Green Packing Practices in Logistics

OPEN ACCESS

Volume: 13

Special Issue: 1

Month: February

Year: 2026

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Citation:
Abhinav, PM, et al. "Green Packing Practices in Logistics." *Shanlax International Journal of Arts, Science and Humanities*, vol. 13, no. S1, 2026, pp. 212–17.

DOI:
https://doi.org/10.34293/sijash.v13iS1-Feb.10099

P.M. Abhinav
III BBA Logistics
Department of Business Administration (Logistics and Aviation Management), Nehru Arts and Science College (Autonomous), Coimbatore

Edwin Soly Samuel
III BBA Logistics
Department of Business Administration (Logistics and Aviation Management), Nehru Arts and Science College (Autonomous), Coimbatore

S. Pravin Kumar
Assistant Professor
Department of Business Administration (Logistics and Aviation Management), Nehru Arts and Science College (Autonomous), Coimbatore

Abstract
Green packing practices in logistics have become an essential strategy for promoting environmental sustainability in supply chain management. With increasing concerns about climate change, plastic pollution, and resource depletion, logistics companies are adopting eco-friendly packaging solutions to reduce environmental impact. Green packaging focuses on biodegradable materials, recyclable inputs, lightweight design, reusable systems, and energy-efficient production processes. This study examines the concept, importance, benefits, and challenges of green packing practices in logistics. The research adopts a descriptive methodology using primary and secondary data. The findings indicate that green packaging significantly reduces carbon emissions, enhances brand image, improves operational efficiency, and supports sustainable supply chain performance, although challenges such as cost and infrastructure limitations remain.

Keywords: Green Packaging, Sustainable Logistics, Eco-friendly Materials, Environmental Sustainability, Waste Reduction, Supply Chain Management

Introduction

The logistics industry plays a vital role in global trade and economic development. However, traditional packaging methods have contributed significantly to environmental pollution through excessive plastic usage, non-biodegradable materials, and high carbon emissions. Growing environmental awareness among consumers, governments, and businesses has led to the adoption of sustainable practices in logistics operations.

Green packing practices aim to reduce environmental impact by optimizing packaging materials, minimizing waste, and promoting recycling and reuse. Sustainable packaging balances economic efficiency with environmental responsibility and has become a competitive advantage in modern supply chains.

Review of Literature

OECD (2018) emphasized the importance of improving plastic waste management through sustainable packaging policies. The World Economic Forum (2020) highlighted that sustainable packaging is a key driver of responsible consumption and environmental protection.

UNEP (2019) reported that single-use plastics are major contributors to environmental degradation and recommended eco-friendly alternatives. McKinnon (2018) discussed the role of sustainable logistics in reducing carbon emissions and improving environmental performance.

Previous studies suggest that green packaging practices contribute to cost reduction, improved brand image, and long-term sustainability.

Objectives of the Study

1. To understand the concept of green packing practices in logistics.

This objective aims to study the meaning, scope, and components of green packaging, including biodegradable materials, recyclable inputs, reusable systems, and eco- friendly design methods used in logistics operations.

2. To analyze the importance of sustainable packaging in supply chain management.

This objective focuses on examining how sustainable packaging contributes to environmental protection, regulatory compliance, cost efficiency, and overall supply chain sustainability.

3. To identify the benefits of green packaging for logistics companies.

The study seeks to evaluate economic, environmental, and operational advantages such as waste reduction, improved brand image, enhanced customer trust, fuel savings through lightweight packaging, and long-term profitability.

4. To examine the challenges faced in implementing green packing practices.

This objective aims to analyze the practical difficulties in adopting sustainable packaging, including high initial costs, limited availability of eco-friendly materials, inadequate recycling infrastructure, technological constraints, and lack of awareness among stakeholders.

5. To provide suitable recommendations for promoting sustainable packaging.

The study intends to suggest practical measures such as policy support, employee training, supplier collaboration, technological innovation, and investment in research to encourage wider adoption of green packaging practices.

Research Methodology

Research Design

The study adopts a descriptive research design to analyze green packing practices in logistics.

Nature of Study

The study is analytical and descriptive in nature.

Area of the Study

The study focuses on logistics firms operating in Coimbatore district (or specify your study area).

Sources of Data

- Primary Data: Collected from logistics managers and packaging supervisors through structured questionnaires.
- Secondary Data: Collected from journals, reports, books, and official publications.

Sampling Design

- Sampling Method: Convenience Sampling
- Sample Size: 100 respondents

Tools for Data Collection

- Structured Questionnaire
- Personal Interviews

Tools for Data Analysis

- Percentage Analysis
- Mean Score Analysis
- Simple Statistical Tables

Period of Study

The study was conducted from January 2025 to March 2025.

Limitations of the Study

- Limited sample size
- Time constraints
- Geographical limitation
- Possibility of respondent bias

Data Analysis and Interpretation

Data were collected from 100 respondents and analyzed using percentage analysis.

Adoption of Green Packaging Practices

Response	Number of Respondents	Percentage (%)
Yes	68	68%
No	32	32%
Total	100	100%

Interpretation

68% of respondents confirm that their organizations have adopted green packaging practices.

Reduction in Packaging Waste

Response	Number of Respondents	Percentage (%)
Yes	72	72%
No	28	28%
Total	100	100%

Interpretation

The majority (72%) believe that green packing reduces packaging waste significantly.

Improvement in Brand Image

Response	Number of Respondents	Percentage (%)
Yes	75	75%
No	25	25%
Total	100	100%

Interpretation

75% agree that adopting green packaging enhances company reputation and customer trust.

Hypotheses

Hypotheses are tentative statements formulated to examine the relationship between variables in the study. In this research, green packaging adoption is considered as the independent variable, while waste reduction, brand image, operational efficiency, and environmental awareness are treated as dependent or associated variables.

H1: There is a significant relationship between green packaging adoption and waste reduction.

This hypothesis examines whether the implementation of recyclable, biodegradable, and reusable packaging materials leads to a measurable reduction in packaging waste. Green packaging aims to minimize single-use plastics and landfill contributions. If supported, this hypothesis indicates that organizations adopting sustainable packaging practices experience significant improvements in waste management and environmental performance.

H2: There is a significant relationship between sustainable packaging and brand image improvement.

This hypothesis tests whether companies that adopt environmentally responsible packaging practices enjoy enhanced corporate reputation and customer trust. Sustainable packaging demonstrates corporate social responsibility (CSR), which positively influences customer perception, brand loyalty, and competitive positioning in the market.

H3: There is a significant relationship between green packing practices and operational efficiency.

This hypothesis evaluates whether sustainable packaging contributes to improved logistics performance. Lightweight packaging, optimized design, and reusable systems can reduce transportation costs, storage space requirements, and material handling time. If proven, this indicates that green packaging not only benefits the environment but also enhances cost efficiency and operational productivity.

H4: There is a significant relationship between environmental awareness and adoption of green packaging.

This hypothesis analyzes whether higher levels of environmental awareness among managers, employees, and consumers influence the adoption of green packaging practices. Organizations operating in environmentally conscious markets may be more likely to implement sustainable packaging strategies due to regulatory pressure, customer demand, and ethical responsibility.

Findings of the Study

Based on the analysis of data collected from respondents and supporting literature, the study reveals the following key findings:

1. Green packaging reduces environmental pollution and landfill waste.

The use of biodegradable, recyclable, and compostable materials significantly decreases plastic waste and non-biodegradable disposal. Sustainable packaging helps reduce carbon emissions and supports environmental protection initiatives.

2. Adoption of eco-friendly materials improves corporate reputation.

Companies that implement green packaging practices are perceived as socially responsible and environmentally conscious. This enhances brand image, strengthens customer loyalty, and builds trust among stakeholders.

3. Lightweight packaging reduces transportation costs and fuel consumption.

Optimized packaging design reduces weight and volume, leading to better vehicle space utilization and lower fuel usage. This contributes to cost savings and reduced greenhouse gas emissions.

4. Reusable packaging systems enhance operational efficiency.

Returnable containers, pallets, and crates reduce material wastage and repetitive packaging expenses. These systems streamline logistics operations and improve long- term cost efficiency.

5. High initial cost and limited infrastructure remain major challenges.

Sustainable materials often involve higher procurement costs. Additionally, inadequate recycling facilities, limited supplier availability, and lack of technical expertise hinder widespread adoption.

Overall, the findings confirm that green packing practices positively impact environmental sustainability, operational performance, and corporate competitiveness.

Recommendations

Based on the findings, the following recommendations are suggested to promote effective implementation of green packaging practices:

1. Increase investment in research and development.

Organizations should invest in developing cost-effective and durable eco-friendly packaging materials to reduce dependency on traditional plastics.

2. Provide environmental awareness and training programs.

Regular training sessions can educate employees about sustainable packaging practices and encourage responsible environmental behavior within the organization.

3. Encourage government incentives and policy support.

Tax benefits, subsidies, and regulatory encouragement can motivate companies to adopt green packaging solutions.

4. Strengthen recycling infrastructure and waste management systems.

Collaboration between public and private sectors is necessary to improve recycling facilities and promote circular economy practices.

5. Collaborate with suppliers and stakeholders.

Building partnerships with eco-friendly suppliers ensures consistent availability of sustainable materials and encourages innovation across the supply chain.

6. Adopt phased implementation strategies.

Gradual adoption of green packaging practices can help organizations manage financial risks and operational adjustments effectively.

Conclusion

Green packing practices have become an essential component of sustainable logistics management. The study concludes that adopting recyclable, biodegradable, and reusable packaging materials significantly reduces environmental impact while enhancing operational efficiency and corporate reputation. Sustainable packaging supports cost savings through material optimization and improved transportation efficiency.

Although challenges such as high initial investment, limited recycling infrastructure, and technological constraints exist, these barriers can be overcome through strategic planning, government support, and continuous innovation. In the long term, green packaging contributes to environmental protection, regulatory compliance, and competitive advantage. Therefore, sustainable packaging will remain a key driver of responsible supply chain management and an important step toward achieving environmental sustainability in the logistics sector.

References

1. OECD. (2018). Improving Plastics Management: Trends, Policy Responses, and the Role of International Cooperation. OECD Publishing.
2. World Economic Forum. (2020). The Future of Consumption: Sustainable Packaging.
3. United Nations Environment Programme. (2019). Single-Use Plastics: A Roadmap for Sustainability.
4. McKinnon, A. (2018). Decarbonizing Logistics: Distributing Goods in a Low Carbon World. Kogan Page.
5. Ellen MacArthur Foundation. (2017). The New Plastics Economy: Rethinking the Future of Plastics.
6. European Commission. (2018). A European Strategy for Plastics in a Circular Economy. United Nations. (2015). Transforming Our World: The 2030 Agenda for Sustainable Development.
7. World Bank. (2018). What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050.
8. Kotler, P., & Keller, K. L. (2016). Marketing Management. Pearson Education. Christopher, M. (2016). Logistics and Supply Chain Management. Pearson Education.