumption. Earlier when we were doing millets there was no marketing so we shifted from millets to other crops. And now market is there for millets but we have already diverted our land for eucalyptus production. Once the eucalyptus is cut then we will start cultivating millets since the government is procuring millets now.* Shared a woman farmer during focus group discussion in Kundra block on 21<sup>st</sup> September 2021.

*The main problem is ragi field is less. They are doing more of paddy. Ragi fields have gone to eucalyptus. Ragi field is very less and the little land devoted for ragi is used for consumption. And in some left over field they are doing cash crop cultivation and it is continuing. In those areas where water level is more, focus is more on paddy, and in rabi season farmers will do maize and sugarcane.* Shared Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> September, 2021.

### ***Reduced fertility of the soil***

Reduced fertility of the soil and difficulty in cutting eucalyptus trees before they are ready to be cut poses another challenge for farmers cultivating eucalyptus to return to millets cultivation. In Goloriguda village, Kundra block, growing eucalyptus for almost a decade has ruined the fertility of the soil to grow any food crop. Widespread distribution of eucalyptus saplings and provision of its maintenance cost by the private entities have led to a large number of farmers shifting their land to eucalyptus cultivation. Decision to even grow food crops on the land previously used for eucalyptus cultivation will prove to be a costly affair for farmers due to huge costs involved in making the soil fertile again. This leads to many farmers continuing with eucalyptus cultivation and growing millets in a small quantity for self-consumption. These trees are cut every three or four years and are supplied to a paper making factory in another district.

*Even if a farmer is thinking of cultivating millets after cutting or destroying eucalyptus, whatever income he has earned through eucalyptus he will have to spend double in destroying or uprooting the roots of eucalyptus. The roots need to be taken out as roots have gone down too deep. So the cost of clearing the land and making it fertile will cost more than the income earned through this source. Fearing that only farmers are not clearing the land and continue to grow eucalyptus. The eucalyptus leaf that falls on the soil makes the soil infertile, as the nutritional value of the soil has become zero. You will find maximum upland is under eucalyptus cultivation.* Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> September 2021.

*Our main cash crop is maize and sugarcane. We are doing that. Our upland land is less. We have more of middle land and low land. So we are focusing more on maize and sugarcane and not cultivating much of millets. We are not focusing on millets that much. We are cultivating millets only for self-consumption. Last year also 4 to 5 persons from here were registered for procurement and they sold their ragi. A woman farmer from WSHG in Kundra block on 22<sup>nd</sup> September 2021.*

The widespread cultivation of horticulture crops such as cashew and coffee in lowland areas reflects the farmer's preference for growing cash crops that have high value in the market.

Many profit making enterprises are making their way into tribal hinterlands to convert the fertile food growing land into profit producing crops such as tea, cashew, and coffee. As a result, there has been a significant reduction in the land dedicated to food crops like millets. However, promoting food crops like millets for commercial purposes can present challenges since they are primarily produced with the intention of being marketed.

*Plantation is going on here more. Horticulture department is doing mango and cashew cultivation. If we see cashew and mangoes it is produced more here. Factory is also set up here. Two projects are sanctioned for coffee. In 35 acres they are making the plan. So production of coffee will increase. Later on they will work for cashew. But it has been sanctioned for millet as of yet. In Koraput everyone does coffee cultivation but here people are doing it in lowland. Soil of koraput is very good for coffee production. Here in Koraput, that is why production is good and maintenance of coffee is good here. That's why TATA has taken up coffee business here. Business Operator looking after the business activities of the FPO in Lamtaput block on 02<sup>nd</sup> October, 2021.*

### ***Challenges of Climate Change***

In India, there is still a huge dependence of farmers on rain for agricultural activities. Because of shortage in rainfall in 2021, transplanting on time became a problem, that reduced the yield of millets. Scarcity of rainfall also leads to reduction in yield as the sapling gets destroyed on dried land. Rainfall is also not uniform across all GPs and villages and since it gets sunny so land becomes dry quickly.

*The farmer waits for rain to transplant otherwise if sapling is sown in dry land then the sapling will get destroyed. Said field level professional in MSSRF, Kundra on 21<sup>st</sup> September 2021.*

*Climate change is creating a huge problem. Like one year crop will be good but the next year it will be a drought like situation. In 5 years of the program implementation we have faced 2 years of drought like situation. Drought problem was there in 2018 and 2021. Field level professional in MSSRF, Kundra block on 21<sup>st</sup> September 2021.*

Delayed transplanting owing to erratic rainfall is leading to less millet yield. There is still a huge dependence on rain for irrigation in most of the tribal dominated regions of the state. Nature of rainfall affects the appropriate soil condition required for transplanting millet saplings. Dependence on rain and inadequate irrigation infrastructure for millet farming has also constrained farmers in realizing the increase in yield. Lack of water for irrigation purposes is witnessed more in hilly and remote blocks of Koraput district, particularly in Borigumma. During the summer season, the problem of water shortage in Kundra and Borigumma block becomes so severe that there is scarcity of even drinking water.

*There is a delayed transplanting because of erratic rainfall. Rainfed land is poorly irrigated. Millets being climate resilient it is grown mostly in uplands and middle land. Said Assistant Agriculture Officer, Nandapur on 28<sup>th</sup> September, 2021.*

*In 2018 our target was to procure 2500 quintals of ragi, but we could procure only 1800 quintals as crop was not good because of climatic conditions. This year (2022) also there will be problem. Last year our target was 2500 quintals but we procured 3800 quintals of ragi which was more than the target. But this year I don't think we can do this much. Team Leader, MSSRF, Kundra block on 07<sup>th</sup> October, 2021.*

Erratic and unpredictable rainfall patterns make it difficult for farmers to transplant millet seedlings effectively. Traditional broadcasting methods for millet cultivation are often resorted to as a result. Both paddy and millets are sown around the same time, leading to a shortage of labour and other resources. Paddy cultivation is prioritized as an economically significant crop, leaving fewer resources and time for millet cultivation. Many small-scale farmers find it challenging to afford these resources and often stick to traditional broadcasting methods.

*Labour is also a challenge as if it rains everyone will be engaged in paddy cultivation and there is a very short time left for transplanting by raising the seedlings. So labour during that time becomes so short that paddy always get the priority. Field level professional, MSSRF, Kundra on 21<sup>st</sup> September 2021.*

*We are having a big problem of irrigation. We would want irrigation facilities to be developed so that we can do more of vegetable and millet cultivation. If rain is good then, in 1 acre we will get 8-9 quintal, if the rain is not there then we will get 2-3 quintal. Shared a woman farmer during in-depth interview in Chodonga village, Kundra block on 22<sup>nd</sup> September 2021.*

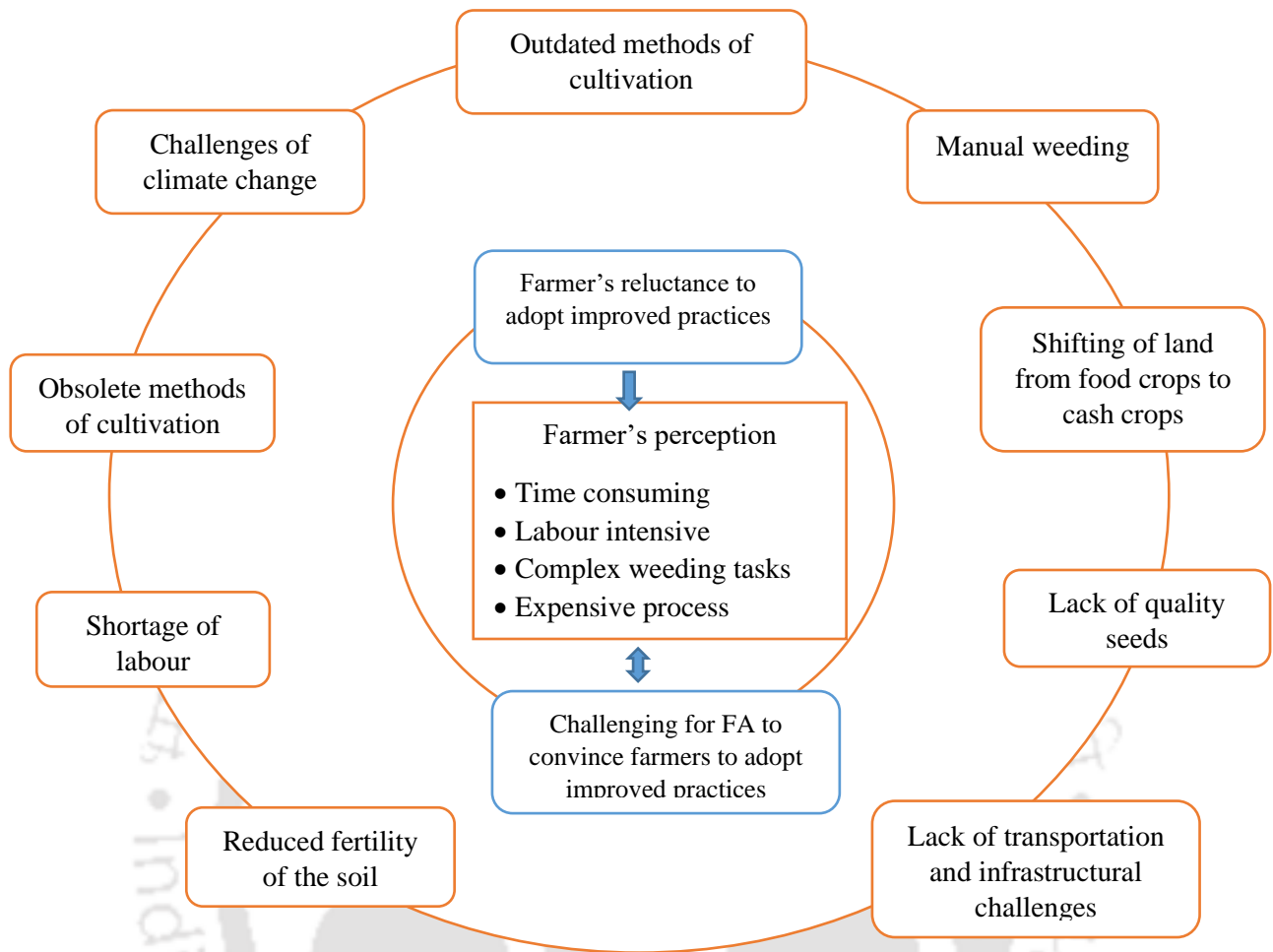
*Rainfall is less this year (2021) and the season we wanted rain in we do not have the rain in that season. And rain does not happen in every Gram Panchayat. Only 2-3 GPs will get the rain. And since its getting more and more sunny so rain is of no use. The land gets dry quickly. The farmer waits for rain to transplant otherwise if sapling is sown in dry land then the sapling will get destroyed.* Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> Septmber. 2021.

### ***Shortage of Labour***

Millet considered a secondary crop and primarily cultivated for self-consumption purposes, resulting in smaller quantities being produced. Millet farming follows a traditional farming system often relying on family labour for cultivation. The majority of farmers interviewed are small and marginal farmers who lack the resources to hire additional labour. As a result, broadcasting method for millet cultivation is followed by the farming households. Furthermore, during the rainy season, paddy cultivation takes precedence and requires the majority of labour available, leading to situation of labour scarcity for millet transplantation. (See **Figure 6.5**).

*Labour is not available due to busy harvesting season. Sometimes water is also not available. Whatever variety you are cultivating, if you have adopted SMI method and take care of the plant properly, then 25 cent land area you will get 4-5 packets of millet as production. If you do broadcasting, without adopting any line or method, then it will be difficult to even get 1 packet of millet.”* Said a woman farmer during FGD in Nandapur block on 28<sup>th</sup> September 2021.

**Figure 6. 4** Pictorial representation of Production Challenges Experienced by Farmers



Source: Author's compilation

### 6.3.3 Procurement and marketing difficulties

#### *Procurement initiative under OMM*

Initiated in 2018-19, the procurement of finger millet in 30 blocks of 7 districts of Southern Odisha, was extended to 72 blocks of 14 districts in 2019-20 through the state agency of Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL). The procured ragi was also distributed in seven tribal districts largely through Public Distribution System and ICDS measures. Under ICDS, procured ragi was used to prepare ragi ladoos and supply to anganwadi centres in two districts of Keonjhar and Sundergarh (Balam and Sharma, 2020). Ragi procurement was further extended to 14 districts under the program (Nayak et al., 2019 and Mishra, 2019).

FPOs are entrusted with undertaking registration of farmers, conduct and support the awareness generation on ragi procurement, arranging mandi points, facilitate labour for loading and unloading, and in overall oversee the procurement process (Balam and Sharma, 2020). However, the initial procurement process by FPOs faced challenges. Initially the procurement was handled by LAMPCS, and the tribal farmers in charge of overseeing FPOs in their respective blocks lacked the initial knowledge of how to navigate the procurement process for the first time.

The Procurement process through TDCCOL is currently the primary measure that offers marketing support to tribal farmers involved in ragi production. Additionally, women farmers from self-help groups are being provided training for value addition on millet recipes but this has not turned into a full-fledged business activity for the Farmer Producer Organizations in the studied blocks.

#### *The process of procurement*

The process of procurement starts with interested farmers filling up the Registration form and submitting it at PACS/LAMPCS office. The official at PACS/LAMPCS then fill up the farmer's information in M-PAS portal (Millet Procurement Automation System). District officials generate bank wise reports for land and bank account verification. Details are sent to the bank holding the farmer's accounts for bank verification. Land verification happens at the block level. Updating of the corrections and changes of verification is done by District officials. Post the verification, a surplus amount is fixed for every farmer which a farmer can sell through procurement. After procurement, payment gets transferred to the farmer's account within 72 hours of selling it to mandi. Procurement happens once a year from January to the ending of March. A summary of process of farmer registration is depicted in **Figure 6.6** (OMM Website).

#### *Limited window opening of procurement channel*

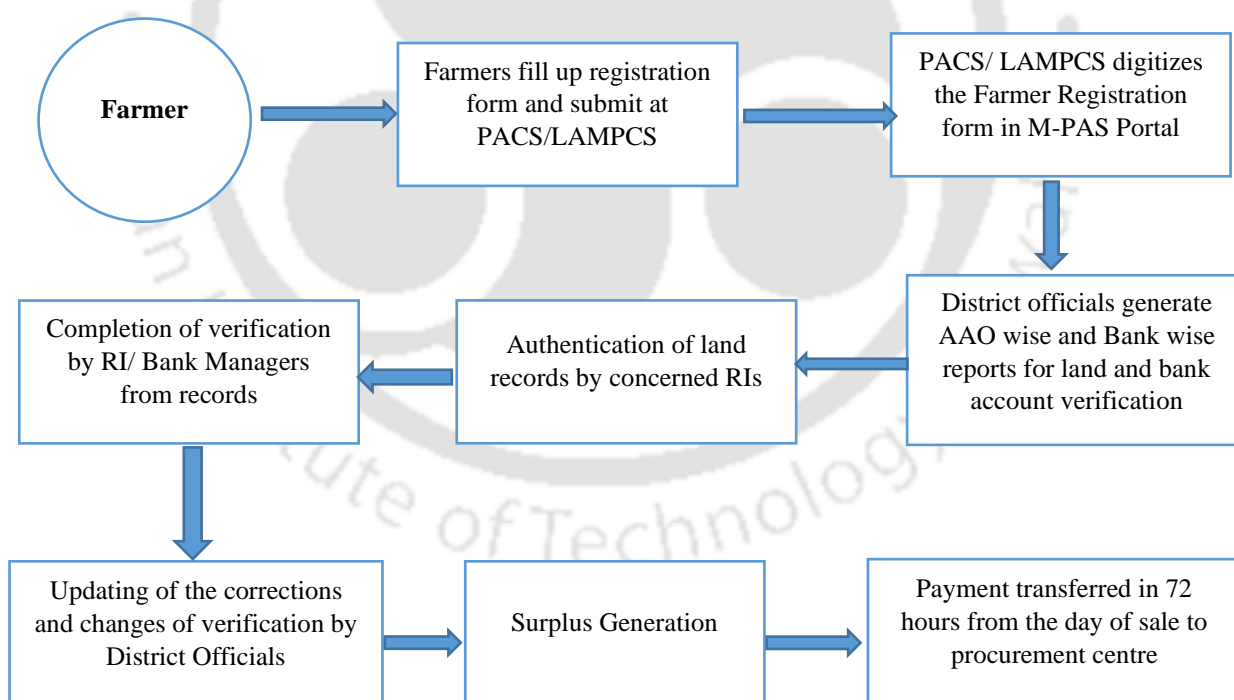
Milletts play a vital role in meeting the expenditure needs of households in the villages. Women farmers, primarily through the sale or exchange of millets purchase vegetables and fulfil other requirements for household consumption. However, women farmer's express concerns about the difficulties they face in surviving considering the limited window opening of procurement channel from January to March. The limited timeframe for procurement leaves women farmers with no other choice but to sell their millets in local market at low prices before and after the

procurement period closes. Moreover, there have been reports of delays in receiving payment through DBT measures.

*Mandi happens only one time. It goes only for 3 months. But when we require to sell then we don't have money. We give it one time only and then we can't survive throughout the year. It would be better had mandi been throughout the year.* A woman farmer during in-depth interview in Badlipur village, Lamtaput block on 02<sup>nd</sup> October 2021.

*There is a fixed time for mandi procurement which is from January to March every year. But we sell mandia throughout the year. We go to weekly vegetable market and buy whatever vegetables we require by selling the mandia. If mandi procurement for millet is not available throughout the year then how can we survive like this?* A woman farmer during focus group discussion in Kumarbelgaon village, Nandapur block on 27<sup>th</sup> September 2021.

Figure 6. 5 *Process of Farmer Registration*



Source: Website of OMM ([milletsodisha.com/about-program](http://milletsodisha.com/about-program))

In **Table 6.4**, in 2020-21, in Koraput district, out of 10 OMM implemented blocks, FPOs in 4 blocks were empaneled for Ragi procurement. However, the percentage of farmers who sold ragi to government out of the number of farmers registered for procurement is less than 51%

across all the four blocks. The number of farmers who actually sold ragi under procurement out of number of farmers registered is the least in Lamtaput block in 2020-21. This indicates farmer's preference to opt for other channels than procurement to sell millet.

**Table 6. 4** Empanelled FPOs for Ragi procurement in Koraput in 2020-2021

FPO Blocks	No. of farmers registered in 2020-21	Final procurement of Ragi (Achievement in qntls.)	No. of farmers sold in Mandi	Percentage of farmers sold out of registered farmers
Nandapur	3004	10384.46	1293	43.04
Boipariguda	2936	15784.93	1515	51.60
Lamtaput	3407	10063.06	1059	31.8
Kundra	1338	3817	452	33.78

*Source:* Annual Report, OMM, Reviving millets in farms and on plates, 2020-21.

Moreover, selling ragi to local traders provide farmers with immediate cash. Traders and middlemen exploit farmers with low rate for the produce and a farmer is left without much choice than to sell his product at a low rate. However, it is observed that with setting up of MSP for ragi by the state, middlemen are offering a better price to farmers. But the price offered by local traders reduces as soon as the procurement season ends. Local rate also gets reduced further during off-season.

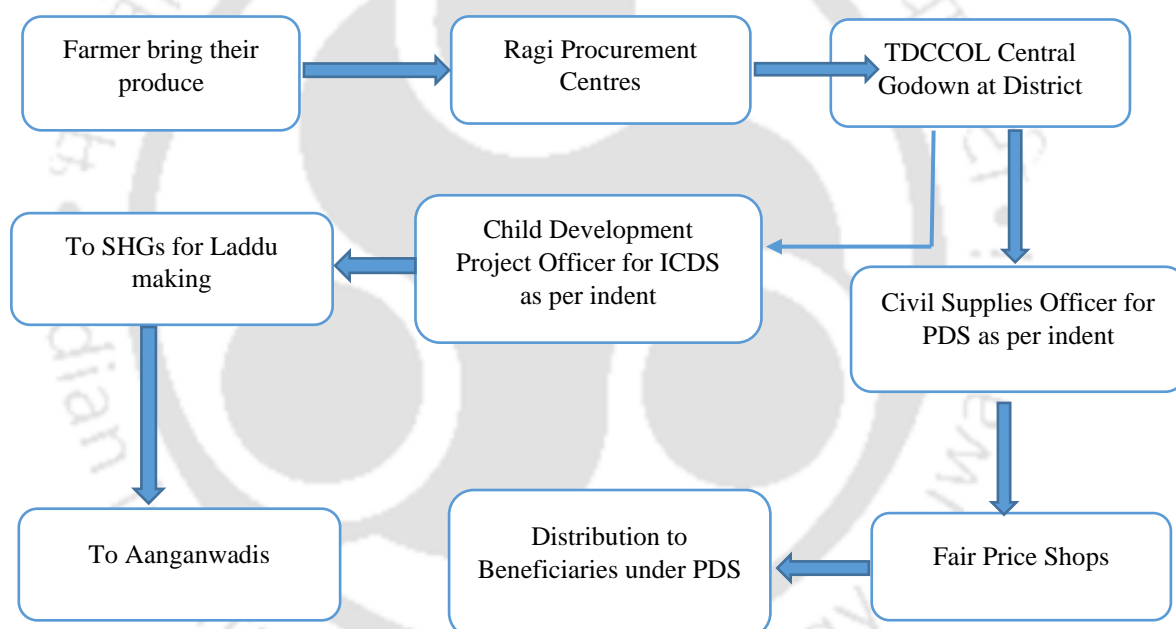
*We are selling it at rs 30 per kilo in local market during procurement season. The rate has increased since 2-3 years as mandi system is in place. Since the government is increasing the price every year, so the middlemen has also increased its rate otherwise women farmers will not sell their produce. So they have also increased the rate. 5 years earlier when the mandi system was not started the rate was rs 5-10. Shared a woman farmer during focus group discussion in Nuaguda village, Kundra block on 22<sup>nd</sup> September 2021.*

*The mandi procurement is good but selling rate at local haat is not good. We do not take loan from local traders. Local traders do not like to give good rate. As ragi is produced in abundance here so the local traders will go and buy at a cheap rate from somewhere else. That's why local traders keep the price low only. In monsoon season rate is the lowest. When mandi procurement will start then traders will give a better price. Shared a woman farmer during an in-depth interview in Nandapur block on 28<sup>th</sup> September 2021.*

### *Absence of marketing channel apart from procurement*

Local market used to be the only channel for farmers to sell their produce before the government of Odisha initiated the procurement for finger millet (Ragi). Due to the lack of organized market, currently little millet is being exported to Nashik in Maharashtra due to its higher market price compared to ragi. Since millet is sold by women throughout the year, by expanding the procurement system to include other millet varieties, the government can encourage farmers to cultivate a wider range of crops as it can provide economic incentives to cultivate diverse millet crops (Jena and Mishra, 2020). A pictorial representation of ragi procurement and distribution is depicted in **Figure 6.7**.

**Figure 6. 6** Ragi Procurement and Distribution Flow Chart



Source: Website of OMM ([milletsofodisha.com/about-program](http://milletsofodisha.com/about-program))

*During rabi we grow millets by transplanting but there is no marketing for rabi season. And in rabi season production is more so we keep the produce for a year in our homes. Then when procurement season comes, we sell the ragi then. Otherwise, we keep ragi for religious traditions and household purpose or otherwise we sell it in the market and get household rations. Shared a woman farmer during focus group discussion in Kundra block on 22<sup>nd</sup> September 2021.*

*If you see the demand and supply, then demand is there but the supply is not enough. So people are able to sell in the village though price is very low but there are traders and sahookars who are coming and buying millets. Because there is no organized market and purchase. For ragi, Odisha government is procuring so the prices have gone up but for other millets because the government is not able to procure it as MSP is not declared the prices for them is very low but people are able to sell it through some other channels. State Coordinator for OMM, WASSAN, Bhubaneswar on 11<sup>th</sup> September 2019.*

Distress sale of millet is also being reported due to preference of cash by the women farmers. This indicates the dependence of farmers on the market and the need for immediate cash to serve other income generating activities and purposes. Financial institutions such as banks being at a distance from the farmer's home, lack of availability of time and options to commute, farmers often resort to distress sell of their produce through local channel. Delay in surplus generation and other delays in bureaucratic process by the government agencies create obstacles in inclusion of farmers in procurement channel.

*If people are in need of money, then they sell it in less rate also as mandi starts in January and closes in March. So whenever we are in need of money we sell mandia through local mandi. A woman farmer during focus group discussion in Nandapur block on 28<sup>th</sup> September 2021.*

*Production is increased now and mandi has also been done. But in mandi also we cannot sell all the mandia. Some of the quantity gets saved so we have to sell that in the local market and we do not get good price for that in local market. Responded a woman farmer during focus group discussion in Nandapur block on 28<sup>th</sup> September 2021.*

#### ***Distance and lack of storage spaces***

Procurement collection centres are at a huge distance from the villages where farmers reside. This often creates challenges for women farmers to travel to collection centres as well as travel a huge distance to rice mills to get millets cleaned. It is often the male counterparts of the women farmers who travel to procurement centres to sell millet. And since procurement is spread over 2-3 days, lack of storage spaces for the agricultural produce makes farmers return with their produce. Limited number of procurement centres also creates pressure on the existing centres to address a large number of farmers. In this process, due to lack of time

farmers often sell their produce in the local market the next day or find it difficult to make a long journey. Procurement has given rise to some other problems such as the work of following FAQ norms to clean millet has fallen on women's shoulders that has further burdened women with enhanced responsibilities.

*For marketing, we are getting a lot of difficulties. For going to mill, we have to go in auto by paying Rs 100. For marketing through procurement problem arises as we have to clean the millet, let it dry and then sell. So for that, we need labours, in case if we want to sell it at a high rate in mandi. So for that for every labour we have to give Rs 100. And that millet needs to be washed again and again till it is cleaned properly.* Said a woman farmer during Focus Group Discussion in Badlipur village, Lamtaput on 03<sup>rd</sup> October 2021.

*Distance from the village to the mandi (procurement centre) is very huge. Whosoever's surplus has been generated we inform them and they come to mandi to sell their ragi. Farmers bring ragi in huge quantity and there is only 1 godown near the mandi where procured item is kept. Some farmers have to return with their product. There is only 1 mandi. Farmers face problem if they come from far distances.* Shared a CRP during in-depth interview in Kundra block.

### ***Opinion about Procurement***

Widespread awareness programmes and campaigns were conducted to generate awareness amongst farmers when the procurement was initiated in 2018-19. Equipments were installed at mandis (collection centres) to ensure fair average quality of ragi to be procured (Jena and Mishra, 2020). However, at the ground level, tribal farmers found it difficult to understand the process, requirements and the operations. Farmers registration was an issue as possessing documents necessary for registration is not available at a particular place. Lack of coordination made farmers unaware of the FAQ requirements to be followed for the grains to be supplied to the government. At times, ragi was returned to farmers also. Moisture content in ragi used to be a problem for procurement too in early days. This resulted in less farmer registration in the studied blocks of Koraput district.

*Government has fixed the rate and fixed some rules as well criteria of procuring the millet like millet should be clean, moisture content should be upto a certain percentage. Villagers are not able to follow the rules of the government as they are illiterate and they*

*do not understand moisture content and government requirements. So they do not prefer to go to mandi and sell their product. These people generally sell millet in their weekly vegetable market. Farmers have to hire a vehicle and then there is delay in purchasing the ragi from the farmers. Farmers do not understand also. They have to wait for 1 or 2 days for the government officers to arrive or sometimes 1 week also. So in order to avoid that they will sell their ragi in weekly market. Chief Executive Officer of the Farmer Producer Organization, Borigumma block on 06<sup>th</sup> October, 2021.<sup>88</sup>*

*The mandia that gets procured through procurement by the government we need to clean that a bit more. In mandi (procurement centre) clean mandia is preferred otherwise the government will not take it. We need to put mandia in the rice mill 2-3 times to clean it properly. We are not able to clean mandia properly and the impurities remain. A woman farmer during an in-depth interview in Lamtaput block on 02<sup>nd</sup> October 2021.*

Responding to the question of low farmer registration for procurement in Borigumma block, Chief Executive Officer of the Nari Pragati Farmers Producer Company Limited, FPO, shared

*The price that the government is paying that is also not sufficient. There is so much demand of ragi in the area that other customers are also buying ragi in the same price so why would farmers sell ragi to the government? Moreover, if they are selling in the weekly market immediately they will get the cash for their produce. But if they are selling it to the government, transportation cost will be there and then they will have to wait to give their bank account details, so there is a communication problem. That's why people are not selling their ragi to the government much here. CEO of the FPO, Borigumma.*

The Chief Executive Officer shared that due to prevalence of demand for Ragi in Mankidiatla village in Borigumma block, price offered by other buyers equals the MSP. This could be the reason as to why procurement at MSP has not much effect on selling behavior of ragi growers in Borigumma block. The price offered by buyers of Ragi is also same as the Odisha government is providing. This discourages farmers to sell their ragi to the government which involves many steps often not understandable by farmers.

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<sup>88</sup> The interview was taken and recorded in hindi by the researcher and the interview was transcribed from hindi to English.

*Marketing is not a problem here as people here sell their products in the weekly market and we also support the farmers to sell their ragi in the weekly market if profit is there. But mandi (procurement channel) becomes a bit problem here.* CEO of the FPO in Borigumma block on 06<sup>th</sup> October 2021.

Decentralized approach to ragi procurement is one of the effective strategy to strengthen community based institutions to coordinate, operate and manage field level activities. Before the empanelment of FPO as a block level procurement agency, LAMPCs were mainly responsible for procuring millet from farmers. The procurement process through LAMPCs predominantly engaged men, resulting in women being excluded from gaining knowledge about the registration process. Moreover, engagement of LAMPCs officials was challenging because of the lengthy and complex government procedure involved in procurement process. There was a lack of clear communication from the LAMPCS with farmers on the procedures involved. This served as a biggest de-motivator for farmers to sell their ragi to government through procurement channel. As a result, women farmers from the group could not be registered for procurement from the year 2018-19 and 2019-2020 as they were not able to express their concerns to the male members of LAMPCS.

*When the procurement was being done by LAMPCS then it was being done by male members. So we women farmers were not able to do the registration. Women farmers were not able to raise their concerns. When FPO started procuring and started farmers registration women farmers could come forward and raised our concerns and register ourselves. When agriculture officer used to come, same problem was there. We did not know how the registration is done, where to register, how much ragi and paddy we need to sell.* Shared women farmers during focus group discussion in Kundra block on 21<sup>st</sup> September.

*Some of them do not want to sell their mandia to the government and do not want to get registered for procurement. So we make them understand that ragi should be properly processed and cleaned in order to sell to the government.* Shared President and Secretary of the FPO in Kundra on 22<sup>nd</sup> September 2021.

#### ***Issues with farmer's registration and registration cards***

In Litiput village, under Guneipada Gram Panchayat, Badlipur village under Balen Gram Panchayat, and Godiput village under Tusuba Gram Panchayat, Lamtaput block, farmers have not received the registration card as more than two brothers are cultivating the same plot of land. Sharing the same plot of land by brothers of the same household means providing a single document proof during farmer registration. This creates challenges while generating mandi cards<sup>89</sup>. Difficulties arise when the land is still registered in the name of their ancestors or grandfather, and division of the land under individual names has not taken place.

*There is a problem with documentation. The same plot of land is cultivated by all the brothers of the family. Whoever gets the land registered first for procurement, they will be able to sell their ragi to the government. As in if the same plot of land cannot be registered again and again. Sometimes they will not mention the account number and plot number properly so because of that also there is a problem and women farmers are not able to get the mandi card. Shared the Director of the FPO in Lamtaput block on 02<sup>nd</sup> October 2021<sup>90</sup>.*

*Land is basically under joint ownership. People's name is not getting registered. This is a big problem. People's land is joint. So twice they will give the same documents for registration. So for only one brother surplus will be generated. 1 plot can be registered under only one brother's name. If same plot number is given by a different brother cultivating the same plot of land then registration wont happen for the 2<sup>nd</sup> brother. That is a very big problem that we are facing and whenever we visit the village people will ask us why my surplus has not come. Shared a CRP during an in-depth interview in Lamtaput block .*

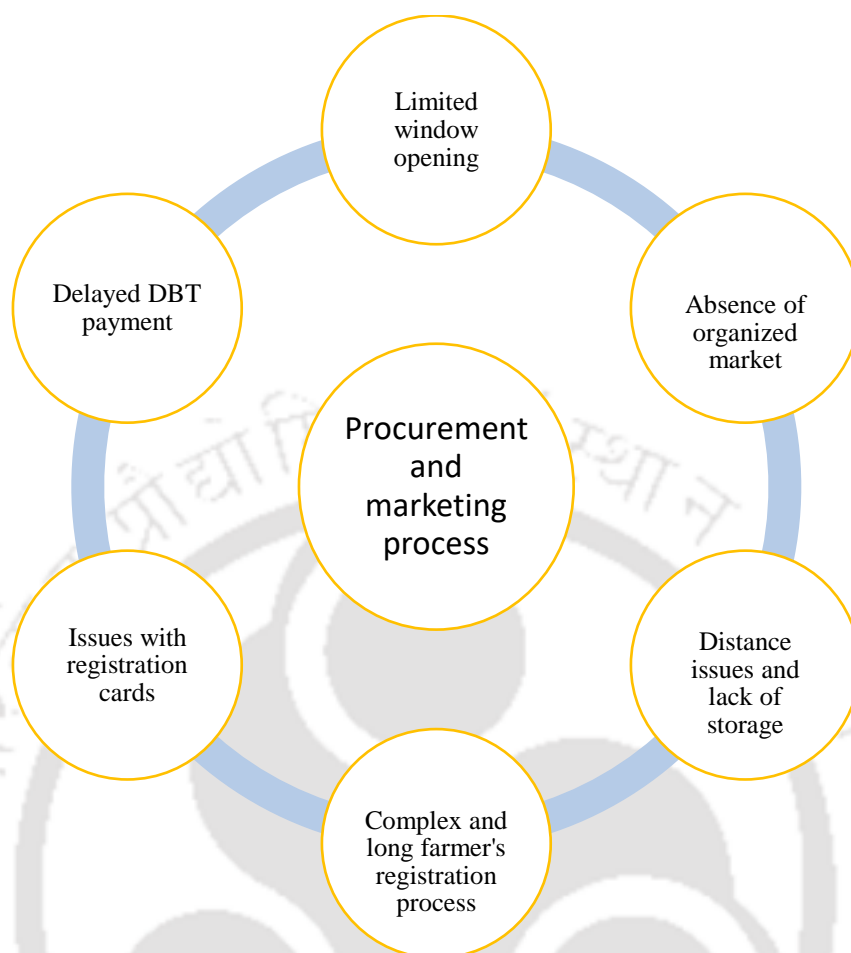
A summary of procurement level challenges is presented in **Figure 6.8**.

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<sup>89</sup> Mandi cards are procurement cards generated after the verification of farmer's details provided by the farmer during registration to become eligible for millet procurement under state government of Odisha.

<sup>90</sup> The researcher took the help of Business Developer, FPO in Lamtaput block, Mr. Chandan Swain, (working with OMM) to help in the communication process between the researcher and the respondent. Mr. Chandan translated some part of the conversation to the researcher in hindi on spot. The whole conversation was recorded and then transcribed in English by the researcher.

**Figure 6.7** Pictorial representation of procurement level challenges



*Source:* Author's compilation

## **6.4 Benefits of millet farming**

### **6.4.1 Increase in yield-contributing to household food self-sufficiency**

The OMM intervention has brought about significant changes in millet cultivation. With the support of OMM, farmers have been able to go beyond self-consumption and create a surplus for selling in the market. One of the most important learnings for the farmers after the introduction of the Millets Mission is the exposure to improved agronomic practices which not only resulted in an increased yield but these practices are a complete package in itself. These practices involve seed treatment, preparation of nursery bed, transplanting, preparation and application of organic manure, timely weeding procedures, specific gap between saplings and organic pest management.

This resulted in growing of more fingers per plant and the quality of fingers started improving. Usage of machines like farm mechanization involving the use of cycle weeders is another important factor that resulted in changes in millet cultivation. For a pictorial representation of benefits of millet farming to farmers see **Figure 6.9**.

*After the coming of Millets Mission, we have learnt how to increase the production by following certain agricultural practices. We have got access to market linkage also. We have also learnt how to use cycle weeder. Registration was a big challenge for us. But when FPO came, CEO of the FPO used to visit our home to collect the documents and do the registration. So we did not face any difficulty.* Shared a woman farmer during FGD in Kundra on 21<sup>st</sup> September 2021.

Here through these excerpts, it can be seen that millets cultivation using improved practices has contributed to an increase in yield ensuring household food sufficiency. In addition, surplus is ensured through an increase in yield, which gets sold at MSP and in the local market to earn an extra income. Farmers are also seen referring here to paddy cultivation as non-profitable as land and requirement of other inputs for its cultivation is becoming more and more out of reach for small and marginal farmers.

*Earlier the production was insufficient to eat so we used to consume by purchasing it from market. Whatever we used to keep for self-consumption that used to be less for us. Now we have more production. So we are able to eat sufficiently.* Shared a woman farmer during FGD in Boipariguda on 25<sup>th</sup> September 2021<sup>91</sup>.

*We are getting sufficient to eat mandia at home now and we are also selling some of it in the market. Paddy cultivation is not profitable at all as a bigger land is required for paddy cultivation. If we don't apply chemical fertilisers, then there is not much production. So we are using organic manure along with chemical fertilizers.* Shared a woman farmer during a FGD in Litiput village, Lamtaput on 03<sup>rd</sup> October, 2021.

Promotional campaigns have played a crucial role in creating awareness and changing people's perceptions about millets as a nutritious crop. By disseminating information through trainings

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<sup>91</sup> Mr. Deepak, Assistant Block Coordinator, CYSD (FA) in Boipariguda translated the responses in hindi on spot, recorded and later transcribed in english by the researcher.

and workshops, villagers are exposed to various kinds of recipes that can be prepared using millets. Value addition is emphasized upon to gain acceptance of millets amongst rural and urban dwellers as well as to increase the palatability of millets by focusing on innovating various recipes. Facilitating Agencies work toward promoting millets for enhanced food and nutrition security. Organizing food festivals and promotional campaigns is a vital part of achieving increased household consumption of millets. Such events are often organized under the initiative of OMM in collaboration with all the functionaries and block and district level government officials to promote demand for millets across all sections of the society.

*We conduct food festivals twice in a year. Whenever market happens there we conduct it. Or during festive times like 'rath yatra'<sup>92</sup> when there is a congregation of people at the block level then only we conduct food festivals. We do awareness campaigns also. 1 OMM program runs for 4-5 days so within that we also try to create consumption related awareness. We make posters and through announcements we try to communicate to the locals about the importance of consuming millets. A CRP from Borigumma block on 06<sup>th</sup> October 2021.*

*For consumption, a food festival was conducted in this village. And under millet food campaign training was provided on how to prepare different millet recipes at home. We made 6-7 items for millet food festival. If we can make it like that at home then our children will consume mandia in a better way and our value will increase. A woman farmer during FGD with a WSHG in Lamtaput on 01<sup>st</sup> October 2021.*

#### **6.4.2 Millets essential to procure other household items**

The majority of the women interviewed indicated that they either barter or sell the millets they harvest in order to obtain various goods required for their households. Increase in millet yield has enabled women farmers to keep some extra quantity of millets at home to be traded for essential items in times of emergencies.

*During emergency time, if there is no grocery item in home, then we take ragi and paddy. We sell it and then buy other products. We take 10-15 kgs of ragi in local haat, we sell that*

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<sup>92</sup> A religious festival in Odisha where procession of Hindu god and goddesses is taken out on the street.

*and we buy whatever items we need for our home. But there is no extra income. Shared a woman farmer during SHG FGD in Kundra.*

*If children ask for special items found in the market such as chips or icecream then mother would say take some ragi, sell that and eat whatever you want to eat. This tradition is still continuing. Shared a Development Assistant, MSSRF, Kundra.*

*Now when we are doing it in line, then more production is happening. Earlier we used to eat rice of little millet, kangu and mango seeds. We used to eat like that because ragi was never sufficient in our fields and we did not get ration under PDS also. A woman farmer from Nandapur block.*

With improved agricultural practices, per acre productivity got increased. Utilization of inputs and expenses required for millet cultivation got reduced significantly. With less seeds, production is more. Farm mechanization has led to reduction in drudgery of women. Weeding is an essential labour intensive activity in the process of millets cultivation which substantially utilize women's labour. By introducing mechanized equipments for millet farming such as cycle weeder, weeding is completed within three days which reduced drudgery of women to a significant extent.

*Production has increased. More labour was required when we used to do by broadcasting method. In 1 acre under broadcasting method, 12-15kg seeds was required. Now only 1 kg seeds is required in an acre of land. We got 10 quintal. Earlier in one acre getting one quintal was also difficult. So we only used to consume that 1 quintal. It was not enough for consumption so we used to purchase ragi from outside market. Shared a woman farmer during in-depth interview in Nandapur block on 27<sup>th</sup> September 2021.*

#### **6.4.3 Millet health benefits**

Millets has been an integral part of people's food, culture and nutrition. Millets constitute an important part of diet of the tribal households. Respondents seem aware of the health benefits of consuming millets. Since millet is cultivated primarily for self-consumption purpose, its cultivation is free of chemicals. Millet is consumed three times a day. Millet is consumed in

different ways during festival times, however, respondents consume millet by combining it with rice and making traditional recipes.

*We get health benefits. It is totally organic thing and no chemical fertilizer is used unlike outside food products and we get strength. Its stomach filling. If we eat daily then we don't get diseases easily.* A woman farmer with a SHG from Badlipur village, Lamtaput block on 03<sup>rd</sup> October 2021.

*We consume millets daily. It gives strength, it fills stomach. If we eat this regularly, then we won't get much disease. Its pure organic.* A woman farmer from Nandapur block on 27<sup>th</sup> September, 2021.

*If we don't eat mandia we will die. If rice is not there for a day it is fine but mandia is compulsory and we need it daily. If we do not make pej at our home then we bring it from neighbours home to drink it. We will consume pej with rice. Rice can be less. But we will drink pejo more.* Indepth interview with a woman farmer from Litiput village, Lamtaput block on 01<sup>st</sup> October 2021.

#### **6.4.4 Provision of market structure**

During the initial period, people had apprehensions regarding the government procedures about procurement and whether incentives will be provided or not. However, the situation has changed and farmers are upfront about registering themselves for the procurement. Procurement of finger millet by the state government has provided a stable MSP to farmers unlike the local market wherein the prices of millet were low. Selling millet to the government has led to income enhancement among women farmers.

*We feel happy that millets are giving us extra income. Earlier we were getting less income from ragi but now we are able to earn few extra income from selling ragi to the government. So that is good. When we sell ragi in the haat we used to get money after 3 or 4 days in our hand. Earlier people bargain for the rate of ragi in the haat. But we are getting exact amount in our account and there is no deduction. We get the money within a week of selling the money under mandi system.* A woman farmer from WSHG in Boipariguda block on 25<sup>th</sup> September 2021.

*Income has increased from doing millet cultivation. Whatever quantity remains after we keep some quantity for consumption at home we are selling that only in the market. We are selling it in the mandi and we are getting a good price. Earlier we used to sell it to traders at the rate of rs 7-8. Now if some quantity remains even after selling it in the mandi we sell that quantity in the haat to the traders at a rate of rs 30-35. But we prefer the millet mandi only for selling.* An in-depth interview with a woman farmer from a WSHG in Nandapur block on 28<sup>th</sup> September 2021.

However, small farmers with less land and more people dependent on the land, millet cultivation does not fetch any income. Millet cultivation is still essential for self-consumption purposes and bartering it with other household essentials.

*I cultivated millets in 1 acre. We do not have much land. 4 brothers are dependent on the same land only. We got 5 quintal. If there is a need then we sell 1 or 2 packet in the weekly market otherwise we keep it for household consumption. We do not have any income from millets as much. Whatever we get in a year we keep some for consumption and other we sell it in weekly market to purchase other household items. Whenever it is required to be purchased we sell mandia in the market and purchase other items.* A woman farmer from Nandapur block on 28<sup>th</sup> September 2021.

#### **6.4.5 Increased number of farmers cultivating millets**

As farmers were reluctant to adopt new methods of production and questioned its practices and suitability in increasing the yield, changes are seen in some farmers understanding its relevance, adopting new practices and witnessing an increase in yield of millets. Changes can also be seen in farmers shifting from paddy cultivation to cultivating millets in upland with the initiation of procurement channel by Odisha government. Procurement of millets at MSP has also encouraged farmers to start millet farming.

*Now since procurement of millet has started, people has stopped cultivating paddy in upland and started cultivating millets in upland. Earlier short duration paddy used to be cultivated in upland. Now they are cultivating millet in the paddy field. Now the market linkage has been done so the more they cultivate millet the more profitable it is for them.* Shared

Development Assistant from MSSRF, Facilitating Agency in Kundra on 21<sup>st</sup> September 2021.

*After the Millets Mission came we are able to produce more of mandia in less land also because we never saw this much production before and after sowing the seeds in methods we are using less of labour, inputs and less of hard work as compared to earlier. A woman farmer during FGD in Borigumma block on 05<sup>th</sup> October 2021.*

During 2008, income through paddy and millet cultivation was not sufficient to sustain the households. To earn cash, people started doing pipla<sup>93</sup> cultivation but were not successful as people lacked knowledge regarding its growing conditions, soil conditions and its maintenance requirements. With OMM, farmers started getting a better price for millet in the market. With this people have started diverging their concentration from pipla to growing millets. However, awareness need to be built along with encouraging farmers to continue cultivate millets even without getting incentives.

*Earlier not many people were doing millet cultivation. But now many people are doing it. Earlier people were not willing to cultivate millets since there was no organized market, but since now procurement system has come so people want to do millet cultivation. A lot of changes have come. Now people are able to keep more quantity for consumption as well as for selling in the mandi (procurement centre). Shared a Community Resource Person working under OMM with MSSRF during FGD in Kundra block on 22<sup>nd</sup> September 2021.*

#### **6.4.6 Incentives provided for adopting improved practices**

With the promotion of improved agronomic practices, farmers have got to learn about the techniques of transplanting and seed management and for that farmers are getting incentives too. Following those techniques, farmers are able to get a better yield, for consumption as well for selling. Incentive is given to the same farmers adopting the agronomic practice in millet crop for three consecutive season/years. To farmers adopting System of Millet Intensification (SMI) Rs. 5000, Rs. 3000 and Rs.1500 is provided for the first, second and third year consecutively.

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<sup>93</sup> 'Pipla' is a medicinal plant that was popular amongst the farmers in Lamtaput block during 2008. The plant and its roots were famous for its medicinal properties. Its price was high and hence its cultivation was started widely.

This incentive provided covers the cost of support for seed, bed preparation, preparation of organic manure, watering, seed treatment, transplanting, weeding, harvesting a jeevanmruth preparation for three consecutive years.<sup>94</sup> Whereas, incentive provided to farmers following Line Transplanting/Line Sowing/Intercropping is Rs. 2500, Rs. 1500 and Rs. 1000 for consecutive three years.

*The incentives that we get for adopting improved agriculture practices helps us to cover the input costs of labour and seeds. Earlier we were giving inputs cost from our own side but now the incentive money that we get covers the cost of inputs.* A woman farmer from WSHG in Boipariguda block on 28<sup>th</sup> September 2021.

However, it is reported that, farmers do not get incentives on time which causes trouble for farmers to undertake improved practices for millet cultivation.

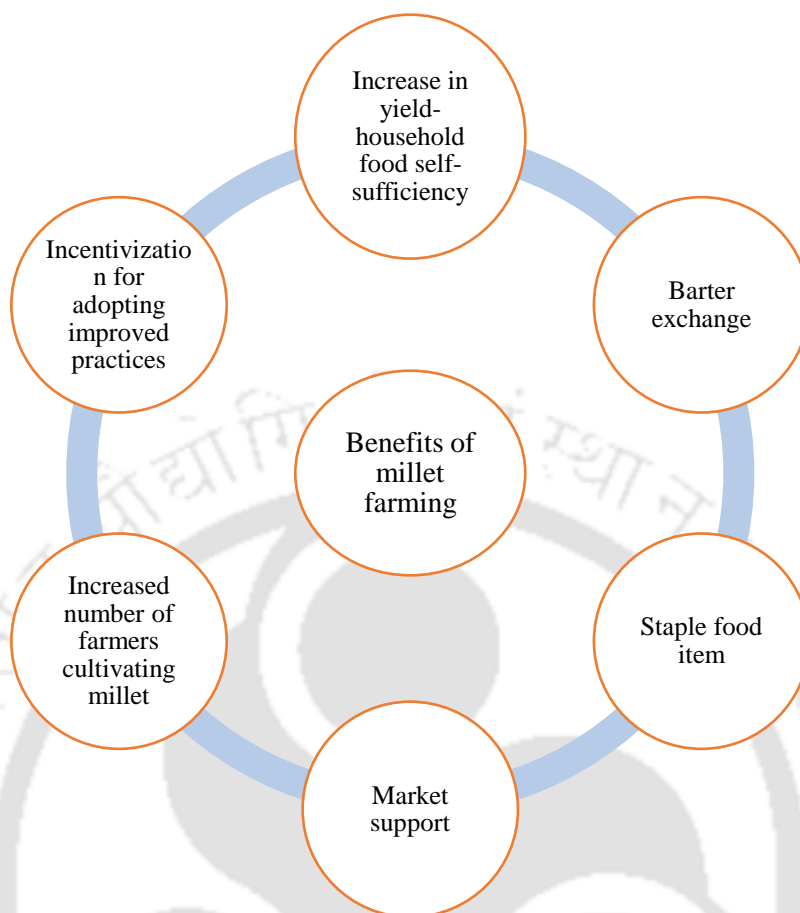
*People have not got the incentive for the year 2021-2022. So if a farmer does not receive incentives on time he says that I will not do the LS, LT this time.* A CRP in Kundra block on 22<sup>nd</sup> September 2021.

*We have got the 1<sup>st</sup> year incentive but not the 2<sup>nd</sup> and 3<sup>rd</sup> year. Incentive money should be provided on time.* A woman farmer from Lamtaput bock on 01<sup>st</sup> October 2021.

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<sup>94</sup> For more information, refer to Operational Modalities and Budget Break-up of Different Components and Sub Components of Odisha Millets Mission, Director of Agriculture and Food Production, Odisha, Bhubaneswar, 2017.

Figure 6. 8 *Benefits of millet farming*



Source: Author's compilation

*We are getting a lot of benefits after the Millets Mission came. Market linkage has come up so we are highly benefitted by that. Shared a woman farmer during SHG FGD in Kundra on 21<sup>st</sup> Septmeber 2021.*

*Earlier there was no value for mandia. Production also used to be less, and we had to do hard manual work. But now after using organic manure, production is more, crop value has also increased and we are getting a better price for that. We are not getting much profit from paddy and land is also less for cultivating paddy. Our land type is more suitable for millets cultivation. Mandia production is more and we are getting a good profit from selling mandia and consumption at home has also increased from before. Shared a woman farmer during an in-depth interview in Lamtaput on 02<sup>nd</sup> October 2021.*

## **6.5 Opinion of farmers about the Millets Mission**

Since OMM is a top down government program, this section brings about the opinion of farmers regarding the government program to revive the traditional crop and what farmers opine need to be done to make millet value chain better. It is important to consider women farmer's opinion since their role and contribution in retaining millets have been crucial as they are an integral part to any program focusing on reviving a lost crop back on plates and farms.

### **6.5.1 Market support**

A positive aspect of the program is the market support it provides to the millet growers in tribal regions of the state. Previously, millet farmers in tribal communities faced challenges due to the local and unregulated nature of the market, which often resulted in farmers fetching low prices in local market.

However, the program not only provided a market linkage through procurement at MSP which ensured a better price for farmer's produce but also led to a raise in the price of finger millet (ragi) from Rs 10-15 to a rate of Rs 30 per kilo gram in local market during favorable season. Although the price reduces to Rs 15 per kilogram when the government's procurement window closes or during the off season, the rate is still higher than the previous rates. Therefore, even if farmers choose not to sell millets to government, they still benefit from the improved prices of millets in the local market. The program has facilitated the transition of farmers from subsistence production to large scale cultivation by increasing the outreach to include more number of farmers in the program. This has been achieved by implementing improved agronomic practices that enhance the yield of millets.

### **6.5.2 Millets-knowledge enhancement and value addition services**

The most significant contribution of the Millets Mission has been their investment in capacity building of the stakeholders involved through extensive training on value addition and awareness creation on nutritive value of consuming millets. Through training support on improved methods of cultivation along with incentivizing the millets production using Line Sowing and Line Transplanting methods has contributed to an enhanced millet yield in an agro-ecological setting. Establishing community based institution such as CMSS, CHC, Bio-input manufacturing unit, has facilitated significant learning processes at the village level among the

tribal community. FPO has contributed significantly to collectivization of small and marginal farmers to leverage better prices and play a crucial role in input and output supply of millet value chain.

*After Millets Mission, we are able to learn new methods of cultivating millet such as through LS and LT. We have learnt and are able to make different varieties of millet recipes. We have learnt that with less quantity of seeds we can get a good produce. We have also learnt the organic way to produce millets and there is profit. If we can have a good produce, we can sell the ragi and we can also keep sufficient quantity for consumption at home.* A farmer during an in-depth interview in Boipariguda block on 26<sup>th</sup> September 2021.

*We have got something new to learn so we are liking it. Rainfall is a problem so if we can get some irrigation facilities that would be helpful.* Shared another woman farmer during an in-depth interview in Kundra on 22<sup>nd</sup> September 2021.

*Production and consumption has certainly increased. Earlier we only knew only 2-3 varieties but now we have got training so we now know we can many prepare many varieties of millet items. So we are consuming those items at home and production has also increased from before.* Shared a woman farmer during an in-depth interview in Lamtaput on 02<sup>nd</sup> October.

### **6.5.3 Are SMI, LS, and LT actually beneficial?**

The focus of the government of Odisha by reviving millets is on addressing the productivity gap. The program encourages farmers to adopt sustainable methods of crop production such as Line Sowing, Line Transplanting and System of Millet Intensification. An incentive structure is in place for 3 years to encourage farmers to adopt such improved practices. However, the opinion of farmers varies on the adoption of improved practices. Since farmers practice millet cultivation as a part of mixed farming system, professionals from FA, and ATMA faced resistance from farmers with adopting the practices that promotes millet cultivation in a mono culture fashion. Farmers reported SMI, LS, LT to be time consuming, labour intensive and an expensive process. Moreover, with paddy cultivation being prioritized over millets and with erratic rainfall, labour often falls short of for millet farming.

*For the first two years the problem that we got is that people did not adopt the technology. Farmers were doing the traditional practice of broadcasting. So we made them do line*

sowing, then SMI. Seedling is the same. The main problem we faced is making the people understand for adopting the technology and improved practices. People were only thinking that improved practices are time consuming and labour consuming but farmers don't understand that by following these methods they will get an increased yield. AAO, ATMA, Boipariguda.

We do not have much labour in the family and we do not have money to employ labour. If there are enough family members at home then there is no problem of labour and then we can do SMI and it is not costly. If there is no labour then SMI becomes a little costly as we have to hire labour. Shared a woman farmer during in-depth interview in Lamtaput.

However, currently farmers seem convinced of improved methods giving more yield. The improved methods are applied only on a land of 2 acres and not on more land than that. Farmers cultivating millets in more than 2 acres find it difficult to apply LS and LT. Sustainability of such practices needs to be measured after the timeline of the program gets over. Increase in yield, less resources, less labour and reduced drudgery are some of the benefits reported by the respondents.

Now we are doing it by LT, SMI. When CRP, NGO staff or government officer from ATMA comes and they see the field after doing line transplanting they say it is looking good so we feel good about that. If people say like that we feel happy about that. We are getting a good production also. And this encourages us to do mandia cultivation. A woman farmer from WSHG in Lamtaput block on 02<sup>nd</sup> October 2021.

If we do broadcasting, then more seeds are required. If we do line sowing, then 1 or 2 kg is sufficient for an acre of land. An in-depth interview with a Woman farmer in Lamtaput block on 03<sup>rd</sup> October 2021.

Earlier broadcasting was very laborious. Now it has become less laborious. Cost is less by applying LS, LT. LS, LT is also not labourious. Weeder is also provided. For eating also, sufficient quantity is there now. Cycle weeder is used by the male members. Farming is done by mainly women. A CRP in Lamtaput block on 01<sup>st</sup> October 2021.

#### **6.5.4 Farm Mechanization-Are women farmers really adopting technology?**

CHC consists of implements, machines and post-harvest operations and are located at the GP level. Equipments include cycle weeders, sprayer, pump sets, ploughing cultivator, threshers, bio-manure preparation containers, sieves, fencing materials, etc. Cycle weeders and other farm equipments were introduced under OMM with a purpose for drudgery reduction of women farmers, however, it is observed that women farmers seldom use cycle weeders for weeding operation. The presence of strong socio-cultural factors, cultural norms, and gender roles make women responsible for household chores leaving them with limited energy and time to engage in activities such as operating cycle weeders. Physical energy is required in operating the cycle weeder which restricts women farmers from using cycle weeders for weeding purposes.

*Cycle weeding is being done by male farmers. If the land is soft then female can do weeding using cycle weeders but usually the soil is hard so it requires strength which is done by male farmers. We are being taught how to use cycle weeders.* An in-depth interview with a woman farmer from Borigumma block on 06<sup>th</sup> October 2021.

*First women use the cycle weeding, but when the soil becomes hard then we ask our husbands to run the cycle weeder.* An in-depth interview with a woman farmer from Boipariguda block on 25<sup>th</sup> September 2021.

*For weeding not all are using cycle weeder. Most of the women farmers do manual weeding and only few use cycle weeders.* A woman farmer from WSHG in Nandapur block on 28<sup>th</sup> September, 2021.

There are other challenges with cycle weeders. It doesn't work when the land is rocky and if weed becomes long then also cycle weeders does not work effectively.

*In our land, weeder doesn't work as our land has a lot of rocks. So cycle weeder doesn't work. Here soil is a bit hard and strong. If it doesn't rain here for 15 days or a month then the soil becomes hard and you cannot run cycle weeder in the soil. If the weed becomes long, then weeder doesnt work.* A woman farmer from Lamtaput block on 02<sup>nd</sup> October 2021.

#### **6.5.5 Farmer's choice or market dependency to increase production?**

The Millets Mission advocates promoting millets grown in an environment friendly cropping system applying organic and sustainable resource to improve the yield. However, women farmers opine that application of organic fertilizers to crops is reducing the yield as compared to the application of chemical fertilizers. Women farmers are aware of the reduced fertility of the soil due to usage of chemical fertilizers but prefer continue using chemical fertilizers owing to the perception that applying fertilizers leads to more production. This thought is highly influenced by market led approach that emphasizes the chemical induced food production. In addition, soil has gotten used to chemical fertilizers thereby application of organic and bio-manure is reducing the yield. This creates a resistance between farmers who prefer using chemical fertilizers and the mandates of the Millets Mission to apply organic fertilizers. The excerpts below show the reluctance of farmers in using bio-fertilizers due to the generation of less yield and time loss to get the same yield as before by shifting to agro-ecological methods of production.

*If we apply urea and fertilizer, then production is more. But Facilitating Agency people are asking us to apply organic manure which is reducing our production. So if in 1 acre we were getting 5 quintals, after using organic manure we are getting 4 quintals. The land has got used to chemical fertilizers and urea so much that the soil has reduced its fertility and it is not able to take the organic manure. And now FA is asking us to use organic manure. A woman farmer from WSHG in Borigumma block on 06<sup>th</sup> October 2021<sup>95</sup>.*

*Villagers say that you people come and ask us to do things. But are these thing practically possible? This is the type of question posed by villagers to CRPs. We are making them understand to apply bio fertilizer on their field but farmers are reluctant to use bio-fertilizers as it gives less production. So we make them understand that you will be able to grow food and consume for yourself but for your upcoming generation there will be no fertility left in the soil to produce any food crop and consume if you keep on using chemical fertilizers. A CRP from Borigumma block on 05<sup>th</sup> October 2021.*

*Earlier people used to use fertilizer. So now soil fertility has reduced. So we tell women farmers to use organic manure. But people resist. They do not understand and production*

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<sup>95</sup> Assistant Block Coordinator with HARSHA TRUST (FA), Mr. Chandan assisted the researcher to translate the conversation between the researcher and the women farmers. The responses in Odiya (local language) and hindi translation of the responses were recorded and later transcribed in English by the researcher.

*is also low when they use organic manure. Applying organic manure is time taking and production is low.* Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> September 2021.

#### **6.5.6 Empowerment of women farmers? Or lack of women specific program components?**

There is no mandate as such from the OMM to register women farmers specifically for farmer's registration under procurement system. According to the OMM mandate, CSOs are autonomous in their decision to either register men or women farmers for procurement. However, some community-based organizations and FA working with women farmers have prioritized registering its women farmers for procurement. Example is PRADAN in Lamtaput block and MSSRF in Kundra block. There is no specific insistence from the FA in other 3 blocks that is Boipariguda, Borigumma, and Nandapur, to register women farmers for procurement. In the 3 blocks mentioned above, male counterparts of the women farmers are registered for procurement.

Shift from cash to bank transfers is not preferred by the villagers. Villages being far from banks or ATM machines, respondents are not aware as to whether money has come into their account or not. It is also being noted that women farmers prefer cash in hand as they are unable to undertake long distance either for marketing or for banking purpose. This indicates lack of women specific components in the program to promote women's participation in procurement and marketing spaces.

*Female members account numbers are prioritized for farmer's registration but if their KYC documents are not updated then we have to do the registration in their husband's name. If account details like KYC is not updated, then money will not be credited into the account. So for that male farmers get registered.* Block Coordinator, HARSHA TRUST, Borigumma on 06<sup>th</sup> October, 2021.

*When incentives come and at the time of registration and mandi linkage, it requires a lot of frequent travel and a lot of time is spent by standing in the line and thumb impression is also required. That is why we are proposing our husbands name for mandi registration.* An in-depth interview with woman farmer from Borigumma block on 05<sup>th</sup> October 2021.

### 6.5.7 Survival is linked with cultivation and consumption of millets

In various communities across all the blocks of Koraput district, a traditional alcohol drink called 'langda' is prepared out of finger millet. This provides livelihood security and considerable income support to tribal women farmers. Mecha, pejo, ragi upma, vada, mandru are some of the traditional recipes consumed in tribal households. On asking the reason for consuming millets and whether rice is consumed more or millets,

*We go to the fields and we take millet items with us to work and eat it in the fields. We eat rice and mandia<sup>96</sup> in similar quantity. If we don't eat mandia we don't get the strength to work in the field. We would continue to do millet cultivation. Now we have learned how to make different recipes so we will continue doing millet cultivation.* Shared a woman farmer during SHG FGD in Nandapur on 28<sup>th</sup> September 2021.

Millets are highly regarded by farmers in the tribal regions of Koraput district of Odisha. Millets form the primary and staple food item of tribal households in tribal belt of the state. *Mandia* (finger millet) as it is called in local language, is a must-have food item along with regular rice meal. Millet supplements the diet of farmers and farmers acknowledge its importance by its strength giving properties. Millet is useful not only as a food crop but also holds significance for religious and social occasions like marriage.

*Whatever a farmer is left with after selling mandia in mandi, is used for self-consumption, and for exchange with other items in the market like vegetables. In fact, mandia is also given as gift in all the religious and social functions like marriage etc. So even after distributing millet through all these activities, villagers are still left with some.* Shared a Development Assistant, PRADAN, Lamtaput on 15<sup>th</sup> March, 2020.

*We are consuming millets since childhood. Our ancestors used to eat it. Earlier, production was very less, we never used to produce much. Our ancestors used to grind mango's seeds and make it like pejo and consume that. We have enough production of millet now. Consuming millet gives us strength. From before, here people eat mandia only and people never use to buy market available items. Even rice wasn't so much available. When people feel hungry they used to be depended on forest for extra items like fruits, mango, mango's*

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<sup>96</sup> Local name for finger millet in Koraput district.

*seeds, green leafs, vegetables. Everyone consumes millet in my family. A woman farmer from WSHG in Nandapur block on 28<sup>th</sup> September 2021.*

## **6.6 Community Resource Persons-Roles and Responsibilities**

### **6.6.1 Roles and Responsibilities of CRPs**

Community Resource Persons (CRPs) play a crucial role in the implementation of OMM under the guidance of Farmer Producer Organization. They report to Chief Executive Officer (CEO) of the FPO and act as interface between the program and the villagers. CRPs receive their remuneration under the structure of FPO. Their primary responsibility is to be the resource persons for field level demonstrations and training. Before the starting of any agriculture season, CRPs conduct village meetings to disseminate information about various activities related to production, consumption, processing and procurement and to establish stronger links with villagers. These meetings are attended by all households in the village. Selection of beneficiaries and collection of their documents under different activities of OMM is undertaken by CRPs. They also inform farmers about the registration process for procurement and educate them about the functions of the FPO. Additionally, CRPs also perform household visits to address farmers concerns and encourage them to grow and consume millets. CRPs assist agriculture officers in the field to monitor agricultural activities in the field. CRPs assist the FPO in their activities as per the action plan.

### **6.6.2 Constraints of CRPs**

Three CRPs are responsible for coordinating the implementation of OMM in a particular block. Each CRP is assigned the task of managing and looking after three Gram Panchayats in a block. It is observed through conversations with the CRPs that they find this workload challenging. The work that needs execution is more but CRPs are less. Furthermore, an additional one or two GPs also need to be managed by the CRPs in addition to managing the GPs assigned to them. CRPs are entrusted with addressing the concerns of the villagers. This entails house to house visit which is often difficult for CRPs to manage. It is noted that remuneration received by CRPs is not in accordance with the work done by them. CRPs are over-worked and a lot of pressure regarding fulfilling the work target is on their shoulders.

*There is a lot of pressure on us. I even get calls around 8:30 in the night regarding problems faced by the farmers. Whatever problem farmers face they tell me and I sort the*

*problem and then enter my home. A CRP during an FGD in Kundra block on 22<sup>nd</sup> September 2021<sup>97</sup>.*

*Covering many GPs is a problem. Work burden is more and salary is less. If we can get a bike then we can do the work effectively by going door to door. From 2017 till now our salary is same and it has not increased. A CRP in Kundra block on 22<sup>nd</sup> September 2021.*

CRPs contend that farmers initially had concern regarding applying LS, LT method on their field on the grounds of being expensive and labour intensive. However, farmers need to be told again and again which consumes a lot of time of CRPs. This affects the work targets to be delivered by the CRPs. Farmer's registration is another challenge which CRPs face. Respondents do not have all the documents at one place at a particular time which makes CRPs go repeated number of times to farmer's house to collect the documents required for registration and that causes delay in entering the data in the mobile application.

On asking a CRP from Borigumma about the challenges that they face in mobilizing farmers to cultivate millets, a CRP replies,

*For farmer's registration 4 kinds of documents are required. For instance, one farmer will have in possession only 1 document out of the 4. It becomes difficult to follow up the same farmer again and again. We have to go to other farmers too. That is the problem we are facing. Getting the documents for registration on time is also difficult. Our CRP has to go here and there to get the xerox copy done. How much will you make them understand? A CRP from Boipariguda block on 26<sup>th</sup> September 2021.*

*Farmers do not keep all the document. They give bank account details to the contractor who gets work contract under MGNREGA. They do not keep all the documents together at home. That creates difficulties in farmer registration and on entering details in the mobile app. A CRP in Borigumma block on 05<sup>th</sup> October 2021.*

Remoteness of villages also creates problems as there are many GPs, where farmers cultivate millet and wish to be connected under the OMM program, but remain inaccessible during monsoon season. Transportation to remote places also becomes challenging.

*Geographical location is also a challenge as many times it becomes difficult to access remote places as transportation becomes a problem. Monitoring is also a challenge.*

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<sup>97</sup> FGD with Community Resource Person (CRP) was conducted by the researcher in hindi and later transcribed in english by the researcher.

*Because of the overflowing river problem in Kharif as ragi is done mainly in kharif so 3 villages become inaccessible during monsoon season and hence it is difficult to access those areas for new farmer registration. A CRP in Borigumma block on 05<sup>th</sup> October 2021.*

Due to joint ownership of land, farmers do not receive the registration card. As the documents for the same plot of land is shown as proof by brothers of the same household, other farmers do not get to sell millet through procurement. CRPs face problem as farmers keep asking them why their surplus has not come. Now since production is more, but government is procuring only 2 quintals for 1 acre, farmers are bound to sell the huge surplus in local market, which again exposes them to vagaries of local traders.

*Production is more but government is not procuring all the produce from farmers. This is the government's problem and implementing agency is under pressure. Farmer Producer Organization is going to stay here and they are going to deal with people directly so if people do not get the money then relation of the FPO with villagers gets ruined. That is the difficulty and farmers are bearing the loss that is the only difficulty. It is the same problem in paddy and millet. A CRP in Lamtaput block on 01<sup>st</sup> October 2021.*

### **6.6.3 Communication of CRPs with other stakeholders**

The CRPs regularly engage in review meetings with the Team Leader and Block Coordinator of the Facilitating Agency to discuss various aspects of the program. These review meetings typically take place on a monthly basis at the block level. During these meetings, the CRPs and the FA representatives deliberate on the activities that have been completed, the achievements made and targets that have been fulfilled. They also address the challenges faced during the implementation of the program. These meetings conducted evaluate the progress and identify areas requiring further attention. In addition to review meetings, CRPs also engage with various stakeholders through Community Based Organization (CBO) meetings. During the CBO meetings, the CRPs share information regarding number of villages covered, activities completed, and new tasks assigned to them. Different stakeholders such as VAW, FPO director, farmers and WASSAN Coordinator participate in the meeting. Such constant communications with different stakeholders ensure that work is in progress and keeps monitoring in check.

## 6.7 Engagement of women with millet ecosystem

In the context of millet cultivation, it is observed that women's labour is extensively employed. Women are involved in every step of the millet cultivation process. While men primarily handle tasks like ploughing and land preparation, women predominantly play a major role in millet promotion. The objectives of the Millets Mission do not specifically deliberate on the formation of women collectives. However, some of the Facilitating Agencies in blocks work for the livelihood promotion of women, for example PRADAN and all the FAs have formed SHGs comprised of women members. And these SHGs carry out the work of the Millets Mission at the grassroots level. Some of the blocks have CBOs comprising entirely of women. These CBOs are subsequently registered as FPO and collaborate with women SHGs and individual women farmers at the village level. Although, the Millets Mission does not specifically emphasize the formation of women collectives, the inclusion of women can be found along the entire value chain of millet ecosystem. (See **Figure 6.10**).

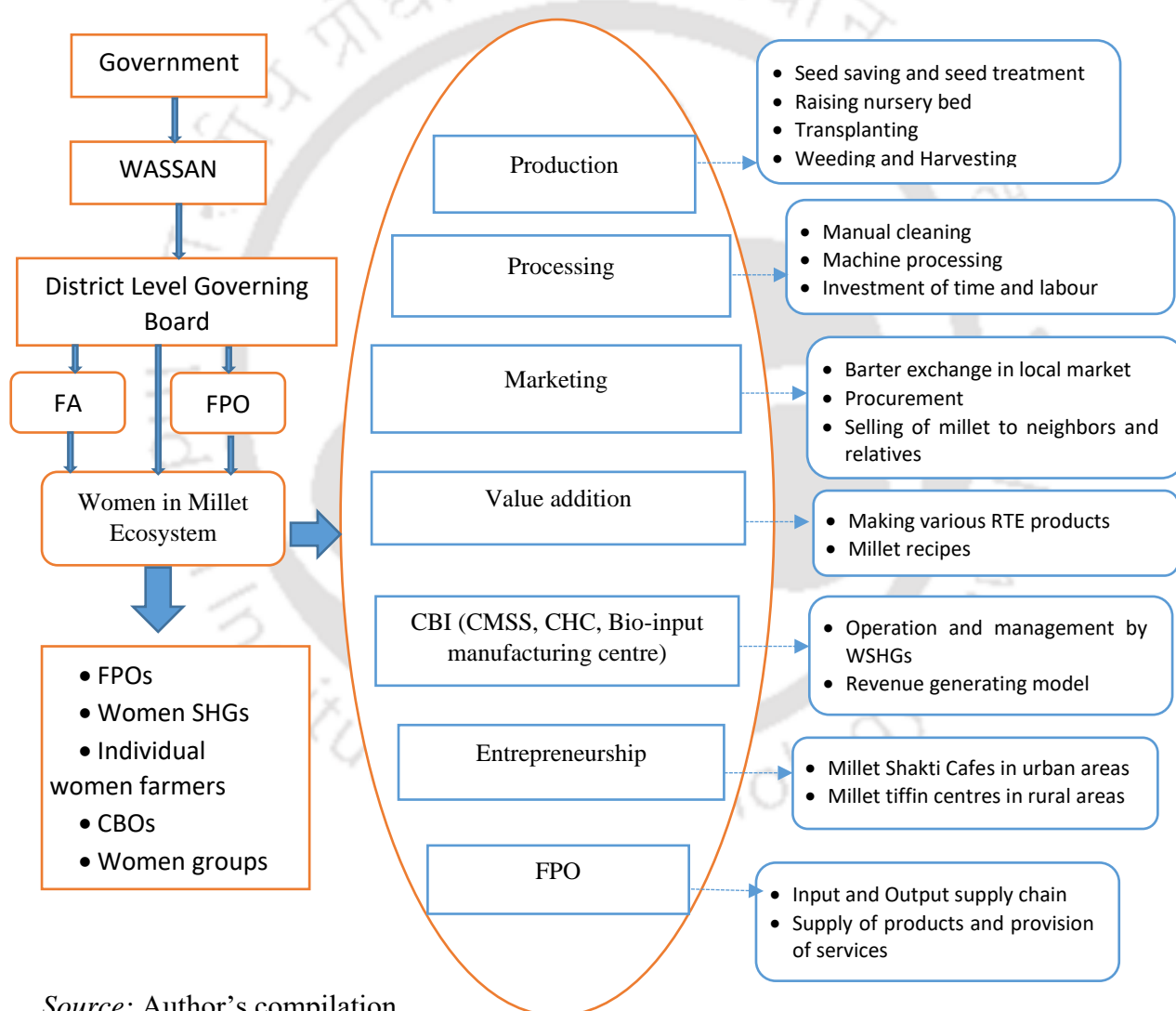
However, no strict provision is kept or acknowledgement being made in the OMM either regarding land rights of women or registration of women millet farmers for the purpose of procurement. Women have become the unsaid beneficiaries of the millets intervention owing to their already active engagement with millets. However, flexibility is left on CBOs to be a part of Millets Mission and facilitate itself to be registered for FPO. In Barengpari, Kumar Belgaon and Mangrel villages of Nandapur and Mankidiatla village of Borigumma block, bank accounts of husbands of women farmers are being registered for procurement since women farmers account details are not kept up to date. Women's labour is being used in production, processing and promotion without advocating any substantial change for land rights or without emphasizing strict adherence to women farmer's registration. The below excerpt from a Focus Group Discussion conducted with a women SHG in Kundra block reveals the drudgery of manual labour exercised by women in production of millets.

*First we coat the seeds with organic manure like jeevamrut. For bisarjan we need cow urine, jeevamrut. After coating the seeds or bisarjan, we do nursery. We keep the nursery for 20-25 days. If it rains then it is good, otherwise transplanting is delayed if the rain is not proper. Then we prepare the bed and transplant the millet saplings in bed. We keep the saplings in bed for 20-25 days. After that weeder needs to be used for weeding purpose. Then organic manure is applied. Since we need only 1 variety so if we take out other varieties of millet if it grows with the one we want. Then harvesting is done after 3*

months. A woman farmer with a WSHG during FGD in Nandapur on 28<sup>th</sup> September 2021.

All activities regarding millet cultivation is done by women. Men help us in ploughing the land and in harvesting. We do seed selection, seed treatment with organic manure, raise nursery bed, transplanting, weeding, harvesting and cleaning the mandia (local term for finger millet). We take mandia to haat to sell and we bring back vegetables needed at home. A woman farmer with a WSHG during FGD in Lamtaput block on 02<sup>nd</sup> October 2021.

**Figure 6.9** Engagement of women with millet ecosystem



Source: Author's compilation

Women SHGs under the collaboration of OMM with Mission Shakti and Women and Child Development Department are involved in a total of 3 activities and these are.

- a) Preparation and supply of ragi snacks to anganwadis under ICDS program. Supply of ragi ladoos are only taking place in 2 districts of the state, that is Keonjhar and Sundergarh under the support of District Mineral Foundation.
- b) Mission Shakti in partnership with OMM supports the establishment of millet tiffin centres and mobile food trucks in rural areas and Mission Shakti Cafes in urban areas, wherein these cafes provide millet-based hot cooked food items. These cafes are run and managed entirely by the Women SHGs and their Federations. Selected Women SHGs are supported with 448 Ragi threshers for value addition to millets. 104 Millet Shakti tiffin centres are opened in rural areas and 33 Millet Shakti Cafes have been set up in urban areas (Department of Mission Shakti, Government of Odisha, 2021-2022).
- c) Women SHGs are involved in massive awareness campaigns targeting increasing household level consumption of millets. Providing livelihood and promoting entrepreneurship opportunities among the Women SHGs is the main aim behind forging the convergence with Mission Shakti and Department of Women and Child Development.

### **6.8 Challenges faced by Facilitating Agency in implementation of the program**

Millets cultivation is mainly done for self-consumption purposes. Majority of upland area, suitable for millet cultivation, are now shifted to meet requirements of cash crop cultivation like eucalyptus and horticulture plantation like coffee, cashew etc. This presents a challenge as farmers in Kundra block have switched their land to cash crop cultivation like eucalyptus. FA convinces and mobilizes farmers about the benefits of millets cultivation and not to shift entirely to cash crop cultivation.

*When we go to the field if farmers have upland and we ask them to cultivate millets then they say that why should we cultivate millets and what benefits will we get if we do millets. Those farmers do different types of cultivation. Leaving that cultivation and doing millets is a challenge. We need to make them understand that government is procuring millets now and you will get better price if you sell your produce to government. They understand also but these are the challenges we get.* Said Additional Block Coordinator, Harsha Trust, Borigumma on 06<sup>th</sup> October 2021.

*Farmers know that income can be earned from ragi also but 10 years ago they have started cash crop cultivation. Millet Mission has come recently and it has only been 3*

*years that procurement has started. They are associated with one crop and they are continuing with that.* Shared Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> September 2021.

Since farmers are cultivating millets in less quantity of land, they often get problems in bringing huge quantity to mandi (collection centres). Coordination needs to be made by Facilitating Agency to facilitate the transportation of farmer's produce to the mandi points. Because of a large number of farmers, everyone coming on the same date for mandi is a problem as due to labour shortage FA cannot procure in one single day.

*Farmers get a problem if they bring huge quantity to mandi. We need to coordinate by combining the produce of 4-5 farmers then we take the produce to the panchayat and then mandi which is like another 10 kms from panchayat. But there is a problem in coordinating the transportation of the produce on the date mandi is fixed. But farmers do not come on the allocated date. If everyone comes at the same date then that is also a problem and if they do not come then that is also a problem. We divide the number of farmers and decide how many farmers can come and how much can we procure. So we need to manage that. Suppose on the procurement day, maximum we can procure is 100 quintal, if there is more then we don't have labour, problem will be there and work wont get finished on that day.* Said Additional Block Coordinator, Harsha Trust, Borigumma on 06<sup>th</sup> October 2021.

Convincing farmers in adopting the methods of agronomic practices is challenging as most farmers consider improved methods as a time-consuming and labour intensive process. Facilitating Agency (FA) has a huge role to play in mobilizing farmers and making them adapt new methods and technology. However, challenges on this front were faced by the implementing agencies at the ground level.

*So when the OMM came up, making farmers understand the methods of SMI, LS and LT is challenging. Teaching them how to sow the seeds in line and using SMI process is difficult as farmers were thinking that this new method will require more labour. Because farmer doesn't make any calculations as to how much they are investing and how much they are getting the returns. So they don't do the accounting. So when they do the broadcasting they do not know how much they are spending on labour and weeding.* Development Assistant, MSSRF, Kundra on 21<sup>st</sup> September 2021.

At the time of introducing the program, problems such as the program not being received well by the stakeholders involved cropped up. In addition, Facilitating Agencies are overburdened with Millets Mission related work apart from other work. Limited allocation of resource persons leads to shortage of manpower to carry out the work under OMM. CRPs continuous leaving the job due to strenuous work profile create challenges as reorienting new field level professionals is time and resources consuming process.

*Initially, at the block level and district level, people did not understand the program. Now if you see a lot of government departments are working together but NGO will not work in that direction. So NGO will have a lot of work. In the midst of all the work NGO has to do Odisha Millets Mission work also so that is a form of challenge. Not all the people come in the meeting because they have some other work also. District Project Coordinator, Odisha Millets Mission on 10<sup>th</sup> October 2021.*

*CRPs leave the job and then we need to orient new CRPs. This leads to quite a wastage of time and resources to train the new CRP. District Project Coordinator, OMM on 10<sup>th</sup> October 2021.*

Mobilizing tribal farmer's registration and procurement process was challenging during the initial years. Arranging mandi (collection centres) system is challenging as farmers live in interior areas. Farmers ignorance about the procurement process in terms of quality norms of the product government wants to procure from farmers. Many farmers do not have their land patta (documents) with them as farmers have given their documents to some other organizations working in the region. Lack of land documents with farmers creates problem during the registration process. Money lenders lending money to the farmers often force them to let him sell their produce on his behalf through procurement to get the loaned money back.

*The process of registration from government is little difficult. Time for registration is very less and farmers do not have all the documents as well as land patta. Some people have patta details, some don't have, some don't have correct bank details as in account is in dormant state, they have opened the account but there is no money in the account. So because of that not every farmer is able to register. Said Team Leader, PRADAN, Lamtaput on 15<sup>th</sup> March 2020.*

*Initially in the procurement system, farmers were not acquainted with what kinds of grain they should be giving. There were a lot of unwanted materials in it. Moisture content was also a problem in the initial days. So farmers were given some polythene and time so that they can dry their ragi and sell their produce during procurement time. Said Block Agriculture Officer, Agriculture Technology Management Agency (ATMA) in Kundra block of Koraput district on 22<sup>nd</sup> September 2021.*

A tremendous work pressure is on Facilitating Agency in terms of imparting training. Training is mostly organized at the block level which restricts the participation of farmers due to which many farmers coming from villages find it difficult to attend due to various reasons. Reasons could be engagement in agricultural operations, distance from village to block, transportation and communication issues. As these trainings are technical in nature, these cannot be delivered during harvesting season and had to be imparted during rainy season which makes farmers loose on these training sessions as they do not wish to come to block during rainy season.

*Another challenge is in imparting and conducting training for people. So to conduct training we need manpower. Team Leader, HARSHA TRUST, Borigumma block on 06<sup>th</sup> October 2021.*

*We cannot give the training to people in villages, for that people need to come to blocks. Some trainings which are technical in nature such as SMI, LS, and LT as well as how to produce seeds, preparing seed farmer and others, so we cannot give those trainings during the harvesting season. So these trainings happen at the block level and villagers do not wish to come to block during rainy season. So if we get some extra budget, training can be delivered in villages. Said Swarupa, Block Project Coordinator, PRADAN, Lamtaput on 14<sup>th</sup> March 2020.*

Training and capacity building workshops being held at the block and district level restricts the participation of farmers in these programs as transportation often becomes challenging. Farmers also remain engaged in other work and does not wish to lose out on a day's wage by attending these training events.

## **6.9 Constraints of farmers related to Millets Mission**

The government generated surplus in an acre land cultivated for millet is 2 quintals. The surplus generated is very less in comparison to the current yield of farmers. Farmers are left with much more surplus to sell even after keeping some quantity for self-consumption purpose. The

problem arises as government is not ready to procure the excess quantity. The excess quantity gets sold by farmers at the local haat (weekly market) at a far lesser price than the MSP of finger millet.

*Another problem is that in 1 acre only 2 quintal is the surplus that is generated. So the government procures only that amount. And the quantity produced is much more than 2 quintal. The government will not procure the excess amount. If the farmers are producing more than the government is not taking responsibility for the excess quantity produced. Farmer will take huge quantity to the mandi and if the government doesn't buy that is another headache. Then they have to sell the excess quantity in the open market.* Chief Executive Officer, Farmer Producer Organization, Borigumma on 06<sup>th</sup> October 2021.

*Now in 1 acre the yield is 8-10 quintals. But the surplus for 1 acre is only 2 quintals. Most of the quantity remains to be sold which people sell it in local market. If value addition can be done then it would be good. FPO has a plan for value addition. For that processing unit needs to be there.* Shared a Community Resource Person during FGD in Nandapur block on 28<sup>th</sup> September 2021.

Many landless farmers belonging to SC and ST community in some of the studied blocks are cultivating millets on forest land. But they do not get recognition to sell ragi through procurement which acts like a limit for landless farmers to avail government procurement channel. However, this problem has been addressed through the intervention of self-help groups and the Facilitating Agency in Borigumma block. Farmers who have got land to cultivate under Forest Rights Act through Welfare Extension Officer are being registered for procurement.

*Many people do millets cultivation on forest land. They do not get government recognition to sell mandia in mandi. This is a challenge. Now also we have this challenge. Landless people do millets cultivation in forest land. These landless people belong to SC and ST community.* Additional Block Coordinator, Boipariguda block on 26<sup>th</sup> September 2021.

Since millet cultivation is a labour intensive process, women farmers have reportedly demanded machines to ease the harvesting and cleaning process. Most of the small and marginal farmers could not afford harvesting through tractors as the cost of renting a tractor for a day for harvesting purpose is Rs 1000. Substitute machines would be appropriate for harvesting operations.

*We need machine to cut mandia as the plant is little thick and difficult to hand manually. A woman farmer from Nandapur block on 28<sup>th</sup> September 2021.*

*We only want cutting machine. We can grow millets only in kharif as there is water shortage in this area. We have grown potatoes only in this year as earlier we could not grow potatoes due to water shortage. A woman farmer from Lamtaput block on 02<sup>nd</sup> October 2021.*

Farmers are vulnerable to market prices. Their crop choices are increasingly determined by the value of the crop in the market and when the market price crashes down, farmers suffer huge financial as well as crop loss. This trend is increasingly seen in case of cash crops. Informal communication and by learning from each other farmers cultivate the crop.

*We are incurring losses in potato and ginger as market is down for potato and ginger at present. We all were motivated by the increasing prices of ginger and potato in the market. The production of potato and ginger is more here but the market got very down. All are growing potato and ginger by looking at each other's crop production. A company from Deomali (a place in Koraput)) gave potato and ginger seeds to us to grow. Here we did not have much ginger production. There is not much demand in the market so we have suffered losses in that. Since prices are low so we are keeping it for drying and then packing and then continuing the process to prevent ginger from rotting. An indepth interview with a woman farmer from Lamtaput block on 03<sup>rd</sup> October 2021.*

## **6.10 Chapter Summary**

This chapter sheds light on the impact of OMM on women farmers to revive millets in farms and on plates. The program is implemented through engagement of diverse stakeholders and a decentralized mechanism with creation of community based institutions at the block and GP level. The implementation process reveals that proper coordination between stakeholders and capacity building of various groups involved in revival of millets at the GP and block level is crucial for successful implementation of the program. Constant handholding support and mobilization at each level provides motivation to the women groups, whose involvement is paramount in sustaining and reviving an important food crop.

The chapter further highlights the challenges faced by various stakeholders in implementing the program and whether women farmers are benefitting from the millet intervention or not. Finally, the section on opinion of women farmers about the Millets Mission explores whether or not the intervention is aligned with farmer's choice to produce millet or it reflects farmer's market dependency to produce cash crops.

It is found that FA performing various responsibilities have positioned the agency as an important actor in delivering the program at the village level. However, constraints faced by FA in implementation of the program are manifold. Mobilizing and shifting the mindset of farmers is a challenging task. In addition, coordination for procurement requires FA to facilitate the transportation of farmer's produce to the procurement collection centres which is a time consuming activity and overburdens the manpower of the FA. Facilitating Agencies are overburdened with Millets Mission related work apart from other projects that the NGO has to deal with. Limited allocation of manpower to FA to carry out the work under OMM.

Community Resource Persons (CRPs) play a crucial role in the implementation of OMM under the guidance of Farmer Producer Organization. However, challenging workload and less number of CRPs to manage after the work of OMM in block level is burdensome for CRPs which affects their performance and target achievement. In addition, less remuneration and strenuous work profile of the CRPs are a demotivating factor.

Establishing community based institutions such as Community Seed Centre, Custom Hiring Centre and Bio-input manufacturing units at the GP level supply farmers with the input needs such as locally preferred seeds and bio-organic manure and farm equipments aiding the farming process. However, challenges such as inadequate infrastructure to keep seeds, financial constraints for maintenance and delay in disbursement of rent for the store houses hinder the effective storage and management of seeds. This ensures that women farmers have access to resources essential for millet farming.

Women farmer's expertise and engagement with the millet ecosystem as custodians of seeds and indigenous knowledge is crucial for ensuring the preservation and quality of millet seeds. Participation of women farmers in the millet value chain indicates the active involvement of women farmers in the pre and post-harvest processes. Local seeds are widely used by the farmers for cultivating millet. However due to mixing up of seeds, local seeds have gradually lost out on their indigenusness. This reduces the yield of millet.

Women farmers face challenges on three fronts in reviving millet. These are production, processing, and procurement and marketing difficulties. Production challenges result from a lack of policy attention to millet growers. Absence of marketing facilities, low prices of millets, and low consumption of millets have contributed to millets being neglected. Lack of research on agronomic practices, following traditional broadcasting methods, shifting of land from millet to cash crops, shortage of labour, reduced fertility of the soil, erratic rainfall, lack of irrigation facilities, and reluctance on the part of farmers to adopt improved practices further affect the yield of millet.

Challenges discussed in the section relating to production highlight factors such as lack of proper storage of seeds, transplanting saplings on time, manual weeding, shortage of labour, climate change effects and shifting of land from food crops to cash crops indicating changes in the economy because of market integration state policies. These challenges should be investigated through a gender lens, as it threatens women's position in agrarian landscape by intensive use of women's labour on one hand and keeping them on fringes without securing their land titles, access to resources, production and consumption choices. Furthermore, food, nutritional and livelihood security issues are implicated upon women from marginalized and poor communities through gradual shifting of land from growing food crops to cash crops, over which women has little autonomy (Mitra and Rao, 2021; Patnaik et al., 2017). Adopting a gender lens by situating women at the core of agriculture and food policies, owing to their pivotal role would shift the policy focus towards sustaining agroecology farming practices to revive millet, pulses, and local oilseeds based diverse food system of India.

Lack of appropriate processing facilities at the village level, low quantity of raw material processed, inadequate knowledge on processes of proper harvesting, lack of standard and efficient processing technology, uneven size of grains, drudgery of women in cleaning and presence of impurities in raw material are some of the factors which constricts the development of processing sector for millet. Limited window opening of procurement channel, absence of marketing channel apart from procurement, distance issues and lack of storage spaces along with issues with farmer's registration and registration cards are some of the issues farmers reported facing in the implementation of the program.

Women farmers have significantly benefitted from the OMM in terms of increase in yield, knowledge enhancement regarding production, harvesting and value addition, access to resources, and market support. Increase in millet yield from an average of 1-2 quintals in an

acre to 8 quintals per acre has significantly contributed to an enhanced household food self-sufficiency. With the support of OMM, farmers have been able to go beyond self-consumption stage and create a surplus for commercial purposes. Supporting farmers by procuring ragi at MSP has provided a stable price unlike the volatile and unorganized local market. Procurement and incentivizing millet farming through improved practices have encouraged more number of farmers to cultivate millet.

Procurement of ragi at MSP has also led to a raise in the price of finger millet from Rs 10-15 to a rate of Rs 30 per kilo gram in local market during favorable season. Contradiction can be seen in the activities promoted by OMM and farmers exercising of choice. Even though, the government promotes agronomic practices to reduce the environmental degradation and dependence on external resources, farmers showed reluctance on the adoption of agronomic practices that aims to increase millet yield by cultivating millet in a mono-culture fashion. The practice of cultivating millet as a mono-culture crop is shifting people away from traditional practice of multi and mixed farming culture which could have disastrous impacts against monsoon failure leading to productivity loss and a threat to agro-biodiversity.

Due to absence of mandate from OMM to register women farmers specifically for farmer's registration under procurement system, various factors such as illiteracy, lack of mobility, difficulties in comprehension and non-availability of accounts and subsequent non-updation of account details, long procurement procedures create hindrance in the process of farmer registration for procurement in the name of women farmers.

Limited surplus generated of 2 quintals in an acre of land compels farmers to sell the remaining surplus in the local market. This fetches a far lesser price for millet at the local haat than the MSP. Since millet farming is a drudgery laden process for women farmers, respondents have reported to demand machines to ease the harvesting and cleaning process. Substitute machines would be appropriate for harvesting operations. Farmers are vulnerable to market prices. Their crop choices are increasingly determined by the market and when the market price crashes down, farmers suffer huge loss. Informal communication and by learning from each other farmers cultivate the crop.

## Chapter 7

### FPO in Odisha: An outcome of Odisha Millets Mission

This chapter discusses the work and functioning of Farmer Producer Organizations (FPOs) envisaged and promoted under the OMM. A Farmer Producer Organization (FPO) is a society/company consisting of practicing farmers regardless of landholding status, who are actual producers of a commodity/commodities<sup>98</sup>. In legal terms, FPO can be registered under Cooperative Societies Act/Multi State Cooperative Society Act, 2002/Society Registration Act, 1860; Indian Trusts Act, 1882; Indian Companies Act, 1956.<sup>99</sup>

Section 7.1 depicts a brief institutional architecture of emergence of FPOs in India to situate the discussions on FPOs in the succeeding sections. Section 7.2 discusses the role of FPO under OMM. Section 7.3 provides a brief of background and basic structure of FPOs in selected blocks of Koraput district. Section 7.4 discusses the activities of the FPO and work done by these entities in their respective blocks. Section 7.5 elaborates on the functions of SHG and Producer Groups linked with FPO. Section 7.6 reflects on the benefits and support derived by women beneficiaries by joining FPO. Section 7.7 discusses the future plans of the FPOs. Section 7.8 delves into challenges faced by FPO in its operation.

#### **7.1 Brief institutional architecture guiding the formation and promotion of FPOs in India**

This section reviews the institutional architecture guiding the formation and promotion of FPOs in India. This specifically focuses on two policy guidelines issued by the central government. One is the Policy and Process Guidelines for Farmer Producer Organizations issued by the Government of India in 2013 and the second document referred to is Operational Guidelines for the formation and promotion of 10,000 FPOs issued by the Government of India in 2020. FPO was initiated to be a farmer's organization for the purpose of organizing small and

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<sup>98</sup> For more information, please refer to Department of Agriculture and Farmer's Empowerment. (2018). "Odisha Farmer Producer Organizations FPOs Policy". Government of Odisha.

<sup>99</sup> For more information, please refer to <https://milletsodisha.com/resources/publications>.

marginal farmers to ensure forward and backward linkage to the market for leveraging collective production and marketing strength. The formation and promotion of FPOs is supported by the central and state governments by utilizing funds from the central and state agriculture schemes. (See **Figure 7.1**).

### **7.1.1 Role of central government in promoting FPOs**

The central government, primarily the Department of Agriculture and Cooperation (DAC), first introduced a pilot program to promote FPOs in 2011-2012. The pilot program was run in association with state government, implemented by Small Farmer's Agribusiness Consortium (SFAC). Implemented under the two sub-schemes of Rashtriya Krishi Vikas Yojana (RKVY), the program aimed to collectivize farmers to facilitate technology provision, productivity improvement and access to resources. The pilot created 250 FPOs with an average membership of 1000 farmers each across several states under the agricultural scheme of RKVY (Department of Agriculture and Cooperation, 2013).

The central government governs the operation and regulatory role in supporting FPOs in the country. Department of Agriculture and Cooperation (DAC), Ministry of Agriculture, Government of India is the nodal agency for the development and growth of FPOs.<sup>100</sup> Small Farmers Agribusiness Consortium (SFAC), a designated agency under DAC provides technical support, training needs, looks after research and knowledge management aspects and links the FPO with input suppliers, technology providers, extension and processing and marketing players. National Cooperative Development Corporation (NCDC), National Agricultural Cooperative Marketing Federation on India Ltd (NAFED), and National Bank for Agriculture and Rural Development (NABARD) are the other central government agencies, working towards supporting the FPOs under its various programs. FPOs act as procurement agencies under MSP operations for various crops under DAC in collaboration with Food Corporation of India (FCI). NABARD supports FPOs with credit provision for working capital and infrastructure needs.

### **7.1.2 Role of state government in promoting FPOs**

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<sup>100</sup> Please see, Department of Agriculture and Cooperation. (2013). "Policy and Process Guidelines for Farmer Producer Organizations." Ministry of Agriculture. Government of India.

Besides central government, state government plays a crucial role in supporting FPOs. DAC issues suggestions for the state government to support and strengthen the FPOs. State governments can recognize FPOs as an equal institution with the state cooperatives. State can declare and encourage SHGs, federations and other such collectives to register for FPO under the relevant state legislations. State government makes provisions for FPOs to trade in inputs (seeds, farm machineries, organic manures, fertilizers, etc). State government empanels FPOs as procurement agents for MSP operations for various crops. FPOs are promoted as implementing agencies for various agricultural development programs and wage programs such as RKVY, NFSM, ATMA, MGNREGA, etc (Department of Agriculture and Cooperation, 2013).

### **7.1.3 FPO promotion in Odisha**

The state government of Odisha supports and promotes FPO through its Odisha FPO Policy, 2018. The Directorate of Agriculture and Food Production is the state government agency to promote FPO under OMM in the state of Odisha. The Odisha government supports FPO by making provisions for easy licenses to FPOs to enable them to trade in inputs like seed, fertilizer, farm machinery for the member's use. The FPOs under the Millets Mission are supported as producers of local variety seeds along with extending production and marketing subsidies. Directorate of Horticulture is appointed as the coordinating Resource Institution<sup>101</sup>(RI) for the state. Line Directorates under the Directorate of Horticulture serve as RI for the FPOs in their relevant fields.

Each line department is served by their own RI. These RI creates the Project Management Unit (PMU) at the Directorate level. RIs are responsible for ensuring steps and process required to establish a FPO. An Information and Support Centre is established at the Directorate of Horticulture under Department of Agriculture and Farmer's Empowerment. This centre includes database and website management containing information relevant for the FPOs and important activities undertaken by the FPOs. For the purpose of review and monitoring of RIs and POPIs, State Level Consultative Committee (SLCC) and District Level Consultative Committee (DLCC) is set up (DAFE, 2018).

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<sup>101</sup> Resource Institutions (RIs) are the empaneled agencies under SFAC which provide inputs and capacity building trainings and links the FPOs with market players, input suppliers, technology providers, etc.

#### 7.1.4 Guidelines to promote FPOs in India

Policy and Process Guidelines for Farmer Producer Organizations, designed by the Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, in 2013 largely governed the formulation and promotion of FPOs. In 2020, the operational guidelines released by the government is a recent initiative to promote 10,000 FPOs by 2024 (Prasad et al., 2020). The new program provides a holistic and supportive ecosystem to form 10,000 new FPOs to give a boost to farming sector in the country. The new FPO policy integrates the cooperatives into the FPO fold through the National Cooperative Development Corporation (NCDC). “Produce Cluster Area<sup>102</sup>” is proposed for formation of FPO and identification of cluster area by adopting a particular commodity based FPO (One District One Product Approach).

At the national level, SFAC sets up the National Project Management Agency (NPMA). The role of the NPMA is to provide handholding support to and mentor the Cluster-Based Business Organizations (CBBO). Three Implementing Agencies have been proposed by the government to foster the promotion of FPOs in India. These are SFAC, NABARD and NCDC. Implementing Agencies are responsible for setting up the Cluster Based Business Organizations (CBBO) at the state or cluster level. Implementing Agencies work closely with the CBBOs to make them an economically sustainable organization. However, CBBOs assist in implementation of the program as per the program guidelines and support in community mobilization work, registration of FPOs, training and capacity building, preparation and execution of Business plans, and have regular coordination with stakeholders such as government agencies, financial institutions, etc (Government of India, 2020).

For the successful implementation and monitoring of the formation and promotion of FPOs three tier system at the national, state, and district level has been institutionalized. At the national level, Project Management Advisory and Fund Sanctioning Committee (N-PMAFSC) is constituted in DAC&FW. Its responsibility includes coordinating with the Implementing Agencies, State Level Consultative Committee (SLCC) and District Level Consultative Committee (DLCC). At the state level, State Level Consultative Committee (SLCC) is

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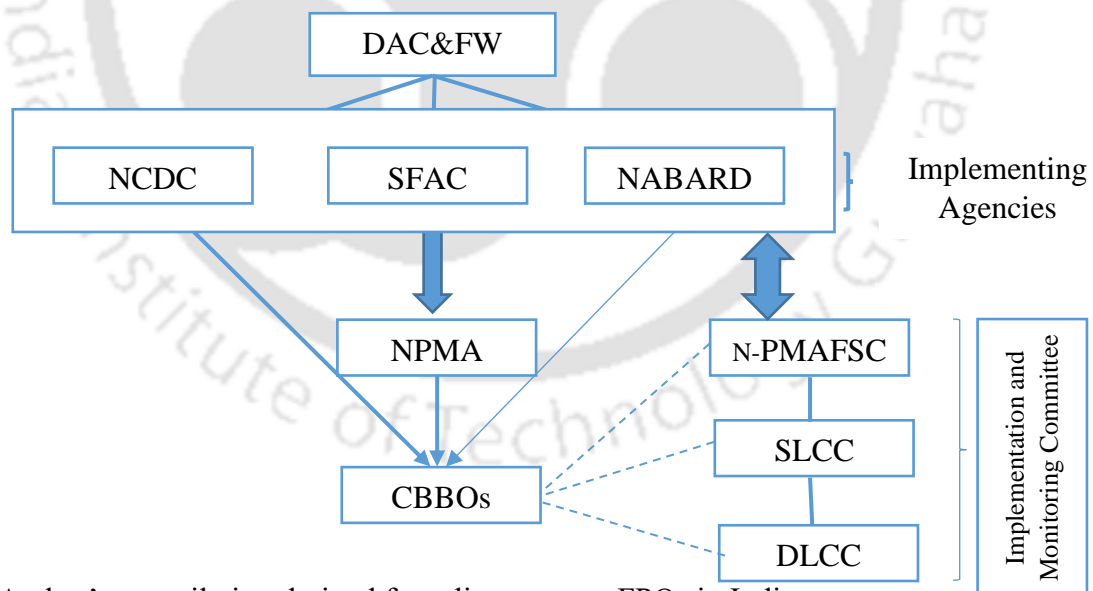
<sup>102</sup> This indicates a geographical area of specialized product in the field of agriculture or horticulture for the purpose of FPO formation to leverage the strength of collectiveness and the economies of scale. Please see, Department of Agriculture, Co-operation and Farmer’s Welfare. (2020). “Formation and promotion of 10,000 Farmer Producer Organizations (FPOs) Operational Guidelines. Ministry of Agriculture and Farmer’s Welfare. Government of India.

proposed to be constituted to review the progress and challenges faced by the FPOs. A District level Monitoring Committee (D-MC) is constituted for ensuring effective coordination among the stakeholders for effective implementation of the program<sup>103</sup>. An institutional framework supporting the formation and promotion of FPOs is depicted in **Figure 7.1**.

## 7.2 Role of FPO under OMM

FPO acts as an implementing organization at the block level for OMM. The nodal CBO functioning at the village level in every block takes the form of a Farmer’s Producer Organization. A CBO is chosen as the Program Implementing Agency (PIA) through floating an Expression of Interest. CBO/FPO, FA and CDAO enters into a tripartite agreement for implementation of the program at the GP level. CBOs are entities functioning at the village level comprising of individual men and women farmers, women SHGs, and Producer Groups. CBOs has a history of working towards strengthening the livelihood activities and addressing the challenges faced by villagers in agricultural operations before the intervention of OMM (Balam and Sharma, 2020).

**Figure 7.1** Institutional architecture supporting the formation and promotion of FPOs in 2020



*Source:* Author’s compilation derived from literature on FPOs in India.

<sup>103</sup> Please see, Department of Agriculture, Cooperation and Farmers’ Welfare. (2020). “Formation and Promotion of 10,000 Farmer Producer Organizations, Operational Guidelines”. Ministry of Agriculture and Farmers’ Welfare, Government of India.

Sometimes, Community Based Organizations working at village level are structured and registered as FPO/FPC. Sometimes women SHGs at ground level are brought together to form a FPO. Other Producer Groups, comprising of men and women farmers are also brought together and structured as FPO.

Under the Millets Mission, role of FPO is to facilitate community mobilization and undertake selection of beneficiaries under the program. CRPs are engaged for the program and FPOs monitor the work done by CRP. FPOs anchor community level institutions such as the Community Managed Seed Banks, Millets Processing Unit, millet value addition, and Custom Hiring Centre. Seeds preservation, production, supply and selling happen through establishing CMSBs. Community CHCs supply farmers with different agriculture equipments like weeder, sprayer, sprinkler, etc. to be used in farming operations. FPO work towards improvement of production and productivity of millets as well as facilitating market linkages for higher value realization for millet farmers (Government of Odisha, 2019). The formation of FPO is envisaged to achieve following two objectives.

1. FPOs deal with challenges and constraints confronting farmers by banking upon collective strength of farmers to access financial and non-financial inputs, services, technologies, linking farmer's products with high value markets.
2. The FPOs also offer forms of collective strength in planning and bargaining for production, procurement and marketing.

FPOs act as platform for small and marginal millet farmers to collectively sell processed millets and value-added products of millets (Government of Odisha, 2019). Revenue for FPOs is sourced from supply of products like locally produced seeds of different varieties of millet crops, bio-manures and bio-pesticides, processed grains and value-added products. FPOs also have provisions for supply of services like primary processing of millet grains, farm implements on hiring basis and storage of seeds and other value added products. FPOs are entrusted to provide work orders under MGNREGA, access to agriculture and other department schemes, and opening of accounts as well linking those accounts to a DBT mode.

At the State level, a State Level Consultative Committee (SLCC) for FPOs is set up to foster growth and employment generation. At the District level, a District Level Consultative Committee (DLCC) is set up to monitor and supervise the functioning of FPOs. At the block level, FPO is governed by a Chief Executive Officer (CEO) who is appointed by the members of the FPO. The Board of Directors deal with key decisions like appointment of CEO,

determination of dividend to be paid to members and formulate organizational policies. The BoD is generally responsible for maintaining the books of accounts and other financial records. Chief Executive Officer (CEO) or Managing Director (MD) of the FPO is generally responsible for looking after day-to-day operation of the organization (Odisha Millets Mission, 2019).

CEO is responsible for carrying out the administrative work for the organization, and also assists the Board in planning and execution (Odisha FPO Policy, 2018). CEO of the FPO addresses the constraints faced by FPO members in a block on a day-to-day basis. The CEO conducts meetings of the FPO to arrive at collective decisions for the welfare of the FPO members. The membership of FPOs is restricted to real Primary Producers. The central level national policies recommend size of the FPO to be 1000 members. But the Odisha FPO Policy, 2018 has no strict specification regarding minimum and maximum number of members of FPO. In **Table 7.1** FPOs in 5 blocks of OMM intervention in Koraput district are shown.

**Table 7.1** Table showing FPOs and their structure in OMM intervening blocks of Koraput district

S.No	Block name	Facilitating Agency	Name of the FPO	Structure of the FPO	Total no. of members
1.	Boipariguda	Centre for Youth and Social Development	Sabujima Farmer Producer Co. Ltd	FPO with Producer Group	603
2.	Borigumma	HARSHA TRUST	Nari Pragati Farmers Producer Co. Ltd.	Farmer Producer Company with SHG	1526
3.	Kundra	MSSRF	Bamandei Farmers Producer Co. Ltd.	Farmer Producer Company	700
4.	Lamtaput	PRADAN	Koraput Nari Shakti Farmers Producer Co. Ltd.	Farmer Producer Company	757
5.	Nandapur	PRAGATI	Jaisri Farmers Producer Co. Ltd.	Farmer Producer Company	714

Source: Field study, Odisha, 2019-2021

### 7.3 Background and basic structure of FPO

FPOs are the 2-tier or 3-tier farmer led organizations with representation of farmers at every level. At the village development level, SHG forms the first tier of the FPO, which is a primary institution of farmers. One SHG comprises of 10-12 women. Combination of SHGs make one PG. One PG comprises of 150 women farmers. FPO is formed by combining the PGs. In Lamtaput there are 23 PGs. A cluster of villages or Gram Panchayats forms the second tier of FPO at the Panchayat development forum and at the Block Development level, block level formation becomes the third tier of the FPO (see **Figure 7.2**)

The FPO creation is not for the purpose of millets promotion alone. However, millets are an additional crop, which the FPO deals with. Under FPOs, different village level institutions such as Women SHGs, Village Organizations, Gram Panchayat Level Federation, Block Level Federation, Producer Groups and Pashu Samitis (Livestock Groups) perform business activities. These different institutions perform business activities with millet, vegetables, fruits, forest products, NTFP like (cashew, jackfruit, tamarind), mustard, little millet, livestock, etc. The main resource and livelihood activity in Lamtaput block is cultivating millets and NTFP products, but in Nandapur the main activity is vegetable cultivation. FPO facilitates the market linkage and transportation of locally produced vegetables, crops and other forest-based products.

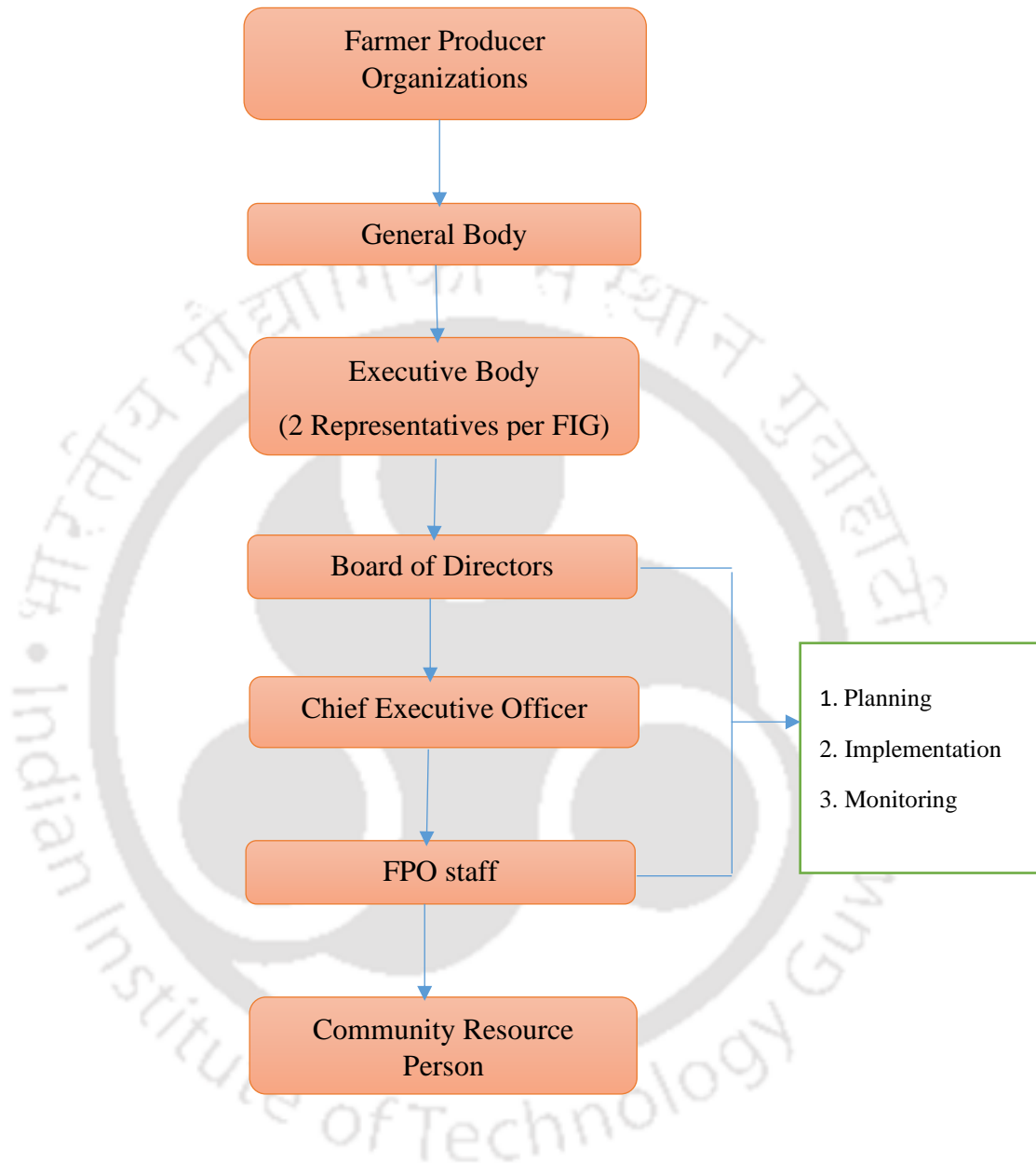
**Lamtaput:** Koraput Narishakti Farmers Producer Company, the FPO operating in Lamtaput block, got registered in 2012 and started working in 2013. By the end of 2020, Nari Shakti has promoted 1000 SHGs. PRADAN as a FA is operating in Lamtaput and Nandapur blocks of Koraput district. PRADAN looks after the operation of the FPO in both the blocks. OMM has provided support for business establishment, provision of services and strengthening of the business activity. For FPO in Lamtaput, support for training, meeting and awareness creation comes from a lead project PRADAN is working on with support from WALMART.

The FPO consists of 10 Board of Director members. Out of this 10, 5 are BOD members and 5 are Directors of the FPO. The number of shareholders in Lamtaput FPO ranges from 600 to 700. The cost of 1 share is Rs.10. The Chief Executive Officer and BOD members encourage other farmers to buy the shares of the company to enable maximum shareholders joining and benefitting out of the services of FPO.

**Nandapur:** Jaivik Sri Farmers Producer Company Limited is the FPO with 714 members. Registered in 2016 and supported by NABARD and OMM, its members are drawn from the 80 PGs distributed across 80 tribal villages covering 26 GPs of Koraput and Nabarangapur

district. The FPO is associated with the millets value chain and other agriculture products like ginger, potato, coffee, and turmeric.

Figure 7. 2 Structure of FPO



Source: Policy and Process Guidelines for Farmer Producer Organizations, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India, 2013.

**Kundra:** Bamandei Producers Company is the FPO operating in Kundra block. The company was formed in 2019. The FPO consists of SHG members at the village level composed of 500 women and 200 male members. Total number of members is 700. The Kundra FPO gets the major commission from procurement of ragi. There is one millit tiffin centre that gets managed by the 10 BoD of the FPO. Out of these 10 BoD, 8 are signatory members and 2 consists of

President and Secretary. Decisions regarding functioning of the FPO is taken by BoD. Regular meeting with the BoD members is need based. In these meetings, decision and planning regarding what products to sell and monitoring of the activities of the CRPs is undertaken.

**Borigumma:** FPO was formed in Borigumma in Feb 2020. The FPO looks after other work also apart from working on millets. In Borigumma, 24 PGs were formed in 2021. However, the CEO looks after the FPO of Borigumma and Kundra. The members are derived from 48 PGs from both Kundra and Borigumma blocks. FPO members come from 15 GPs spread across Borigumma and 30 GPs from Kundra. At the village level, Cluster Level Federation (CLF) consists of 2-3 SHGs. Members of the CLF also form a Producer Group. Members from the PG form the FPO members.

**Boipariguda:** Sabujima Farmer Producer Company Limited came into existence on 7<sup>th</sup> July 2021. Total number of PGs under the FPO is 68. 45 PGs were existing and 23 are added through the APC project of government of Odisha. The new PGs added have undertaken vegetable, livestock and horticulture produce related livelihood activities. These PGs comprises of SHG members. A PG comprises of 50-150 members. A PG is formed by combining 15 SHGs. A PG comprising of 150 members forms a cluster. A cluster is formed by combining 3-5 villages in a hamlet. The specialized product of a PG defines the prime livelihood activity of that particular cluster. The current shareholders are 603 members.<sup>104</sup>The shareholder fee is Rs. 200. As per the mandates of the FPO in Boipariguda, a shareholder is eligible to purchase 2 shares in the company. The current members of the FPO are drawn from the previous CBO that existed before the FPO was registered in 2017. The members belong to different social groups.

## **7.4 Activities of the FPO/FPC**

### **7.4.1 Procurement activities**

In order to strengthen the FPO and increase the outreach of ragi procurement initiative, FPOs were empanelled as procurement agency for Ragi procurement in addition to LAMPCS and PACS in selected blocks (OMM, Annual Report, 2020-21).

However, FPOs in only those blocks were empaneled where the surplus of ragi available for procurement was sufficient for FPO to generate net profit (OMM, Annual Report, 2020-21).

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<sup>104</sup> As per the data collected during field work in August 2021.

In Koraput district, FPOs from Lamtaput, Nandapur, Boipariguda, and Kundra block were empaneled for Ragi procurement in 2020-21. The FA in Borigumma facilitates the process of procurement and TDCC buys the Ragi procured by LAMPCs at the block level. Registration of farmers, supporting the awareness generation on ragi procurement, facilitating the loading and unloading process, generation of receipts and overseeing the procurement process is the work undertaken by the FPO. FA support farmers in registration for MSP procurement, communicate to the farmers about surplus generation, and generates a list of sellers.

*The support we have got is that we are procuring and selling the millet raw materials which saw an increase in millet production through SMI and LT through the support of OMM and FPO. In the year 2021, our FPC sold the millets to TDCC, so we got the commission as profit of Rs 6-7 lakhs. So on the ground, our FPC is procuring the millets from farmers and supplying it to TDCC.* Business Executive of the FPO in Lamtaput block on 03<sup>rd</sup> October 2021<sup>105</sup>.

*We facilitate the process of procurement. After checking the moisture and FAQ we take the produce and give them a receipt and then government directly transfers the money to the beneficiaries account. After procurement we directly shift it to godowns. We fix a place in the village where farmers can bring their produce and then we bring the produce to the mandi. To reduce the transport cost as distance between mandi and the village is 30-40km, we directly load the produce from village and take it directly to mandi.* CEO of the FPO in Borigumma block on 06<sup>th</sup> October 2021.

#### **7.4.2 Identifying business opportunity**

Identifying business opportunity to create a business plan is the foremost activity of the FPO. Business activities are based on the NTFP products, agriculture and horticulture produces of the region. Agriculture and horticulture products vary according to the season. They largely vary from mangoes, cashew, ginger, vegetables, tamarind, etc. The work of the FPO involves discussion with farmer groups in village to mobilize them to become members of the FPO. Through FPO, more farmers are joining and have started millets cultivation. FPOs also promote organic cultivation by engaging in preparation and marketing of organic manure and

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<sup>105</sup> The interview with CEO of the FPO in all the five blocks were conducted in hindi (most widely spoken language in India), by the researcher. The recorded interview was later transcribed by the researcher in English.

encouraging farmers to apply organic manure in their fields. For example, FPO in Lamtaput, buys products from market and supply the same to farmers at a lesser rate. This comes up as a way of doing activities in a collective way, which benefits farmers collectively.

#### **7.4.3 Scaling up of procurement activities**

One of the major activities is the scaling up of procurement activities through the support of FPOs in the districts where OMM is implemented. Scaling up procurement activities include adding new shareholders to the organization, supplying them with inputs and procure their millets for the FPO. Additionally, FPOs actively encourage farmers to not only sell clean and processed ragi to the government but also stress the significance of registering for procurement. It is also observed that due to known relationship, farmers prefer to sell their produce to the local traders. However, some farmers already have existing arrangements with vendors and they prefer selling their produce to them. These farmers face price fluctuations when selling their ragi at the market to vendors. On the other hand, selling their produce to the FPO offers them a fixed price, providing more stability. Convincing farmers to sell to the FPO requires significant effort on the part of the organization. FPO is making efforts to procure ragi from those farmers who are unable to sell their produce to the government and end up selling it to vendors from neighboring states like Andhra Pradesh.

*We are seeing how to increase the target of procurement from last year from our block and how to involve more people in registration and for mandi. We are working to ensure to add as much shareholders to the FPC as possible.* CEO of the FPO in Boipariguda block on 26<sup>th</sup> September 2021.

#### **7.4.4 Dealing with post-harvest operations**

Another role of the FPO is to engage in post-harvest operations such as processing millet seeds during post-harvest operations, including packaging, storing, supplying and distributing seeds to retailers and farmers. Seeds production is a collective effort, where farmers bring and keep their seeds collectively with the FPO. The FPO facilitates the collective selling of seeds to buyers who purchase the seeds on need basis. The FPOs were trained on the process of preserving quality seeds by using storage bins, tarpaulin sheets, weighing machines and moisture meters to measure the moisture content in ragi. Seed multiplication is undertaken under the agreement between the FPOs and the selected farmers of the concerned blocks. Seed

production is agreed under the defined terms and conditions and the mutually agreed price maintaining quality and the quantity. The main purpose of this process is to ensure easy access and availability of high-quality seeds for the farmers and to strengthen the FPO's capabilities in quality seed production and sales (OMM, Annual Report, 2020-21).

*We bring our seeds collectively and keep them with the FPO and then collective selling of those seeds take place. In the past one year, we have sold 23 quintal seeds collectively through the FPO. This is get done through FPO only at a collective level. And whosoever wants to buy the seeds they buy it from the FPO.* In-depth interview with a woman farmer member of FPO from Boipariguda block on 25<sup>th</sup> September 2021.

*We are explained how to do seed production and what techniques we need to use. We are even being given some guidance on marketing of the seeds. We have sold some seeds also. We sell the seeds procured from farmers to different traders, farmers, and different organizations.* CEO of the FPO in Nandapur on 29<sup>th</sup> September 2021.

*We are selling the seeds to the FPO. We are producing and selling local variety seeds such as kolakarengo, chilli mandia, bati mandia, bodo mandia, mami mandia<sup>106</sup>.* In-depth interview with a woman farmer from Boipariguda block on 25<sup>th</sup> September 2021.

#### **7.4.5 Managing Community Based Institutions**

Community based institutions such as Community Seed Centres (CSC), Custom Hiring Centre (CHC), Millet Processing Unit, Bio-input Centres, etc are managed by registered FPOs in each OMM implemented block. Additionally, FPOs engage in business activities by providing training to farmers on producing organic manure like “jaiveek khat<sup>107</sup>”, “amrutjal”, “handikhat<sup>108</sup>”, and “jeevamruta<sup>109</sup>”. They educate farmers on the ingredients to be used, their proportions, and the quantity of organic manure needed for field spraying. For example, in Lamtaput, the FPO offers an organic package to farmers. The package includes seed treatment

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<sup>106</sup> Local breeds of finger millet.

<sup>107</sup> Organic manure added to soil to increase the soil fertility

<sup>108</sup> Handikhata is the local term for organic spray used on plants to prevent pest attacks. It is prepared by mixing a killo each of pongamia leaves, calotropis leaves, neem leaves, cow dung, cow urine and jaggery and kept in shade for 10 days. A litre of handikhat is diluted with 40 litres of water and sprayed on the plants.

<sup>109</sup> Jeevamruta is a liquid organic manure prepared using termite soil, gram flour, jaggery, cow urine and dung and kept aside in shade for a period of 10 days. A litre of jeevamruta is diluted with 40 litres of water and sprayed using a sprayer.

for plant growth and jeevamrut, an organic medicine used to combat plant diseases. Moreover, FPO prepares and distributes various types of organic manure to improve soil fertility, control pests and combat plant diseases.

*We are also focusing on seeds preservation through community managed seed banks. We have established community managed seed system where seeds are produced, supplied and sold. Managing the CSB is the primary work of the CBO/FPO. Another activity is Community Custom Hiring Centre where farmers can hire the equipments required for farming and we can see more of community involvement there. The farmer is supplied with different agriculture equipments like weeder, sprayer, sprinkler, sewing machine, etc. It is also managed by the FPO. FPO has many shgs may be if it is a big shg it is considered as a CBO and the CBO is facilitated to become a FPO. AAO under OMM on 13<sup>th</sup> September 2019.*

#### **7.4.6 Creating consumption related awareness**

Increasing household level consumption is one of the primary objectives of the OMM. The FPO plays a crucial role in raising awareness about millets consumption among people. Farmers are encouraged to incorporate millets into their diet by preparing various millet-based items. FPO members actively communicate the nutritional benefits of consuming millets to the villagers through awareness campaigns, training sessions and workshops. To promote millet consumption, the FPOs organize 4-5 food festivals at the block level every year. During festive times, when there is a congregation of people, consumption awareness is being undertaken by the CRPs. FPO is also engaged in providing training in making different millet recipes and organizing exposure visits for women farmers to various places to facilitate exchange learning. However, the FPO takes the initiative to raise awareness regarding consumption and preparation of minor millets.

*Through FPO, we are telling them different recipes with value addition. We are also telling them to prepare different items during festival time and give them to their children to eat. So slowly slowly people are making different varieties such as laddoo, mixture, murukku. With little millet and foxtail millet people are making kheer. They are also learning how to make biryani with little millet. So slowly slowly we are giving them training so we hope that consumption will be increased. Development Assistant from MSSRF, Kundra block on 21<sup>st</sup> September 2021.*

#### 7.4.7 Value addition services

Value addition services include providing training to the women groups for millet recipe making and different items that can be processed out of millet. Till the completion of the field work for this study, not much progress has happened regarding value addition. However, procedures for opening millet tiffin centres were ongoing. However, the women farmers in FPO of Lamtaput are actively involved in value addition activities and they receive support for the same by OMM. The FPOs across the blocks are keen on exploring market linkages for their value-added products. Raw materials of ragi are supplied to shops and bakers who uses millets to make various products. Additionally, the women farmers of the FPO supply millet products to food festivals organized in nearby local areas. Moreover, the FPO in Lamtaput is also engaged in marketing of little millet. They sell little millet to vendors within Lamtaput, who, in turn, sell it to a company based in Nasik, Maharashtra.

*After FPO came, we got the training on value addition and we learnt how to make various eatables with millet, we got the market linage for our millet and we have also got new ideas now. After the procurement has started middlemen do not come. Indepth interview with a woman farmer from WSHG in Kundra block on 20<sup>th</sup> September 2021.*

*We need value addition for millet products and we want to sell those products outside. We have a tiffin centre in Kenuaguda. So we make jalebi, idli, vada, and all products made of ragi. People go to eat there. This tiffin centre is looked after by 2 SHGs and comes under FPO. Indepth interview with a woman farmer from Kundra block on 21<sup>st</sup> September 2021.*

However, value addition services of millet-based products is not in operation in other FPOs. Value addition chain requires a huge investment in terms of setting up of machines and infrastructure to produce different millet varieties. Engagement of WSHGs is envisaged in establishing millet tiffin centres in rural areas and Millet Shakti cafes in urban areas under the agreement of Mission Shakti, Department of Women and Child Development and Odisha Millets Mission. Establishing millet outlets is a part of promoting value addition component of millet value chain. These millet outlets are managed by the WSHGs and operate under the structure of FPOs. Revenue generated is adding to the other business activities carried out by the FPO. The main purpose behind establishing these millet outlets is to create a demand for millets in the state.

*Apart from this no value addition work is started right now. December onwards we are thinking of starting value addition work but the challenge is procurement work also starts in December so we need to engross ourselves in that. Value addition needs machine. We need to send some documents for machine. After the permission comes, we are planning to open 3-4 tiffin centres and for MDM in ICDS for providing ragi related meal atleast once a week like upma or soup so that children also like it. CEO of the FPO in Borigumma block on 06<sup>th</sup> October 2021.*

*We have not provided a marketing support for value added products as of now. We have the business plan for value added products but we haven't executed that but we are only doing that on trial basis. In terms of marketing we are dealing only with TDCC at present. Business Operator looking after the business activities of the FPO in Lamtaput block on 02<sup>nd</sup> October, 2021.*

### **7.5 Functions of SHGs and Producer Groups linked with FPO**

In a recent policy level decision of the Government of Odisha, involvement of WSHGs is envisaged in distribution of millets along with other food crops like pulses, oilseeds, fruits and vegetables through state nutrition programs. Emphasis is on promotion of regional recipes through the creation of demand for a local crop. The whole value chain involves production of these products under crop diversification interventions, procurement, processing, value addition and supply to beneficiaries. This has the potential to actively engage women SHGs in the creation of demand and supply chain around reviving and promoting a local crop<sup>110</sup>. From OMM, 150 women farmers from 10 SHGs are trained on how to increase the production and maintain a good quality of Ragi. In the 5 blocks, WSHGs are found to be engaged in following activities, description of which is given below.

#### **7.5.1 Engagement in various agricultural activities**

All the WSHGs in the blocks are engaged in agricultural activities deriving their livelihood from cultivating seasonal vegetables and engaging in selling of NTFP products. A project named Agriculture Production Cluster supported by ITDA supporting the vegetable production in a large scale is in operation in the tribal dominated districts by supplying vegetable seeds,

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<sup>110</sup> For more information, please refer to <https://en.gaonconnection.com/odisha-millets-mission-pulses-rational-malnutrition-anaemia-naveen-patnaik-women-empowerment-tribal-farmers>.

fertilizers, and machinery support in the blocks. This program is mainly implemented by the NGOs located at block level. Vegetables such as green peas, beans, chillies, brinjal, ginger, etc and the NTFP products like cashew, jackfruits, and mangoes are grown. Because of the huge harvests, SHGs linked with FPO is able to produce and sell vegetable crop in large quantity. Some of the SHGs also participate in mid-day meal preparation to be provided in government schools. These community-based institutions diversify their operations by working with millets, vegetables, fruits, horticultural products and NTFP<sup>111</sup> products which ensures crop diversification, diversification in diet and also income generating opportunities for these collectives.

*We are doing mushroom, vegetable cultivation in the shg. We also do value addition on rice products, ragi products. We do tamarind business also. We are also participating in mid-day meal preparation. A woman farmer with a WSHG in Kundra block on 21<sup>st</sup> September 2021.*

*We have got the work from horticulture department to cultivate mushroom. They will provide a house and the seeds. Rest of the money will be spent by the shg. We used to seasonal business. During the season of cashew, we used to do cashew and flax seeds. We used to do rice cultivation and millet farming and sell it through the shg. Whenever we require money either for household consumption or medical emergency or for children's education we used to sell mandia to the traders. A woman farmer from an WSHG in Lamtaput block on 02<sup>nd</sup> October.*

### **7.5.2 Millet eateries and value addition activities**

With the collaboration of OMM and Department of Women and Child Development, Government of Odisha, WSHGs are supported aided to establish 76 “millet tiffin centres” in 13 tribal dominated districts of Odisha<sup>112</sup> (Hindu Post, 2022). These millet tiffin centres are established to create a demand and acceptance for millet recipes amongst the public. By

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<sup>111</sup> NTFP refers to Non-Timber Forest Products. NTFP based livelihoods constitutes a major source of income for about 25% of labour force in rural areas (Rasul et al. 2008). NTFP comprises of products found primarily in forests such as leaves, fruits, raisins, seeds, bamboo, medicinal plants and other food products. For more information on the role of NTFP in livelihood generation for rural people, please refer to Rasul, G., Karki, M., Sah, R.P., (2008). “The role of non-timber forest products in poverty reduction in India: prospects and problems.”

<sup>112</sup> Please refer to <https://hindupost.in/business-economy/odishas-rural-women-set-up-76-millet-tiffin-centres-to-promote-millets/>

providing financial support to WSHGs in establishing millet eateries, WSHGs are promoted as entrepreneurs in making millet based value added products a lucrative business activity. Either a single WSHG or 2-3 or more WSHGs combine manage the operation of these tiffin centres. Women members prepare millet based items and ready to cook products and achieve financial sustainability by selling these items. A one-time grant of Rs. 30,000 per unit is provided by the OMM (Annual Report, 2020-2021). However, during the field work time, 19 millet tiffin centres were established in Bolangir, Ganjam, Mayurbhanj, Malkangiri, and Sundargarh districts. However, the process is not implemented at the same time in all the blocks and since the program is currently in operation, many tiffin centres are still getting established. Apart from this, the value-added products produced by these SHGs are also sold at fairs and exhibitions organized at both the state level and district level (Annual Report, 2020-21).

*It was a collective decision for doing millet kiosk by the shg. Expression of Interest was given to the ATMA. So ATMA selected the shg on the basis of monthly meeting, loan repayment, monthly meetings, book keeping, and savings. After selection also one recommendation was sent from the FA's side. The tiffin centre will finally be open in December this year. One resolution was passed from the shg that after receiving funds we will run the millet kiosk. Business Operator looking after the business activities of the FPO in Lamtaput block on 02<sup>nd</sup> October, 2021.*

*We are planning to open millet centre from nov dec onwards. We are planning to sell some millet items there. At the block level there will be 2 millet kiosks and 8 kiosks at the panchayat level. Block Coordinator, HARSHA TRUST, Borigumma block 06<sup>th</sup> October 2021.*

### **7.5.3 Managing Community Based Institutions**

Community based institutions such as CSC, CHC and bio-input and its operation and management by women SHGs ensures that women farmers are in the forefront of access to farm resources such as good quality seeds, farm implements and pest management resources. CSCs ensure access to superior quality seeds of different local varieties. The SHGs managing these institutions coordinate under the institution of FPO. The SHGs maintain records of daily operation and run these institutions as a revenue generating model by sharing inputs and equipment on rent basis by charging a nominal amount. In addition, maintenance and operation

of ragi threshers and processing units is also looked after by the WSHGs. In Boipariguda, SHGs are responsible for maintaining Ragi threshers provided for threshing, peeling, de-stoning and cleaning purposes. These threshers are movable within the GP and are rented by villages based on their harvesting schedule since it varies for each village. FPO facilitates the business activities of WSHGs.

*We have Community Seed Centre, CHC, Bio-input preparation centre to prepare jeevamrut, handikhat and amrutjal which is being managed by the WSHGs. We have a unit for that. Bio-input selling point. This is a selling outlet. We have 4 CHC, 4 seed centre. We have 3 seeds centre.* Block Coordinator, HARHSA TRUST, Borigumma block on 06<sup>th</sup> October 2021.

*The ragi thresher has been given to a SHG and its maintenance is the responsibility of that SHG. They can make business out of it and the money earned from giving it on rent can be utilized by the SHG for maintenance purpose. Since harvesting time is different for every village so thresher is provided on rent on demand basis.* Block Coordinator, Boipariguda block on 26<sup>th</sup> September 2021.

#### **7.5.4 Supplying ragi snacks to pre-school centres under ICDS**

SHGs are also involved in making ragi ladoos with the support of Mission Shatki and OMM to be supplied to anganwadi centres. Pilot is also being proposed to include ragi in THR and serve little millet khichdi<sup>113</sup> in anganwadi centres across state. At present, inclusion of ragi ladoos in anganwadi centres is operational only in Keonjhar and Sundagarh districts with the support of District Mineral Foundation. However, plan to operationalize the initiative is doing the rounds in other districts too. In our study district, the initiative is not still in operation.

#### **7.6 Benefits and support derived by women beneficiaries from joining FPO**

FPO is supporting women farmers through five verticals. First is the increase in production of millets. Through the application of improved agronomic practices and providing handholding support to farmers, FPO contributes toward enhancement of millet production by extending technological support. Second is increased focus on consumption. Through organizing food festivals and campaigns, providing training in making different millet recipes, organizing

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<sup>113</sup> Khichdi is an Indian dish traditionally prepared with rice and pulses. In little millet khichdi rice is replaced with nutritious variety of little millet. It serves as a nutritious dish which also sees an addition of seasonal vegetables.

exposure visits for women farmers, the FPO plays an important role in increasing household consumption of millets. Third is promoting women entrepreneurship and supporting livelihood through engagement of women shgs in millet promotion through establishing millet tiffin centres, millet kiosks and preparation of ragi ladoos for its inclusion in ICDS. Fourth is supply of products like locally produced or sourced seeds of different varieties of millet crops; bio-manures and bio-pesticides; processed grains and value-added products. Fifth is provision of services like primary processing of millet grains; farm implements on hiring basis; and storage of seeds and other value-added products. Details about the benefits and support extended to women farmers through FPO is described below.

### **7.6.1 Production skills**

FPO has taken over the program delivery at GP level. Skills relating to production enhancement such as seed treatment, raising nursery bed, training related to adoption of LS, LT, SMI, and weeding are delivered through FPO. CRPs working under the FPO deliver the capacity building and training support to other farmers.

*We have been given training on how to do seed treatment, raise nursery bed, how to do transplanting, and weeding. Training for pest disease management has also been given to us 10-15 days ago. How to register for mandi, how to clean the ragi in order to sell it to the mandi are taught to us by the FPO. We are also getting incentives for following SMI, LT. We are also telling all these to farmers who are not FPO members. Indepth interview with a woman farmer from Nandapur block on 27<sup>th</sup> September 2021.*

*We are able to learn new methods of cultivating millet such as through LS, LT. We have learnt and are able to make different varieties of millet recipes. We have learnt that with less quantity of seeds we can get a good produce. We have also learnt the organic way to produce millets and we can see that there is profit through increased yield. If we have a good produce, we can sell the ragi and we can also keep sufficient quantity for consumption at home. Indepth interview with a woman farmer from Kundra block on 21st September 2021.*

### **7.6.2 Collectivization**

FPO is the collective at the GP level that helps in aggregation, input and output supply chain. FPO leverage the power of collectivization to address farmer's constraints and challenges to access physical and non-physical inputs, services, technologies, knowledge building and value addition and market extension with private and non-private players. With Community Seed Centre, Custom Hiring Centre, and Bio-input centre under FPO supplying locally adapted seeds, farm equipments, and organic manure to farmers at a reduced rate, farmers are at cost advantage position.

*We are doing work collectively. If individually someone is going to the market to buy inputs for cultivation, then it costs them more. If they buy it from the company it would cost them less. We are making organic fertilizer and giving it to people. So if they buy the same product from the market then it will cost them more but through FPO it will cost them less as the FPO is itself producing these items as well as is buying it in bulk from the market. So that's why we are encouraging them to become shareholders of the FPO.* CEO of the FPO in Lamtaput block on 02<sup>nd</sup> October 2021.

Selling seeds in a collective way and creating market linkage with vendors is another advantage that members of the FPO are able to reap. These FPOs also contribute to the creation of livelihood and seeks to engage people who do not have productive resources in income generating activities.

*Community Seed Centre under the FPO does the seeds production. Farmers bring their seeds collectively and keep their seeds with the fpo and then they sell those seeds. We have sold seeds in a collective way. 23 quintal seeds we have sold in this year. This whole operation takes place in a collective way as they cannot sell seeds alone and that's too in a less quantity. This is get done through FPO only.* Director of the FPO in Boipariguda.

*If you are selling the seeds, then you will get the benefits. There are many lands where farming is not happening. Under APC project we are seeing as to how to do the farming in those lands. If a shareholder does not have land, then he or she can take loan and take the land in lease and he or she can invest in that land and get engaged in input or output business. We are also working in livestock like goat or poultry. He can also sell NTFP products.* Block head looking after functioning of the FPO in Boipariguda block on 26<sup>th</sup> September 2021.

Participation in FPO has enabled collective decision making at the village level. Since operating and managing millet tiffin centres is collective work, it involves collective decision making by 2 or more shgs.

*We are having shg monthly meeting on 5<sup>th</sup> of every month. We discuss things in the open. We do the collection for savings in presence of everyone. And everyone takes the decision collectively. For doing millet tiffin centre also it was a collective decision of the group.* Indepth interview with a woman farmer from Lamtaput block on 03<sup>rd</sup> October 2021.

### **7.6.3 Knowledge enhancement and access to resources**

Membership in FPO extends various benefits. Improved agronomic practices, seed production techniques, procurement, consumption awareness, recipe making awareness are the areas which is leading to knowledge enhancement among farmers. OMM is also providing machinery support for processing as little millet and finger millet is produced in huge quantity in Koraput district. Machinery support motivates FPO to ensure good quality and quantity of Ragi gets supplied to the government from FPO. Machinery support is extended in terms of providing weeder, sprayer, moisture meter for measuring the moisture content in ragi.

*We have got some machineries like thresher, cycle weeder, spray machine, moisture meter to measure the moisture content in millets through the FPO. Whatever machines and kinds of seeds we require we can take machines on rent from CHC and do our work.* Indepth interview with a woman farmer from Boipariguda block on 25<sup>th</sup> September 2021.

*All campaigns happen through FPO. Millet campaign, food festival campaign and training happen through FPO. So for training and all FPO brings these women farmers from village through CRPs.* Director of the FPO in Lamtaput on 03<sup>rd</sup> October 2021.

### **7.6.4 Procurement support and market linkage**

Farmer's registration enables FPO members to increase the number of farmers registered for the procurement. CRPs under FPO support and facilitate farmers in making mandi card. In Kundra, CEOs and CRPs from FPO have facilitated registration of farmers for MSP procurement. Initial years of ragi procurement by LAMPCs proved difficult for women farmers

to stand in line for days for procurement with LAMPCS. Without registration for MSP, women used to sell their ragi to middle-men at a cheap rate. House to house visit of CRPs from FPO for collecting necessary documents for registration prevented women from travelling to block.

*Registration was a big challenge for us. For that we learnt how many documents we need, why do we need to do it, all of this was a challenge. Procurement from LAMPCS was a bit difficult as we needed to stand in line for long hours. Sometimes we used to be sent off also by LAMPCS. But through FPOs, CRPs visit each and every household and collect documents for registration. But registration from LAMPCS was challenging. A woman farmer from Kundra block on 21<sup>st</sup> September 2021.*

Apart from aiding the farmer registration process, CRP does village visit to measure moisture content as per FAQ standards to ensure that ragi is ready for procurement and there is no time delay in making the product ready for procurement by the government. Also, to reduce the burden of farmers, FPO facilitates bringing the produce of farmers to the procurement centres.

*FPO is supporting and facilitating us for making mandi card. CRPs under FPO also visit the villages to measure moisture content in the ragi and they tell us how much should be the moisture content as per FAQ standards so that mandia could be sold at the MSP in mandi. In depth interview with a woman farmer member of FPO from Lamtaput block on 02<sup>nd</sup> October 2021.*

*FPO looks after where the mandi will set up, how collective marketing will be done, how the product will reach the godown. so for example in Boipariguda block there are 10 villages, the responsible person from FPO will collect the materials and bring it to mandi. So because of that farmer doesn't have any burden. And that reduces the burden of farmers. So FPO creates that strategy. Block Coordinator, Boipariguda block on 26<sup>th</sup> September 2021.*

Market linkage for other vegetable and horticulture crops apart from millet is also facilitated by the FPO. FPO also tries to link with additional sources of exchange.

*After FPO, not only for mandia but market linkage is facilitated for other vegetable crops also like for ginger, beans and potatoes. Here ginger is also cultivated along with potatoes and beans. FPO is working towards how to sell the other vegetables in the outside market*

*at a good rate.* In-depth interview with a woman farmer from Lamtaput block on 02<sup>nd</sup> October 2021.

## **7.7 Future plans of the FPO**

FPOs in selected blocks have not provided a marketing support for value added products at present. In terms of marketing only procurement of Ragi is secured with TDCC. Focus of the FPOs in selected blocks is in creating and enhancing business opportunities in value addition sector while continuing the procurement activity and other activities that FPO is engaged with. For example, In Kundra FPO, women farmers have expressed the desire to venture out in biscuit making activity to sell millet products outside. Selling products outside village came up to be an agreed channel for expanding business on value added products of millets.

*We want to do value addition and make multiple products out of millet. We want to set up the market linkage for selling our millet products. We want to set up a biscuit factory also. We want to sell the products outside.* Secretary of the FPO in Kundra on 22<sup>nd</sup> September 2021.

*We are planning for value addition of millet like establishing tiffin centre in Nandapur. For this we are associated with 2WSHG. Benefit will go to the shgs only. Later on we will increase it after seeing how the millet tiffin centre is performing.* CEO, FPO in Nandapur block 29<sup>th</sup> September 2021.

Establishing market linkage for value-added products of millets is one of the objectives of the Bamandei Farmers Producer Company Limited in Kundra. This is expected to fetch a better price too. Strengthening the FPO through increasing the number of shareholders is one way to increase the share of working capital to fund the business activities of the FPO. The FPO in Kundra plans to start the tamarind and cashew business in the growing season. Focus of the FPO is also on establishing processing facilities in the organization. Processing activities would include threshing, cleaning, making powder and pulverizing. Processing, cleaning and packaging millet is one of the channels to establish business activity that requires market linkage with private entrepreneurs. Millet tiffin centres work is being undertaken by different SHGs. Operation, management and making millet tiffin centre a sustainable business is the major goal of the FPO.

*We are giving them training on value addition, what items they can prepare with millets. Now our products get sold in local festivals and fests. We want to continue selling the stuffs and make a permanent market out of it as it is getting seasonal now. We want more money for that. For this we want maximum number of people to join our FPO as shareholders.* Secretary, FPO in Kundra block on 22<sup>nd</sup> September 2021.

*We are working to ensure to add as much shareholders to the FPC as possible. We have procured ragi more than the target last year from Boipariguda block and money for that still has not come to us. We are seeing how to increase the target of procurement from last year from our block and how to involve more people in registration and for mandi. Through our different projects we are also trying to provide them technical support like how to use technology to increase production of ragi, and get organic ragi production.* Block head looking after functioning of the FPO in Boipariguda block on 26<sup>th</sup> September 2021.

For the FPO in Boipariguda, the objective is to expand the scope of marketing opportunities with an aim to double the farmer's income. The FPO is focusing on capitalizing on the natural resources such as bamboo owing to its abundance in the block. To cater to the demand of millet seeds, production and selling of seeds is emphasized. Building a strong leadership among the women farmers to lead the FPO as well creating business and income generating opportunities for the development of farmers belonging to tribal community is the larger vision of the FPO in Boipariguda.

*Larger vision is how we can create social and economic opportunities in tribal areas amongst the farmers. Economic is from the point of view how we can create business and income generating opportunities for them. Since we primarily deal with women and want to establish business with them so from social point of view we are trying how create a leading leadership amongst women.* Block head looking after functioning of the FPO in Boipariguda block on 26<sup>th</sup> September 2021.

Transitioning from conventional chemical farming to organic cultivation of millets and vegetables is emphasized in Boipariguda block. There is a drive to boost millet consumption through extensive involvement of WSHGs by providing training to prepare different millet recipes for selling as well as prepare and supply ragi ladoos to ICDS. To supply millet items in the form of ragi ladoos and Take Home Ration (THR) to pre-school children, WSHGs are linked to anganwadi centres under ICDS program. For this purpose, FPC provides technical

and monetary support to women farmers. Under the technical training, women are trained on storage of ragi, preparation of ragi flour, and pre-mix for the ladoos. This not only ensures dietary diversity of pre-school children, but, will lead to enhancement of farmer's income ensuring livelihood support to WSHGs.

*Through some other project we have planned to take a few ragi and vegetable farmers on priority so that they can get involved and shift from fertilizers to organic mode of production so that production is more. We have also planned to increase consumption of mandia in households in 19 GPs some shgs are selected for making different eatables out of ragi to sell in the market. It is linked with ICDS program. We are trying to make various recipes out of ragi. So some shgs are selected for this and they are also being trained for this through FPC. They are also getting support and monetary help from this. CEO of the FPO in Boipariguda on 26<sup>th</sup> September 2021.*

### **7.8 Challenges faced by FPO in its operation**

Funds crunch is the major problem faced by every FPO. Lack of availability of a proper house to take on rent for an office. Lack of funds also limits the FPOs opportunities of doing business activities.

*We are not getting a proper house to take on rent for FPO office. We were thinking of credit system. That we will take loan from shg and that will enable us to do company's business. Due to lack of funds, we are not able to build a proper office and we are unable to do business also. The husbands of the women farmers taunt their wives by asking what profit are you getting by becoming a member in the company. Since not all the women farmers are getting equal benefit from the company so some of them are complaining about the benefit. Director of the FPO in Lamtaput on 03rd October 2021.*

Whereas in Kundra FPO, no facilities have been made as such for the purpose of processing. Moreover, absence of a physical office structure for FPO in Kundra creates difficulty in day-to-day business operations. Lack of capital and value-added machines are identified as constraints, which inhibit the growth of the business. Lack of funds also affects other business

activities of the FPO. For example, infrastructure needed to make big units of bio-organic manure cannot be procured and unit remains small which affects the motivation to upscale the business. Finalization of big units of processing machines by the OMM officials requiring 3 phase electricity whereas requirement is for smaller machines reflects the lack of coordination and collaboration between the officials of OMM and the implementing agency which is leading to misinterpretation of demands made by the FPO members.

*We do not have office structure; we do not have large capital. If we have enough capital to procure machineries like biscuit factory or mixture factory, then FPO can grow. We do not have enough funds to buy biscuit making machine so if we get government support it will be good. If we have value addition machines, then we can expand our business and sell products outside too.* Secretary of the FPO in Kundra on 22<sup>nd</sup> September 2021.

*We need ragi biscuit machine. We also need ragi cleaner machine to clean ragi. We also need a machine to make ragi powder. We need a ragi mill. The ragi thresher wont clean the ragi. The thresher will only separate the ragi seeds from the fingers. After that we have to clean the ragi seeds at home.* Indepth interview with a woman member of the FPO in Kundra on 21<sup>st</sup> September 2021.

Moreover, establishment of processing centre with value addition units is provisioned at the block level. Due to distance issues in addition to apprehensions of villagers to communicate with officials would obstruct the operation of the processing unit. Establishment of such units at the GP level proves more effective.

*At the block level, under Millet Mission plan was to set up one processing unit with biscuit making factory but it hasn't been finalized yet. So Millet Mission is saying to set up the processing unit at the block level. But it will be difficult for FPO members to come to the block level and manage its operations. Because, at the block level senior people will manage the operations according to their own way and village people get scared if they have to talk to a well-dressed person also. So they wont come to talk to that person. They will think that the person has come to take some information from villagers which will later harm them. Villager still have this mentality.* Development Assistant from MSSRF in Kundra on 21<sup>st</sup> September 2021.

In Borigumma FPO, challenges of low farmer registration for procurement results in low business activity for the FPO. According to the CRP working in Borigumma block, till 2021, 206 farmers are registered for procurement since 2018. Less time provided for farmer registration in addition to remoteness of the villages that are difficult to access during monsoon season is the reason cited for low number of farmer registration in Borigumma. There has been an increase in millet production but due to illiteracy of tribal farmers, it is difficult for them to follow the requirements of the government regarding procurement of Ragi. Because of the long bureaucratic process of procurement channel, farmers prefer to sell their ragi in weekly vegetable market and get an instant cash.

*For mandi procurement, farmers have to hire a transport, and there is delay in purchasing the ragi from the farmers. Farmers do not understand also. They have to wait for a day or 2 for the government officers to arrive or sometimes 1 week also. So in order to avoid that they will sell their ragi in weekly market. The price that the government is paying that is also not sufficient. There is so much demand of ragi in the area that other customers are also buying ragi in the same price so why would they sell ragi to the government. Moreover, if they are selling in the weekly market they will get the cash for their produce immediately. But if they are selling it to the government, transportation cost will be there and then they will have to wait to give their bank account details, so there is a communication problem. That's why people are not selling their ragi to the government much here. CEO of the FPO in Borigumma block on 26<sup>th</sup> September 2021.*

Lack of infrastructural facilities also pose a challenge. Lack of storage spaces, go downs, etc makes farmers wait for 2-3 days with their produce for the fear of theft on the day of procurement. Due to transportation and communication challenges, FA and FPO has to coordinate and facilitate the process of transporting farmer's produce to the procurement centres. Apart from the procurement, there is no organized marketing channel that exists. Moreover, limitation of the government to procure only 2 quintals of ragi in an acre of land compels farmers to sell extra produce through informal marketing channels. This creates a problem for farmers that fetch them low price after cultivating millet adopting improved practices. It was highlighted that threshers are not able to clean the Ragi properly. Ragi needs to be put in the machine 5 times to ensure cleaner ragi comes out. Using thresher requires more effort than cleaning manually. 2-3 WSHGs or PGs combined are responsible to operate these

threshers, which are often getting shifted between village to village as per requirement of the villagers.

*Production is more in Borigumma block but suitable market linkage is not there. Communication problem is there. Our work is to see that farmers products reach the market. We do not have godown infrastructure. Director of the FPO, Borigumma block on 06<sup>th</sup> October 2021.*

*We want that whatever we are producing needs to be marketed. The effort that has gone into production enhancement if all of their produce is not marketed then next year onwards farmers wont do this much of effort. We need decentralized processing units. We have many centralized processing units. The threshers that we have got is not working. CEO of the FPO, Borigumma block on 06<sup>th</sup> October 2021.*

In Boipariguda, illiteracy of the tribal women farmers create hindrance in the operation of the FPOs business. It is often that farmers sell their produce to traders or different vendors even when the deal is fixed with the FPO, when traders offer a slightly higher rate. There are also irregularities in the contract between the FPO and the buyer of their products. This leads to buyers, often, not adhere to the contract and purchasing the item from another party. FPO has to sell their products to a different vendor at a reduced price. Presence of other Ragi buyers in the market increases the competition, which poses a challenge for the FPO. Delay in surplus generation for procurement or urgent need of farmers for money push farmers to sell their Ragi to traders or other vendors in the local market at a distressed rate. This leads FPO to loose out on farmer's produce.

*Now MSP has also come and it is a good thing for ragi. But some people are there who are in urgent need of money or sometimes there is a delay in surplus generation so they sell their ragi to the traders or in the local market at a lesser price and earn money that way instead of selling it in the MSP rate. CEO of the FPO in Boipariguda on 26<sup>th</sup> September 2021.*

*Competition is there in the market. There are many other players in the market. So the competition in the market for buying ragi is pulling down the operations of the FPC. Block head of CYSD looking after the functioning of FPO in Boipariguda on 26<sup>th</sup> September 2021.*

Apart from fixing MSP for Ragi, there is no other viable market linkage shown by the government. FPOs are left on their own to explore market linkage for millet and millet-based products. FPOs seek the support of entrepreneurs and private agencies in order to create a market. In Nandapur FPO, problems in marketing have come up due to absence of proper processing machines. Pulverizer machines are at different locations, which creates difficulty in timely processing of millets. Processing machines are needed at village level to facilitate processing of millets. Ragi threshers are provided to Nandapur block, which is expected to improve the quality of clean ragi. Due to absence of processing machines at village level, women farmers are only left with the option of manual processing of ragi at home.

*At the village level, there is a problem of marketing as we do not have proper technology to properly clean it. Farmers were putting the ragi on ground so stones and dust was getting mixed. We were not getting a cleaned product. Now threshers are given so farmers can easily do their work and we are hoping that we will get improved quality. Pulverizing machines are at different locations and communication is difficult. We need machines at the village level atleast cleaner and pulverizer.* CEO of the FPO in Nandapur on 29<sup>th</sup> September 2021.

## 7.9 Chapter Summary

The chapter discussed the work and functioning of FPO promoted under the OMM. Structure of the FPO, future working areas and challenges faced by the FPO is also explored. In addition, the engagement of WSHGs with FPOs is looked into to study how FPO is involved in delivering services to farmers. Central and state government plays a crucial role in supporting the formation and promotion of FPOs in India. At the central level, Department of Agriculture and Cooperation (DAC), Ministry of Agriculture is the nodal agency for the development and growth of FPOs. Small Farmers Agribusiness Consortium (SFAC) under DAC is involved in provisioning of technical support, training and capacity building, and research and knowledge management aspects along with creating linkage with input suppliers, technology providers, extension and processing and marketing players.

State government provides for FPOs to trade in inputs (seeds, farm machineries, organic manures, fertilizers, etc). The FPOs under the Millets Mission are supported as producers of local variety seeds along with extending production and marketing subsidies. The new

Operational Guidelines released by the Government of India in 2020 to promote 10,000 FPOs by 2024 provides a holistic and supportive ecosystem by creating three-tiered institutional structure at the national, state and district level. National Project Management Agency (NPMA) is the national level agency to be set up by the SFAC. Implementing Agencies such as SFAC, NABARD, and NCDC are given the responsibility to set up Cluster Based Business Organizations (CBBOs). For the successful implementation and monitoring of the formation and promotion of FPOs three tier system at the national, state, and district level has been institutionalized. At the national level, Project Management Advisory and Fund Sanctioning Committee (N-PMAFSC) is constituted in DAC&FW to coordinate with Implementing Agencies, State Level Consultative Committee (SLCC) and District Level Consultative Committee (DLCC). At the state level, State Level Consultative Committee (SLCC) is proposed to be constituted to review the progress and challenges faced by the FPOs. A District Monitoring Committee (D-MC) is constituted for ensuring effective coordination among the stakeholders for effective implementation of the program.

*Activities of the FPOs:* FPO acts as the implementing organization at the block level for OMM. FPO performs various kinds of activities such as procurement activities under which FPOs were empanelled as procurement agency for Ragi procurement in addition to LAMPCS and PACS in selected blocks. Identifying business opportunity to create a business plan is the foremost activity of the FPO. Business activities are based on the NTFP products, agriculture and horticulture produces of the region. Agriculture and horticulture products vary according to the season. Scaling up procurement activities include adding new shareholders to the organization, supplying them with inputs and procure their millets for the FPO. FPO engages in post-harvest operations such as processing millet seeds during post-harvest operations, including packaging, storing, supplying and distributing seeds to retailers and farmers. Community based institutions such as Community Managed Seed Centres, Custom Hiring Centre, Millet Processing Unit, Bio-input Centres, etc are managed by registered FPOs in each OMM implemented block. Involvement of FPOs in awareness creation disseminates information and knowledge about millets consumption among people.

*Functions of SHGs and Producer Groups linked with FPO:* Most of the SHGs in the studied blocks are engaged in agricultural activities deriving their livelihood from cultivating seasonal vegetables and trading NTFP products. Involvement of WSHGs in promoting consumption of millet based food items through establishing millet tiffin centres in rural areas and Millet Shakti

cafes in urban areas is promoting entrepreneurship opportunities in millet ecosystem led by women farmers. However, this income generating opportunity may exclude many WSHGs which do not possess good accounting records of the group or are not able to perform well. There is a possibility of appropriating the opportunity to manage millet outlets by relatively well to do WSHGs. Community based institutions such as CSC, CHC and bio-input and its operation and management by women SHGs ensures that women farmers are in the forefront of access to farm resources such as good quality seeds, farm implements and pest management resources.

*Benefits and support derived by women beneficiaries by joining FPO:* Skills relating to production enhancement such as seed treatment, raising nursery bed, training related to adoption of LS, LT, SMI, and weeding are delivered through FPO. By joining FPO, women beneficiaries have benefitted from collectivization across activities. FPO is the collective at the GP level that helps in aggregation, input and output supply chain. Selling seeds in a collective way and creating market linkage with vendors is another advantage that members of the FPO are able to reap. Improved agronomic practices, seed production techniques, procurement, consumption awareness, recipe making awareness are leading to knowledge enhancement among farmers. Procurement support and access to market are the benefits which enabled farmers to get a better price as compared to local price.

*Future plans of the FPO:* Expanding market linkage for raw material as well as for value added products, establishing processing units, increasing the number of shareholders and expansion of business activity are the core areas in which FPOs of the 5 blocks focus on. Focus of the FPOs in selected blocks is in creating and enhancing business opportunities in value addition sector while continuing the procurement activity and other activities that FPO is engaged with.

*Challenges faced by FPO in its operation:* Funds crunch and lack of infrastructure support is the major problem faced by every FPO. In Kundra FPO, no facilities have been made as such for the purpose of processing. Moreover, absence of a physical office structure for FPO in Kundra creates difficulty in day-to-day business operations. In Borigumma FPO, challenges of low farmer registration for procurement results in low business activity for the FPO. Lack of storage spaces, go downs, etc create storage difficulties for farmers resulting in loss of time of 2-3 days with their produce for the fear of theft on the day of procurement. In Boipariguda, illiteracy of the tribal women farmers creates hindrance in operation of the FPOs business. It is often that farmers sell their produce to traders or different vendors even when the deal is

fixed with the FPO, when traders offer a slightly higher rate. Apart from fixing MSP for Ragi, there is no other viable market linkage shown by the government. FPOs are left on their own to explore market linkage for millet and millet-based products.



## Chapter 8

### **Millet, Women and Food Sovereignty: A Comparative Analysis of Nagaland and Odisha**

This study has attempted to understand the functioning of millet ecosystem in two states of Nagaland and Odisha. The study has identified actors and stakeholders associated with the production, distribution, consumption and marketing of millets. The findings reveal that effective convergence and coordination between state, civil society and people plays an important role in mainstreaming the entire value chain of millets. Whereas in Nagaland, without state support, the program of reviving millet based traditional farming system is weakening. NEN and women groups are finding it increasingly difficult to sustain millets amidst various contrasting forces operating in the state.

Further I have attempted to explore the engagement of women in the millet ecosystem of Nagaland and Odisha and understand how significant millet intervention is in ensuring food security, well-being and their control over local food system. The study also brought out the constraints faced by women farmers and how the intensive labour and drudgery involved in production, consumption, processing and marketing continues to be shouldered by women farmers in both the states. The study also focused on women collectives that are engaged with millet farming. However, these women groups are not organically and exclusively formed to deal with millet farming related constraints. They are also associated with other crops and livelihood activities carried out by villagers. The study also sheds light on ways the state and civil society has facilitated collective action to benefit women farmers in the millet value chain.

The research delves into the decentralized governance structure implemented at the block and village levels in Odisha, devolving power to communities to rejuvenate the millet ecosystem. Further the impact of millet interventions undertaken by the state in Odisha and a civil society in Nagaland on the production and consumption of millets is also discussed in the study.

This chapter carries a comparative analysis of millet interventions in both states, assessing whether they can be classified as part of a food sovereignty movement led by women, small and marginal farmers or not. The study delves into some of the key highlights from both the models and argues that state's intervention in ensuring livelihood security through incentivizing production and procurement at MSP is a crucial support to strengthen the position

of women in agriculture. It is the need of the hour for proponents of food sovereignty to consider the requirements of majority of small and marginal farmers, that is livelihood, food and nutrition security first rather than essentializing them as the *upholders of local food system* and food sovereignty which most of the farmers do not ascribe to. This finding is consistent with the larger narrative on critique of food sovereignty approach.<sup>114</sup> The comparative analysis is done based on the emerging indicators from thematic analysis carried out for both the states. This attempts to analyze similarities and differences between the two different frameworks of mainstreaming a local crop from the lens of food sovereignty.

This holds significance from the perspective of adding to the grounded practices of food sovereignty discourse contextualized on the local context. It is an effort to see whether the initiatives undertaken in both the states reveal any similarities with the narrative of food sovereignty or not. Can these initiatives be considered as an effort to build and strengthen local food system promoting production and consumption of diverse crops around sustainable practices and climate resilient measures inclusive of indigenous vulnerable population aiming towards ensuring food, nutrition and livelihood security? There would be contradictions owing to the particularities of the local context. However, the abstract nature of food sovereignty allows for the divergences and diversity to co-exist to enable participation of diverse sections of society. The conclusion chapter is divided into sub-sections consisting of themes based on broad analysis after close examination of working of both the models.

### **8.1 Approach to millet revival/Focus of the government**

A significant difference between the millets revival model followed in both the states lie in the initiative taken in the respective states. In Odisha, millet program follows a top-down mission approach initiated by the state government. In the government approach, hierarchy is in place, leveraging contributions of diverse actors working prominently towards mainstreaming of millets.

The initiation of the millets program followed a planned structure. A collective concern among the academic intellectuals on reduced status of millets in the diet of people was followed by a state level consultation involving stakeholders from government, civil society, farmers and

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<sup>114</sup> Soper (2010), has argued that the vision of local food system espoused by food sovereignty framework romanticise small farmers as the practioners of local food system rather than capturing their ground reality and aspirations to integrate with the market economy to better their living standards. See Soper, R. (2020). “From protecting peasant livelihoods to essentializing peasant agriculture: problematic trends in food sovereignty discourse”.

academia to evolve a strategy for revival of millets in the state. A multi-stakeholder participatory approach in designing OMM and a decentralized operational framework are effective in designing a holistic policy guideline and keeps the stakeholder/actor at each level accountable for the actions undertaken. Convergence of programs between multi stakeholders enable sharing of expertise and resources along with keeping the stakeholders in loop and make them active partners towards realizing the goals of the millet program. Increasing household consumption, providing marketing support, inclusion of millets in SNP, creating decentralized processing units and promotion of rural enterprises in the millet value chain are the focus areas of the program in Odisha.

The Mission driven by the Department of Agriculture and Farmer's Empowerment provides a governance structure in terms of a framework for planning, implementation and monitoring of the program. Governed by the High-Powered Committee at the top state level, to academic institutes like NCDS and civil society organization like WASSAN at the district level, NGO/FA at the block level, and CBO/FPO at the village level, put in place an institutional framework for mainstreaming millets back in popular culture. The constant collaboration at various levels between the three entities of government, academic institute and civil society organization forms the unique component of the program that acknowledges and leverages the experiences of civil societies in working with farming communities and biodiverse agriculture of rain fed areas. An interesting component of the model in Odisha is the kind of stakeholder's base created at the block and sub-block level. Association of state government to collaborate with CSOs in mainstreaming millets demonstrate the acknowledgement and mutual respect of knowledge exchange about local agronomy, economy and culture among the stakeholders at the block and sub-block level.

On the contrary in Nagaland, a community-based model of reviving millets is witnessed, a completely different model as compared to Odisha. The millets revival program is being led by a NGO called North East Network (NEN) located in Phek district of the state. Nagaland also produces millet and has a history of millets production and consumption but the millets ecosystem is not supported by a government backed Mission. The government's work with regards to millet is limited to implementing the provisions under the legislation of NFSM-Coarse Cereals that came into effect in 2017. The intervention of the government is restricted to demonstrations on improved package of practices, training and seed distribution, and

promoting WSHGs for millet promotion by providing a one-time incentive. It is inferred that millets cultivation is not promoted in a large scale in Nagaland as compared to Odisha.

However, the approach followed by NEN is unique in the sense that it mobilizes community, especially women farmers to conserve local food system and culture. NEN strategizes its interventions through promoting sustainable and collective agricultural practices aiming to build resilient communities in the face of climate change and market forces for building food sovereignty. With the current focus of the Nagaland government on promoting cash crop cultivation in a large scale fostering individualization of land and labour is rendering it complex for NEN to mobilize community to sustain and revive traditional millet based agriculture. In addition, government encourages projects and schemes for people that promotes horticulture cultivation.

## **8.2 Objectives/Focus of the millets program**

With the government backed millet program in Odisha, it can be said that the state is playing a crucial role in strengthening the local food system. The initiative contributes to promoting traditional farming upholding sustainable agro-ecological practices and climate-resilient food system. Millet is taken as a representative of local food system as it used to be the most abundantly grown and consumed food across the length and breadth of the country along with diverse crop varieties such as pulses, legumes, and oilseeds. Being a fully funded state government program, convergence with various stakeholders across other central and state backed schemes having the similar objectives as the Millets Mission shows the efficient ways of delivering output.

In this respect, autonomous decision of the state to revive a lost crop must be appreciated against the backdrop of conventional agriculture followed by the central government. Even though the millet revival was initiated by the state and not the people, it has brought millet into larger discussion about food issues. By focusing on the entire value chain, the initiative has paved the way for bringing other aspects of millet value chain into policy focus such as household consumption, awareness creation on millet inclusion in state nutrition programs, post-harvest processing, value addition, engaging women SHGs for entrepreneurial activities ensuring their livelihood, and marketing, as opposed to productivity oriented central schemes.

*This is the first programme in department of agriculture which does not focus on production. It focuses on consumption otherwise every programme in the department is production oriented. This programme is consumption oriented. So which allow people to work on their own seeds, use their own seeds. OMM is one such programme which allows farmers to use their own seeds and there is no restriction in that. It is promoting participatory varital trials which allows to grow as many local seeds also do purification of that, and then have a seed centre which can have these varieties in place and as per farmers requirement and own preference, we will supply seeds selected by those farmers itself.* State Coordinator, OMM on 13th September 2019.

A decentralized operational framework, focus on creating consumption centered food system and promotion of agronomic practices suiting the local agronomy emphasizing the use of local seeds are some of the features that resonate with promotion of local food system as envisaged by the food sovereignty movement. Revival of millets was intended in rain fed farming systems with specific objectives to include millets in State Nutrition Programmes such as ICDS, MDM, Integrated Tribal Development Agency (ITDA) supported Welfare Hostels and in PDS (Annual Report, 2020-21).

Similarity can be found in the objective of starting the millet program in both the states. The millet revival program in both the states focus on increasing production and consumption. In Nagaland, NEN's primary efforts are inclined towards reviving millet and encouraging its consumption to ensure food and nutrition security. Facilitating market linkage is also the intention here to ensure sustainable livelihood for millet growers as millet has a good demand and fetches a good price.

*Our role here is to sensitize the community, to make them understand that millet cultivation is something that is going to take care of their health, also important from environment point of view and the kind of livelihood option they can get from millet. Off course, we also try to give them a convincing argument, help them understand, because whichever community we approach they understand and are very supportive of the idea because we try to bring in a lot of changes that have happened and we tend to give them a broad future projection that would happen if these kinds of changes are continuing. We try to make them understand using different examples or sitting with them and having focus group discussions more in depth discussions, then it becomes easier for the community to*

*understand what message we are trying to spread.* Program Executive working on Millet program with NEN on 20<sup>th</sup> August 2019.

A group of women collectives including women society of the village and stakeholders such as other farmers, and village leaders are the entry points for millet intervention. Mutual agreement is formed where consent is reached with the Village Council, the Women Society, WSHGs and the village headman for working together on millet promotion before approaching for community development work in a village. The organization prioritizes to increase millet production as the production is very low even to meet the current demand in the state. Owing to multiple factors hindering millet cultivation in the state, the present stage can be considered as a “revival stage” wherein ongoing efforts are to bring back the millet amongst the community. Commercial scale of production, marketing, processing and value addition is still not reached in the state.

*We focus on agrobiodiversity. Our plan is strengthening collectives so they are also informed and in turn inform community leaders and community level rules, regulations and policies. Through giving them knowledge, information and skill at the same time, we also want to enhance their livelihoods and lives. It's a holistic approach that we are taking. We are not into money making and marketing. We want them to understand the larger context first. We want them to understand the whole system of food and that's why our work with women farmers is to gain more autonomy and control over the food system and what kind of food to grow. Community Seed Bank is one kind of example where community exercises autonomy of over our food system, having our own seeds, safeguarding land, soil and water.* Shared by Program Coordinator, NEN on 09<sup>th</sup> October 2021.

The above excerpt resonates the language of autonomy over food system, sovereign rights over seeds, and defending life-giving resources as envisaged by food sovereignty movement. Community inclusive approaches and usage of terminologies like “ecological farmers” by NEN resonates the non-discriminatory approach, where it does not discriminate between farmers who have different land sizes or use or does not use marketable inputs such as hybrid seeds, fertilizers etc.

A crucial line of difference between both the states is that the state government of Odisha promotes millet to bring the coarse grain back in farmer's field and people's diet by following

a monoculture approach to millet promotion, majorly finger millet at the cost of various nutritious varieties of small millets. However, in Nagaland NEN is struggling to sustain the millet based traditional mixed cropping pattern involving diverse crops on communal jhum lands by the community people.

The approach of promoting millets holds crucial significance for the discourse of food sovereignty. NEN adopts a holistic approach where not just millets but the importance of other crops in millet-based bio-diverse farming is emphasized. Through reviving the cultural significance of celebrating millet biodiversity festival every year since 2010, not celebrated earlier, the organization reiterates the importance of millets as climate change compliant crop ensuring food and nutrition security of the community. NEN uses terminologies like *securing rights of local people over their own resources* and food system and *sustaining the traditional agriculture as a culturally significant aspect*. Biodiversity festival serve as the platform to build a momentum of millet based agro-biodiverse movement in the North East region. The festival facilitates exchange learning, sharing of knowledge and seeds amongst farmers, seeking policy support to traditional farming system such as millet-based bio-diverse agriculture and farmers, recognition of women's traditional ecological knowledge and their contribution to sustainable agriculture (The Morung Express, 2023).

Primarily focusing on women's collectives, the underlying philosophy of promoting biodiversity invoking larger discussions on how to safeguard seeds and crop diversity guides the approach for promoting local food system in Nagaland. Women's collectives come across as a place to share and collectively deliberate on issues related to farming and livelihood in the larger scheme of governance in the village. However, in contrast, the Odisha model does not particularly promote women collectives as beneficiaries for its program. It is basically the discretion of Facilitating Agency in a particular block to select beneficiaries as either new farmers or the ones who are already into cultivating millets from before. Beneficiaries comprise both male and female. In effect, women farmers are seen as benefitting most from the program in Odisha as their engagement with millets ecosystem is substantial.

Active support of the state government remains largely absent from the millet revival movement when it comes to collaboration in promoting millet-based bio-diversity in Nagaland. Coordination with other civil society organizations also seems negligible. The below excerpt from an interview with an executive on millets development program in NEN strengthens the above statement.

*The kind of coordination that people have even within the department and the kind of awareness that they have and the government's intervention is very project-oriented kind of intervention but however when we go directly to the community we try to understand the problem and sustain follow up and then we call upon the collaboration with communities. Program Executive, NEN, 20<sup>th</sup> August 2019.*

### **8.3 Perception of people about millets and the millets program**

Contrary to the belief that millet is a poor man's diet or its importance is diminishing in the lives of people, culturally or food security point of view, we find it is found that millet not only equates with the social and cultural aspects of lives and livelihood but also contributes significantly to household food security. Mandia as locally the finger millet is called, supplements the morning, afternoon, and evening meal of the farmers. It forms the staple food of the people in Odisha. Contemporary, finger millet is consumed more as compared to other types of millets. Post-harvest processing, farming, ease of growing and cleaning finger millet, and other operational difficulties impede cultivation of other types of millets. All the respondents acknowledged to growing and consuming millets even in small quantity even though its only for self-consumption purposes. Millet farming sustains livelihood of small and marginal farmers and contributes substantially in meeting other household consumption requirements either by selling little surplus to local traders or by exchanging millet with some other consumable item. On a general level, awareness is found among the participants regarding reasons behind consuming millets.

*We consume mandia more. For summers we drink more pejo<sup>115</sup>. We need more mandia during summers. Consuming ragi is a requirement for us now. For energy requirement and strength, we consume mandia. Our stomach gets filled with pejo and then we will do all types of work. Mandia is very filling. A woman farmer from WSHG in Nandapur block on 28<sup>th</sup> September 2021.*

*We consume millets for nutrition and energy that it gives. Indepth interview with a woman farmer in Lamtaput on 02<sup>nd</sup> October 2021.*

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<sup>115</sup> Pejo is a non-alcoholic drink made out of mixing finger millet powder in water and boiling further with water or milk. Few grains of rice are also added as consumed in tribal households.

*For filling our stomach and if we are hungry we eat rice but if we feel thirsty we prefer to consume mandia. We consume mandia three times a day.* In-depth interview with a woman farmer in Lamtaput block on 02<sup>nd</sup> October 2021.

Awareness regarding health benefits of millets consumption makes millet more acceptable amongst people to make it a part of their diet. It can also be seen that millet supplies them with energy requirements to do manual work. Little millet used to be consumed as cereal before the introduction of rice through PDS. However, cultivation of little millet is restricted to commercial purposes now. Millets were cultivated and consumed even without the government's intervention. Small and marginal women farmers belonging to the tribal belt of southern, western and north western Odisha are the major sustainers of millet based mixed farming system. Farmers in Odisha are content that millet program has provided them with opportunities to earn extra income as compared to earlier days when millet was not emphasized. An assured price at MSP is a welcoming factor as opposed to bargained amount farmers get by selling millet at local market.

*Earlier we were getting less income from ragi but now we are able to earn extra income from selling ragi to the government. So that is good. When we sell ragi in the haat we used to get money after 3 or 4 days in our hand. Earlier people bargain for the rate of ragi in the haat. But now we are getting exact amount in our account and there is no deduction. We get money within a week of selling millet under mandi system.* Shared a woman farmer during FGD in Borigumma block on 05<sup>th</sup> September 2021.

Learning to make various kinds of millet recipes, incentivizing millet cultivation, an enhanced yield of millet for self-consumption and surplus for market, less inputs required for cultivation are the other key takeaways of the program.

Whereas, in Nagaland we witness difference in opinion of farmers towards the crop. Even though respondents are aware of health benefits of consuming millets but consumption of rice has replaced the traditional crop in a big way. There is an awareness amongst the farmers regarding the health benefits of consuming millets. Moreover, its consumption is restricted to only sick days. Millets along with maize provided the main source of food to supplement shortage of rice. Millet cultivation and consumption is fondly remembered by respondents that held significance in the context of ancestor's generation and that is very much in declined stage now. Advent of Christianity as new faith replacing animism followed by the modernization project has gradually transitioned naga society. This transition gradually replaced the millet

eating culture cultivated by collective labour with the Wet Terrace Rice Cultivation system where paddy cultivation drew specialized labour from the church (Das, 2020). Rice began to be consumed by wealthy people and millet and maize became the poor man's diet. At present, millet has gained a status of delicacy in Nagaland as a kilogram of millet costs 100 rupees, more than double the cost of similar quantity of rice, mainly due to intensive manual labour involved in cultivating and post-harvest cleaning work. However, consumption of rice has replaced millets consumption to a great extent in contemporary times. None of the respondents responded consuming millets during normal days. The status of millet is less in comparison with other crops. Owing to the diversity of food crops in North East region, indigenous varieties of rice have got mentioned in different local folk stories and songs. Cultivating millet has remained a continuity of tradition just so that the skill does not die away.

In comparison with Odisha, respondents in Nagaland have shared that millet has become a secondary source of food now with the establishment of rice mills even in remotest corners of the village. The WSHGs formed for millet cultivation under government schemes do not cultivate millet every year. Other crops such as potatoes or cabbages are also cultivated. However, it is noted that participants expressed willingness to cultivate millets if government extends financial support.

#### **8.4 Challenges faced by women farmers**

One of the primary reasons for decline in millet cultivation is attributed to difficulties in post-harvest operations of millets. Due to the varying size of different types of millet, setting up post-harvest processing machineries for each of the step in getting the clean product, at village level, requires a huge finance and is a lengthy process. Innovations, collaborations and democratic decentralization is required to make processing technology accessible to farmers. In the context of Odisha, middlemen and local traders were the pre-dominant channels of marketing. Procurement of ragi at MSP since 2018-19 not only increased the rate of ragi (finger millet) in the local market but provided an assured market for surplus ragi of farmers. However, many challenges surround the procurement channel of the government. Due to complex and time consuming process of farmer registration, non-availability of sufficient formal documents with farmers, low limit for surplus in 1 acre for procurement, less time for farmer registration and short time window opening for procurement, farmers unable to understand are the issues farmers and NGO professionals respond that discourage farmers to resort to procurement channel.

Large processing machines are required to clean the large quantity of millets to make it marketable. Manual processing for large quantity becomes time consuming and a costly exercise. Pulverizing machines and other such technology support should be facilitated at the village level to ensure proper utilization of machines by women farmers. Shortage of water has prevented millet cultivation during rabi season in Odisha. Erratic rain has also impacted transplanting of raised millet saplings on time resulting in reduced yield. Bureaucratic hurdles, delay in receiving payments, delay in government checks and verifications is deterring farmers from selling millet to the government. Expensive, time consuming and more labour usage were some of the factors that local farmers were doubtful about using the agronomic practices. Labour shortage during rainy months becomes a problem when farmers prioritize paddy farming and transplanting of finger millet saplings gets delayed.

In Nagaland, farmers do not face issue in marketing as buyer's requirement is communicated to farmers even before the millet is harvested. That way, millet often gets consumed within the local economy. With government's support, millet farming could become a sustainable source of livelihood for women farmers engaged in millet ecosystem as millet fetches good price in the market. But the challenge lies in increasing the production as supply falls short of demand. Mobilizing farmers to cultivate millets is another challenge despite persisting good demand. Lack of infrastructure system, apathy of government support in terms of financial and technological aspects for millet farming and growers along with reduced status of jhum collective farming discourage farmers to cultivate millet in spite of them being aware of its benefits. Ecological issues with regard to pest and bird attack on the millet fields resulting in high losses before harvest, and small size of jhum lands are some of the other factors. Burden on women with all millet related activities, from seed treatment or sowing till the post-harvest cleaning and marketing, especially being performed by women and men withdrawing their help points to the similarly high level of engagement of women farmers in Odisha.

Another challenge is government's encouragement for farmers to cultivate horticulture crops like banana, pineapple and other exotic fruits, vegetable, maize, soyabean, coffee, and naga dal driving farmers to cultivate crops promoted by government. Lack of technological support in terms of processing machines makes it difficult and time consuming for women to engage with millet related drudgery throughout the day.

*Since we do not have processing machine yet, we have to clean the millet by ourselves which takes up a lot of energy. Our bodies ache for all the pounding and if it was just for our own sake then it will not be that tiring but since it is for marketing purpose, we have to pound hundreds of kilos which often takes up days of our time.* Shared by a woman farmer from a Women's Society during FGD in Khumaisii village, Meluri block on 21<sup>st</sup> April 2022.

Even if the women's collective formed by NEN had started millet cultivation after NEN's mobilization in Meluri village, most of the members have quit the collective on the grounds of lack of support, hard manual labour, difficulty in sustaining the work due to low remuneration and continuous complaints by the husbands of the women members to quit the group.

### **8.5 Changes after the program implementation**

A considerable change is witnessed in farmer's opinion and behavior towards millets after the program got implemented. Initially farmers questioned agronomic practices, time investment factors, cost effectiveness and suitability in increasing the yield, however some farmers are reported to be understanding its relevance and have seen an increase in yield of millets post adopting agronomic practices. Provision of financial incentives for three years for adopting agronomic practices and buying of millets at MSP by the government have encouraged farmers to shift from paddy to cultivating millets in upland, land usually reserved for short duration paddy in Kundra block.

In Odisha, the program contributed in uplifting the status of millets, largely considered as poor man's crop that resulted in bringing change in farmer's perception towards cultivating millets. Increase in millet yield has enabled farmers to maintain a surplus to be used for various purposes. NGOs have been instrumental in encouraging farmers not to switch completely to cash crop cultivation and to continue growing millet even if it is grown in small land. Millets cultivation is seen as a major livelihood activity by farmers leading to production and income enhancement. Food festivals in rural areas emphasize the nutritional component of consuming millets amongst the rural households.

Moreover, setting up of 76 'millet tiffin centres' in rural areas of 13 tribal-dominated districts has given a boost to livelihood of WSHGs largely managing the operation of these millet tiffin centres. Value addition focusing on diversification of ways of consuming millets has increased

the palatability of millets creating acceptance amongst rural and urban people alike. Due to time paucity of women farmers preparing new millet recipes warrants further investigation.

In Nagaland, since NEN's approach is promotion of millets at a local scale through community education, productivity of millets is still far less than the demand. Hence, large scale commercial promotion of millets is absent from Nagaland. In the Khumaissi village not under NEN's implementation program, women self-help groups are engaged with millet cultivation since 2011 with government's support. Millet is often rotated with other vegetables like cabbage, potato and naga dal (a type of Indian bean) that means millet is not cultivated every year by the group. However, millet cultivation is basically done for commercial purposes. Women shgs have their own marketing channel wherein millet gets sold to the customers on the basis of prior orders. In Meluri, the millet program was started in 2018 by forming a women's collective comprising of 23-25 members. In the initial year, enthusiasm is shown by women farmers to start millet cultivation but women farmers find millet farming difficult to sustain. Gradually women started leaving the group due to lack of funds and financial support from the government as millet farming is perceived as "a job which requires manual work." Now the group is left with around 15 members as the rest of the members have left the group. The group intends to continue the practice of millet cultivation even if harvest is less for the past 4-5 years in order to not let the practice die away and mobilize others to sustain millet cultivation. The group too demands financial assistance from government.

*As far as we can see, from our collective as a whole, we think there is not much change. Most of the women are not ready to take up a huge role because cultivating millet is a lot of work. So we think we have not empowered anyone or have been empowered. Shared by Millet Farmers Group, in Meluri village, a Women Collective formed by NEN on 18<sup>th</sup> April 2022.*

Apart from cultivating millets, engagement with these collectives is on diverse topics mostly on safeguarding biodiverse agriculture, food security, sustainable livelihoods through understanding the nutritional and ecological values of millet cultivation. The larger discussion revolves around conservation of seeds through Community Seed Banks by women farmer collectives, sustaining local livelihoods, and conservation of agro-biodiversity. In 2018, Women Society in collaboration with NEN, initiated a Community Seed Bank in Chizami

village of Phek district which preserves 7-8 varieties of foxtail millet and more than 100 seeds of local varieties crops.

NEN's intervention has certainly led to an increased awareness of millets amongst the community about the importance of collective farming and preserving local food system for food and nutrition security. However, despite expanding awareness about importance of millets and collective interest amongst people in reviving the crop, practical realization is less evident on the ground due to various factors. Decrease in jhum farming has been the prime factor behind farmers no longer interested in taking up millet cultivation. There has been a decline in overall size of jhum farming with most of the lands under jhum being converted to individual private land. With NEN's focus on enhancing consumption of millets community has taken small steps to revive millet. With sufficient rice even with PDS supply, millets consumption has taken a backseat.

### **8.6 Women's Collectives**

In Odisha, Collectives are seen in the form of Producer Groups comprising of women and men members both, and SHGs exclusively comprised of women members. These collectives carry out various livelihood activities related to agriculture, non-farm and livestock. FPO is the collective institution mandated as an implementing organization at the block level under OMM and CBOs working at the village level are structured and registered as FPO/FPC (Farmer Producer Organization/Farmer Producer Company). WSHGs are also brought together to form a FPO in some of the blocks. FPO is a farmer's collective that confronts challenges faced by farmers to access financial and non-financial inputs, services and market linkage for farmer's products. FPO acts as a collective strength to plan and operationalize production, procurement and marketing. These business activities are based on the NTFP products, agriculture and horticulture produces of the region. One of the major activity undertaken by FPO is provision of assistance for procurement operations. The primary advantage provided by the FPO is assisting with procurement operations. This collective effort has proven beneficial in activities such as procuring ragi, jointly selling seeds, processing millet seeds and preparing bio-organic manure. However, obstacles to FPO growth include challenges related to infrastructure, inadequate processing facilities and a lack of technical knowledge regarding millet cleaning, particularly for types other than finger millet.

However, Nagaland is a very traditional society with a strong socio-cultural system embedded in naga way of life revolving around agriculture and community life. Socio-cultural practices promote collectiveness, community and ecology oriented approaches of cultivation, wherein sharing of knowledge, resources such as seeds, land, equipments, irrigation, and collective governance of work and village is the way of life. This collectivization ensured that landlessness is non-existent amongst naga population meaning almost everyone have sufficient land (at least community and village land, if not private individual land) to sustain themselves that forms the basis of self-reliance and sovereignty. The tradition of storing seeds in containers or keeping above the fireplace in the kitchen, drying out meat and fish on the bamboo plate hanged over the smoked stove, and availability of fresh vegetables and creepers from jhum lands forms a crucial part of naga's traditional food system. It is a common sight to witness in every naga household. This ensures food sufficiency of community.

*Since millet has been cultivated for a very long time, we have also cultivated varieties which are still being cultivated while some have disappeared and some new varieties are also discovered. Some varieties of millet are a hybrid from the exchanging of seeds from one farmer to another.* Shared a woman farmer with a WSHG during FGD in Khumaisu village on 20<sup>th</sup> April 2022.

The above excerpt shows that the practice of conserving, exchanging seeds and indigenous knowledge between communities and families is largely sustained by women farmers. The tradition contributes to preserving diversity of seeds and enhancing the resilience of community during natural calamities. In Meluri, women collectives participate in millet biodiversity festival, wherein exchange of seeds from other districts and villages, and seed and biodiversity is exhibited. The message of conserving millet for community resilience across diverse platforms is spread through organizing these biodiversity festivals which sees participation from and interaction between Community Based Organizations, women organizations, government departments, women farmer groups, youth and students.

In Nagaland land system is mostly community owned as opposed to individual ownership of land pattern. The classification varies from individual private owned land to community or clan owned land and village land (Jamir, 2015). Jhum farming is done collectively in jhum lands at tribes, clans and families level in common clan land and the harvest is shared collectively between the farmers. In Meluri, women collectives are seen from the perspective of a

responsible position holder. Through strengthening collectives, community leaders, elders, youth and other such organizations are made aware of the importance of agro-biodiversity which enables them to assume leadership roles in the community to educate other village members. NEN's work with women collectives encourages women farmers to gain autonomy and control over food system by safeguarding seeds, land, water and forests and not being dependent on market supplied resources. Community Seed Bank is an example of this where indigenous varieties of various local crops are preserved which acts as preserver of indigenous seeds of crops in the event of natural hazards or climate change.

The idea behind forming the collectives is belief in the strength of collective action and voice. Village level women societies, SHGs or other kinds of women groups already exist in Nagaland. Women societies are the formal groups through which information or inputs is shared which makes a larger impact in terms of sharing, exchanging and collaborating. These women societies exist in every village and are basically engaged with women's issues, supporting women's rights and livelihoods. In Chizami village, Chizami Women's Society exists for more than three decades and has been quite vibrant in raising women's issues. Women's health, food and nutrition, livelihood security are the focus areas for the women society.

However, in Meluri, WSHGs and Millet Farmer Group formed by government organizations and NEN respectively are seeking financial support for the group to incentivize millet farming. Given easy accessibility to cash and credit by the WSHGs supported by State Rural Livelihood Mission and other government departments promoting cash and horticulture crops, Program Coordinator of NEN explains that villagers concerned with questions of basic survival and individual material prospects expect monetary favours. Rather than aiming at a larger community good, farmers concentrating on individual life points to the larger socio-economic phenomena of slow erosion of communal and collective sharing of resources way of life. Widespread individualization and privatization of land, labour and other resources makes NEN's objective of reviving millet based agro biodiversity onerous in the changing scenario. Increasing aspirations of farmers to earn cash and lead a prosperous living substantiates the choice of farmers to integrate subsistence practices into neo liberal market based structures. With the critique of food sovereignty being primarily 'essentializing peasantry' without taking into consideration choices of farmers to sustain their livelihood by integrating into neoliberal regime holds true in the context of Nagaland.

## 8.7 Idea of food sovereignty

Millets hold considerable significance in the social and economic lives of people in Odisha. It not only contributes to household food security but also has significance in strengthening livelihood. All the participants acknowledged growing and consuming millets in small quantity even though its only for self-consumption purposes. Whereas, in Nagaland millet cultivation and consumption is in declined stage. Even though participants are aware of health benefits of consuming millets, consumption of rice as a staple food has replaced the traditional crop in a big way.

OMM intervention has created multiple actors and stakeholders at each stage of millet intervention. At the stage of production, the network of community resource persons, facilitating agencies and farmer producer organizations have positively impacted the scale of millet production and its reach to newer markets. Thus, actors such as civil society organizations have a crucial contribution towards linking production to procurement, distribution and marketing.

In Nagaland, a community-driven initiative of reviving cultivation of millets, led by NEN is evident. This initiative primarily involves mobilizing local communities, especially women farmers, to preserve the region's traditional food system and cultural practices. However, it has limitations in terms of its scope and outreach. NEN's primary efforts are inclined towards reviving millets and encourage its consumption to ensure food and nutrition security. Additionally, revitalizing the collective jhum system of farming, declining rapidly in the state, reflects NEN's struggle at preventing conversion of traditional farming system into commercial food production system. The approach of promoting millets in Nagaland is of significant importance to the discourse of food sovereignty. The approach adopted by NEN resonates the language of autonomy over food system, sovereign rights over seeds, and defending life giving resources as envisaged by food sovereignty movement. To prevent mono-culture production pattern of millet and millet becoming a cash crop in Nagaland, NEN promotes millets based-bio-diverse farming system in Nagaland.

With NEN's education approach to community mobilization to realize food sovereignty on ground, the program offers an alternative paradigm of sustaining food system against the neoliberal regime. However, women farmers and collectives involved in millet cultivation encounter difficulties in reviving millets without financial and technical support from the state.

Further, the state's focus on promoting market driven high value crops on settled lands poses a challenge to NEN's attempts at reducing mass conversion of jhum lands into individualized lands in the state on the lines of food sovereignty framework is resulting in slow changes.

In both the states, women collectives have not organically emerged to protect their land rights or have control over local food system. Advocacy groups such as NEN, and State-facilitated institutional mechanisms as that in Odisha have formed women's groups to take millet cultivation forward. Even though millet is produced in an organic manner and resonates the principles of food sovereignty approach, millet hardly makes into diet pattern of the participants, except traditional occasions in Nagaland. Millet revival is faced with many constraints such as shortage of labour, labour intensive activities involved starting from seeds saving, sowing, transplanting, weeding, processing till marketing has made farmers shift from millet to cash crop cultivation. Markets, State and patriarchal institutions such as Village Council dictate the rules of agricultural practices in Nagaland. However, Odisha model is designed as a revival model focused on creating self-sufficiency for farming households first and then procure surplus to circulate and create a demand in rural and urban centres as well as creating linkages with commercial centres outside the state.

A crucial contribution by both initiatives highlights three underlying factors that resists the corporate agriculture promoted by the neoliberal regime. These are also the similarities found in both the models. Firstly, the initiatives acknowledge the timeless contributions, traditional knowledge and practices of women farmers in sustaining millet cultivation and thus seeing them in leadership position to steer the millet movement. Secondly, both the models promote a local crop focusing on local agrobiodiversity using sustainable resources. Thirdly, the programs are heavily centered on community ownership of the millet revival and millet-based food system placing small and marginal farmers at the centre stage of the program.

NEN's focus on promoting local marketing that serves the needs of the local community is aimed at fostering a regional economy that sustains the farmer's livelihood. NEN and VC has established local market spaces and sheds for the farmers to sell their locally grown products. Strengthening local economy requires organizing farmers market supporting the livelihood of women vendors at both rural and urban spaces, which in turn sustains the livelihood of numerous individuals in rural regions. The concept of local markets is centered around women overseeing and managing these marketing spaces. Idea of local market is sought where women

control and manage the market. The promotion of local economy is seen as a means to realize the principles of food sovereignty.

*What we are trying to do here is let us try to think local, even we can think about local communities and local market. Not every household produces food. There are so many people who are dependent on local farmers for food. We are not emphasizing export market and supermarket and mass production. Let's just concentrate on improving productivity, creating surplus, and think about local market. That's why our effort to organize some farmers market is an effort to promote market at a local level.* Program Coordinator, NEN, 09<sup>th</sup> October 2022.

Owing to the predominance of small and marginal farmers in agriculture in developing countries with increasingly women farmers and agricultural workers deriving livelihood from agriculture defines the crucial role of women in agriculture and more importantly, lost crops such as millets indicates the urgent need to target initiatives to support women farmers. However, women farmers face a number of constraints in increasing production and realizing the full potential. Insecure rights in land, limited access to productive resources such as fertilizers, technology, information, credit, seeds, water, following outdated agricultural practices, and lack of post-harvest processing and marketing infrastructure constrain women's efforts to make substantial improvement in production and other aspects of agriculture.

Through our study, it is found that food and livelihood security along with organized market structure and infrastructural environment boosting agricultural growth are prime concerns of small-scale farmers. Therefore, promoting food sovereignty framework by social movements that essentialize small farming by rural peasants based on agroecological methods need to first address these constraints by bringing in state initiatives that ensures people's right to food and livelihood. State plays an enabling role in ensuring livelihood and food security to its citizens. However, food sovereignty movements do not particularly espouse the role of state in peasant led farming system. Access to productive resources and organized market linkage are crucial factors for farmers to achieve secure livelihood and generate income before they can be free to exercise their choice to grow food crops in an agroecological way as envisioned by food sovereignty movement.

The program in Odisha follows a unique governance structure and it can be considered largely as a food security approach, but it does not qualify as a Food Sovereignty movement as it is

not led by farmers. Moreover, emphasis on strengthening market linkage outside the state limit and promoting millet cultivation in a large scale is in contradiction with food sovereignty principles that support small scale farming system and less far away market. Moreover, some farmers prefer cultivating millets for self-consumption purposes, for contingency purposes, to protect themselves from losses and mostly to meet emergency situations. This indicates importance of millets for farming households. Traditionally grown as an intercrop in Odisha, in less fertile uplands helps farmers maintaining diversity in crop choices. A decentralized operational framework prioritizing the government-civil society partnership creating people led institutions at the village level is essential to ensure and promote people's participation in development efforts. Moreover, convergence between various stakeholders and institutional collaboration is a lesson towards efficient delivery mechanism of program objectives furthering promotion of millets.

The Millet Mission intervention does not compromise the local food system, rather is strengthening and enhancing the capabilities of women in management of the millet ecosystem. However, within this framework of robust support from state and civil society, drudgery of work relating to production and processing consume considerable time and labour of women farmers. It is important that programs focusing on strengthening local food system that sees intensive engagement of women farmers, targeted interventions should be undertaken to benefit women farmers. Women's labour is being used in production, processing and promotion without advocating any substantive change for land rights, access to resources or without emphasizing strict adherence to women farmer's registration for procurement purposes, as in the case with OMM. As a result, due to illiteracy, lack of mobility, difficulties in comprehension, and non-updates of accounts in the name of woman beneficiary creates hindrance in the process of farmer registration for procurement in the name of women farmers. An important contribution of the OMM program has been its focus on enhancing consumption of millets in rural areas rather than solely appropriating the benefits of millets as a brand for health conscious elite in urban areas.

In both Nagaland and Odisha, women are at the forefront of millet production and preservation. However, there is no strong women's movement around food sovereignty. Availability of other livelihood options, other crops to grow such as cash and horticulture crops provide income generating opportunities to women farmers throughout the year. Moreover, revival of millets faces stiff competition from various cash crops such as maize, vegetables and horticulture crops. In Nagaland, decisions relating to cropping pattern is influenced by the Village Councils.

Village Councils comprising of male members lack participation by women representatives and thereby affecting choices and decisions undertaken by women groups. Therefore, whether or not women can hold on to traditional crops such as millet, is not just dependent on women themselves. The state's support to settled agriculture in Nagaland has encouraged individualized farming systems or family farms; having a marketable surplus is of paramount importance. Millets program in Nagaland is in revival stage therefore, millets are not able to provide market surplus or profit. In Odisha, the state has intervened to make millets a part of public distribution, created urban kiosks for sale of millets in different forms, as well as linking up with various commercial enterprises for its expansion. Therefore, in Odisha, millets revival model falls somewhere in between the local food system envisioned by food sovereignty and the capitalist production and marketing system of neo-liberal food regime.

Current promotion of millets is worrisome as millets is promoted as a mono crop in Odisha rather than promoting the traditional millet based biodiverse farming to enhance food and nutrition security. In Odisha, finger millet is promoted exclusively at the cost of other nutritious varieties of small millets. This may lead to erosion of traditional knowledge relating to cultivation and preservation methods. Moreover, mono-culture promotion of finger millet in Odisha is leading to commercialization of the crop that runs the risk of losing out on crop diversity. Even though agroecological practices to cultivate millet is mandated from the OMM, commercialization of millet encourage farmers to apply chemical fertilizers to enhance production. Moreover, farmers resisting improved agronomic practices, shortage of labour, preference not to apply organic manure for millet cultivation, expansion of market structure and farmers wish to cultivate cash crop to earn income are the complexities that food sovereignty approach does not incorporate into its vision. This makes the local food initiatives difficult to realize food sovereignty on the ground.

Interventions focusing on reviving millets need to address the value chain of other small millets like little, foxtail, browntop, barnyard etc to conserve biodiversity and address food and nutrition insecurity. Price support for finger millets at MSP in Odisha has certainly led to an increased number of farmers growing millet leading to income enhancement. However, price support does not exist for any other millets except finger millet having a negative impact on production and consumption of other minor millets.

Literature suggests that Jhum farming, widely referred to as shifting agriculture, is heavily discouraged by the state due to its perceived negative environmental and economic impacts

(Trivedi, 2022). To dissuade cultivators from practicing shifting agriculture, the state introduced various cash crop plantation drives, transforming land use into a more permanent system. Additionally, large-scale plantation drives have increased pressure on fallow land (Jamir, 2015). Walling and Humtsoe (2021) argue that, with the state showing a fiscal deficit over the past two decades and a high unemployment rate (see also Bordoloi and Bedamatta, 2021), Nagaland remains largely an agricultural subsistence economy. Modern market-led development approaches have failed in the state due to a lack of enabling factors such as infrastructure, necessary economic conditions, institutional support, clear policy, access to finance, and markets. In this context, the primary sector, particularly agriculture, presents varied opportunities for growth. Diversification towards cash and plantation crops is one of the ways that enhance income generating opportunities of people in Nagaland (Walling and Humtsoe, 2021). The state is making progress by introducing programs that support livelihoods and enhance productivity on Jhum lands in a sustainable manner.

In my study area, village level stakeholders have power to make cultivation decisions. Women groups decision to cultivate marketable crops like paddy, horticulture, vegetables, and plantation crops is influenced by the larger desire to integrate into market economy to secure their livelihood. This is in contradiction to the food sovereignty principles which propagates local food system against the neoliberal based market economy. Without adequate production and processing support and changing agrarian practice, women's hold over resilient crops like millet is weakening. This is resulting in weakening of coordination between NEN and the women's groups.

Our study of women farmers in local food system is consistent with the literature on critique of food sovereignty that indicates that food sovereignty essentialize small scale peasants to be the savior of food and agriculture sector against the neo liberal corporate regime. However, the proponents of food sovereignty do not consider the heterogeneity in peasant's class and the changing aspirations of peasants to integrate with market economy not wanting to practice sustainable agriculture using organic resources (Soper, 2020). Issues of food and livelihood insecurity, lack of access to productive resources, information, and credit, unequal land rights, irrigation challenges, younger generation not wanting to continue farming, and gender inequality grappling the developing societies do not get adequately addressed by the advocates of food sovereignty movement (Agarwal, 2014). Farmer's demand for state's protection of livelihoods, incentivizing crop production, assurance of a minimum support price, generation of employment and provision of social security indicate the urgency in securing farmer's

immediate needs to strengthen farmer's position within the food and agriculture system (Louis, 2012).



## 8.8 Concluding Thoughts and A Round Up of the Research Questions

<i>Research objective 1: To understand and assess millet intervention strategies of Nagaland and Odisha.</i>	
<i>RQ1: Who are the actors and stakeholders associated with production, distribution, consumption and marketing of millet?</i>	<p><u>Answer:</u> OMM intervention has created multiple actors and stakeholders at each stage of millet intervention.</p> <p>At the stage of production, the network of community resource persons, facilitating agencies, and farmer producers organisations have positively impacted the scale of millet production and its reach to newer markets. Thus, actors such as FAs have helped link production to distribution, and marketing.</p> <p>In Nagaland, NEN is the only actor that is leading the intervention. It is limited in its scope and reach.</p> <p>Stakeholders such as Village Councils, Women societies hold larger sway over decision to cultivate. Without adequate state support &amp; vision with respect to millets, it is slowly turning into a dying crop.</p> <p>Women groups in Nagaland are swayed by family decisions to focus on more marketable crops like paddy and other cash crops. Without adequate market linkage opportunities, and changing agrarian practice, women's hold over resilient crops like Millet is weakening.</p>
<i>RQ2: How does coordination for millets take place between the state, civil society and people?</i>	<p><u>Answer:</u> Coordination for millets in Odisha is robust due to state support. It is a convergence model where the state has created a system of bringing into its fold civil society, academia and existing government agencies to hand hold people and their local food system to take the mission of food security forward.</p> <p>However, within this framework of robust support from state and civil society, drudgery of work (production &amp; processing) continue to be shouldered by women. From my field work it is clear that women do not have commensurate gains in income or earnings from millets, except a promise that they will have increase in incomes and skills in future.</p> <p>In Nagaland, it is a single NGO, which advocates for women's rights that is holding on to the intervention. However, the cracks are showing and without state support, the coordination between NEN and the women's groups are weakening.</p>

**Research Objective 2: To study the role of women in the millet ecosystem of Nagaland and Odisha.**

<p><i>RQ3: Where and how are women engaged in the millet ecosystem? Are women at the forefront to revive the lost crop and the associated biodiversity? If yes, how significant is millet intervention in ensuring food security, well-being and their control over local food system?</i></p>	<p><u>Answer:</u> In both Nagaland and Odisha, women are the forefront of millet production and preservation. However, there is no strong women’s movement around food sovereignty. Women in both states are at the receiving end of the patriarchy of their individual families as well as the paternalism of the state.</p> <p>In Nagaland, decision about what and how much to produce is taken at the Village Councils. Village Councils, by design, do not have women members. They are wholly comprised of male members. Therefore, whether or not women can hold on to traditional crops, such as millet, is not just dependent on women themselves.</p> <p>The state’s support to settled agriculture in Nagaland has given way to more individualized farming systems or family farms; having a marketable surplus is of paramount importance. Millets cannot provide surplus or profits. Therefore, millets in Nagaland are not leading the vision of either food security or food sovereignty.</p> <p>In Odisha, state has intervened to make millets a part of public distribution, created urban kiosks for sale of millets in different forms, as well as is linking up with various commercial enterprises for its expansion. Therefore, in Odisha, millets fulfils the vision of food security but not food sovereignty.</p>
<p><i>RQ4: What are the challenges faced by women farmers in production, consumption, processing and marketing? How are these challenges addressed?</i></p>	<p><u>Answer:</u> Women’s drudgery in production and processing of millets is high in both Nagaland and Odisha.</p> <p>Women’s labour use in millets is high in both Nagaland and Odisha. Women in Nagaland have informed about labour shortages and lack of support for millet production and processing.</p> <p>In Odisha, there is institutional support forthcoming in the form of Mission Shakti, Farmers Producers Organisations.</p> <p>My fieldwork observations show that in Odisha, coordinating with women farmers for processing are taking place only for ragi. Other millet crops require heavy capital investments which till the completion of my fieldwork was not underway. Ragi consumption in my study villages in Odisha is continuing in the traditional mode. However, newer recipes are not being incorporated due to lack of women’s time.</p> <p>Newer recipes are being tried in Mission Shakti kiosks and cafes in urban centres and millet tiffin centres in rural areas.</p>

<p><i>RQ5: Are there women collectives in millets? Does collective action benefit women? What strategies are adopted for marketing and processing by collectives?</i></p>	<p><u>Answer:</u> In both Nagaland and Odisha, there are no women collectives that have organically emerged to protect their land rights or have control over local food system.</p> <p>Advocacy groups such as NEN, and State-facilitated institutional mechanisms as that in Odisha have formed women's groups to take millet cultivation forward.</p> <p>Yes, collective action benefits women in terms of bringing markets closer, strengthening decisions, leveraging bargaining power and addressing other women's issues such as health &amp; nutrition.</p> <p>In Koraput, procurement of millets, particularly ragi, and incentives for processing are underway.</p> <p>FPOs have begun playing a new role as procurement agencies for the State government.</p>
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**Research Objective 3: Does millet Interventions in Nagaland and Odisha qualify as a food sovereignty movement led by women, small and marginal farmers?**

Answer: Millet farming in Nagaland has the contours of a food sovereignty approach. However, it is not a full-fledged one. Markets, State, patriarchal institutions such as Village Council dictate the rules of agricultural practices.

*Women's collectives and civil society organisations, such as NEN are secondary to the above overpowering forces.*

*Odisha model has neither the features nor the promise of a food sovereignty movement.*

*It is designed as a revival model focused on creating self-sufficiency for farming households first and then procure the surplus to circulate and create a demand in the rural and urban centres as well as creating linkages with commercial enterprises outside the state.*

*Odisha model is mainstreaming the entire millet value chain which has never been prioritized by any state or the Central government ever with focus on consumption and inclusion in food schemes such as PDS and ICDS.*

### 8.9 Limitations of the study

The study identified and studied the role of actors, stakeholders and institutional framework created in Odisha for the revival of millets value chain in Nagaland and Odisha. Since the focus of the study was on understanding the millet ecosystem, actors associated and coordination between them, and creation of institutions along with the engagement of women in the revival of a local crop, status of millets in terms of area, yield and income could not be covered in the study. Since the interventions are of recent nature, people's attitude towards the crop depends on state's promotion mechanism and its effective implementation. The OMM work in Odisha and millet revival initiative in Nagaland are work in progress, significant information on whether such interventions have any impact on consumption patterns and income enhancement of farming households in Odisha and Nagaland could no be collected.

As an outsider to both the states of study, the researcher encountered challenges on multiple levels during the different phases of field work. In Odisha, field level staff of OMM belonging to FAs facilitated the researcher in field work and helped in translating the narrations told by women farmers in Koraput district. However, it was observed that even after much insistence by the researcher women farmers from Nandapur block exhibited shyness in interacting with the researcher. This observation aligned with the statement given by Development Assistant looking after OMM work in Kundra block, who observed on the same line that local tribal inhabitants express inhibition and feel intimidated in conversing with people from outside.

*At the block level senior people will manage the operations of the processing unit according to their own way and village people get scared if they have to talk to a well-dressed person also. So they wont come to talk to that person. They think that the person has come to take some information from villagers which will later harm them. Villagers still have this mentality.* Development Assistant, MSSRF, Kundra block on 21<sup>st</sup> September 2021.

The researcher is informed by the field assistant of PRAGATI, FA in Nandapur block that women farmers possess good traditional knowledge on millet farming but cannot express in front of an outsider. Pandemic restrictions and hectic working schedule of women farmers further limited the time for interactions to explore deep into diversity that millet system represents. Language restrictions posed greatest limitation to carrying out the study in both the states. Difficult terrain and accessibility posed further limitations as the researcher had to, most of the time, return soon

from the field due to unavailability of means of transportation in Odisha. Moreover, OMM still in implementation mode, many activities such as widespread introduction of ragi (finger millet) snacks in government run pre-school centres were not initiated. Millet tiffin centres were also not in operation during the fieldwork duration. Future research can focus on evaluating the numerous interventions and community-based institutions created at the grassroots level.

Nagaland presents a different case in terms of agriculture patterns, socio-cultural life of inhabitants, land use pattern, crops produced and the local economy different from the market dependent states of India. Embeddedness of collectiveness in the socio-cultural norms and governance structure required us to use a different lens to understand the engagement of women in the millet ecosystem in Nagaland. Diversity in local food consumed and the relative self-sufficiency of farming households in food items (every household is a farming household in Meluri and Khumiasu village) other than rice (dependence on PDS rice is high during 3-4 months of shortage) as compared to the other states of India explains the reduced importance of millets in staple diet of locals. Absolute zero skills of the researcher to converse in local language posed a limitation. Absence of public transportation between Meluri, Khumiasu and Chizami village and within these villages limited the researcher's capacity to carry out an extensive survey in Phek district. Millet farming carried out by few WSHGs formed by Agriculture department and women collectives by NEN limited the size of the participants. Moreover, women farmers being regular workers in their field limited time for interactions to mostly evening hours. Early preparation of dinners and household work burden falling mostly on women also demands their availability.

In Nagaland, millet is losing its place despite civil society intervention. In Odisha, millet is gaining place due to government intervention. To be able to understand the farmers' aspirations surrounding millet vis-à-vis other cereals based crops, elaborate area, yield, and income surveys in tribal villages is needed. Such surveys have not taken place, either by government agencies or individual scholars. Area, yield, and income surveys surrounding millets will give us a clearer picture about the status of millets.

I have studied people's perceptions surrounding millets and institutions. However, significant information on whether interventions such as OMM have brought about change in consumption of millet in Odisha, or what are the emerging markets in this context requires further investigation

and a longer timeline of research. The OMM work is still in progress and future researchers can focus on this aspect.



## Appendices

**Table A5.1** Actors and their convergence areas in Inclusion of millets in State Nutrition Program

ACTORS	AREAS OF CONVERGENCE
Indian Institute of Millet Research (IIMR)	<ul style="list-style-type: none"> <li>• To enhance the technical capacities of OMM functionaries.</li> <li>• Pool of varieties and landraces suited to OMM areas is undertaken and enhanced.</li> <li>• Evaluation and identification of superior finger millet varieties.</li> <li>• Support to millet entrepreneurs.</li> <li>• Research regarding nutritional evolution of millet varieties and landraces, processing machines and value added products.</li> </ul>
Central Food Technological Research Institute (CSIR-CFTRI)	<ul style="list-style-type: none"> <li>• Processing ragi to incorporate in Take Home Ration scheme (THR).</li> <li>• Research in nutrition and shelf stability of millet products.</li> <li>• Technical specifications for millet machinery.</li> <li>• Facilitation for machinery procurement and training on operation.</li> <li>• Certification of quality parameters of millet products.</li> <li>• Conducting studies on recipe development under ICDS.</li> <li>• Technical analysis and feasibility of inclusion of different millet recipes in ICDS.</li> </ul>
Department of Planning and Convergence, Government of Odisha	<ul style="list-style-type: none"> <li>• Inter-departmental coordination in formulation and implementation of the program.</li> <li>• Development of millet development policy and its integration with other schemes of the state.</li> </ul>
Department of Agriculture and Farmer's Empowerment	<ul style="list-style-type: none"> <li>• Formulation of the policy on millets development in state.</li> <li>• Funding of the programme.</li> <li>• Finalizing state level action plans and developing guidelines.</li> <li>• Overseeing the functioning and implementation of the programme.</li> <li>• Facilitating convergence across departments at the state level.</li> </ul>

	<ul style="list-style-type: none"> <li>• Release of ragi landraces.</li> </ul>
ST and SC Development, Minorities and Backward Classes Welfare	<ul style="list-style-type: none"> <li>• Inclusion of millets in State Nutrition Programmes.</li> <li>• Expansion to further additional areas in blocks common under both OMM and Odisha PVTG Empowerment and Livelihoods Improvement Programme (OPELIP).</li> <li>• Procurement of millets through Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL).</li> </ul>
Department of Women and Child Development and Mission Shakti	<ul style="list-style-type: none"> <li>• Lifting of millets, preparation of millet products and distribution among beneficiaries under ICDS scheme.</li> <li>• Opening of Millet Stores in urban areas under OMM in collaboration with Mission Shakti.</li> <li>• Establishment of Processing Unit and value units in program implemented blocks with Mission Shakti SHGs.</li> <li>• Engagement of SHGs for preparation and promotion of millet products developed by SHGs.</li> <li>• Promotion of millet entrepreneurship and millet awareness campaigns in program implemented districts.</li> </ul>
Food Supplies and Consumer Welfare	<ul style="list-style-type: none"> <li>• Lifting of millets and distribution among beneficiaries under PDS.</li> <li>• Finalizing the strategy and process manual for inclusion of millets in PDS, ICDS, MDM and ST and SC Welfare Hostels.</li> </ul>
Micro, Small and Medium Enterprise	<ul style="list-style-type: none"> <li>• Support to small and medium enterprises on processing related as well as promotion of millet products based enterprises.</li> <li>• Setting up of primary processing machines in processing centres.</li> <li>• Finalizing the strategy and process manual for inclusion of millets in PDS, ICDS, MDM and ST and SC Welfare Hostels.</li> <li>• Strategy development on marketing of millets.</li> </ul>
Department of School and Mass Education	<ul style="list-style-type: none"> <li>• Organizing awareness campaigns on millets in schools.</li> <li>• Convergence in formulating action plan for inclusion of millets in MDM across schools.</li> <li>• Conducting pilot in inclusion of millets in MDM in DMF districts of Keonjhar and Sundergarh in collaboration with Program Secretariat, OMM.</li> </ul>

NCDS	<ul style="list-style-type: none"> <li>• Research related inputs such as design, monitoring, impact evaluation to millets policy development for inclusion of millets in ICDS, PDS, MDM and ST and SC Welfare Hostels.</li> <li>• Preparation of action plans related to inclusion of millets in State Nutrition Programmes and strategy for awareness campaigns for increasing household consumption.</li> <li>• Facilitating convergence across government departments at the state level for inclusion of millet into SNP as well as increasing household consumption.</li> <li>• Pilot in inclusion of millets in ICDS/MDM.</li> </ul>
WASSAN	<ul style="list-style-type: none"> <li>• Training for Women Campaign Teams, SHG members and anganwadi workers in preparation and presentation of millet recipes to promote household consumption.</li> <li>• Establishing small eateries and inclusion of millets in ICDS, PDS.</li> <li>• Popularizing millets through awareness campaigns and setting up of millet food stalls in various events in urban areas of the state.</li> <li>• Pilot in inclusion of millets in ICDS/MDM.</li> </ul>
Facilitating Agencies (FAs)	<ul style="list-style-type: none"> <li>• Organizing millet food festivals to popularize millet recipes preparation and household consumption at block and Gram Panchayat level.</li> <li>• Exposure visits of CBO members to various events for millet recipe development.</li> </ul>

**Table A5.2** Actors and their convergence areas in improving productivity

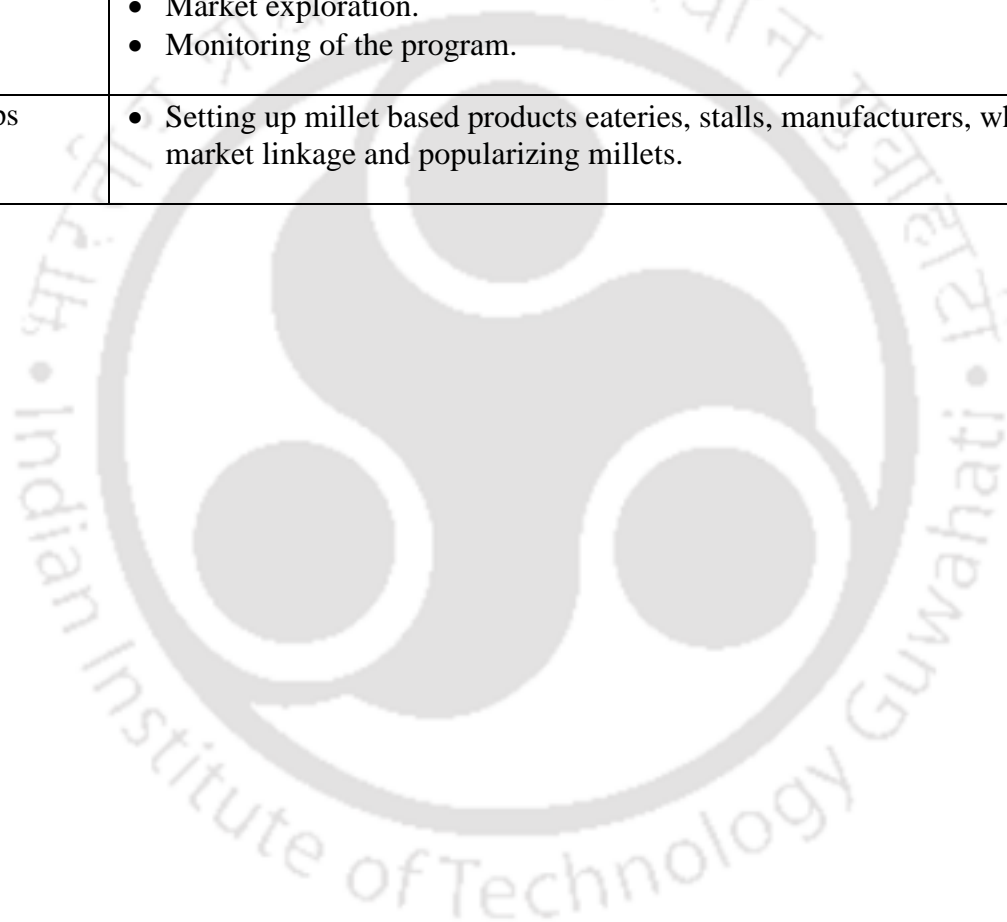
<b>ACTORS</b>	<b>AREAS OF CONVERGENCE</b>
Directorate of Agriculture and Food Production	<ul style="list-style-type: none"> <li>• Overall funding and Approvals to action plans.</li> <li>• Monitoring of the program.</li> <li>• Finalizing action plans for improving productivity.</li> </ul>
Assistant Agriculture Officer, Agriculture Technology Management Agency (ATMA)	<ul style="list-style-type: none"> <li>• Technical support in the form of improved practices.</li> <li>• DBT registration of farmers.</li> <li>• Overseeing and monitoring the work.</li> <li>• Facilitating convergence with relevant stakeholders at the district and block level and review of the programme.</li> </ul>
State Seed Testing Laboratory (SSTL)  National Bureau of Plant Genetic Resources (NBPGR)	<ul style="list-style-type: none"> <li>• Establishing Community gene banks and community seed storage.</li> <li>• Identification and preservation of landraces.</li> <li>• Capacity building of Program Secretariat, ATMA, FAs, CBOs, and seed farmers for conservation of local millet varieties and bringing them into state seed supply system.</li> </ul>
WASSAN	<ul style="list-style-type: none"> <li>• State and district level meetings and events.</li> <li>• Capacity building events on seed production; Participatory Varietal Trials (PVTs); soil health management; agronomic practices; pest management; processing and value addition.</li> <li>• Explore collaborations with expert organizations such as OUAT/ICAR/SAUs for seed related expertise.</li> <li>• Facilitate millet seeds exchange between clusters/GP/blocks/districts.</li> </ul>
Facilitating Agencies (FAs)	<ul style="list-style-type: none"> <li>• Monitor the implementation of the programme.</li> <li>• Delivering capacity building programmes and training at the district block and village level for CBOs, CRPs.</li> <li>• Field demonstrations of improved agronomic practices and exposure visits.</li> </ul>

	<ul style="list-style-type: none"> <li>• Coordination with various stakeholders like AAO and VAW (ATMA); WASSAN, LAMPCs; Block Development Officer (BDO); CBO; CRPs; Krushak Sathis.</li> </ul>
Community Based Organizations	<ul style="list-style-type: none"> <li>• Handholding support for field demonstration of improved agronomic practices through Community Resource Persons (CRPs).</li> <li>• Management of community based institutions such as Community Seed Management System, Custom Hiring Centre, and Community Seed Centre.</li> </ul>
Odisha Livelihood Mission (OLM)	<ul style="list-style-type: none"> <li>• Extending area under OMM by convergence in crop demonstrations.</li> <li>• Convergence in best agriculture practices in millets cultivation.</li> <li>• Convergence in capacity building, social mobilization, beneficiary selection.</li> <li>• Leveraging cooperative society space for procurement as well as PDS.</li> </ul>
NCDS	<ul style="list-style-type: none"> <li>• Coordinating convergence with relevant stakeholders for research on improved practices.</li> <li>• Conducting evaluation studies.</li> </ul>

**Table A5.3** Actors and their convergence areas in Procurement and Marketing

<b>ACTORS</b>	<b>AREAS OF CONVERGENCE</b>
ST and SC Development, Minorities and Backward Classes Welfare (TDCCOL)	<ul style="list-style-type: none"> <li>• State procurement agency for millets.</li> <li>• Millet procurement automation system developed.</li> <li>• Distribute the procured item to Civil Supplies department and ICDS.</li> </ul>
LAMPCs	<ul style="list-style-type: none"> <li>• Verification of farmer's registration form and farmer registration.</li> <li>• Purchasing of ragi from farmers.</li> <li>• Online payment to farmer's account through LAMPCs.</li> <li>• Storage.</li> </ul>
Odisha State Civil Supplies Corporation, Food Supplies & Consumer Welfare (OSCSC, FS&CW)	<ul style="list-style-type: none"> <li>• Procurement, storage and distribution for millets.</li> <li>• Distribution of processed millet through their established distribution network to anganwadis and schools.</li> </ul>
Assistant Agriculture Officer, ATMA	<ul style="list-style-type: none"> <li>• Funding for farmer registration and verification of documents.</li> <li>• Technical support to FAs in conducting awareness campaigns regarding farmer registration and millet procurement.</li> </ul>
Community Based Organization (CBO)	<ul style="list-style-type: none"> <li>• Support in farmer's registration.</li> <li>• Awareness campaigns with CRPs, farmers for registration and procurement and sarpanch.</li> </ul>
Odisha Rural Development and Marketing Society (ORMAS)	<ul style="list-style-type: none"> <li>• Market linkage exploration and collaboration.</li> <li>• Branding and selling of millets in urban markets through tie ups with private dealers.</li> </ul>
Farmer Producer Organizations (FPOs)	<ul style="list-style-type: none"> <li>• Block level implementing organization for OMM.</li> <li>• Oversee the procurement process, undertake registration of farmers, support the awareness generation of ragi procurement.</li> </ul>

	<ul style="list-style-type: none"> <li>• Platform for collective selling and supply of processed grains and value added products of millets and managing millet based enterprises.</li> </ul>
WASSAN	<ul style="list-style-type: none"> <li>• Technical training and support for program implementation.</li> <li>• Capacity building.</li> <li>• Market exploration.</li> <li>• Monitoring of the program.</li> </ul>
Private players and start-ups	<ul style="list-style-type: none"> <li>• Setting up millet based products eateries, stalls, manufacturers, wholesalers, retailers for market linkage and popularizing millets.</li> </ul>



..... **Table A5.4** Actors and their convergence areas in Processing and Value Addition

<b>ACTORS</b>	<b>AREAS OF CONVERGENCE</b>
Committee on Processing (Agriculture and Food Production; NCDS; OUAT; ICAR-IIMR; Mission Shakti, WCD; OLM; WASSAN; DHAN Foundation; The Millet Foundation)	<ul style="list-style-type: none"> <li>• Development of small millets processing machines.</li> <li>• Technical specifications for development of processing machines.</li> <li>• Strategy development and implementation plan for processing related activities.</li> <li>• Development of processing related training modules and technologies.</li> <li>• With the support of Program Secretariat, seek support of OUAT/ICAR-Food Processing Institutes/IIMR/Other SAUs/CSIR-CFTRI/FSSAI for development of millet products and training of entrepreneurs.</li> </ul>
WASSAN	<ul style="list-style-type: none"> <li>• Awareness creation as well as exploring partnerships with local street vendors, food sellers, bakeries and restaurants to include millets in their regular business.</li> </ul>
NCDS and WASSAN	<ul style="list-style-type: none"> <li>• Training to entrepreneurs, women SHGs by WASSAN with support of KVK/OUAT/IIMR and other State Agriculture Universities.</li> <li>• Finalizing the entrepreneurs by WASSAN after consultation with PD, ATMA and due approval of Collector and District Magistrate.</li> <li>• Verification process and criterion for selection of entrepreneur developed by NCDS before establishment of decentralized processing units and selection of entrepreneur.</li> </ul>
Facilitating Agency (FA)	<ul style="list-style-type: none"> <li>• Facilitation of processing related activities at the block level.</li> <li>• Support to CBO regarding implementation of processing related activities and establishment of institutions.</li> <li>• Capacity building and training of nodal CBO members, CRPs, PRIs, VAWs.</li> </ul>

Community Based  
Organization (CBO)

- Implementing the program on the field.
- Monitor the work of CRPs.



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