

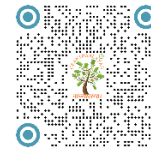
Original Article

ASSESSING THE ROLE OF KARNATAKA INDUSTRIAL POLICY IN PROMOTING SUSTAINABLE FOOD PROCESSING MSMEs IN MYSURU

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ABSTRACT

The food processing industry in Mysuru is an important economic hub for Karnataka. It contributes significantly to employment generation, value addition, and regional economic development, making sustainable manufacturing a strategic priority for long-term industrial competitiveness. Its transformation towards sustainable manufacturing is constrained by managerial, technological, financial and institutional challenges. The study aims to assess the role of Karnataka Industrial policy 2025-30 in promoting Sustainable manufacturing practices among food processing MSMEs in Mysuru district. By understanding the micro, small, and medium enterprises (MSMEs), this literature review adopts the Triple Bottom Line concept to understand the impact of Karnataka Industrial Policy 2025-30. The various policy enablers include financial subsidies and technology infrastructure, which help in cleaner production. However, limited awareness, inadequate technical expertise, financial constraint, and weak institutional coordination continue to hinder the effectiveness implementation among MSMEs. The review also examines scholarly publications to identify existing research trends, implementation challenges and opportunities for improving sustainable manufacturing practices among food processing MSMEs. The study adopts a systematic literature review approach by analysing existing research on sustainable manufacturing industrial policy and MSME development. The findings indicate that financial incentives, Technology support, and infrastructure development positively influence the adoption of sustainable manufacturing practices, whereas limited awareness and financial constraints remain significant barriers.

The study concludes that while the Karnatak industrial policy 2025-30 provides a strong framework for promoting sustainable industrial development

The study highlights the importance of strengthening policy implementation. Institutional support and capacity building initiatives to accelerate sustainable industrial development. Among food processing MSMEs.

Keywords: Sustainable Manufacturing, Sustainable Development Goals (Sdgs), Policy Effectiveness, Food Processing Msmes, Triple Bottom Line, Karnataka Industrial Policy 2025-30

INTRODUCTION

In recent trends, there have been remarkable changes taking place in sustainable manufacturing in regional food clusters. As governments are facing pressure to adopt ecologically sound and sustainable approaches, Mysuru has become a battleground for implementing sustainable industrial practices.

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Mysuru is a food hub within Karnataka, known for having a robust local food culture. This has enhanced the importance of organic food and traditional crops.

Despite the role of MSMEs in the regional economy, there are obstacles in the pursuit of sustainability. There is a need for using innovative technologies and acquiring digital infrastructure for modern manufacturing. There are capital and technical constraints. It is important to identify these constraints for progress. This helps in the development of sustainable action plans.

This paper suggests successful implementation of strategic plans to address managerial barriers and policy enablers. This study provides a roadmap for overcoming risks and achieving sustainable practices through government support. Such as the Karnataka Industrial Policy (2025–30), implementing these policies helps in overcoming the technical challenges.

The study aims to assess the role of Karnataka industrial policy 2025-2030 in promoting sustainable manufacturing among food processing MSMEs in Mysuru. The study focuses on identifying key policy enablers and examining managerial barriers that hinder sustainability adoption. and evaluating their influence on economic, environmental and social performance. The Findings of this study are expected to contribute to academic literature and provide practical insights for policy makers, industry practitioners and other stake holders involved in MSME development and sustainability manufacturing initiatives.

Table 1

Table 1 Multi-Level Policy Framework and Enablers for Sustainable Manufacturing in the Mysuru Food Cluster

Level	Policy/Enabler	Key Specifics for Mysuru Food Cluster	Relevance to Sustainability
National	PMKSY (Pradhan Mantri Kisan SAMPADA Yojana)	Grants for Integrated Cold Chain and Value Addition infrastructure at the farm level.	Reduces post-harvest losses and carbon footprint by optimizing logistics.
National	PMFME Scheme	Credit-linked subsidies (up to ₹15 Lakhs) for formalizing micro-units.	Enables small managers to afford food safety and environmental certifications.
State	Karnataka Food Processing Policy 2024–29	50% subsidy for ETP (Effluent Treatment Plants) and Waste Management systems.	Directly addresses water pollution and circular economy goals in manufacturing.
State	Karnataka Industrial Policy (Zone 4 - Mysuru)	75% Stamp Duty exemption and electricity tax exemptions for MSMEs.	Frees up capital for managers to invest in energy-efficient machinery.
Cluster-Specific	Infrastructure (Mega Food Parks)	Access to common facilities like testing labs and specialized storage in the Mysuru region.	Shared infrastructure reduces the resource-intensity of individual manufacturing units.

LITERATURE REVIEW

[Elhidaoui and Kota \(n.d.\)](#)

The focus of this paper is to identify the barriers related to supply chain management and help to prepare a framework related to sustainability standards and technology relevant barriers.

[Machado et al. \(n.d.\)](#)

explores how the "Fourth Industrial Revolution" is not merely an efficiency tool but a fundamental enabler for sustainability. For regional food clusters, this means that the integration of technologies—such as the Internet of Things (IoT), Big Data, and Cyber-Physical Systems—is the mechanism through which "Policy Enablers" are actually executed on the factory floor.

[Claudia Lood Alayón \(n.d.\)](#)

argues that for sustainable manufacturing to be effective, regional clusters must move away from the traditional "take-make-dispose" model. The research focuses on how digital technologies (Industry 4.0) facilitate the circularity of resources, which is particularly relevant for regional food clusters dealing with organic waste and high water consumption.

[Begimkulov and Darr \(n.d.\)](#)

Begimkulov's research emphasizes that the transition to sustainable manufacturing is not just an individual firm's responsibility but an institutional process. In regional food clusters, sustainability is driven by the interaction between firm-level management and the surrounding institutional environment (regional government, industry associations, and academic bodies).

[BasiT et al. \(n.d.\)](#)

BasiT's work emphasizes that technological tools for sustainability (like those mentioned by Machado and Alayón) are only effective if the organizational "readiness" is high. For regional food clusters, this means that the transition to sustainable manufacturing (SM) is as much about human capital and knowledge sharing as it is about hardware.

[Contreras et al. \(n.d.\)](#)

sustainable manufacturing (SM) in food clusters is driven by "social innovation." For regional food hubs, the transition to sustainability is accelerated when manufacturing processes are aligned with the social values and territorial identity of the region.

[Nicholas et al. \(n.d.\)](#)

food systems are in a state of crisis and that local governments are uniquely positioned to intervene. However, their ability to drive sustainable manufacturing and healthy environments is often constrained by both a lack of legislative authority and the overwhelming influence of large corporate entities.

[Harshit and Sharma \(2025\)](#)

argues that while Industry 4.0 optimized processes, Industry 5.0 optimizes the interaction between humans and machines to achieve sustainability. For regional food clusters, this means that sustainable manufacturing (SM) enablers must now prioritize worker well-being and environmental resilience alongside digital efficiency.

[Begimkulov and Darr \(n.d.\)](#)

particularly in recent years—focuses on the regional competitiveness and institutional resilience of industrial clusters. For your research on sustainable manufacturing in food clusters, Begimkulov provides the theoretical framework for understanding how a cluster's maturity affects its ability to adopt green policies.

[Tarlan Ahmadov et al. \(n.d.\)](#)

His research is particularly relevant for your topic as it examines how regional clusters act as "growth poles" that require specific policy alignment to transition from traditional manufacturing to sustainable, high-value-added production.

[Shoaib Abdul Basit \(n.d.\)](#)

Technologies like IoT and Big Data (as discussed by Machado and Müller) are the tools of sustainability, the engine is a manager's ability to process and apply "Green Knowledge." For regional food clusters, this means that sustainability is a result of a firm's "readiness" to change.

[KannanGovindana \(n.d.\)](#)

Sustainable manufacturing (SM) is unattainable without an integrated circular supply chain. In the context of regional food clusters, this means that the manufacturing process does not end when the product leaves the factory; instead, the cluster must manage the return and valorisation of packaging and organic by-products.

[Chauhan et al. \(n.d.\)](#)

Green technologies exist, their adoption in regional manufacturing is stalled by a lack of financial accessibility and a psychological resistance to new agricultural/industrial paradigms. For food clusters, this means that sustainable manufacturing (SM) requires a mix of "Green Credit" and a shift in managerial mindset.

[Kassai et al. \(n.d.\)](#)

There is different clustering behaviour that encompass the food market, which help in enhancing the role of the market in the local food economy.

[Hans and Sastry \(n.d.\)](#)

There is a more critical role in fostering growth and providing employment opportunities and developing economy through MSMEs.

[Kulkarni and Puranik \(2025\)](#)

SMEs face many challenges due to limited budgets and manpower, making it difficult to sustain continuous improvement efforts.

[Ramanjaneyulu \(2019\)](#)

The reason for the growth of food processing industries is due to the present time, in relation to raw materials availability, varying lifestyles, which in relation provide a significant increase in growth

[Doddamani \(2015\)](#)

Several studies have focused on multidimensional issues with MSMEs, but hardly any have attempted to approach the issue from the institutional network.

[Kumar \(n.d.\)](#)

Small-scale industries encompass the contribution of small scale industries have the advantages of supplementing the efforts of the state for the promotion of industries

[Kulkarni and Puranik \(2025\)](#)

The Managerial barriers to sustainability are systematic voids in regional infrastructure for managers in food clusters; in emerging rural economies, sustainability is often hindered by basic logistical and digital gaps.

RESEARCH METHODOLOGY

This methodology section represents the literature review employed to investigate the influence of sustainable marketing on regional food clusters.

Secondary data collection is conducted to obtain the information regarding the topic. Through the study of various literature sources, the research helps in analysing the factors affecting sustainable development in regional food clusters.

DATA SOURCES

A systematic literature search was conducted across academic databases such as Scopus, Google Scholar, and Shodhganga, along with policy documents such as the Karnataka Industrial Policy.

SELECTION CRITERIA

Only peer-reviewed articles in English published from 2015 to 2025 were included.

RESEARCH STRATEGY

The study aims to employ inclusion and exclusion criteria to achieve research objectives, following various literature reviews. All articles selected for the study focus on analysing, measuring and evaluating sustainable manufacturing in regional food cluster. They were all published between 2015-2025. The selected studies are peer-reviewed journal articles written in English that examines sustainable manufacturing in regional food cluster.

Table 2

Table 2 Inclusion and Exclusion Criteria		
Criterion	Inclusion Criteria	Exclusion Criteria
Timeframe	Published between 2015– 2025	Published prior to 2015
Document Type	Peer-reviewed journal articles and primary policy documents	Conference abstracts, editorials, books, or grey literature
Language	English only	All other languages
Entity Focus	Regional MSMEs and food clusters	Large Multinational Enterprises (MNEs)
Geographic/Policy Context	Regional agribusiness (e.g., Karnataka-specific policies)	Generic industrial studies without regional relevance
Thematic Focus	Policy enablers, managerial barriers	Purely technical or biological studies without a policy/management lens

RESULTS AND DISCUSSIONS

In Mysuru, the integration of national and state-level policies has created a strong foundation for MSMEs. In the challenging environment, Micro, Small, and Medium Enterprises (MSMEs) face difficulties in engaging in sustainable manufacturing practices due to the absence of robust policy incentives and supportive regulatory frameworks. These challenges often hinder MSMEs from investing in sustainable innovation.

RESEARCH AVENUE1: STUDYING FOOD CLUSTER IN REGIONAL AREAS

Studying food clusters in regional areas as a dynamic ecosystem rather than a collection of isolated industrial units. The cluster is deeply embedded in local agricultural output and traditional food culture.

The most visible dimensions of agglomeration economies are shared facilities, such as those provided in Mysuru's Mega Food Park, which reduce the financial burden on individual MSMEs.

RESEARCH AVENUE 2: POLICY EFFICACY AND INSTITUTIONAL SUPPORT

The second research avenue explores the effectiveness of top-down government interventions in shaping a sustainable industrial ecosystem. This research examines whether these interventions are sufficient to overcome traditional practices and encourage firms to implement energy-efficient machinery.

The role of DIC in Mysuru, along with the framework of Sustainable Development Goals (SDGs), is also examined. The study investigates whether these resources are practically accessible to small-scale managers or whether there are bottlenecks that limit their utility.

RESEARCH AVENUE 3: MANAGERIAL BARRIERS AND BEHAVIOURAL INTENTIONS

There is a shift of interest among firms to understand why managers hesitate to adopt sustainable practices even when policies are available. This approach frames it as a managerial challenge.

The concern is the implementation gap that disconnects policy availability and actual adoption in Tier-II cities like Mysuru, where traditional business practices dominate despite the presence of financial incentives and subsidies.

The managers lack digital literacy and green management practices. For these managers, the shift to digital systems represents not only a technical upgrade but also the abandonment of familiar processes.

Table 3

Table 3 Comparative Literature & Policy Review (2015–2026)			
Phase	Dominant Theme	Policy Enablers (e.g., Mysuru)	Managerial Barriers
Early Phase (2015–2019)	Infrastructure & Waste Reduction	PMKSY (2017): Launch of Mega Food Parks; focus on cold chain to reduce 35-40% post-harvest loss.	Technological Inertia: Resistance to high-cost cold storage; lack of digital awareness.
Middle Phase (2020–2023)	Formalization & Resilience	PMFME (2020) & PLI Scheme: Credit-linked subsidies for micro-units; "Vocal for Local" focus.	Resource Scarcity: Pandemic-induced capital crunch; difficulty in "Lean-Green" integration.
Current Phase (2024–2026)	Green Tech & Industry 5.0	Karnataka Food Processing Policy 2024–29: 50% ETP subsidies; AI-enabled Single Window Clearance.	Digital-Green Skill Gap: Fear of AI displacement; "Black Box" barrier in automated decision-making.
Thematic Focus	Policy enablers, managerial barriers, and Triple Bottom Line impacts		Purely technical or biological studies without a policy/management lens
State	Karnataka Industrial Policy (Zone 4 - Mysuru)	75% Stamp Duty exemption and electricity tax exemptions for MSMEs.	Frees up capital for managers to invest in energy-efficient machinery.
Cluster-Specific	Infrastructure (Mega Food Parks)	Access to common facilities like testing labs and specialized storage in the Mysuru region.	Shared infrastructure reduces the resource-intensity of individual manufacturing units.

CONCLUSION

The food processing MSME sector in Mysuru holds a prominent place for the state's industrial development, employment generation and regional economic growth. With sustainability gaining attention as a key driver for long-term industrial competitiveness and to achieve Sustainable Development Goals (SDGs), the Karnataka Industrial Policy 2025–30 is a significant institutional framework to promote sustainable manufacturing. Key policy instruments such as financial incentives, establishing infrastructures and development of technological assistance programs may advance systematic utilization of cleaner production technologies, resource efficient manufacturing (REM) and environmentally responsible business practices among food processing MSMEs as evidenced from this review.

However, the study also finds that the effectiveness of these policy initiatives hinges critically on their enterprise-level implementation. However, many managerial and institutional barriers namely low awareness about government schemes, limited formal technical assistance support, resource constraints for accessing sustainable manufacturing technology by firms, information asymmetry over availability of specific digital skills across India, lack of coordination among the supporting institutions continue to challenge these pilot implementation projects to scale up for promoting successful adoption practices. Therefore, having enabling policies is insufficient unless backed by capacity-building initiatives, streamlined administrative processes, enhanced institutional networks and continuous technical assistance.

Related literature also suggests that sustainable manufacturing in the context of regional food clusters should be treated as a collaborative ecosystem between government agencies, industry associations, research institutions and MSMEs. Infrastructure like Mega Food Parks, common testing facilities and platforms to share information can substantially reduce operating costs while enhancing environmental and economic performance. The research lens of sustainable manufacturing applied in this study provides

evidence that a holistic approach to sustainability that delivers economic, environmental and social benefits through increased resource efficiency and reduced waste ultimately leads to enhanced competitiveness; improved livelihood among the local communities

In conclusion, the current research finds that there is a robust policy base for sustainable industrial development of food processing MSMEs in Mysuru as provided by the Karnataka Industrial Policy 2025–30. However, meaningful sustainability outcomes require both better policy implementation and managerial readiness; as well as access to finance and green technologies, along with greater collaboration across public institutions and industry stakeholders. Future empirical studies can confirm the proposed conceptual framework by means of primary data collected in MSMEs in Mysuru and assess the long-term implications of policy interventions on sustainability performance, competitiveness and regional economic resilience.

HIGHLIGHTS

- Integration of national, state, and cluster level policies (PMFME, Karnataka Industrial Policy, Mega Food Parks) has reduced entry barriers for MSMEs in Mysuru's food clusters.
- Despite fiscal incentives, a persistent implementation gap remains due to managerial barriers such as low absorption capacity, technological anxiety, and digital skill deficits.
- Sustainability outcomes are shaped at the cluster level, driven by agglomeration economies, knowledge spillovers, and territorial identity linked to Geographical Indication (GI) products.
- Institutional intermediaries (e.g., District Industries Centre, industry associations) are critical in translating Sustainable Development Goals (SDGs) into actionable strategies for MSMEs.
- The study proposes a conceptual framework aligning policy efficacy with managerial readiness, enabling food clusters to evolve into resilient and circular industrial ecosystems

END NOTES

- 1) The review is based on journal articles, ensuring relevance to sustainable manufacturing in regional food clusters.
- 2) The Various industrial policy documents were used as a primary source.
- 3) The literature search strategy was employed for knowing the sustainable manufacturing policy enablers, managerial barriers, combined with geographical context.

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