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# Sustainable supply chain systems of food and beverages SMEs in developing countries: Theoretical perspective

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**Abstract**

Considering the growing consumption patterns of food and beverages across developing countries, the role of sustainable supply chain systems and their management becomes important. The paper deals with evaluating the development of the subject from the viewpoint of underpinning theories. The research also provides useful insights into the fields that have been explored in the existing literature.

Keywords: SMEs, food and beverages, developing count.

## 1. Introduction

In developing countries with ever-increasing concerns about environmental stability, the problems facing F&B category SMEs in the production zone are increasing (Yacob et al., 2018). Artin (2022) stated environmental awareness continues to affect business strategies in the 21st century. The lack of organizational skills in SME firm appears to be part of the GSCM framework. The research also includes the most significant elements for the basic sustainable areas of supply chain management and SMEs during the uncertainty (Joshi et al. 2022a). In India, businesses are under immense pressure to integrate Sustainable Supply Chain Practices (SSCPs) in the traditional Supply Chains. The study aims to examine the challenges to the adoption of Sustainable Supply Chain Practices (SSCPs) in SMEs in India. Within the context of SMEs, the idea of sustainability in decision-making strategies has become increasingly relevant. The competitiveness and volatility of the environment often has critical role in identifying best practices to attain sustainability while integrating economic, environmental and social priorities in the Supply Chain process (Yahia Marzouk and Jin, 2022). With rising regulatory and market pressure to adopt green practices, small and medium-sized companies face immense challenges in order to both boost their supply chains' organizational and green efficiency. The results of this study show that while several Small and Medium-sized establishments recognize the value of green practices, they have incomplete data to implement these practices in order to enhance their operational efficiency. Incorporation and configuration of green operations

with initiatives for organizational improvement are defined as serious issues for establishing a successful green supply chain (Kashyap and Shukla, 2022). Majority of SMEs are privately held businesses and seldom actively seek study and publishing of effective practices, it is not easy to find success stories in the implementation of sustainability.

### *1.1 Sustainability research in SME domain*

Most academic research work in context to sustainable practices and performances is more focused on larger firms while small and medium firm got relatively little attentions (Das et al., 2020; Joshi, 2018a). Due to variation in scale and scope of operations, assessment of sustainable practices and its performance, need to be examined separately in the case of SMEs vis-à-vis larger firms (Joshi and Joshi, 2016). Several researchers have attempted to explain crucial success measures in controlling the supply chain for sustainability, but they do not take all aspects into account. Research on Sustainability in SMEs Supply Chain Management is still at an initial level and substantial research work has not been accompanied by statistical data. All aspects of experience in the field are not taken into consideration by the ideas that are being used in SSCM. The success of the business is more related to financial and environmental approaches and there is a difference in the human and social dimensions of sustainability (Shanker et al., 2021; Sharma et al., 2022c). Authors reveal in their study most of the research uses PLS to calculate sustainability in supply chain management, Future study can be done through different SEM tools (Mardani et al., 2020; Luthra et al., 2022a). In the end we can highlights the following broad breaches in SSCM exercises at SMEs:

1. The study of Critical achievement issues in a context of particular region to attain sustainability in supply chain management of SMEs.
2. Impact of CSF or sustainable supply chain practices on all three domains: the economic, Environmental and social performance of SMEs.
3. Development of model focused on supplier management practices and operational management practices and their performance outcomes at SMEs in all three areas economic, social and environmental.

To check the operational feasibility of sustainable supply chain model developed.

## 2. Literature review

### *2.1 Theoretical framework*

In response to the aforementioned questions, authors applied theories of the supply chain (Table 1): institutional theory, a resource-based perspective (RBV). Environmentally friendly SCM literature has more widely utilized these ideas (Hafeez and Andersen, 2014; Kazlauskaitė et al., 2015; Kamble et al.,2019; Karim et al., 2022).

Table 1. Key theories in supply chain management

| Theory | Description | Reference |
|---|---|---|
| RBV (Resource based View Theory) | "The Sustainable value proposition of an organisation originates from its important, unusual, inimitable, non-substitute resources and the specific way in which core capabilities are used." | Hafeez and Andersen (2014); Kazlauskaitė et al. (2015); Kamble et al. (2019); Karim et al. (2022). |
| Natural Resource Base View | "A main competitive advantage is to tackle the social and environmental problem within company capabilities. Sustainable development imperatives build possibilities for distinction and enhanced market strength." | Fraj et al. (2013); Gupta et al. (2021); Makhloufi et al. (2022). |
| Stakeholder Theory | "Companies' operations influence both internal and external participants. It is possible to consider as social responsibility to fulfil the aspirations of its different stakeholders. By considering the large network of players in their strategy, companies may secure survivality and maintain their licence to operate." | Gupta and Nanda (2015); Joshi and Joshi (2020). |
| Institutional Theory | "Organizations are affected by external social forces (coercive, mimetic and normative) to implement social and environmental responsibility and alter their activities to achieve credibility. Companies maintain the consistency of their business activities with the aspirations of society by adapting to legislation and imitating their rivals." | Klewitz and Hansen (2014); Sharma et al. (2019); Shibin et al. (2020); Joshi et al. (2020c); Khoja et al. (2022). |
| Transaction Cost Theory | Costs and efforts are shared by two entities participating in an interaction or operation. Reasonable modes of governance and protections (i.e. in contractual arrangements) must be established for the maintenance of the exchange entities. | Brouthers and Nakos (2004); Chou et al. (2014); Das et al. (2020). Kalinic and Brouthers (2022). |

Figure 1 presents the research framework.


Figure 1. Research framework

*2.2 Research Method and Design*

Research is a value-oriented approach that includes collecting, recording, summarizing, classifying and evaluating, along with clear logics and reasons, relevant facts about any problem. Research is scientific and systematic search to solve the research problem for relevant knowledge on a specified subject. It is an approach to developing new ideas and values within a structured body of knowledge and exploration. There are two qualitative and quantitative methodologies for the study of scientific research. Figure 1 depicts the research framework used for the paper. As per Read et al. (1984), the analysis method's preference relies upon the goals of the research and the application of the results. Alongside this methodology, a systematic review of current literature on the phenomenon of research, working from the general to the specific, conceived the relationship's causal model. The analysis model was then validated empirically using the multivariate technique subset Structural Equation Modeling (Hair et al., 2012).

*2.3 Research Strategy*

The research aims to evaluate the sustainable administration practices of the supply chain and its success among SMEs. In this research, factor analysis was used to investigate the stated goals. Figure 2 provides a detailed overview of the steps involved in this analytical method. The empirical strategy involves the survey, the creation of the questionnaire and the collection of data, and the breakdown of data obtained using expressive measurements and dynamic study.

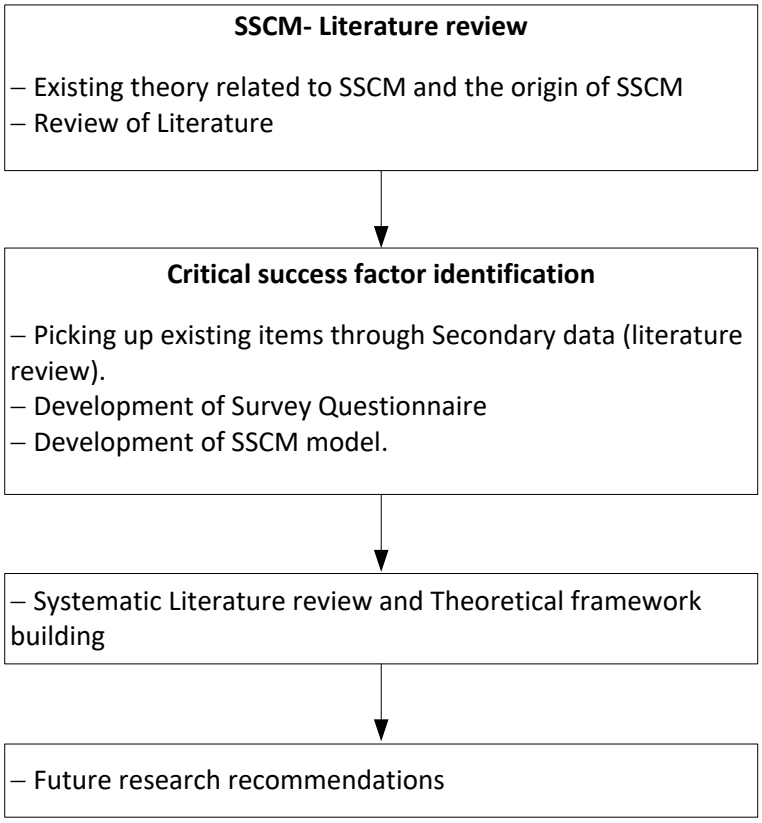


Figure 2. Research methodology overview

## 3. Materials and methods

### *3.1 Data Collection*

From secondary database, Scopus has been used for identifying the critical factors for sustainable supply chains in SMEs and to evaluate the underpinning theories. It is crucial to decide the essential metrics to be measured when assessing individual SSCM regions' significance. This system is especially relevant when empirical field research contradicts the hypothetical conceptualization of a study by Ashby (1986). The Table 2 presents survey of literature emphases on 3 factors of industry, social, and, most notably, ecological factors.

Table 2. Critical success factors for sustainable supply chain

| S. No. | Critical Success Factors (CSFs) | Author(s) |
|---|---|---|
| | *Organizational commitment* | |
| 1. | Initiation and commitment of top management | Joshi et al. (2020a); Bhadu et al. (2022); Joseph et al. (2022); Gao et al. (2022). |
| 2. | Strategic planning | Veskaisri et al. (2007); Bautista et al. (2019); Joshi et al. (2020b); Prakash et al. (2020); Araújo et al. (2022); Sharma et al. (2022c). |
| 3. | Enhanced brand image | Joshi et al. (2017). |
| 4. | Human resources management practices | Li et al. (2019); L'Écuyer et al. (2019); Singh et al. (2020); Sharma et al. (2021c); Chowdhury et al. (2022). |

| S. No. | Critical Success Factors (CSFs) | Author(s) |
|---|---|---|
| 5. | Long-term vision for survival and growth | Prasad et al. (2015); Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022). |
| 6. | Focus on core strengths | Mou et al. (2018); Bada and Nurse (2019); Ng et al. (2019); Mohammad and Oduoza (2019); |
| 7. | Development of effective SCM strategy | Gupta et al. (2016); Valdez-Juárez et al. (2018); Zaridis et al. (2021); Wang et al. (2022). |
| 8. | R&D spending by organizations | Brouthers and Nakos (2004); Rajora et al. (2018); Ćudić et al. (2022); Dinnetz and Mireles (2022); Tsai et al. (2022). |
| 9. | Willingness towards investment | Joshi (2018b); Joshi et al. (2018); Khandelwal and Singh (2022); Côté et al. (2022); Kalinic and Brouthers (2022); Luthra et al. (2022b); Rodríguez-Espíndola et al. (2022). |
| 10. | Benchmarking system | Joshi and Sharma (2014); Gress and Kalafsky (2022); García-Alonso et al. (2022); Wankhede and Vinodh (2022). |
| 11. | Performance measurement system | Tsai et al. (2022); Naeem and Garengo (2022); Kim (2022). |
| | *Legislation/ Government support* | |
| 12. | Central government legalizations | Sharma et al. (2021d); Joshi and Sharma (2021c); Reim et al. (2022); Kaneko (2022); Joseph and Dhanabhakyam (2022). |
| 13. | State government legalizations | Joshi and Sharma (2021a); Reim et al. (2022). |
| 14. | Government policies and programs | Joshi and Sharma (2021b). |
| 15. | Government funding for technology development programs | Joshi et al. (2022b). |
| 16. | Pressure from non-government organizations (NGOs) lobby | Brouthers and Nakos (2004); Rajora et al. (2018); Joshi et al. (2021); Ćudić et al. (2022); Dinnetz and Mireles (2022); Tsai et al. (2022). |
| | *GSCM (Green Supply Chain Management) Implementation* | |
| 17. | Organization's policy supporting GSCM | Tsai et al. (2022); Naeem and Garengo (2022); Kim (2022); Joshi et al (2022b) |
| 18. | Involvement of suppliers & vendors in green activities | Sharma et al. (2021b); Qamar et al. (2022). |
| 19. | Motivation of suppliers & vendors towards green practices | L'Écuyer et al. (2019); Singh et al. (2020); Sharma et al. (2021d); Sharma et al. (2021e). |

| S. No. | Critical Success Factors (CSFs) | Author(s) |
|---|---|---|
| 20. | Role of employees towards GSCM adoption | Brouthers and Nakos (2004); Rajora et al. (2018); Ćudić et al. (2022); Dinnetz and Mireles (2022); Tsai et al. (2022); Aldaas et al. (2022). |
| 21. | Green design | Li et al. (2019); L'Écuyer et al. (2019); Singh et al. (2020); Lin et al. (2020); Sharma et al. (2021a). |
| 22. | Green Manufacturing | Joshi et al. (2020b); Bhadu et al. (2022); Joseph et al. (2022); Gao et al. (2022); Sharma et al. (2022b). |
| 23. | Green purchasing | Li et al. (2019); L'Écuyer et al. (2019); Joshi et al (2019); Singh et al. (2020); Sharma et al. (2021e). |
| 24. | Green organizational culture | Brouthers and Nakos (2004); Rajora et al. (2018); Lui et al. (2021); Ćudić et al. (2022); Dinnetz and Mireles (2022); Tsai et al. (2022). |
| 25. | Competitors pressures towards greening | Joshi et al. (2017); Crovini (2022). |
| | *Information Sharing/ Technology* | |
| 26. | Information sharing with SC members | Joshi et al. (2020a). |
| 27. | Technology transfer to suppliers & vendors | Prasad et al. (2015); Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022). |
| 28. | Encouragement to technology advancement and adoption | Joshi et al. (2020b). |
| 29. | Technical know-how and training of entrepreneur | Klewitz and Hansen (2014); Sharma et al. (2019); Joshi et al. (2020b); Shibin et al. (2020); Khoja et al. (2022). |
| 30. | IT enabled system support | Sharma et al. (2009). |
| | *Inter-departmental cooperation/ Internal business performance* | |
| 31. | Encouragement from customers | Veskaisri et al. (2007); Bautista et al. (2019); Sharma et al. (2022c). |
| 32. | Workplace management | Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022). |
| 33. | Supply chain members' awareness and literacy | Veskaisri et al. (2007); Bautista et al. (2019); Kamble et al. (2019); Joshi et al. (2020a); Prakash et al. (2020); Araújo et al. (2022); Sharma et al. (2022a). |
| 34. | Awareness level of customers | Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Makhloufi et al. (2022); Ismail (2022). |

| S. No. | Critical Success Factors (CSFs) | Author(s) |
|---|---|---|
| 35. | Economic benefits | Prasad et al. (2015); Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022). |
| 36. | Firm's competitiveness | Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Makhloufi et al. (2022); Karim et al (2022). |
| 37. | Logistics synchronization | Li et al. (2019); L'Écuyer et al. (2019); Singh et al. (2020); Sharma et al. (2021a). |
| 38. | Higher flexibility in production system | Klewitz and Hansen (2014); Sharma et al. (2019); Shibin et al. (2020); Joshi et al. (2020b); Khoja et al. (2022). |
| 39. | Development of reliable suppliers | Veskaisri et al. (2007); Bautista et al. (2019); Prakash et al. (2020); Araújo et al. (2022); Joshi et al. (2020c); Sharma et al. (2022a); Sharma et al. (2022c); Tong et al. (2022). |
| 40. | Developing just in time (JIT) capabilities in system | Quansah et al. (2022). |
| 41. | Trust development in SC partners | Prasad et al. (2015); Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022). |
| 42. | Forecasting of demand on point of sale (POS) | Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Sharma and Joshi (2019a); Makhloufi et al. (2022). |
| 43. | Prior working experience and occupational background | Klewitz and Hansen (2014); Sharma et al. (2019); Joshi et al. (2020b); Shibin et al. (2020); Khoja et al. (2022). |
| 44. | Enforcement | Klewitz and Hansen (2014); Sharma et al. (2019); Khoja et al. (2022); Kumar et al. (2022). |
| 45. | Strict supervision | Joshi (2018b); Joshi et al. (2018); Khandelwal and Singh (2022); Côté et al. (2022); Kalinic and Brouthers (2022). |
| 46. | Compliance statement | Prasad et al. (2015); Yusoff et al. (2018); Manzaneque-Lizano et al. (2019); Didonet et al. (2020); Makhloufi et al. (2022); |
| 47. | Effective communication platform within companies and with suppliers | Veskaisri et al. (2007); Bautista et al. (2019); Sharma and Joshi (2019b); Joshi et al. (2020a); Prakash et al. (2020); Araújo et al. (2022); Sharma et al. (2022c). |
| | *Environmental & Socio-cultural enablers* | |
| 48. | Environmental education and training | Le and Ikram (2022). |

| S. No. | Critical Success Factors (CSFs) | Author(s) |
|---|---|---|
| 49. | Ethical standards and corporate social responsibility | Brouthers and Nakos (2004); Rajora et al. (2018); Ćudić et al. (2022); Dinnetz and Mireles (2022); Tsai et al. (2022); Ali Abbasi et al. (2022). |
| 50. | Environmental policy | Mou et al. (2018); Bada and Nurse (2019); Ng et al. (2019); Mohammad and Oduoza (2019); Balasubramanian et al. (2020). |
| 51. | High costs for disposal of hazardous materials/components/products | Sharma et al. (2020b). |
| | *Networks/ Linkages* | |
| 52. | Linkage capability | Bautista et al. (2019); Sharma and Joshi (2019b); Li et al. (2019); Prakash et al. (2020); Sharma et al. (2022c). |
| 53. | SME networks | Bautista et al. (2019); Prakash et al. (2020); Sharma et al. (2021d). |
| 54. | Collaboration between industry and academia | Veskaisri et al. (2007); Bautista et al. (2019); Joshi et al. (2020a); Prakash et al (2020). Araújo et al. (2022). |
| 55. | Global marketing | Brouthers and Nakos (2004); Sharma and Joshi (2012); Rajora et al. (2018); Ćudić et al. (2022); Dinnetz and Mireles (2022); Jeong and Chung (2022); Al-Weshah et al. (2022). |
| | *Resources* | |
| 56. | Project Resources and capabilities | Bag et al. (2020). |
| 57. | Scarcity of natural resources | Sharma et al. (2020a). |
| 58. | Devoted resources for supply chain | Sharma et al. (2019). |

## 4. Illustrative example and results

The Indian F&B SMEs are experiencing major challenges in market climate to strengthen its sustainability performance while enhancing its revenues. Nonetheless, SMEs are in an even more difficult position in this market. They are aggressive to thrive in intense opposition with large corporations, whilst also being blamed for poor environmental results by both domestic and international clients. An image of the current state of management practices and its influence on organisational efficiency can be drawn on the base of the empirical outcomes of this report. This research finds that SMEs in an Indian manufacturing industry are mindful of the importance of environmental practices for businesses and individuals. They understood the effect of environmental practices on firm performance. Price is therefore one of several major components that perform a crucial role when implementing sustainability practices more broadly. One of the barriers to effectively adopting these practices is a lack of awareness about the best approach to implementing sustainable practices. In addition, there is limited debate among scholars on how to interpret the effect of sustainable practices on operational efficiency, particularly with regard to small and medium-sized establishments in emerging nations (Kumar et al. 2022).The purpose of this study is just to define the key performance indicators and their effect on the efficiency of small

and medium-sized companies for supply chain management practices and also analyse the viability of the model established in this report. To develop awareness of the condition of the supply chain in the manufacture of SMEs and for direct potential analysis. Following research can be carried for future research

RQ1: What are the effective CSFs needed to attain sustainability?

RQ2: What are the impacts of CSFs on performance of SMEs?

RQ3: What are current sustainability environmental issues?

RQ4: What are the most effective indicators for measuring sustainable performance of Supply chain management?

No previous reading considered all three features (environmental financial, and communal) of sustainable supply chain management in an extensive manner.

**5. Managerial implication and conclusions**

This study adds to emerging research on sustainable development, operations management and SMEs. The purpose of this research is to have a broad view of how environmental sustainability contributes to previous Studies have explored sustainability in relation to financial and environmental characteristics by offering all three aspects i.e., economic, social and environment this research contributes to the sustainability literature in supply chain management. The results have many implications for entrepreneurs of SMEs who strive to achieve operational excellence, particularly in the manufacturing sector. Operational excellence can be accomplished by SMEs through the successful implementation of sustainable practices in their supply chain management. Research findings indicate that successful use of model developed in the study will facilitate sustainable results in organisations' operations and supply chain functions. In this influential thesis on the relationship of critical success issues driving maintainable activities in Supply chain management of Indian SMEs, the findings of this study are explored in detail, offering insight for academics and industry professionals alike. Plausible ties that are not accounted for in the model, but substantiated by literature, are explored and promoted. Finally, these findings can be used by SME practitioners and relevant policymakers to develop a set of initial guidelines and recommendations to assist them in the effective execution of SSCM practices. The most important consequences for industrial and political professionals, who also provide general knowledge to decision-makers in countries other than India, are illustrated here: As a significance of accepting sustainable exercises, lower production costs would increase over time. A decline in manufacturing costs does not inherently lead to a greater commitment to sustainability and, as such, it is important to take a constructive approach to achieve lasting results.

- Investing in technology development and enhanced logistic support have important roles to play in reducing production costs, based on the derived model. Managers and owners should pursue new possibilities, such as vehicle communication and innovations relevant to firm, to reinforce and improve logistics operations.
- Top management operating SMEs should be aware that developing partnerships with the sustainable supply chain will result in new opportunities for business. The sustainable supply chain relationships, however, arise as a result of the implementation of the enablers defined in this model of hierarchy.
- Investment in upgrading waste management of industry facilities to be more consistent with the ideals of a circular economy will have a huge impact on the sustainability of industry.
- In creating awareness regarding sustainability, management and staff support for sustainable best practices is important. Sustainability and environmental awareness raising activities are just as successful and sensitive to being discussed as help for leadership and can contribute to new business opportunities with green suppliers.
- For manufacturing SMEs, incentives and tax reductions at the government to promote international sustainable supply chain partnerships and enhanced supply chain networks are especially relevant.

- Promotion of green manufacturing, green purchasing and green packaging is also a crucial step for sustainability of firms. As there is a constant pressure of customer towards adopting green practices in manufacturing sector in an organisation.
- Although Supplier's trust, Motivation and Training to adopt sustainability is a key point to be consider for green practices.
- All industries should also pay attention to social area.

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