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TO ANALYSE THE EFFECT OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM) PRACTICES ON ORGANISATIONAL PERFORMANCE

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Abstract

Green supply chain management, or GSCM, has emerged as a key strategy for companies trying to achieve sustainability, protect the environment, and boost organisational performance. The current study sought to understand how green supply chain management strategies affect organisational performance using a range of elements, such as eco-design, green production, green procurement, reverse logistics, and environmental partnerships. In this study, primary and secondary data sources were considered. Academic papers, textbooks, reports, and literature reviews were the sources of secondary data, while a systematic questionnaire was employed to collect primary data from one hundred respondents. Numerous statistical methods, including regression analysis, correlation analysis, mean analysis, and percentage analysis, were used to analyse the data. Organisational performance was found to be greatly enhanced by green supply chain management strategies. Green production had the most effects on competitive advantage, efficiency, and environmental sustainability. The paper also listed some of the obstacles that companies implementing GSCM strategies must face, including organisational resistance to change, implementation costs, and technological constraints.

Keywords: *Green Supply Chain Management, Sustainability, Organizational Performance, Green Manufacturing, Reverse Logistics*

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1. INTRODUCTION

Growing environmental concerns, resource depletion, industrial pollution, and climate change have forced organizations to develop sustainable business strategies. In recent years, there has been a growing interest in Green Supply Chain Management among academics and practitioners. "Green supply chain management" refers to the integration of environmental considerations into supply chain management activities, including purchasing, production design, manufacturing processes, transportation, and product disposal.

Traditional supply chain management used to only concentrate on cost-cutting, efficiency, and profit maximization. However, companies today recognize how important it is to be environmentally and socially responsible. They are therefore developing green initiatives that will lessen their environmental impact while preserving their operational effectiveness and competitiveness.

Among the green activities in supply chain management include green purchasing, green manufacturing, green packaging, waste reduction, recycling, reverse logistics, and collaborating with environmentally concerned suppliers. These environmentally friendly programs help businesses lower carbon emissions, maximize resource utilization, increase energy efficiency, and improve their brand.

An organization's multifarious performance includes financial performance, efficiency, environmental performance, customer satisfaction, and competitiveness. Businesses that use GSCM have improved productivity, quality, reputation, and profitability, among other performance measures, according to numerous studies.

Due to increasing pressure from stakeholders, consumers, environmental organizations, and governments, businesses are implementing green supply chain practices. Environmental regulations, such as those concerning pollution controls and carbon reductions, have also had an impact on organizations' use of GSCM techniques.

An effort will be made to look into how green supply chain practices impact organisational performance by considering key GSCM components.

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Objectives of the Study

- To understand the relevance of Green Supply Chain Management. Green supply chain management is an important concept that you should be familiar with
- To assess how GSCM practices affect the efficiency of the organization.
- To identify the issues that arise when GSCM practices are put into action.
- To provide guidance on how to effectively apply GSCM procedures.

2. REVIEW OF LITERATURE

Researchers Rupa R. A. and Saif A. N. M. (2022) looked into how Green Supply Chain Management techniques affected the sustainability and performance of businesses in developing nations. The research looked at many eco-friendly practices, including green purchasing, eco-design, green manufacturing, and reverse logistics. It was demonstrated that the organization's sustainability, operational efficiency, and reduction of environmental pollution were all enhanced by applying GSCM. There was also no mistaking the competitiveness and success of businesses engaged in environmentally responsible supply chains. But what the authors found was that organisations in developing nations had a hard time implementing GSCM methods.

Sahoo and Vijayvargy (2021) looked at how Green Supply Chain Management approaches affected the performance of manufacturing enterprises in India. They considered green supply chain management approaches such as green production, waste management, environmental cooperation, and eco-friendly logistics techniques in their research. Operations, finances, and the environment are all positively impacted by GSCM practices in the industrial sector. Businesses who implemented sustainable supply chain practices demonstrated better use of resources, more productivity, happier customers, and lower costs, according to their research.

Samad, Nilashi, Almulihi, Alrizq, Alghamdi, Mohd, and Azhar (2021) found that collaborative competency was a moderating variable in the relationship between GSCM practices and company success. The authors investigated the impact of supplier and manufacturer collaboration on an organization's performance. Market performance, company efficiency, and environmental performance were all positively affected by GSCM procedures, as the authors found. Furthermore,

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it was found that collaborative competence further increased the link between GSCM practices and company success.

Researchers Seman, Govindan, Mardani, Zakuan, Saman, Hooker, and Ozkul (2019) looked into how green innovation mediated the relationship between GSCM and environmental performance. The research focused on the ways in which eco-design, green manufacturing, green purchasing, and environmental cooperation are integrated into the supply chains of various organisations. Researchers discovered that green innovation substantially amplified the positive impacts of GSCM strategies on environmental performance. The poll found that when it came to optimising resources, reducing waste, and controlling pollution, businesses that used innovative green strategies and sustainable practices performed better than their competitors. According to Asongu (2024), the authors took into account the moderating effect of supply chain competitive advantage when studying the effects of Green Supply Chain Management (GSCM) approaches on environmental performance in companies. The authors are A. K. Sampene, B. A. Gyamfi, J. Wiredu, Q. Yang, and S. A. Waste management, sustainable manufacturing, green procurement, and reverse logistics were some of the GSCM topics that the writers concentrated on. Businesses' competitiveness, efficacy, and environmental performance were found to significantly improve when they utilized efficient GSCM processes. The authors also found that supply chain competitive advantage moderated the association between GSCM methods and environmental performance of firms.

3.RESEARCH METHDOLOGY

study technique refers to the system used to collect, evaluate, and interpret data in connection to the study topic. Examining the effects of Green Supply Chain Management on business output was the driving force for this research. In the methodology section, you may find details on the study's framework, data sources, sampling procedure, sample size, and statistical analysis tools.

3.1 Research Design

This investigation made use of both an analytical and a descriptive research strategy. We used a descriptive research strategy to find out how companies were adopting various Green Supply

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Chain Management tactics, and we used an analytical research strategy to see how those tactics affected company performance.

3.2 Nature of Data

The study's foundation was data derived from a combination of primary and secondary sources. The questionnaire was designed to gather primary data from individuals and covered a range of issues such as green purchasing, green production, eco-design, reverse logistics, environmental collaborations, and organisational performance.

The following sources were used to compile the secondary data: academic journals

Works of literature

The company's financial records

- Official records
- The Internet
- Findings from earlier investigations
- Presented at conferences

3.3 Population of the Study

Managers and workers from companies and factories that implemented Green Supply Chain Management practices were the focus of the research.

3.4 Sample Size

We received 100 responses in all. Management, supervisors, officers of supply chain management, and workers from a variety of companies who were tasked with supply chain and operation-related duties made up the sample.

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3.5 Sampling Technique

The study used a straightforward sampling technique to choose the respondents. We did this since our method made it simple to get in touch with people who may provide us with knowledge on our Green Supply Chain Management and how our firm runs.

3.6 Data Collection Instrument

The structured questionnaire served as the main tool for data gathering. The questions were grouped in two parts:

Part A: Personal Information

This part contained:

- Gender
- Age
- Education
- Experience
- Designation

Section B: Study Variables

This section included statements related to:

- Sustainable consumption
- Sustainability in design
- Eco-friendly production
- Logistics in reverse
- Working together for the environment
- How well an organization runs

A five-point Likert Scale was used for measuring responses:

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Table 1: Measurement Scale for Study Variables Using Five-Point Likert Scale

Scale	Response
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

3.7 Variables of the Study

Independent Variable

- Eco-Friendly Methods for Managing the Supply Chain
- Eco-Design o Sustainable Purchasing
- Sustainable Production
- Logistics in Reverse
- Collaborating for the Environment"

Dependent Variable

- Organisational Performance
- Success in the Bank
- Performance in Operations
- Performance in the Environment
- The Effect on Sales

3.8 Methods of Data Analysis

Statistical and descriptive methods were employed to examine the gathered data. The instruments that were utilised were: Analysis based on percentages Using a mean

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- Graphics and tables
- Using a correlational approach
- Using regression models

These methods were useful for investigating how Green Supply Chain Management strategies affected business outcomes.

3.9 Hypothesis of the Study

H_0 (Null Hypothesis)

In terms of influencing business outcomes, Green Supply Chain Management strategies were ineffective.

H_1 (Alternative Hypothesis)

Green Supply Chain Management strategies significantly impacted business outcomes.

4. DATA ANALYSIS AND INTERPRETATION

we examine the findings from our data analysis of one hundred respondents on the impact of GSCM on the productivity of different types of businesses.. The data has been analysed using percentage, mean, correlation, and regression tests. A number of tables and explanations of their contents serve to highlight the findings.

Table 2: The Respondents' Demographic Profile

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	62	62%
	Female	38	38%
Age	21–30 Years	28	28%
	31–40 Years	42	42%

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	41–50 Years	20	20%
	Above 50 Years	10	10%
Educational Qualification	Graduate	35	35%
	Postgraduate	50	50%
	Others	15	15%
Work Experience	Below 5 Years	30	30%
	5–10 Years	45	45%
	Above 10 Years	25	25%

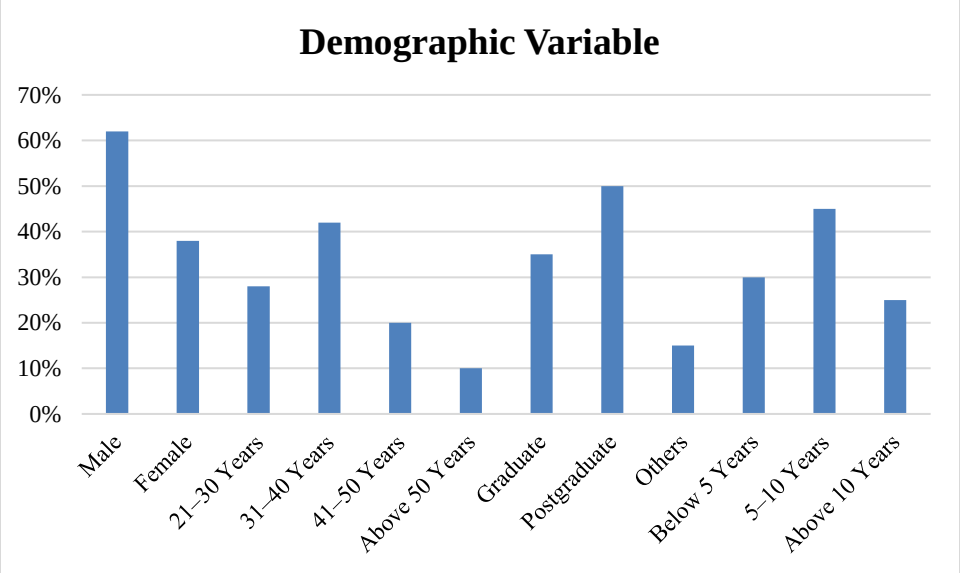

Figure 1: Graphical Representation of Demographic Profile of Respondents

Males made up 62% of the respondents, while females only made up 38%, as shown in the table. The highest number of responders was between the ages of 31 and 40 (42%), which indicates that the participants had a lot of relevant work experience and were able to contribute meaningfully to

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the study. A little over half of those who took the survey had advanced degrees, and almost half had worked in their industry for five to ten years.

Table3: An Evaluation of Eco-Friendly Supply Chain Management Strategies

GSCM Practices	Mean Score	Interpretation
Green Purchasing	4.12	High
Eco-Design	3.95	High
Green Manufacturing	4.25	Very High
Reverse Logistics	3.81	High
Environmental Collaboration	4.08	High

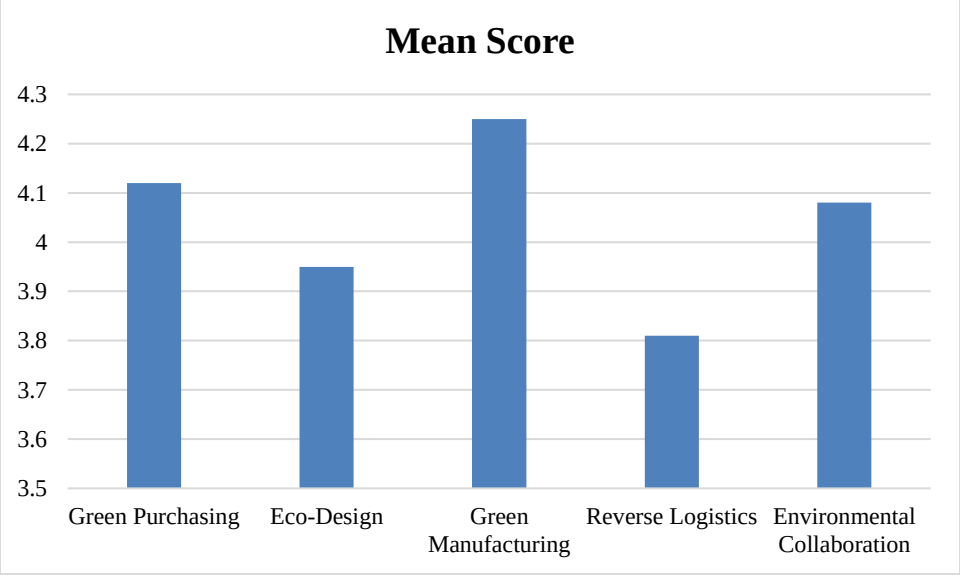

Figure 2: Graphical Representation of Mean Analysis of Green Supply Chain Management Practices

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Green Manufacturing stood out with the highest mean (4.25), as shown in the table of results. Sustainable manufacturing procedures and waste reduction measures were clearly important to organisations. Two ideas that have a lot of clout are environmental collaboration and green purchasing. Many businesses started using them. On the other hand, Reverse Logistics' mean was the lowest at 3.81.

Table 4: Correlation Analysis Between GSCM Practices and Organisational Performance

Variables	**Correlation Coefficient (r)**	**Relationship**
Green Purchasing and Organisational Performance	0.68	Positive
Eco-Design and Organisational Performance	0.64	Positive
Green Manufacturing and Organisational Performance	0.79	Strong Positive
Reverse Logistics and Organisational Performance	0.59	Positive
Environmental Collaboration and Organisational Performance	0.72	Strong Positive

Organisational performance was positively correlated with the application of the GSCM practices, according to the results of the correlation test. The strongest positive association (r=0.79) was found in the field of Green Manufacturing. Because of this strong correlation, it may be concluded that the practices helped boost organisational performance. Also, Environmental Collaboration and organisational success were highly correlated (r=0.72).

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Table 5: Regression Analysis of GSCM Practices on Organisational Performance

Variables	**Beta Coefficient**	**t-value**	**Significance (p-value)**
Green Purchasing	0.28	3.21	0.002
Eco-Design	0.24	2.96	0.004
Green Manufacturing	0.39	4.85	0.000
Reverse Logistics	0.19	2.41	0.018
Environmental Collaboration	0.31	3.74	0.001

Since the p-value was less than 0.05 in each scenario, it was determined that Green Supply Chain Management positively influences organisational performance according to the regression analysis. With a beta value of0.39, Green Manufacturing was the most influential factor in the organization's success. Environmental Collaboration and Green Purchasing, the other two green criteria, also played a big role in helping organisations operate better. H_0 was refused, however H_1 was accepted.

5.CONCLUSION

This study examined at how Green Supply Chain Management methods affected business results and found that sustainable supply chain strategies helped companies in many ways, including financially, operationally, environmentally, and in the market. Environmental cooperation, green procurement, green design, and green manufacturing were among the activities. Organisations were able to optimise resource utilisation, reduce operation costs, minimise environmental impacts, and enhance competitiveness by using these sustainable supply chain management strategies. According to the findings, green manufacturing was the factor that affected organisational performance the most. In descending order of effect, the other two variables were green procurement and environmental collaboration. Green supply chain management methods are positively associated with organisational success, according to statistical study. More productivity,

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happier customers, and achieved sustainability objectives were the results for businesses that used green supply chain management practices. But there were a few snags due to things like high implementation costs, insufficient tech assistance, and opposition to organisational changes. Although there were certain limitations, the study did find that GSCM methods could be beneficial for organisations.

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