

A Summary Report on Odisha Millets Mission as Mission-Oriented Innovation Policy.

Findings from Multi-stakeholder International Workshop on: Shaping the sustainable future of Odisha Millets Mission.

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Executive Summary

Key improvement Areas and Policy Actions

This report intends to position OMM as one of the case studies for MOIPs as well as highlight the current policy gaps and opportunities for sustaining OMM. We use a 2 x 2 quadrant framework to breakdown OMM's complexities of challenges and solutions as: (i) Aligned Challenges and Solutions (clear problems, clear solutions), (ii) Problems seeking solutions (clear problems, complex solutions), (iii) Solutions seeking problems (complex problems, clear solutions), and (iv) multi-governance alignment (complex problems, complex solutions). We co-produced fourteen key policy actions for enhancing the impact and sustainability of OMM under each of these quadrants.

Quadrant 1: Aligned Challenges and Solutions (clear problems, clear solutions)

Action 1: Co-design bespoke capacity building, training programmes and co-create knowledge repository – Conduct training needs analysis for production to processing and marketing different millets varieties, machineries use, gender specific training programmes; document best practices from production to insurance, processing, packaging, bookkeeping, maintaining records, inventory management policies, etc; learnings from Quinoa, other countries are needed. Creating indigenous knowledge Hub platform (e.g., Zooniverse) for best practices on millets value chain should be promoted.

Action 2: Enhance the different types of infrastructure support – Conduct a thorough user needs analysis of implementers such as farmers, FPOs, WSHGs for identifying the bottlenecks of productivity, such as more space requirements, some machineries at block and some at district level are needed, cold chain infrastructure for high-value products, portable cool boxes, timely repair of machineries support etc.

Quadrant 2: Problems seeking solutions (clear problems, complex solutions)

Action 3: Co-define metrics with experts and implementers for monitoring OMM success – harmonising methods for scientific metrics such as LCAs, co-defining data types and collection methods for providing granular measures to align OMM objectives and its success indicators with SDG indicators is needed.

Action 4: Promote and conserve biodiversity of millets: a policy initiative and incentive to encourage shift from monocropping to biodiverse millets via Minimum Support Price and Public Distribution System is needed to support for both environmental and socio-economic sustainability. Moreover, conserving biodiversity of traditional millets (e.g., capitalising knowledge of 20-50 local varieties) instead of promoting GMOs is suggested.

Action 5: Promote R & D for developing bespoke consumer nudges and marketing strategies – more research needs to be done of different types of consumers segments, associated nudges and marketing strategies (e.g., for making millets mainstream urban diet we might need to move from millets as poor man's food stigma to millets being a fitness/ health food; there would be certain segments of consumers driven by specific celebs endorsement, certain influenced by food bloggers, some through social media channels such as Village Channel Recipes).

Action 6: Incentivise and capitalise on organically produced millets – Most of the millets produced by the tribal communities or on marginalised lands are organic which could be highly valuable if the right markets are accessed. However, there are multiple organic certifications in the market, cost of which mostly falls on farmers. It is suggested that the government take initiatives for setting standardising operating protocols (SOPs) for data collection, unifying organic certifications, calibrate, and incentivise organic practices accordingly.

Quadrant 3: Solutions seeking problems (complex problems, clear solutions)

Action 7: Promote sensory, labelling and packaging related R & D for diversifying value-added products for different markets – new products such as millet oil, crisps, flakes, muesli along with advanced biodegradable packaging solutions are needed. Moreover, there is no need to replace many of the better protein-based products with millets (e.g., millets dhokla).

Action 8: GIS-based traceability of individual farm and farmer – is needed for incentivising right farmers (and not middle businessmen) when procuring through Tribal Development Co-operative Corporation of Odisha Ltd (TDCCOL),

Action 9: Identify policy instruments to promote millets as cash crop – promoting R & D for diversifying into a few high-value added products for export markets (e.g., no refined sugar added millets chocolate brownies, single malt organic millets whiskey, alternative protein millets burgers, alternative animal feed) that provides better ROI for farmers, tax breaks for the companies (e.g., by training SHGs or tribal communities for entrepreneurship), should be promoted.

Quadrant 4: Multi-governance alignment (complex problems, complex solutions)

Action 10: Co-design mechanism for applying harmonised LCAs, social LCAs, and other assessment approaches – for Net Zero claims, creating carbon trading markets, social bonds, finance innovations for better ROI to farmers. It is also suggested to have a participatory target fixing.

Action 11: Establish an NGO co-ordination group for hybridising policy making – co-define roles and responsibilities of NGOs from block to district, state and national level to monitor their impact and foster cooperation instead of competition (e.g., there are multiple overlaps of the projects, so convergence of these projects are needed for farmers) and establish regular dialogues.

Action 12: Provide crop insurance (not just from climate but also wild animals) – Incorporating the learnings from Quadrant 1 on best practices in crop insurances and after conducting the user needs analysis through NGOs, operationalise right insurance schemes.

Action 13: Establish International Centre of Excellence for Millets Value Chain – position Odisha and India at the forefront of Circular and Sustainable Millets Value Chain by co-creating a knowledge hub with international and national knowledge partners for delivering different types of specialised trainings in millets value chain from production to consumption including cooking, machineries, quality control at millets café, during packaging, etc), Incubation centres, accelerators and have different champions for each category (e.g., machinery maintenance, best practices for production, processing, etc.) at different levels: block, district to promote peer wise learning.

Action 14: System-led public private partnerships (PPPs): A shift is needed from a government compensation structure to a market driven compensation structure where much R & D now should be focused on packaging, product innovations, product analysis with respect to SDG and consumer segmentation, e.g., which product is reducing hunger; which to target for women/ child development, e.g., processed millets biscuits which SDG is it targeting; identifying minimal viable products that would be sustained, processing, shelf lives, market needs analysis beyond Odisha and India.

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CHAPTER 1

1.1. MOIP: new approach to building policy

Faced with mounting societal challenges and acknowledging the limitations of traditional Science, Technology, and Innovation (STI) policies, such as weak directionality, lack of holistic co-ordination and fragmentation of the policy mix, a number of countries have started experimenting with various types of systemic interventions, commonly labelled as 'Mission-oriented innovation policies' (MOIPs).

MOIPs are defined as *a co-ordinated package of policy and regulatory measures tailored specifically to mobilise science, technology, and innovation in order to address well-defined objectives related to a societal challenge, in a defined timeframe. These measures possibly span different stages of the innovation cycle from research to demonstration and market deployment, mix supply-push and demand-pull instruments, and cut across various policy fields, sectors, and disciplines (OECD, 2021).*

MOIPs take a variety of organisational forms, such as for instance a strategic or policy framework, a programme, or a policy scheme. Their common characteristic is to include consistent and integrated arrangements that allow strategic orientation (co-creation of an agenda for addressing the challenge), holistic policy coordination (across policy silos) and integrated implementation (a policy mix of interventions covering all relevant needs). They are therefore distinct for instance from a strategy that would not have a dedicated governance structure and mechanisms for implementation. While none of them fully corresponds to this definition of MOIP by OECD, about 40 recent policy initiatives worldwide has been recognised to fit this definition to a significant extent.

Odisha Millets Mission (OMM) also fits this definition of MOIP to a large extent but has not yet been recognised by OECD as one of the MOIPs. The intention of this report, while highlighting the findings of the international workshop for policy gaps and actions, is also to demonstrate how OMM can be presented as a case study for MOIP.

1.2 How OMM meets the criteria of MOIP

Odisha Millets Mission (OMM) is a flagship programme of Department of Agriculture and Farmers Empowerment, Government of Odisha, India. It fits the criteria of MOIP's **strategic orientation** as it emerged from a consultation between Government, Academia (Nabakrushna Choudhury Centre for Development Studies; NCDS) and Civil Society Organisations (RRA Network, ASHA Network and local NGOs). It is first of its kind of agriculture programme with priority on increasing consumptions and productions in Odisha through multi-departmental **holistic policy co-ordination**. OMM delivery mechanism has an **integrated implementation** structure which happens at three levels: state, district, and block level. Block level is the main unit of the programme implementation that contributes towards district and state level implementation. The target of OMM is that each block should cover at least 1000 Ha. in the 5 years and cover 4000 households per block through production, consumption, processing and FPO promotion activities.

The key objectives of OMM are:

1. Improving Productivity of Millet Crops
2. Promoting household level Consumption
3. Conservation and promotion of millet landraces
4. Setting up decentralised Processing unit
5. Promotion of Millet Value addition enterprises
6. Promoting Farmer Producer Organisations (FPOs) and market facilitation
7. Inclusion of Millets in ICDS, MDM and PDS

CHAPTER 2

(summary)

Aims & Methodology of Workshop

2.1 Aim & Objectives

Overall aim of the workshop was to co-define the residual challenges despite OMM and co-design possible solutions with the challenge owners on ground. The specific objectives included:

1. Identifying top three challenges that existed before OMM.
2. Identifying key challenges still persisting despite OMM (i.e., even after OMM).
3. Identifying top three changes at a system level made for implementing OMM.
4. Proposing possible solutions for overcoming residual challenges and sustaining OMM

2.2 Methodology

We adopted a multistakeholder participatory policy gap analysis methodology for addressing the above objectives.

2.2.1 Stakeholder Identification and grouping

Approximately 150 participants were recruited by the Department of Agriculture and Farmers Empowerment from all across Odisha state representing different districts, blocks, communities, expertise, and roles associated with OMM. The stakeholders were grouped as:

1. Production Systems Experts: e.g., representatives/ multi-disciplinary scientists (agronomy, soil science, plant health, genomics, machineries R&D, engineering) from academia, most of which are government evidence generators and advisers.

2. Product developers and market Experts: e.g., practitioners such as Chefs, processors/ manufacturers, start-ups, Women Self-Help

3. Nutrition and Health Experts: e.g., Doctors, sports representatives, nutritionists

4. Implementers: farmers and farmer producer organisers, Women Self-Help Groups (WSHG), Civil Society Organisations (e.g., Pradhan, Pragati, FES, MSSRF, CYSD)

2.2.2 Gap identification and analysis

The four objectives were divided into two sessions: Challenges and Solutions. Challenges session included multistakeholder group discussions for objectives 1 and 2, lasting about 90 mins, followed by each group presenting to others. Solutions session included multistakeholder group discussions for objectives 3 and 4, lasting about 90 mins, followed by each group presenting to others. At the end of each group presentation, there was a consensus building exercise where groups questioned and challenged each other to reach a consensus regarding co-designing solutions.



CHAPTER 3

(summary)

3.1 Analysing Problem and Solution Complexity in OMM: A Framework for MOIP

In assessing the Odisha Millet Mission (OMM), we turn to the comprehensive framework developed by Wanzenböck, et al. (2019) which provides a structured approach to understanding and evaluating the wickedness or complexity of both the problem and solution spaces in mission-oriented innovation policy (MOIP). By applying this framework, we gain valuable insights into how the OMM addresses these complexities and achieves its objectives. Through this analysis, we aim to provide a comprehensive understanding of how OMM navigates the complexities within the problem and solution spaces. We critically evaluated the mission's strategies, draw insights from the participants' diverse views, and discuss the relevance of using this framework for assessing MOIP. This framework will serve as a valuable tool for examining the effectiveness of MOIP in addressing grand societal challenges like sustainable millet cultivation and its implications for public value.

The framework distinguishes four quadrants, each representing a different scenario of problem and solution complexity. In the context of OMM, we will delve into each of these quadrants, exploring the characteristics of the mission as it relates to problem and solution complexity, and analysing the strategies and initiatives employed. Here is an overview of the four quadrants:

3.1.1 Quadrant 1 – Alignment – A Comprehensive Programme of Actions for Clear Pathways

Description: In this quadrant, both the problem and solution spaces are clear and they are significantly reduced. In the context of the Odisha Millet Mission (OMM), this quadrant represents a comprehensive program of actions with clear pathways that can be transferred to other mission innovations. OMM's strategies create alignment, reduce market unpredictability, promote interdisciplinary collaboration, and harness technology. In the detailed technical report, we will delve into how these alignment-focused approaches impact the mission's effectiveness and replicability. Some of the examples include capacity building initiatives (at different levels, gender specific trainings needed), training programmes (co-design needed), documentation for best practices for knowledge exchange from production to insurance, processing, packaging, bookkeeping, maintaining records, inventory management policies, etc; learnings from Quinoa, other countries are needed; enhance the infrastructure support from space to cold chain for WSHGs.

3.1.2 Quadrant 2 – Problem in Search of a Solution

Description: While the problem space is clear, the solution space remains challenging, signifying that for a given problem there is a shared vision on feasible solutions and clarity about responsibilities. In this quadrant, we examined how the health, nutritional, and sustainability benefits of millets are reducing the complexity of the problem, focusing on market unpredictability and nutrition challenges. Examples include methods for harmonising scientific metrics such as LCAs, providing data/ measures granularity for aligning OMM objectives and success indicators with SDG indicators, moving from monocropping to bio-diverse millets via MSP and PDS system support for both environmental and socio-economic sustainability; conserving biodiversity of traditional millets (e.g., capitalising knowledge of 20-50 local varieties instead of promoting GMOs), consumer segmentation, nudging and marketing strategies (moving from millets as poor man's food stigma to millets being a fitness/ health crop), unifying organic certifications, calibrate and incentivise organic practices.

3.1.3 Quadrant 3 — Solution in Search of a Problem

Description: The problem space remains highly wicked, but the solution space is more structured. Here, OMM has initiatives focused on livelihood, crafts, and culinary innovations rooted in the multi-utilisation of millets. While these initiatives hold promise in fostering millet-based economic activities, they face intricate challenges regarding market alignment and purposeful integration with existing millet markets, particularly in the context of the state of Odisha. OMM currently collaborates with culinary schools, chefs, and food experts to conduct training sessions for culinary professionals, more initiatives should be taken to engage with food bloggers; social media channels such as Village Channel Recipes; R&D for new products such as millets oil; crisps, flakes, Muesli. Examples also include, diversifying value-added products for different markets, bespoke packaging for different products, ensuring individual farm and farmer-level GIS based traceability for incentivising right farmers, creating indigenous knowledge Hub, tax breaks for the companies (e.g., cookies companies) to train to SHGs or tribal communities, CSR tasks for setting up such initiatives; identifying opportunities for making Millets as a Cash Crop by exporting high-value added products that provides better ROI for farmers; promoting millets tribal entrepreneurship for different markets. In the detailed technical report, we will explore how these initiatives aim to create market demand for millet-based products and assess their suitability in the existing market landscape.

3.1.4 Quadrant 4 – Multi-Stakeholder Governance and Alignment

Description: In this quadrant, the wickedness of both the problem and solution spaces is high. This signifies that the mission deals with broadly framed challenges, limited knowledge on problem nature, and no shared vision on feasible solutions. Here, the mission's challenge is a multi-stakeholder governance, requiring effective coordination, alignment, and legitimacy among various actors. Examples include, application of life cycle assessment (LCA), social LCA, and other assessment approaches, creating carbon trading markets, social bonds, finance innovations, data and organisational interoperability, roles and definition for NGOs to foster cooperation instead of competition (e.g., there are multiple overlaps of the projects so convergence of these projects are needed for farmers), coordination mechanism for training and knowledge information sharing for knowledge translation (e.g., training for packaging, nutrients preservation vs overprocessing and enhancing shelf lives to WSHGs), dialogues and feedback for hybridising policy making, crop insurance (not just from climate but also wild animals), establish International Centre of Excellence in Millets Value Chain (a knowledge hub delivering different types of specialised trainings in millets value chain from production to consumption including cooking, machineries, etc), Incubation centres, accelerators and have different champions for each category (e.g., machinery maintenance, best practices for production, processing, etc.) at different levels: block, district; participatory target fixing, System-led public private partnerships (PPPs): A shift is needed from a government compensation structure to a market driven compensation structure where much R & D now should be focused on packaging, product innovations, product analysis with respect to SDG and consumer segmentation, e.g., which product is reducing hunger; which to target for women/ child development, e.g., processed millet biscuits – which SDG is targeting; identifying minimal viable products that would be sustained, processing, shelf lives, market needs analysis beyond Odisha and India.

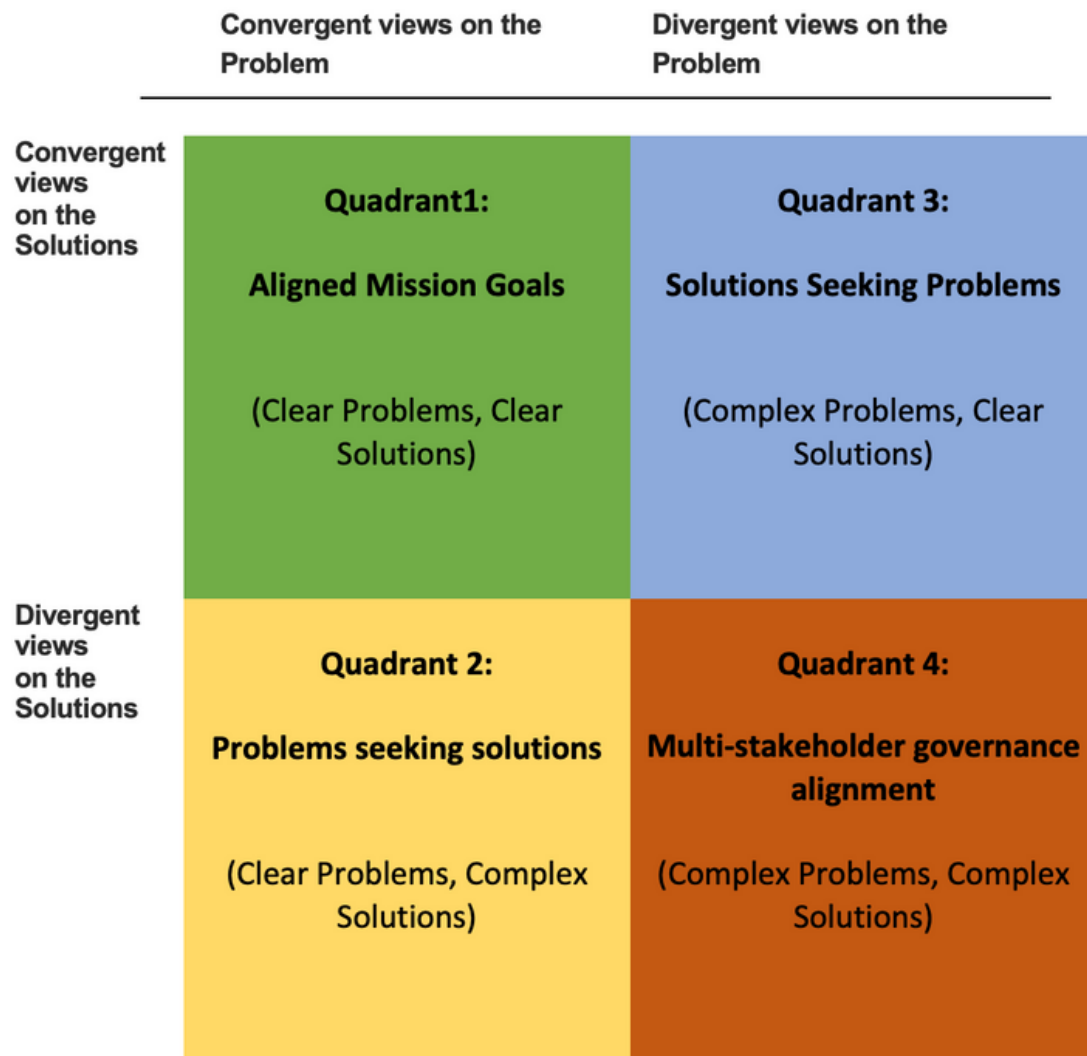


Figure 1. A two-dimensional problem–solution space to contextualize missions.





CHAPTER 4

Conclusions

In conclusion, the comprehensive assessment of the Odisha Millet Mission (OMM) across the four quadrants offers valuable insights into the mission operational and strategic landscape.

Quadrant 1 showcases OMM's success in achieving alignment, particularly in market demand-supply dynamics, integration with nutrition programs, and standardization of millet-based products. However, sustaining this alignment amid evolving market forces and unforeseen disruptions requires ongoing vigilance and adaptability.

In **Quadrant 2**, OMM demonstrates a commitment to science-based targets and metrics, yet scrutiny reveals the necessity for an intensified research and innovation ecosystem. While the current approach emphasises data-driven decisions, there is room for a more robust and dynamic research framework to fully harness the transformative potential of millets.

Quadrant 3 illustrates OMM's expansion into economic and cultural realms, aiming for value creation. However, the challenge lies in streamlining these diverse initiatives into a cohesive strategy. The mission must prioritise coordination efforts to maximise the collective impact of economic, craft, and culinary developments, ensuring they align seamlessly with overarching goals.

Quadrant 4 exposes the challenges of multi-stakeholder governance, emphasising the need for more effective mechanisms to reconcile diverse interests and ensure inclusive decision-making. The reliance on consultative forums and task forces is commendable, but the mission must continually refine its governance structures to navigate the complexities of stakeholder engagement.

The application of this comprehensive framework to categorise the missions' challenges and opportunities based on the problem-solution space complexity not only allows stakeholders to systematically prioritise investments and development efforts but also establishes the foundation for collaborative policy co-development. This ensures a systematic and strategic approach to effectively address the mission's outputs. Embracing this holistic perspective facilitates informed decision-making, providing a clear pathway to optimise resources and drive impactful, sustainable change in the millet sector and, by extension, for the community at large.

The quadrant approach also serves as a nuanced and strategic method for the development of performance indicators tailored to specific scopes within the mission. By employing a two-dimensional problem–solution space, this approach contextualises missions in a comprehensive manner. Each quadrant delineates distinct challenges and corresponding solutions, offering a structured framework for understanding the multifaceted landscape of mission-oriented innovation policies. This not only aids in the identification of key performance indicators but also allows for a targeted and strategic evaluation of the mission's operational and strategic scopes. Such a systematic approach enhances the mission's ability to measure progress, address challenges, and optimise its impact in a dynamic and evolving context.

Overall, OMM mission-oriented innovation policy exhibits notable strengths, particularly in alignment and strategic vision. However, the mission faces critical challenges in governance, research intensity, and coordination of diverse initiatives. Addressing these challenges will be imperative for OMM to realise its objectives and solidify its position as a transformative force in sustainable agriculture and millet fork-to-farm value chain promotion.

About SFN+

The Science and Technology Facilities Council (STFC) Food Network+ (SFN) brings together STFC researchers and facilities with research and industry in the agri-food sector.

The objectives of the SFN are:

- To build an inclusive, dynamic, interdisciplinary network of researchers focused on innovative ways to use the skills and facilities funded by STFC.
- To kickstart interdisciplinary collaborations and research projects working towards safe, sustainable food systems both in the UK and developing countries.
- To enhance the impact of STFC/food interdisciplinary collaborations by encouraging codesign with the non-academic sector.

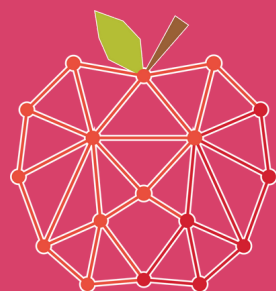
What do we do?

- The SFN is building an interdisciplinary community working to provide a sustainable, secure supply of safe, nutritious, and affordable high-quality food using less land, with reduced inputs, and in the context of global climate change and declining natural resources. We fund projects that put STFC capabilities to work in the AgriFood industry.

Find more at: <https://www.stfcfoodnetwork.org/>

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