PROMOTING FOOD SOVEREIGNTY THROUGH INDIGENOUS CROPS: AN ANALYSIS OF ODISHA MILLET MISSION

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ABSTRACT

This paper analyzes Odisha's Millet Mission as a case study of food sovereignty through indigenous crop revitalization. The state-led initiative, launched in 2017, has successfully increased millet cultivation across participating districts. Key findings reveal that the program operationalizes food sovereignty principles through community-managed agriculture, agroecological practices, and cultural food preservation, despite operating within market-oriented frameworks. However, critical analysis exposes power imbalances, limited tribal agency, and structural barriers that constrain transformative potential. The study contributes to understanding how subnational governments can advance food sovereignty while navigating political-economic constraints, offering actionable insights for policy replication across similar contexts.

Keywords: *Food sovereignty, indigenous crops, millets, agricultural policy, sustainable development.*

1. INTRODUCTION

The global food system faces unprecedented challenges, including climate change, biodiversity loss, persistent hunger, and malnutrition. These challenges have prompted increasing interest in alternative agricultural models that prioritize sustainability, resilience, and local control (Altieri & Toledo, 2011). Food sovereignty, defined 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" (Nyéléni Declaration, 2007), has emerged as a powerful conceptual framework for reconceptualizing food systems governance.

In India, where agriculture remains central to both economic development and cultural identity, the state of Odisha launched the Special Programme for Promotion of Millets in Tribal Areas, commonly known as the "Odisha Millet Mission" (OMM), in 2017. This initiative aims to revive millet cultivation traditionally a staple food in tribal regions to address multiple challenges including nutrition security, climate resilience, and tribal livelihood enhancement (Government of Odisha, 2018). Millets, a group of small-seeded grasses that have been cultivated for thousands of years, particularly in semi-arid regions of Asia and Africa, represent indigenous crops with significant cultural and ecological importance.

This paper examines Odisha's Millet Mission through the lens of food sovereignty, analyzing how the program negotiates the complexities of agricultural development, indigenous knowledge systems, and market integration. I argue that the OMM represents a significant policy innovation that, while not explicitly framed in terms of food sovereignty, operationalizes many of its core principles by foregrounding local control over food production, ecological sustainability, and cultural food practices. By doing so, it presents an important case study for understanding how state actors can support food sovereignty while navigating the constraints of existing political-economic structures.

2. THEORETICAL FRAMEWORK

2.1 Food Sovereignty, State Policy, and Power Relations

The food sovereignty movement emerged in the mid-1990s, spearheaded by La Via Campesina, as a critical response to the neoliberal restructuring of global agriculture and the concept of "food security" that dominated international development discourse (Patel, 2009). While food security focuses primarily on ensuring sufficient food availability, food sovereignty emphasizes the political dimensions of food systems, insisting that control over food production should rest with local communities rather than transnational corporations or distant markets (McMichael, 2014).

The relationship between food sovereignty and state policy remains complex and contentious. As Edelman (2014) notes, food sovereignty advocates have often positioned themselves in opposition to state agricultural policies oriented toward export markets and industrial production models. However, scholars like Clark (2015) and Trauger (2017) observe that achieving food sovereignty frequently requires supportive policy frameworks at multiple governance levels, creating what Wittman (2015) terms "contradictory complementarity," where state institutions simultaneously constrain and enable food sovereignty initiatives.

Critical to understanding this relationship is the question of power and agency. As Agarwal (2014) argues, food sovereignty initiatives must grapple with who controls decision-making processes and how different stakeholders' interests are represented. In the context of indigenous communities, this becomes particularly complex, as state-led programs risk reproducing colonial patterns of knowledge extraction and cultural appropriation, even when ostensibly supporting traditional practices.

2.2 Indigenous Knowledge Systems and Decolonial Perspectives

Indigenous crops like millets embody complex socio-ecological relationships developed over centuries, reflecting what Berkes (2017) terms "traditional ecological knowledge"—cumulative bodies of knowledge, practices, and beliefs evolved through adaptive processes and passed down through generations. Decolonial perspectives emphasize that food sovereignty movements challenge not only contemporary neoliberal food regimes but also the colonial foundations of modern agricultural systems (Figueroa, 2021).

The revival of indigenous crops thus represents more than a technical agricultural intervention; it constitutes what Agarwal (2014) characterizes as a form of "cognitive justice" that recognizes and revalues marginalized knowledge systems. However, this revaluation occurs within power structures that may limit genuine community control. As Coulthard (2014) argues through the concept of "grounded normativity," true decolonization requires that indigenous communities maintain control over how their knowledge is used and transformed.

2.3 Multiscale Governance and Institutional Arrangements

Recent theoretical developments in food sovereignty scholarship have emphasized the importance of multiscale governance arrangements and the institutional mechanisms through which food sovereignty principles are operationalized. As Hospes and Brons (2016) argue, food sovereignty requires "nested sovereignty"—articulation of principles across jurisdictional levels from the local to the global. This framework helps explain how subnational initiatives like the OMM can create "protected spaces" for alternative food systems while remaining embedded within broader governance structures (Blay-Palmer et al., 2020).

However, as McKay et al. (2022) observe in their analysis of "transformative food politics," the challenge lies in maintaining transformative potential while scaling up initiatives. This creates what Duncan and Pascucci (2018) identify as the "scaling dilemma"—how to expand the reach of alternative food initiatives without compromising their core principles or community control.

2.4. Agriculture in Odisha and the Emergence of the Millet Mission

Odisha, located on India's eastern coast, is characterized by significant ethnic diversity, with scheduled tribes constituting 22.8% of its population (Census of India, 2011). Despite economic growth in recent decades, the state continues to face development challenges, including agricultural stagnation, high poverty rates, and persistent malnutrition, particularly in tribal-dominated districts (Paltasingh & Goyari, 2018).

Historically, millets formed the foundation of agricultural systems in Odisha's semi-arid upland regions, with varieties including finger millet (ragi), foxtail millet, little millet, and sorghum widely cultivated. These crops were integral to tribal food cultures and adapted to the region's agro-ecological conditions (Mishra & Kumar, 2018). However, Green Revolution policies prioritizing rice and wheat, coupled with the public distribution system's focus on these cereals, contributed to a dramatic decline in millet cultivation. Between 1970 and 2010, the area under millet cultivation in Odisha decreased by approximately 70% (Government of Odisha, 2018).

The marginalization of millets has had multidimensional consequences spanning nutrition, ecology, and culture. Nutritionally, it has contributed to micronutrient deficiencies, as millets typically contain higher amounts of calcium, iron, fiber, and other micronutrients compared to rice or wheat (Longvah et al., 2017). Ecologically, the shift toward monocultures has increased vulnerability to climate variability and pest outbreaks (Mishra & Kumar, 2018). Culturally, it has undermined traditional food practices and associated knowledge systems (Kannan, 2015).

The OMM emerged in response to these intersecting challenges. Launched in 2017, the program initially covered 30 blocks across 7 districts, later expanding to 84 blocks across 15 districts by 2021, and reaching over 100 blocks across 19 districts by 2023 (Government of Odisha, 2023). The mission adopted a multi-pronged approach encompassing production enhancement, processing infrastructure development, marketing support, and consumption promotion, involving extensive collaboration between government departments, non-governmental organizations, research institutions, and community-based organizations.

3. METHODOLOGY

This research employs qualitative document analysis to examine the design, implementation, and outcomes of the Odisha Millet Mission. Primary documents analyzed include government policy documents, program guidelines, annual reports, and evaluation studies published between 2017 and 2024. These are supplemented by secondary sources including academic publications, media reports, and civil society assessments. The analysis follows an interpretive approach, focusing on how the OMM conceptualizes and operationalizes key principles related to food sovereignty, including local control over food systems, agroecological production methods, cultural appropriateness, and just distribution networks. Particular attention is paid to how the program navigates tensions between divergent agricultural

paradigms and how it positions indigenous crops within broader development narratives.

A significant limitation of this methodology is the reliance on official documentation and published academic literature, without direct engagement with program participants through field research. This precludes detailed analysis of on-the-ground experiences, contested implementations, and the voices of tribal communities themselves. While this approach allows for systematic examination of program design and reported outcomes, it necessarily presents a partial view that may obscure power dynamics and community resistance not captured in official accounts.

4. ANALYSIS AND FINDINGS

4.1 Operationalizing Food Sovereignty Principles

The OMM demonstrates several key features that align with food sovereignty principles, even though the program itself does not explicitly employ food sovereignty terminology. The mission foregrounds local control over agricultural decision-making through its emphasis on community-managed farming systems. As outlined in the program guidelines, the initiative employs a "community managed sustainable agriculture" approach that prioritizes local knowledge and farmer-to-farmer extension (Government of Odisha, 2018). This represents what Rosset and Martínez-Torres (2012) describe as "dialogue of knowledges," where traditional farming practices are validated alongside scientific knowledge. The program's focus on participatory varietal selection exemplifies this approach. Rather than imposing standardized seed varieties, the OMM has worked with farmers to identify and propagate locally adapted landraces. In Koraput district, for example, the program documented 60 traditional varieties of finger millet and supported their conservation and improvement through community seed banks (Kumar et al., 2019). This stands in contrast to conventional agricultural extension programs that typically promote a limited number of high-yielding varieties, often at the expense of agrobiodiversity.

The OMM emphasizes agroecological production methods that reduce dependency on external inputs. The program has promoted organic cultivation practices, intercropping systems, and integrated pest management techniques indigenous to the region (Government of Odisha, 2023). These practices not only reduce production costs but also enhance system resilience to climate variability, aligning with what Altieri and Toledo (2011) identify as a central tenet of food sovereignty: production systems based on agroecology rather than industrial agriculture. The mission explicitly values the cultural dimensions of food systems. Program documents consistently reference the cultural significance of millets in tribal communities and frame their revival as a matter of cultural heritage preservation. The OMM has organized cultural events celebrating millet-based cuisines and supported the documentation of traditional recipes and preparation methods (Kumar et al., 2019). This recognition of the cultural embeddedness of food systems reflects food sovereignty's insistence on food as more than a commodity.

4.2 Navigating Market Integration and Structural Constraints

While the OMM embraces many food sovereignty principles, it simultaneously operates within market-oriented development frameworks. This creates both opportunities and tensions that illuminate the challenges of operationalizing food sovereignty within existing political-economic constraints. The program has developed innovative approaches to market integration that attempt to balance commercialization with local control. It has established Farmer Producer Organizations (FPOs) owned and managed by millet cultivators, creating collective marketing channels that enhance farmer bargaining power (Government of Odisha, 2021). In districts like Koraput and Malkangiri, these FPOs have established direct linkages with urban consumers, bypassing intermediaries and allowing producers to capture a greater share of consumer expenditure.

Additionally, the OMM has implemented a minimum support price (MSP) for millets that exceeds market rates, providing what Darian-Smith and McCarty (2017) describe as "protected spaces" within which alternative production systems can develop. The program has created dedicated procurement mechanisms for millets, integrating them into the public distribution system and mid-day meal schemes in schools, representing what Carney (2019) terms "institutional procurement." However, critical examination reveals significant structural barriers that limit the program's transformative potential. Despite the OMM's success, millets remain marginalized within the broader agricultural policy landscape. Rice continues to receive greater institutional support through subsidies, research investments, and extension services. The Agricultural Policy Research Centre (2023) found that rice receives nearly ten times more research investment than millets in eastern India, reflecting what Kannan (2015) identifies as embedded policy biases that favor conventional cereals. The dominant food retail sector privileges standardized products with long shelf lives, creating persistent barriers for diversified, locally processed foods (Mahapatra, 2023). Moreover, consumer preferences, particularly in urban areas, have been shaped by decades of dietary transition away from traditional cereals, requiring sustained cultural and marketing efforts to rebuild demand for indigenous foods.

4.3 Power Relations and Questions of Agency

A critical gap in official documentation concerns the actual experiences and agency of tribal communities within the OMM. While program documents emphasize community participation and indigenous knowledge, they provide limited insight into how power relations operate on the ground or whether communities have genuine control over program implementation. The risk of what Li (2015) terms "the will to improve" is evident in how the program frames millet revival. While emphasizing traditional significance, the OMM simultaneously markets millets as "smart foods" and "superfoods" suited to contemporary health concerns,

potentially commodifying indigenous knowledge for broader development agendas. This dual framing raises questions about whether communities retain control over how their traditional practices are represented and utilized. Land tenure issues present another dimension of power relations that the program must navigate. Many tribal communities practice shifting cultivation in forest and common lands, which often lack formal recognition in land records (Kumar et al., 2019). This creates tensions with forest conservation policies and complicates program implementation in precisely those areas where indigenous millet cultivation has traditionally been most prevalent. The absence of comprehensive land reforms means that the most marginalized farmers may be unable to fully benefit from program interventions.

Gender dimensions of the program also warrant critical attention. While the OMM has established processing units managed by women's self-help groups, creating employment opportunities, it is unclear whether these interventions address deeper structural inequalities or simply add to women's labor burdens. The program's emphasis on traditional knowledge systems may also reinforce gendered divisions of labor without questioning their equity implications.

4.4 Outcomes and Persistent Challenges

The OMM has achieved significant outcomes in its first seven years of implementation. Official reports indicate that the area under millet cultivation in participating districts increased by approximately 40% between 2017 and 2023, with yield improvements averaging 60% through improved agronomic practices (Government of Odisha, 2023). The program has established over 60 small-scale processing units managed by women's self-help groups, improving local value addition capacity. Recent evaluation studies have provided evidence of nutritional and resilience impacts. Research by the National Institute of Nutrition (2023) documented a 35% increase in dietary diversity scores among participating households, with significant improvements in micronutrient adequacy. An impact assessment by the International Food Policy Research Institute (2024) found that participating districts showed greater resilience during climate shocks, with reduced income volatility compared to non-participating districts.

However, several challenges limit the program's transformative potential. The scaling dilemma becomes apparent as the program expands beyond its initial focus areas. Standardization pressures may compromise the locally specific varieties and processing methods that give millets their cultural significance. The mission's efforts to develop formal marketing channels, while necessary for economic viability, may inadvertently reproduce the same market logics that originally marginalized indigenous crops. The program's replicability in other contexts remains questionable. Odisha's specific conditions including a substantial tribal population, existing millet cultivation knowledge, and supportive state government may not be present in other regions. The program's success may be overly dependent on these contextual factors, limiting its broader applicability as a model for food sovereignty initiatives.

5. DISCUSSION AND CRITICAL ANALYSIS

5.1 The Paradox of State-Led Food Sovereignty

The Odisha Millet Mission reveals fundamental tensions in the relationship between state policy and food sovereignty. While the program successfully operationalizes many food sovereignty principles, its embeddedness within state structures creates what might be termed a "sovereignty paradox." The very institutions that enable the program's implementation also constrain its transformative potential. This paradox manifests in several ways. The program's emphasis on community-managed agriculture occurs within a broader policy framework that continues to privilege industrial agricultural models. The mission's celebration of indigenous knowledge takes place alongside efforts to standardize and scale up practices that may lose their locally specific character. The program's support for tribal communities operates through bureaucratic mechanisms that may not recognize or accommodate indigenous governance systems.

These contradictions suggest that food sovereignty cannot be achieved simply through supportive state policies but requires more fundamental transformation of political-economic structures. However, the OMM also demonstrates that significant progress toward food sovereignty principles is possible even within existing constraints, creating what Gibson-Graham (2006) describe as "spaces of possibility" for alternative food systems.

5.2 Indigenous Knowledge and Institutional Appropriation

The OMM's engagement with indigenous knowledge systems raises important questions about ownership, control, and cultural appropriation. While the program valorizes traditional knowledge regarding millet cultivation and processing, this revaluation occurs within institutional frameworks that may limit genuine community control over how knowledge is used and transformed. The integration of traditional knowledge with scientific expertise, while potentially beneficial, risks creating what Agrawal (1995) terms "hybrid knowledge" that may be dominated by institutional rather than community priorities. The program's emphasis on documentation and standardization of traditional practices, while necessary for scaling up, may transform dynamic, locally specific knowledge into static, institutionalized forms.

Moreover, the program's framing of millets as "smart foods" and "superfoods" for contemporary health concerns, while strategically useful for building urban markets, may commodify indigenous knowledge in ways that benefit external actors more than the communities that developed and maintained this knowledge. This raises questions about whether communities receive fair compensation for their intellectual contributions and

whether they retain control over how their traditional practices are represented and utilized.

5.3 Structural Barriers and Systemic Change

Despite the OMM's achievements, several structural barriers limit its transformative potential and raise questions about the sustainability of gains without broader systemic change. The program operates within agricultural and food systems that continue to be organized around industrial production models and global market integration. The persistence of policy biases favoring conventional cereals means that millets remain marginalized within the broader agricultural support system. Research investments, extension services, and input subsidies continue to flow primarily to rice and wheat production, limiting the long-term competitiveness of millet-based farming systems. This suggests that achieving food sovereignty requires not just supportive programs for alternative crops but fundamental restructuring of agricultural policy priorities.

Market structures present another set of constraints. The dominance of centralized food processing and distribution systems creates inherent disadvantages for diverse, locally processed foods. While the OMM has developed innovative marketing mechanisms, these remain niche solutions that do not challenge the broader organization of food systems around standardization and scale.

Land tenure issues represent perhaps the most fundamental structural barrier. The program's inability to address questions of land rights and forest governance means that the most marginalized farmers may be unable to fully benefit from program interventions. This highlights the need for comprehensive land reforms as a prerequisite for genuine food sovereignty.

5.4 Equity and Inclusion Concerns

A critical analysis of the OMM must consider whether the program's benefits are equitably distributed and whether some groups may be inadvertently excluded or marginalized. While official reports emphasize broad participation, the absence of disaggregated data on outcomes by gender, caste, class, and other social categories makes it difficult to assess distributional impacts. The program's emphasis on farmer producer organizations and collective marketing mechanisms may benefit those with greater social capital and organizational capacity while potentially excluding the most marginalized farmers. Similarly, the focus on land-based cultivation may not address the needs of landless agricultural workers or those dependent on forest resources.

Gender dimensions of the program require particular attention. While the establishment of women-managed processing units creates employment opportunities, it is unclear whether these interventions address deeper structural inequalities or simply add to women's labor burdens. The program's emphasis on traditional knowledge systems may also reinforce gendered divisions of labor without questioning their equity implications.

6. POLICY IMPLICATIONS AND RECOMMENDATIONS

6.1 Enhancing Community Agency and Control

Based on the analysis of the OMM's strengths and limitations, several policy recommendations emerge for enhancing community agency and control within food sovereignty initiatives. First, programs should incorporate mechanisms for genuine community participation in decision-making, going beyond consultation to include community control over program design and implementation priorities. This requires developing institutional arrangements that recognize and accommodate indigenous governance systems rather than imposing external bureaucratic structures. Programs should also include provisions for community ownership of key assets, including processing facilities, seed banks, and marketing channels, ensuring that benefits flow directly to participating communities.

Capacity building efforts should focus on strengthening community organizations and leadership rather than simply transferring technical knowledge. This includes supporting indigenous institutions and knowledge systems while building communities' ability to engage with and influence external support systems.

6.2 Addressing Structural Barriers

Achieving the transformative potential of food sovereignty initiatives requires addressing structural barriers that limit their effectiveness. Policy makers should work to restructure agricultural support systems to provide equitable backing for diverse crops and farming systems. This includes reallocating research investments, extension services, and input subsidies to support agroecological and indigenous crop production.

Land tenure reforms are essential for ensuring that marginalized farmers can fully benefit from food sovereignty initiatives. This includes recognizing community land rights, addressing historical injustices in land distribution, and developing tenure systems that support agroecological farming practices.

Market structure reforms should focus on creating institutional mechanisms that support diverse, locally controlled food systems. This includes developing alternative certification systems, supporting local and regional food networks, and reforming public procurement policies to prioritize local and indigenous foods.

6.3 Replication and Scaling Considerations

For other states and regions considering similar initiatives, several factors should be considered to enhance replicability while maintaining transformative potential. First, programs should be designed to respond to local conditions and priorities rather than imposing standardized models. This requires extensive consultation with local communities and adaptation to specific agro-ecological and cultural contexts. Institutional arrangements should be flexible enough to accommodate different governance systems and

organizational forms. Programs should also include mechanisms for learning and adaptation, allowing for modification based on experience and changing conditions. Scaling strategies should prioritize horizontal expansion through farmer-to-farmer networks and community-led initiatives rather than vertical scaling through centralized institutions. This helps maintain community control while expanding reach and impact.

6.4 Monitoring and Evaluation Frameworks

Future food sovereignty initiatives should incorporate monitoring and evaluation frameworks that capture both quantitative outcomes and qualitative dimensions of community control and empowerment. This includes developing indicators for measuring community agency, cultural preservation, and social equity alongside production and economic outcomes. Evaluation processes should be participatory, with communities involved in defining success criteria and assessing program impacts. This helps ensure that programs remain accountable to community priorities and values rather than external development agendas. Long-term monitoring should track changes in power relations, knowledge systems, and institutional arrangements to assess whether programs are achieving transformative change or simply improving conditions within existing structures.

7. CONCLUSION

Odisha's Millet Mission represents a significant innovation in agricultural policy that operationalizes many key principles of food sovereignty while revealing the complex challenges of implementing transformative change within existing institutional structures. The program demonstrates that state institutions, particularly at subnational levels, can serve as important vehicles for advancing food sovereignty principles, despite the movement's historical skepticism toward state intervention. The OMM's success in reviving millet cultivation, improving nutritional outcomes, and supporting agroecological practices illustrates the potential of indigenous crops as focal points for alternative food systems. The program's emphasis on community-managed agriculture, participatory variety selection, and cultural food practices creates important precedents for how state policies can support rather than undermine indigenous knowledge systems.

However, critical analysis reveals significant limitations in the program's transformative potential. The persistence of structural barriers, including policy biases toward conventional cereals, market constraints, and land tenure issues, constrains the program's ability to challenge fundamental power relations within food systems. Questions remain about tribal communities' genuine agency within the program and whether the initiative risks appropriating indigenous knowledge for broader development agendas. The analysis suggests that achieving food sovereignty requires not just supportive programs for alternative crops but fundamental restructuring of agricultural policy priorities, market systems, and land relations. While the OMM creates important "spaces of possibility" for alternative food systems, these spaces remain constrained by broader political-economic structures that continue to privilege industrial agricultural models.

Future research should prioritize ethnographic investigations of how the program is experienced by different stakeholders, particularly tribal communities, to better understand power dynamics and contested implementations not captured in official documentation. Comparative analysis examining similar initiatives in other Indian states and international contexts could illuminate how different institutional arrangements shape prospects for food sovereignty in diverse settings.

The OMM's experience offers several key insights for policy and practice. First, it demonstrates the importance of institutional arrangements that balance state support with community control, creating "protected spaces" for alternative food systems without compromising community agency. Second, it highlights the potential of indigenous crops not merely as technical solutions but as cultural and political resources for challenging dominant agricultural paradigms. Third, it reveals the necessity of addressing structural barriers through comprehensive policy reforms rather than relying solely on targeted interventions.

As global food systems confront intensifying crises related to climate change, biodiversity loss, and persistent malnutrition, initiatives like the Odisha Millet Mission provide important lessons regarding potential pathways toward more just and sustainable alternatives. While not providing a universal blueprint, the program demonstrates that concrete steps toward food sovereignty are possible even within existing institutional frameworks, offering hope for more transformative change as political opportunities emerge. The ultimate test of the OMM's contribution to food sovereignty will be whether it can maintain and strengthen community control over food systems while continuing to expand its reach and impact. This requires ongoing vigilance regarding power relations, continued support for indigenous knowledge systems, and commitment to addressing the structural barriers that limit transformative change. Only through such sustained effort can initiatives like the OMM fulfill their potential as stepping stones toward genuine food sovereignty.

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