

GREEN SUPPLY CHAIN MANAGEMENT PRACTICES, COLLABORATIVE CAPABILITY AND ORGANIZATIONAL PERFORMANCE OF FOOD PROCESSING FIRMS

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Abstract

The strong idea of incorporation of GSCMPs in industrial operations is for conserving and promoting sustainability of environment that comprises of activates of designing and developing products, selecting and procuring raw materials from suppliers, use of clean technologies, packaging and distribution of products to the ultimate consumers and recycling and reusing of waste materials. Manufacturing firms have started to adopt GSCMPs due to demand of consumers and compulsory regulation and compliance of laws and rules enacted by the Government. The analysis reveals that investment recovery, green manufacturing and green design have significant and positive influence on organizational performance of food processing firms. Besides, green design, green manufacturing and investment recovery have significant, positive and direct influence on collaborative capability of food processing firms, while, collaborative capability has positive, significant and direct influence on organizational performance of food processing firms. Therefore, the findings proved all hypotheses of this study.

Key Words: Collaborative Capability, Green Supply Chain Management, Organizational Performance.

1. Introduction

The present day business firms are creating, transporting and offering values to final consumers through supply chains in the effective and efficient ways (Green and Kenneth, 2012) and they are highly focusing on improvement of their business operations, competencies and attaining higher profit and competitiveness among their rivalries in the existing cut throat competitive atmosphere. The supply chain of firms is encouraging and increasing performance through integration of business activities for offering greater values to their consumers. When they are doing, the business activities are generating some kind of externalities to their environment that are generally not sustainable and they are depleting natural and environmental resources and also causing damages to their environment, thus, it is highly becoming relevant that business operations must be accountable to their environment. The environment is polluted and damaged by different activities of human beings and industrial operations and these necessitate the use of technologies and methods pertaining to manufacturing and intensification of regulation by government for conservation of environmental resources for coming next generations (Goyal et al. 2017). As an outcome, green supply chain management practices (GSCMPs) creates similar endeavour to integrate different aspects of environment in to practices related to supply chain management (Cousins et al. 2020).

Further, with mounting pressure on sustainability of environment, it believed that business organizations have to frame and execute strategies and programmes for reducing the impacts of their activities on environment and efficient address of issues pertain to environment are creating new and more number of opportunities for them and newer means of creating and delivering values to their consumers and they

are mainly adopting clean technologies for production, management practices for environment and improving efficiency of environment.

Hence, GSCMPs are emerging as significant aspects to them to attain their business objectives and also increasing their ecological efficacy. GSCMPs are applying among all the supply chain players starting from manufacturing to logistics operations. Green supply chain management practices (GSCMPs) are the practices adopted by firms to enhance their performance relating to environment along with players of general supply chain management consisting of designing of products, operations and relations with consumers (Srivastava, 2007). GSCMPs are generally referring to different practices or actions carried out by business organizations with the purpose of reducing the effects of their operations on their environment and also for maintaining good internal health and sustainability by utilizing their capacities to make necessary corrections if required on the basis of information gathered from the external atmosphere, Hence, GSCMPs practices comprise of various kinds of activities carried out by firms to handle the pressure from institutions and to increase performance of firms and profitability and they area also greatly impacting their environmental and financial performances.

The strong idea of incorporation of GSCMPs in industrial operations is for conserving and promoting sustainability of environment that comprises of activates of designing and developing products, selecting and procuring raw materials from suppliers, use of clean technologies, packaging and distribution of products to the ultimate consumers and recycling and reusing of waste materials (Olugu et al. 2017). Manufacturing firms have started to adopt GSCMPs due to demand of consumers and compulsory regulation and compliance of laws and rules enacted by the Government (Murray, 2000) and the adoption of GSCMPs needs manufacturing firms to work closely with consumers and supplies for enhancing sustainability of environmental resources. The proper adoption of GSCMPs is improving and or increasing organizational performance of manufacturing firms and it turn, it is increasing their shares in the market and profitability and it is the responsibility of managers of manufacturing firms for attaining higher degree of organizational performance through efficient adoption of GSCMPs in all the functional areas of their firms. It also comprises of methods related to development of products, assessment and choosing suppliers, using technologies not harming environment and distributing proudest to ultimate consumers and disposing waste and it is also giving due consideration on conservation of environment across all the operations and activities of firms and they are integrated with their prosperity in sustainable ways.

The major objective of GSCMPs is minimizing the quantum of waste materials and avoiding the use of harmful substances and reducing the effect of supply chain on environment. Manufacturing firms are highly interested to adopt GSCMPs efficiently for dealing the problems related with their performance (Sarkis, 2012; Khan et al. 2021) and they are creating positive effect on performance and cost of operations (Wibowo et al. 2018; Al-Ma'aitah, 2018) of manufacturing firms and they are also increasing competitiveness of manufacturing firms through maximization of performance. Organizational performance of manufacturing firms is usually measured in terms of financial measures and it is involving in critical examination of outcomes of firms ageists their prescribed objectives and it represents the actual outcomes of firms and it is mainly concentrating on financial, market and value performances of shareholders of firms. It is also referring to the extent to which a firm places itself efficiently in the market through utilizing its human, financial and other resources. Thus, it is the capacity of firms to attain their objectives within their different aspects and market condition. At the same time, they are also facing various difficulties in adopting GSCMPs successfully to increase their performance (Kirchoff et al. 2016; Goyal et al. 2017) particularly collaborative capability of firms.

Collaborative capability is the capability of a firm for leveraging resources of other actors and their competencies for it (Koufteros et al. 2007) and it is helping firms to decrease cost of operations and increase their sustainable competitiveness (Cao and Zhang, 2011). Besides, it is the capacity of firms to line up objectives, solving differences, leveraging confident for improving job relation and also reducing resistance among employees in the firms and it is enabling creation of values for employees and consumers and it is also linked with GSCMPs and also performance of firms. Collaborative capability of firms is highly important for manufacturing firms for sharing their practices for managing environment with their supply chain partners (Lee and Klassen 2008). Besides, collaborative capability of manufacturing firms is playing a critical role in removal of dangerous and toxic materials and it is also linked with their GSCMPs and performance (Albino et al. 2012) and they are maintaining collaboration with different actors for the purpose of increasing their performance. Besides, there is no study is conducted pertaining to green supply chain management practices, collaborative capability and organizational performance of food processing firms in developing nations particularly in Tamil Nadu state in India. Hence, this research is done in Tamil Nadu state of India among employees to bridge a research gap.

2 Theoretical back ground

2.1 Green supply chain management practices and organizational performance

Green supply chain management practices have significant and positive influence on organizational performance of firms (Geng et al. 2017; Khan and Qianli, 2017; Aslam et al. 2018; Cousins et al. 2019; Abdallah and Al-Ghwayeen, 2019, Younis et al. 2020; Khan et al. 2021; Ali, 2022; Holling and Backhaus, 2023). Green procurement, reverse logistics and green distribution have positive and significant influence on organizational performance of firms (Green et al. 2012; Inman et al. 2019). Green procurement, green distribution and management of environment internally are also significantly influencing performance of firms (Adnan et al. 2021; Benedict et al. 2022; Febry et al. 2022; Ullah, 2023).

Green design is the act of integrating different aspects of environment in the process of designing of products during its life cycle and it is applied with various objectives relying of the stages of life cycle that should be enhanced and it is minimizing use of energy and materials which is facilitating the reusing, recycling and recovering of element materials which reduce the using harmful products within the process of manufacturing. Green design has positive and significant influence on organizational performance of firms (Kim et al. 2011; Eltayeb et al. 2011; Lee et al. 2012; Yu et al. 2013; Eccles et al. 2014; Ghobakhloo, 2015; Dadhich et al. 2015; Chiu and Hsieh, 2016; Miroshnychenko et al. 2017; Cankaya and Sezen, 2018; Qin, 2019; Quyen, 2020; Han and Huo, 2020; Khan et al. 2021; Alam, 2022; Kurdi et al. 2023; Kiet et al. 2024)

Green manufacturing is the process for promoting sustainability and for decreasing impact on environment through using minimum resources and reducing pollution through making green products or recycling of wastes and it is referring to the act of integrating green strategies and methods to be efficiently environmentally including use of substitutes, decrease in use of energy and materials and recycling of waste materials and it is process of reducing depletion of environmental resources and building products efficiently. Green manufacturing has also positive and significant influence on organizational performance of firms (Kim et al. 2011; Eltayeb et al. 2011; Green Jr et al. 2012; Perotti et al. 2012; Yu et al. 2013; Dai et al. 2014; Thoo et al. 2015; Chiu and Hsieh, 2016; Schmidt et al. 2017; Ardian et al. 2018; Tan et al. 2019; Qin, 2019; Le, 2020; Khan et al. 2021; Adnan et al. 2021; Novitasari and Agustia, 2021; Qalati et al. 2022; Alam, 2022; Febry et al. 2022; Kurdi et al. 2023; Kiet et al. 2024).

Investment recovery is the activity of maximization of end of life or non-used assets by means of efficient disinvestment or reuse of financial resources and it is usually occurring in the back end of supply chain cycle and it needs the selling of surplus inventories and capital equipments used materials. It is the process of transformation of assets in to liquid that are not needed for operations of firms. Investment recovery has also positive and significant influence on organizational performance of firms (Zhu et al. 2010; Lee et al. 2012; Green Jr et al. 2012; Wiengarten et al. 2013; Yu et al. 2014; Ghobakhloo, 2015; Thoo et al. 2015; Khaksar et al. 2016; Miroshnychenko et al. 2017; Aslam et al. 2018; Tan et al. 2019; Qin, 2019; Quyen, 2020; Khan et al. 2021; Alam, 2022; Ullah, 2023; Kiet et al. 2024).

Collaborative Capability As A Mediator

Collaborative capability is acting as mediator amongst green supply chain management practices and organizational performance of firms and it has positive and significant and mediating relation among them (Cao and Zhang, 2011; Laosirihongthong et al.2013; Hoof and Thiell, 2014; Ramanathan et al. 2014; Thoo et al. 2015; Choi and Hwang, 2015; Samad et al. 2021; Darko and Osei, 2023).

3 Hypotheses of the study: With the above mentioned theoretical information, the hypotheses are constructed and also for testing as follows:

H₁: Green design positively influences organizational performance.

H₂: Green manufacturing positively influences organizational performance.

H₃: Investment recovery positively influences organizational performance.

H₄: Collaborative capability moderates relation amongst green design and organizational performance.

H₅: Collaborative capability moderates relation amongst green manufacturing and organizational performance.

H₆: Collaborative capability moderates relation amongst investment recovery and organizational performance.

4 Methodology

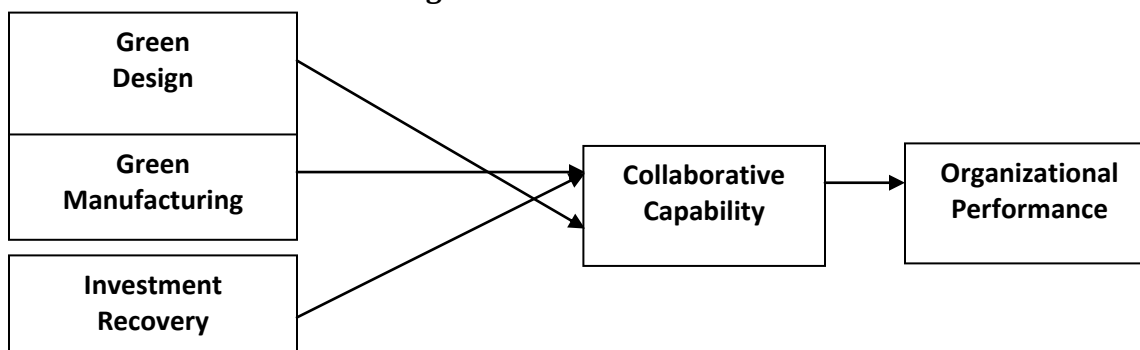
Tamil Nadu state in India had selected for conducting the present study. Random sampling technique had used for selection of employees working in food processing firms. The structured questionnaire had sent to 900 employees of food processing firms across different places in Tamil Nadu state and after careful securitization of questionnaire, 300 usable questionnaires were considered and used. Mean, SD, correlation and regression analysis and Structural Equation Model had used to analyze the data gathered from employees.

5 Measurement of Scale

The scale pertaining to green design, investment recovery and collaborative capability used by Choi and Hwang (2015), green manufacturing and organizational performance used by Mitra and Datta (2014) had adopted and used for this study and this research had applied a five-point scale (strongly agree to strongly disagree) to assess the variables of the constructs.

The research model is displayed in Figure – 1

Figure – 1: Research model



6 Results

6.1 Background Information of Employees

Amongst 300 employees, 53.67% of them are males, while, 46.33% of them are females, 38.66% of them are in 36-45 years of age, while, 8.67% of them are in below 25 years of age, 42.33% of them are holding higher secondary, while, 14.33% of them are holding under graduation, 36.67% of them are having income of Rs.15,001- Rs.20,000, while, 15.33% of them are having income of more than Rs.25,000 per month and 92.67% of them are married, while, 7.33% of them are unmarried (Table 1).

Table 1 Background Information of Employees

Profile	Frequency	%
Gender		
Male	161	53.67
Female	139	46.33
Age (Years)		
Below 25	26	8.67
26-35	96	32.00
36-45	116	38.66
Above 45	62	20.67
Education		
Secondary	74	24.67
Higher Secondary	127	42.33
Diploma	56	18.67
Under Graduation	43	14.33
Income Per Month		
Less than Rs.15,000	58	19.33
Rs.15,001- Rs.20,000	110	36.67
Rs.20,001- Rs.25,000	86	28.67
More than Rs.25,000	46	15.33
Marital Status		
Married	278	92.67
Unmarried	22	7.33

6.2 Descriptive Statistics of Constructs: There exists high and positive correlation ($r = 0.62$) amidst green manufacturing and organizational performance of food processing firms (Table 2). The correlation coefficients are less than 0.70 for all constructs and it is revealing that multicollinearity is absent among the constructs.

Table 2 Mean, SD And Coefficients of Correlation

Constructs	M	SD	1	2	3	4	5
1. Green design	3.91	0.45	1				
2. Green manufacturing	3.94	0.59	0.47**	1			
3. Investment recovery	3.75	0.49	0.42**	0.53**	1		
4. Collaborative capability	3.85	0.47	0.48**	0.46**	0.51**	1	
5. Organizational performance	4.03	0.26	0.56**	0.62**	0.54**	0.58**	1

** Significant in 1% level

6.3 Reliability and Validity: The reliability and validity of different constructs are shown in Table 3.

Table 3 Reliability And Validity

Constructs	CR	AVE	DV
Green design	0.74	0.77	0.72
Green manufacturing	0.77	0.80	0.73
Investment recovery	0.73	0.75	0.68
Collaborative capability	0.75	0.78	0.70
Organizational performance	0.79	0.81	0.75

From the above table, it is apparent that the Composite Reliability (CR) values for the constructs are above 0.70. The Average Variance Extracted (AVE) values are bigger than 0.50 and the Discriminant Validity (DV) values are greater than 0.60 and they are revealing that the constructs included in this study demonstrate an excellent convergent validity.

Influence of green supply chain management practices on organizational performance of food processing firms: Regression analysis is employed to study influence of green supply chain management practices on organizational performance of food processing firms and the outcomes are shown in Table 4. In this model, green supply chain management practices are included as independent variables and organizational performance of food processing firms is included as dependent variable.

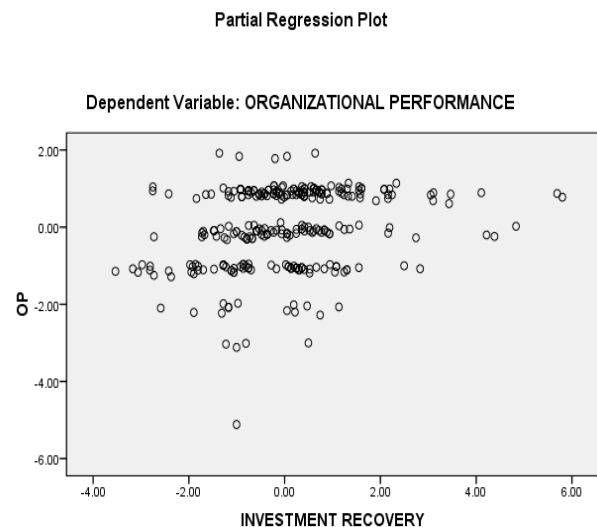
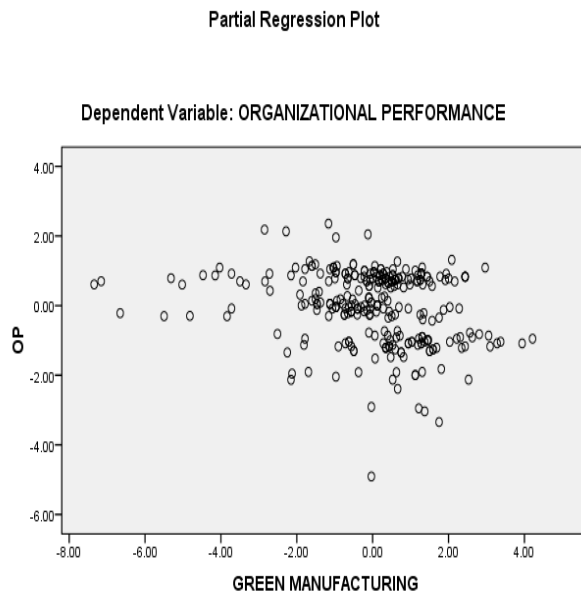
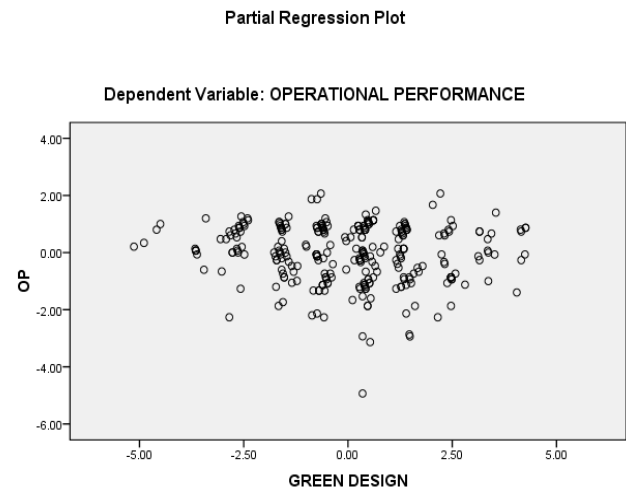
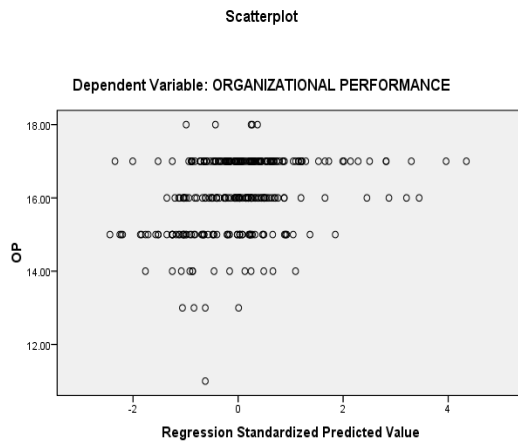
Table 4 Outcomes of Regression

Particulars	Regression Co-Efficient (Unstandardized)
Intercept	16.123**
Green design	.256**
Green manufacturing	.338**
Investment recovery	.404**
R^2	0.43
Adjusted R^2	0.41
F-Value (ANOVA Test)	8.795**

** Significant in 1% level

The coefficients of regression for investment recovery ($\beta = 0.404$), green manufacturing ($\beta = 0.338$) and green design ($\beta = 0.256$) are significant in 1% level and this model is significant in 1% level (F Value = 8.795; R^2 Value = 0.43; Adjusted R^2 Value = 0.41) and it explains that 41.00% of variation in

organizational performance of food processing firms. It is inferred that investment recovery, green manufacturing and green design have significant and positive influence on organizational performance of food processing firms. Keeping other green management practices constant, 1% increase in investment recovery, organizational performance of food processing firms will be augmented by 0.40%, 1% increase in green manufacturing, organizational performance of food processing firms will be augmented by 0.34% and 1% increase in green design, organizational performance of food processing firms will be augmented by 0.26%. The scatter diagrams are depicted as below:



6.5: Structural relation amidst green supply chain management practices, collaborative capability and organizational performance of food processing firms

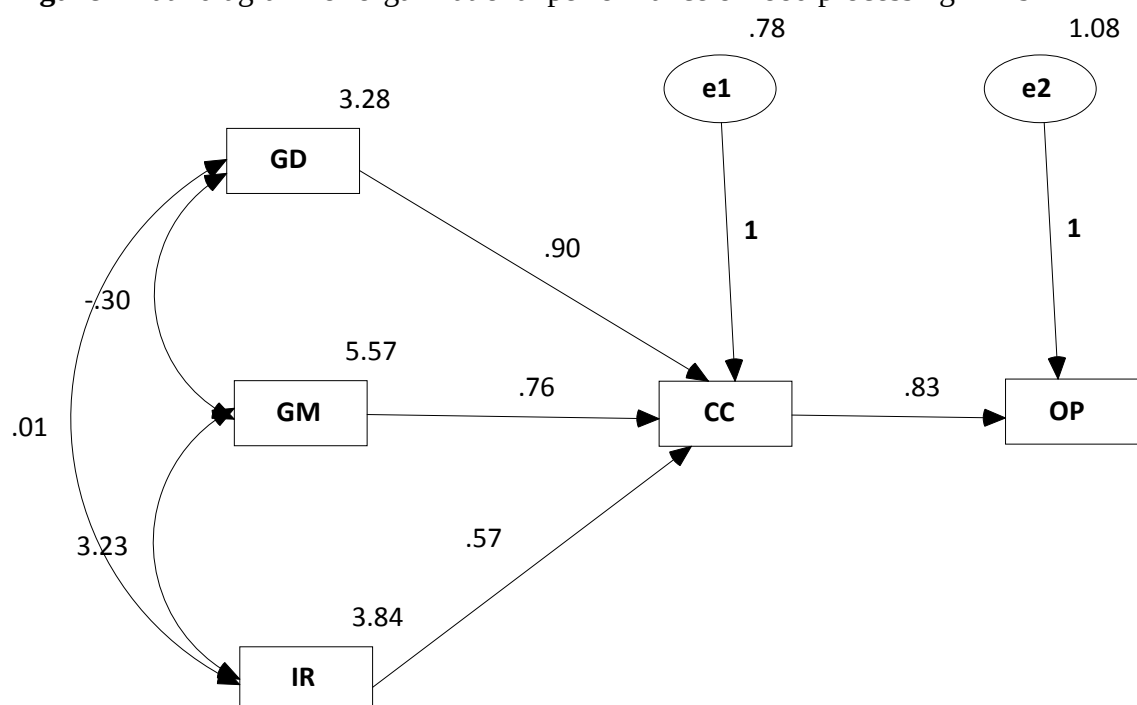
The Structural Equation Model (SEM) is construct to examine structural relation amidst green supply chain management practices, collaborative capability and organizational performance of food processing firms and the outcome is shown in Table 5.

Table 5 Path And Standardized Coefficients

Path	Standardized coefficients	CR	P-Value
CC $\leftarrow$ GM	.762	12.048	***
CC $\leftarrow$ GD	.903	17.952	***
CC $\leftarrow$ IR	.571	9.406	***
OP $\leftarrow$ CC	.834	14.225	***

The standardized coefficient for Collaborative Capability (CC) against Perceived Green Manufacturing (GM) is 0.762, the standardized coefficient for Collaborative Capability (CC) against Perceived Green Design (GD) is 0.903 and the standardized coefficient for Collaborative Capability (CC) against Investment Recovery (IR) is 0.571, and these are significant at 1% level. Thus, green design, green manufacturing and investment recovery have significant, positive and direct influence on collaborative capability of food processing firms. Besides, the standardized coefficient for Organizational Performance (OP) against Collaborative Capability (CC) is 0.834 which is significant at 1% level. Hence, collaborative capability has positive, significant and direct influence on organizational performance of food processing firms. The model fit measures (Chi-square Value=4.873; GFI=0.97; CFI=0.96; RMSEA=0.08 and RMR=0.04) are revealing that the model has good fit. The path diagram for organizational performance of food processing firms is shown in Figure-2.

Figure 2 Path diagram for organizational performance of food processing firms



7 Discussion

The finding of this study show that green design has influence on organizational performance of food processing firms and it is positive and significant and this finding is confirmed by the studies of Kim et al. (2011), Eltayeb et al. (2011), Lee et al. (2012), Yu et al. (2013), Eccles et al. (2014), Ghobakhloo, (2015), Dadhich et al. (2015), Chiu and Hsieh, (2016);, Miroshnynchenko et al. (2017), Cankaya and Sezen, (2018), Qin, (2019), Quyen, (2020), Han and Huo, (2020), Khan et al. (2021), Alam, (2022),

Kurdi et al. (2023) and Kiet et al. (2024). Further, green manufacturing has also influence on organizational performance of food processing firms and it is significant and positive and this outcome is supported by the findings of Kim et al. (2011), Eltayeb et al. (2011), Green Jr et al. (2012), Perotti et al. (2012), Yu et al. (2013), Dai et al. (2014), Thoo et al. (2015), Chiu and Hsieh (2016), Schmidt et al. (2017), Ardian et al. (2018), Qin, (2019), Tan et al. (2019), Le, (2020), Adnan et al. (2021), Khan et al. (2021), Novitasari and Agustia, (2021), Febry et al. (2022), Alam, (2022), Qalati et al. (2022), Kurdi et al. (2023) and Kiet et al. (2024).

Furthermore, investment recovery design has significant and positive influence on organizational performance of food processing firms and this result is proved by research works carried out by Zhu et al. (2010), Green Jr et al. (2012), Lee et al. (2012), Wiengarten et al. (2013), Yu et al. (2014), Thoo et al. (2015), Ghobakhloo, (2015), Khaksar et al. (2016), Miroshnychenko et al. (2017), Aslam et al. (2018), Qin, (2019), Tan et al. (2019), Quyen, (2020), Khan et al. (2021), Alam, (2022), Ullah, (2023) and Kiet et al. (2024). Meanwhile, green design, green manufacturing and investment recovery have significant, positive and direct influence on collaborative capability of food processing firms, while, collaborative capability has positive, direct and significant influence on organizational performance of food processing firms and this outcome is supported by the findings of only very few studies namely Cao and Zhang, (2011), Laosirihongthong et al. (2013), Ramanathan et al. (2014), Hoof and Thiell, (2014); Thoo et al. (2015), Choi and Hwang, (2015), Samad et al. (2021) and Darko and Osei, 2023.

8 Conclusion, Limitation And Area of Research In Future

The present study is mainly carried out to examine the structural relation amidst structural relation amidst green supply chain management practices, collaborative capability and organizational performance of food processing firms in Tamil Nadu. The present study is concluded that investment recovery, green manufacturing and green design have significant and positive influence on organizational performance of food processing firms. Besides, green design, green manufacturing and investment recovery have significant, positive and direct influence on collaborative capability of food processing firms, while, collaborative capability has positive, significant and direct influence on organizational performance of food processing firms. The present study is limited to employees working in food processing firms in Tamil Nadu only and the sample size is also limited to 300 employees only and only three major practices are considered in this study. The future research may be taken as environmental knowledge as a mediator amidst sustainable supply chain management practices and sustainable performance of food processing firms in Tamil Nadu and also in other regions of India and the nation as a whole.

References

1. Abdallah, B. and Al-Ghwayeen, S. (2019). 'Green supply chain management and business performance, Business Process Management Journal, Vol. 26, No. 2, pp. 489-512.
2. Adnan, S., Zafar, A., Hamza, M. and Qadir, A. (2021). 'The effect of green supply chain practices on firm sustainability performance: evidence from Pakistan', Uncertain Supply Chain Management, Vol.9, No.1, pp.31-38.
3. Alam, M. (2022). Supply chain management practices and organizational performance in manufacturing industry. South Asian Journal of Social Review, Vol.1, No.1, pp.42-52.
4. Albino, V., Dangelico, R.M., & Pontrandolfo, P. (2012). 'Do inter-organizational collaborations enhance a firm's environmental performance? a study of the largest US companies', Journal of Cleaner Production, Vol.37, No.3, pp. 304-315.
5. Ali, S. B. (2022). 'Industrial revolution 4.0 and supply chain digitization', South Asian Journal of Social Review, Vol.1, No.1, pp.21-41.

6. Al-Ma'aitah, N. (2018). 'Green supply chain management (GSCM) practices and their impact on performance: an insight from the Jordanian construction sector', *International Journal of Construction Supply Chain Management*, Vol.8, No.2, pp. 87-104.
7. Ardian, P., Hariyati, R. and Afifah, E. (2018). 'Correlation between implementation case reflection discussion based on the Graham Gibbs Cycle and nurses' critical thinking skills', *Enfermería Clínica*, Vol.29, No.1, pp. 1-12.
8. Asante Darko, D. and Osei, V. (2023), 'Sustainable supply chain management practices and firm performance: the mediating effect of firm capabilities', <https://doi.org/10.1108/MEQ-07-2023-0217>.
9. Aslam, H., Rashid, K., Wahla, A. R. and Tahira, U. (2018). 'Drivers of green supply chain management practices and their impact on firm performance: a developing country perspective', *Journal of Quantitative Methods*, Vol.2, No.1, pp. 87-113.
10. Benedict, O. A., Agyapong, D. and Owusu, D. (2022). 'Green supply chain practices and sustainable performance of mining firms: evidence from a developing country', *Cleaner Logistics and Supply Chain*, Vol.4, No.6, pp.1-9.
11. Cankaya, S. Y. and Sezen, B. (2018). 'Effects of green supply chain management practices on sustainability performance', *Journal of Manufacturing Technology Management*, Vol.30, No.1, pp.98-121.
12. Cao, M. and Zhang, Q. (2011). 'Supply chain collaboration: impact on collaborative advantage and firm performance', *Journal of Operations Management*, Vol.29, No.1, pp. 163-180.
13. Chiu, J.Z. and Hsieh, C.C. (2016). 'The impact of restaurants' green supply chain practices on firm performance', *Sustainability*, Vol.8, No.1, pp. 42-56.
14. Choi, D. and Hwang, T. (2015). 'The impact of green supply chain management practices on firm performance: the role of collaborative capability', *Operations Management Research*, Vol.8, No.3, pp. 69-83.
15. Cousins, D., Lawson, B., Petersen, J. and Fugate, B. (2019). 'Investigating green supply chain management practices and performance', *International Journal of Operations & Production Management*, Vol.39, No. 5, pp. 767-786.
16. Dadhich, P., Genovese, A., Kumar, N. and Acquaye, A. (2015). 'Developing sustainable supply chains in the UK construction industry: a case study', *International Journal of Production Economics*, Vol.164, No.2, pp. 271-284.
17. Dai, J., Montabon, F.L. and Cantor, D.E. (2014) Linking Rival and stakeholder pressure to green supply management: mediating role of top management support', *Transportation Research Part E : Logistics and Transportation Review*, Vol.71, No.1, pp. 173-187.
18. Eccles, R. G., Ioannou, I. and Serafeim, G. (2014). 'The impact of corporate sustainability on organizational processes and performance', *Management Science*, Vol.60, No.11, pp. 2835-2857.
19. Eltayeb, T. K., Zailani, S. and Ramayah, T. (2011). 'Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: investigating the outcomes. Resources, Conservation and Recycling', Vol.55, No.5, pp. 495-506.
20. Febry, A. H., Yuli, L. and Yekti, U. (2022). 'The effect of green supply chain management practices on sustainability performance', *Jurnal REKOMEN (Riset Ekonomi Manajemen)*, Vol.5, No.1, pp. 1-16.
21. Geng, R., Mansouri, A. and Aktas, E.. (2017) 'The relationship between green supply chain management and performance: a meta-analysis of empirical evidences in Asian emerging economies', *International Journal of Production Economics*, Vol.183, No.2, pp.245-258.

22. Ghobakhloo, M., Tang, S. H., Zulkifli, N. and Ariffin, M. (2013). An Integrated Framework of Green Supply Chain Management Implementation. *International Journal of Innovation, Management and Technology*, Vol.8, No.3, pp. 86-103.
23. Goyal, S., Kumar, S. and Kailash, A. (2017). 'Systematic literature review of classification and categorisation of benchmarking in supply chain management', *International Journal of Process Management and Benchmarking*, Vol.7, No.2, pp.183-197.
24. Green, W. and Kenneth, W. (2012). 'Green supply chain management practices: impact on performance', *Supply Chain Management: An International Journal*, Vol.17, No.3, pp. 290-305.
25. Habib Ullah. (2023). 'The effect of green supply chain management on organizational performance in manufacturing industries', *International Journal of Economics, Commerce and Management*, Vol.11, No.1, pp. 208-220.
26. Han, Z. and Huo, B. (2020). 'The impact of green supply chain integration on sustainable performance', *Industrial Management and Data System*, Vol.120, No.4, pp. 657-674.
27. Holling, H. and Backhaus, L. (2023). 'A meta-analysis of green supply chain management practices and firm performance', *Sustainability*, Vol.15, No.1 pp. 1-29.
28. Hong Vo Tuan Truong Kiet, Minh Vo Sang, Thanh Bao Truc, Thanh Kim Nguyen Lan, Huy Quoc Dinh and Phuong Thi Bich Dao. (2024). 'Impact of green supply chain management on social performance through economic undergraduate's view', *Journal of Infrastructure, Policy and Development*, Vol.8, No.3, pp. 1-21.
29. Inman, A., Green, R., Victor, E. and Pamela J. (2019). 'Comprehensive supply chain management model', *Supply Chain Management: An International Journal*, Vol.24, No.3, pp. 590-603.
30. Joseph Sarkis. (2012). 'A boundaries and flows perspective of green supply chain management', *Supply Chain Management: An International Journal*, Vol.17, No.2, pp. 202-216.
31. Kenneth W. Green Jr, Pamela J. Zelbst, Jeremy Meacham and Vikram S. Bhaduria, (2012). 'Green supply chain management practices: impact on performance', *Supply Chain Management: An International Journal*, Vol.17, No.3, pp. 290-305.
32. Khaksar, E., Abbasnejad, T., Esmaeili, A. and Tamošaitienė, J. (2016). 'The effect of green supply chain management practices on environmental performance and competitive advantage: a case study of the cement industry', *Technology, Economics and Development Economics*, Vol.22, No.2, pp. 293-308.
33. Khan, A. and Qianli, D. (2017). 'Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan', *Environmental Science and Pollution Research*, Vol.24, No.20, pp. 16829-16844.
34. Khan, U., Answer, M., Li, S. and Khattak, S. (2021). 'Intellectual capital, financial resources, and green supply chain management as predictors of financial and environmental performance', *Environmental Science and Pollution Research*, Vol. 28, No. 16, pp. 19755-19767.
35. Kim, J. H., Youn, S. and Roh, J. J. (2011). 'Green supply chain management orientation and firm performance: evidence from South Korea', *International Journal of Services Operations Management*, Vol.8, No.3, pp. 283-304.
36. Kirchoff, J.F., Tate, W.L. and Mollenkopf, D.A. (2016). 'The impact of strategic organizational orientations on green supply chain management and firm performance', *International Journal of Physical Distribution and Logistics Management*, Vol.46, No.2, pp. 269-292.
37. Koufteros, X.A., Cheng, T.C.E. and Lai, K.H. (2007). 'Black-box and gray-box supplier integration in product development: antecedents, consequences and the moderating role of firm size', *Journal of Operations Management*, Vol.25, No.4, pp. 847-870.

38. Kurdi, B. Al, Alzoubi, H. M., Alshurideh, M. T., Alquqa, E. K. and Hamadne, S. (2023). 'Impact of supply chain 4.0 and supply chain risk on organizational performance: an empirical evidence from the UAE food manufacturing industry', *Uncertain Supply Chain Management*, Vol.11, No.1 pp. 111-118.
39. Laosirihongthong, T., Adebajo, D. and Choon Tan, K. (2013). 'Green supply chain management practices and performance', *Industrial Management & Data Systems*, Vol.113, No.8, pp.1088-1109.
40. Le, T. T. (2020). 'The effect of green supply chain management practices on sustainability performance in Vietnamese construction materials manufacturing enterprises', *Uncertain Supply Chain Management*, Vol.8, No.1, pp. 43-54.
41. Lee, S. and Klassen, R. (2008). 'Drivers and enablers that foster environmental management capabilities in small and medium-sized suppliers in supply chains', *Productions and Operations Management*, Vol.17, No.4, pp. 573-586.
42. Lee, S. M., Tae Kim, S. and Choi, D. (2012). 'Green supply chain management and organizational performance', *Industrial Management and Data Systems*, Vol.112, No.8, pp. 1148-1180.
43. Miroshnychenko, I., Barontini, R. and Testa, F. (2017) 'Green practices and financial performance: a global outlook', *Journal of Cleaner Production*, Vol.147, No.3, pp. 340-351.
44. Murray, G. (2000), 'Effects of a green purchasing strategy: the case of Belfast city council', *Supply Chain Management: An International Journal*, Vol.5, No.1, pp. 37-44.
45. Novitasari, M. and Agustia, D. (2021). 'Green supply chain management and firm performance: the mediating effect of green innovation', *Journal of Industrial Engineering and Management*, Vol.14, No.2, pp. 391-403.
46. Olugu, U., Wong, Y., Awaluddin, S., Abdul-Rashid, H., Ghazilla, R. and Bin, A. (2017). 'Sustainable supply chain management in Malaysian SMEs: perspectives from practitioners', *Environmental Engineering and Management Journal*, Vol.16, No. 9, pp. 2123-2132.
47. Perotti, S., Zorzini, M., Cagno, E. and Micheli, G.J. (2012) Green supply chain practices and company performance: the case of 3PLs in Italy', *International Journal of Physical Distribution & Logistics Management*, Vol.42, No.8, pp. 640-672.
48. Qalati, S.A., Kumari, S., Soomro, I.A., Ali, R. and Hong, Y. (2022). 'Green supply chain management and corporate performance among manufacturing firms in Pakistan', *Frontier in Environmental Science*, Vol.10, No.1, pp. 1-11.
49. Qin, Z.Y. (2019). 'A literature review of the impact of green supply chain management on firm performance', *Journal of Service Science and Management*, Vol.12, No.8, pp. 872-879.
50. Quyen, T.H. (2020). 'The relationship between green procurement practices and organizational performance in the manufacturing industry of Vietnam', *Arthatama Journal of Business Management and Accounting*, Vol.4, No.1, pp. 1-6.
51. Ramanathan, U., Bentley, Y. and Pang, G. (2014). 'The role of collaboration in the UK green supply chains: an exploratory study of the perspectives of suppliers, logistics and retailers', *Journal of cleaner production*, Vol.70, No.2, pp.231-241.
52. Sarminah Samad, Mehrbakhsh Nilashi, Ahmed Almulihi, Mesfer Alrizq, Abdullah Alghamdi, Saidatulakmal Mohd, Hossein Ahmadi and Sharifah Nurlaili Farhana Syed Azhar. (2021). 'Green supply chain management practices and impact on firm performance: the moderating effect of collaborative capability', *Technology in Society*, Vol.67, No.1, pp. 1-27.

53. Schmidt, C. G., Foerstl, K. and Schaltenbrand, B. (2017). 'The supply chain position paradox: green practices and firm performance', *Journal of Supply Chain Management*, Vol.53, No.1, pp. 3-25.
54. Srivastava, S.K. (2007). Green supply-chain management: a state-of-the-art literature review. *International Journal of Management Reviews*, Vol.9, No.1, pp.53-80.
55. Tan, C. L., Zailani, S. H. M., Tan, S. C. and Yeo, S. F. (2019). 'Green supply chain management: impact on environmental performance and firm competitiveness', *International Journal of Sustainable Strategic Management*, Vol.7, No.1-2, pp. 91-112.
56. Thoo, C., Huam, T. and Sulaiman, Z. (2015). 'Green supply chain management, environmental collaboration and sustainability performance', *Procedia-CIRP*, Vol.26, No.6, pp. 695-699.
57. Van Hoof, B. and Thiell, M. (2014). 'Collaboration capacity for sustainable supply chain management: small and medium-sized enterprises in Mexico', *Journal of cleaner production*, Vol.67, No.2, pp.239-248.
58. Wibowo, M. A., Handayani, N. U. and Mustikasari, A. (2018). 'Factors for implementing green supply chain management in the construction industry', *Journal of Industrial Engineering and Management*, Vol.11, No.4, pp. 651-679.
59. Wiengarten, F., Fynes, B. and Onofrei, G. (2013). 'Exploring synergetic effects between investments in environmental and quality/lean practices in supply chains', *Supply Chain Management: An International Journal*, Vol.18, No.1, pp. 148-160.
60. Younis, H., Sundarakani, B. and O'Mahony, B. (2020). 'Investigating the relationship between green supply chain management and corporate performance using a mixed method approach: developing a roadmap for future research', *IIMB Management Review*, Vol.32, No.3, pp. 305-324.
61. Yu, W., Chavez, R., Feng, M. and Wiengarten, F. (2014). 'Integrated green supply chain management and operational performance', *Supply Chain Management*, Vol.19, No.5/6, pp. 683-696.
62. Zhu, Q., Geng, Y. and Lai, K.H. (2010). 'Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications', *Journal of Environmental Management*, Vol.91, No.8, pp.1324-1331.