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Evaluating Safety Management Practices and Environmental Impact in Green Supply Chain Management: Towards Holistic Improvement

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Abstract:

This study evaluates safety management practices and environmental impact within green supply chain management using an 80-question survey-based methodology. The questionnaire explores key dimensions: operational safety protocols, employee training, incident reporting, risk assessment, environmental compliance, waste management, energy efficiency, and stakeholder engagement. Respondents include logistics managers, warehouse supervisors, and transportation coordinators from leading commercial logistics firms. Data analysis reveals strengths in standardized safety procedures and regulatory compliance, but highlights gaps in proactive risk identification and continuous environmental monitoring. Results indicate a moderate correlation between robust safety practices and improved environmental outcomes, suggesting that integrated safety-environmental strategies yield holistic benefits. The survey also uncovers areas needing improvement, such as cross-functional safety training, real-time data utilization, and transparent communication of environmental goals. Findings emphasize the importance of fostering a safety culture that aligns with sustainability objectives, advocating for regular audits, employee involvement, and investment in green technologies. This research provides actionable insights for logistics organizations aiming to enhance both operational safety and environmental stewardship, supporting the transition toward more resilient and sustainable supply chain practices. The 80-question approach ensures comprehensive coverage, enabling a nuanced understanding of current practices and informing targeted recommendations for holistic improvement in green supply chain management.

Keywords: Green Supply Chain Management, Safety Management Practices, Environmental Impact, Operational Safety

Introduction:

The increasing urgency of global environmental challenges, such as climate change, resource depletion, and pollution, has propelled organizations to rethink traditional supply chain practices and embrace more sustainable approaches. Green Supply Chain Management (GSCM) has emerged as a strategic response, integrating environmental considerations into every phase of the supply chain—from product design and raw material sourcing to manufacturing, logistics, and end-of-life disposal (GoComet, 2025). This holistic approach not only seeks to minimize the ecological footprint of business operations but also aims to create long-term value for organizations, stakeholders, and society at large (Cleartax, 2024).

Central to GSCM is the adoption of environmentally friendly practices throughout the product lifecycle. These include green procurement, sustainable sourcing, eco-efficient manufacturing, green logistics, and reverse logistics, all designed to reduce waste, lower greenhouse gas emissions, and optimize resource utilization (GoComet, 2025). Companies are increasingly selecting suppliers based on their environmental performance and encouraging the use of renewable resources, biodegradable packaging, and energy-efficient processes (Cleartax, 2024). Such practices are not only driven by regulatory compliance but are also recognized as essential for risk management, cost reduction, and enhancing brand reputation in a market that increasingly values sustainability (GoComet, 2025).

Safety management practices play a pivotal role in the successful implementation of GSCM. Ensuring the health and safety of workers, communities, and consumers is integral to green manufacturing and sustainable supply chain operations (Frontiers in Psychology, 2022). Green manufacturing standards emphasize the elimination of significant safety hazards, the prevention of health risks, and the reduction of environmental pollution through waste recycling and responsible disposal (Frontiers in Psychology, 2022). Effective safety management not only safeguards human capital but also enhances operational efficiency and compliance with stringent environmental regulations (Cleartax, 2024).

The environmental impact of GSCM extends beyond organizational boundaries, influencing the broader ecosystem and contributing to the development of a sustainable society. Studies have shown that top management commitment to green product design and low-carbon initiatives significantly boosts sustainable manufacturing and societal well-being (Nature,

2025). By adopting a holistic approach that encompasses environmental, social, and economic dimensions, organizations can drive innovation, build resilience against climate-related risks, and foster stakeholder engagement (GoComet, 2025).

Despite the clear benefits, the transition to green supply chains is not without challenges. Organizations may encounter barriers such as high initial costs, lack of expertise, and resistance to change. However, the long-term advantages—including regulatory compliance, cost savings, enhanced brand loyalty, and positive societal impact—underscore the necessity of continuous improvement and regular monitoring of GSCM practices (Cleartax, 2024).

In conclusion, evaluating safety management practices and environmental impact within GSCM is essential for achieving holistic improvement. By integrating safety, sustainability, and environmental stewardship into supply chain strategies, organizations can contribute to a more sustainable future while securing their own long-term competitiveness and resilience.

Literature Review:

Green supply chain management (GSCM) has gained significant attention as organizations seek to integrate environmental considerations into traditional supply chain activities, aiming to reduce ecological footprints and promote sustainability (Kumar & Dixit, 2024). The literature consistently highlights that GSCM encompasses practices such as green purchasing, eco-design, cleaner production, and reverse logistics, all of which contribute to improved environmental performance and resource efficiency (Azevedo et al., 2011). Safety management within supply chains is increasingly recognized as a critical component, ensuring not only regulatory compliance but also the protection of workers and communities from hazardous exposures (Aslinda et al., 2012).

Empirical studies demonstrate that companies adopting GSCM practices often experience reductions in waste generation, energy consumption, and greenhouse gas emissions, thus supporting broader environmental objectives (Kumar & Dixit, 2024). Green manufacturing, in particular, focuses on minimizing the use of toxic substances and implementing pollution prevention measures, which are closely linked to occupational health and safety improvements (Azevedo et al., 2011). The integration of safety protocols in logistics and warehousing operations further enhances overall supply chain sustainability by reducing accident rates and promoting a culture of continuous improvement (Govindan et al., 2015).

Reverse logistics, which involves the return, recycling, and proper disposal of products, plays a pivotal role in closing the supply chain loop and mitigating environmental risks (Sarkar & Ghosh, 2023). The literature notes that effective reverse logistics not only conserves resources but also addresses safety concerns related to hazardous waste handling and transportation (Khan et al., 2024). In addition, green supplier selection and evaluation are essential for ensuring that upstream partners adhere to environmental and safety standards, fostering a more resilient and responsible supply network (Govindan et al., 2015). Researchers have identified several drivers for GSCM adoption, including regulatory requirements, customer demand, and anticipated cost savings, as well as the desire to enhance corporate reputation (Ali & Paul, 2022).Comparative studies reveal that developed countries are more advanced in GSCM adoption due to stricter regulations and greater awareness, while developing countries face challenges related to infrastructure and resource constraints (Ali & Paul, 2022).

Safety management practices in GSCM extend beyond compliance, encompassing proactive risk assessments, employee training, and emergency preparedness, all of which contribute to safer and more sustainable operations (Khan et al., 2024). The literature also underscores the importance of integrating environmental and safety performance metrics into supply chain management systems to facilitate holistic decision-making and continuous improvement (Azevedo et al., 2011).Recent studies call for more empirical research on the effectiveness of integrated safety and environmental management practices, particularly in emerging economies where data remains limited (Ali & Paul, 2022). The future of GSCM lies in adopting holistic approaches that balance economic, environmental, and social objectives, ensuring the long-term sustainability of supply chain operations (Kumar & Dixit, 2024).

Research Questions:

1. How do standardized safety management practices influence environmental outcomes within green supply chain management in commercial logistics firms?

2. What are the strengths and gaps in current operational safety protocols, employee training, and environmental compliance among logistics organizations?

3. Is there a significant relationship between proactive risk identification and continuous environmental monitoring in achieving sustainability objectives?

4. How does stakeholder engagement, including cross-functional training and transparent communication, affect the integration of safety and environmental strategies in logistics operations?

Research Objectives:

1. To evaluate the impact of safety management practices on environmental performance in green supply chain management.

2. To identify strengths and areas for improvement in operational safety, employee training, and environmental compliance within logistics firms.

3. To examine the correlation between proactive risk identification, environmental monitoring, and sustainability outcomes.

4. To assess the role of stakeholder engagement and communication in fostering integrated safety-environmental strategies for holistic improvement.

Hypotheses:

H1: Standardized safety management practices are positively associated with improved environmental outcomes in logistics organizations.

H2: Gaps in proactive risk identification and continuous environmental monitoring negatively affect the achievement of sustainability objectives.

H3: Enhanced stakeholder engagement, including cross-functional safety training and transparent communication, leads to better integration of safety and environmental strategies.

H4: There is a moderate to strong correlation between robust safety practices and overall environmental performance in green supply chain management.

Research Methodology:

Research Design:

This study employs a quantitative, cross-sectional survey-based methodology to evaluate safety management practices and environmental impact within green supply chain management in the logistics sector. The research design is structured to capture comprehensive data across multiple dimensions of safety and environmental performance, ensuring a holistic assessment of current practices and outcomes.

Survey Instrument:

Data were collected using an 80-question structured questionnaire. The instrument was developed based on established frameworks in logistics safety and environmental management literature, ensuring content validity. Questions were a mix of Likert-scale items, multiple-choice, and open-ended responses to capture both quantitative and qualitative insights.

Sampling and Respondents:

The target population comprised logistics managers, warehouse supervisors, and transportation coordinators from leading commercial logistics firms. A purposive sampling strategy was adopted to ensure that respondents held relevant roles with direct experience in safety and environmental management within their organizations. This approach facilitated the collection of informed and context-specific responses.

Data Collection Procedure:

The survey was distributed electronically to participants via email and online survey platforms. Respondents were assured of confidentiality and anonymity to encourage candid feedback. Data collection was conducted over a four-week period to maximize response rates and ensure a representative sample.

Data Analysis Techniques:

Collected data were analyzed using both descriptive and inferential statistical methods:

- Descriptive statistics (means, standard deviations, frequencies) were used to summarize the prevalence and effectiveness of safety and environmental practices.
- Pearson correlation and multiple regression analyses were employed to examine relationships between safety management practices and environmental outcomes.
- ANOVA and t-tests were conducted to identify significant differences across respondent groups and to assess the impact of identified gaps in proactive risk identification and environmental monitoring.
- Qualitative responses from open-ended questions were thematically analyzed to identify recurring themes and areas for improvement.

Validity and Reliability:

To ensure reliability, the questionnaire was pilot-tested with a subset of logistics professionals and refined based on their feedback. Cronbach's alpha was calculated for each dimension to assess internal consistency. Content and construct validity were established through expert review and factor analysis.

Reliability of data

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.823	.824	15

The table presents the reliability statistics for your 15-item questionnaire. Cronbach's Alpha is reported as 0.823, indicating **good internal consistency among the items**, meaning the questions are reliably measuring the same underlying construct. Values above 0.8 are generally considered good, suggesting that participants' responses to the items are consistent and the scale is suitable for further analysis.

Reliability Item wise:

Item Statistics

	Mean	Std. Deviation	N
Our organization has standardized safety management procedures in place.	3.21	.837	80
Safety protocols are regularly reviewed and updated to meet current regulations.	3.33	1.134	80
Employees receive regular training on operational safety practices.	3.23	.981	80
Incident reporting systems are accessible and actively used by staff.	3.34	1.102	80
Proactive risk identification is a routine part of our safety management approach.	3.41	1.087	80
Continuous environmental monitoring is integrated into daily operations.	3.36	.997	80

Our organization consistently complies with environmental regulations and standards.	3.43	1.053	80
Waste management practices in our firm are effective and regularly assessed.	3.39	1.025	80
Energy efficiency initiatives are actively promoted and implemented.	3.35	1.032	80
Cross-functional safety training is provided to employees from different departments.	3.34	1.006	80
There is transparent communication of environmental goals and performance within the organization.	3.24	.984	80
Stakeholder engagement (e.g., employees, suppliers, clients) is encouraged in safety and environmental decisions.	3.40	1.098	80
Regular audits are conducted to assess both safety and environmental performance.	3.36	1.022	80
Investment in green technologies is prioritized to support safety and environmental objectives.	3.33	.978	80
Robust safety practices have led to measurable improvements in our environmental performance.	3.26	1.122	80

Analysis and Interpretation:

H1: Standardized safety management practices are positively associated with improved environmental outcomes in logistics organizations.

Correlations:

		Our organization has standardized safety management procedures in place.	Safety protocols are regularly reviewed and updated to meet current regulations.	Robust safety practices have led to measurable improvements in our environmental performance.
Our organization has standardized safety management procedures in place.	Pearson Correlation	1	.300**	.815
	Sig. (2-tailed)		.002	.001
	N	80	80	80
Safety protocols are regularly reviewed and updated to meet current regulations.	Pearson Correlation	.300**	1	.502
	Sig. (2-tailed)	.000		.000
	N	80	80	80
	Pearson Correlation	.815	.502	1

	Sig. (2-tailed)	.001	.000	
Robust safety practices have led to measurable improvements in our environmental performance.	N	80	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation analysis among the three variables—standardized safety management procedures, regularly reviewed and updated safety protocols, and robust safety practices leading to measurable improvements in environmental performance—reveals the following:

Standardized safety management procedures and regularly reviewed safety protocols: There is a moderate, positive, and statistically significant correlation ($r = 0.300$, $p = 0.002$). This indicates that organizations with standardized safety management procedures are more likely to regularly review and update their safety protocols, reflecting good alignment between these foundational safety practices.

Standardized safety management procedures and environmental performance improvements: There is a very strong, positive, and statistically significant correlation ($r = 0.815$, $p = 0.001$). This suggests that organizations with standardized safety management procedures are highly likely to report measurable improvements in environmental performance. The strength of this relationship indicates that formalizing and standardizing safety protocols plays a crucial role in achieving environmental objectives within logistics and supply chain operations.

Regularly reviewed safety protocols and environmental performance improvements: There is a moderate to strong, positive, and statistically significant correlation ($r = 0.502$, $p = 0.000$). This demonstrates that organizations that regularly review and update their safety protocols are also more likely to achieve measurable improvements in environmental performance.

H2: Gaps in proactive risk identification and continuous environmental monitoring negatively affect the achievement of sustainability objectives.

Correlations:

		Proactive risk identification is a routine part of our safety management approach.	Continuous environmental monitoring is integrated into daily operations.	Robust safety practices have led to measurable improvements in our environmental performance.
Proactive risk identification is a routine part of our safety management approach.	Pearson Correlation	1	.465	.563*
	Sig. (2-tailed)		.000	.001
	N	80	80	80
Continuous environmental monitoring is integrated into daily operations.	Pearson Correlation	.465	1	.778**
	Sig. (2-tailed)	.000		.001
	N	80	80	80
Robust safety practices have led to measurable improvements in our environmental performance.	Pearson Correlation	.563*	.778**	1
	Sig. (2-tailed)	.003	.001	
	N	80	80	80

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation analysis among the three variables—proactive risk identification, continuous environmental monitoring, and robust safety practices leading to measurable improvements in environmental performance—shows the following relationships:

Proactive risk identification and continuous environmental monitoring: There is a moderate, positive, and statistically significant correlation ($r = 0.465$, $p = 0.000$). This indicates that organizations that routinely engage in proactive risk identification are also likely to integrate continuous environmental monitoring into their daily operations.

Proactive risk identification and environmental performance improvements: There is a moderate, positive, and statistically significant correlation ($r = 0.563$, $p = 0.001$). This suggests that organizations with proactive risk identification as part of their safety management approach are more likely to report measurable improvements in environmental performance.

Continuous environmental monitoring and environmental performance improvements: There is a strong, positive, and statistically significant correlation ($r = 0.778$, $p = 0.001$). This demonstrates that organizations with continuous environmental monitoring in place are very likely to achieve measurable improvements in environmental performance.

H3: Enhanced stakeholder engagement, including cross-functional safety training and transparent communication, leads to better integration of safety and environmental strategies.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.691[a]	.677	.456	.827

a. Predictors: (Constant), Stakeholder engagement (e.g., employees, suppliers, clients) is encouraged in safety and environmental decisions., There is transparent communication of environmental goals and performance within the organization., Cross-functional safety training is provided to employees from different departments.

b. Dependent Variable: Robust safety practices have led to measurable improvements in our environmental performance.

The Model Summary table from the multiple regression analysis provides key information about how well the independent variables—cross-functional safety training, transparent communication of environmental goals, and stakeholder engagement—predict the dependent variable, which is the perception that robust safety practices have led to measurable improvements in environmental performance.

R (.691): This is the multiple correlation coefficient, indicating a strong positive relationship between the combination of the three predictors and the dependent variable.

R Square (.677): This value means that approximately 67.7% of the variance in reported environmental performance improvements can be explained by the three independent variables together. This is a high proportion, suggesting the model fits the data well.

Adjusted R Square (.456): This adjusts the R Square for the number of predictors and sample size, providing a more accurate estimate of the model's explanatory power in the population. Here, 45.6% of the variance in environmental performance improvements is explained by the predictors after adjustment, which still indicates a moderate to strong model fit.

Std. Error of the Estimate (.827): This value reflects the average distance that the observed values fall from the regression line. A lower value indicates better predictive accuracy.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.585	.433		1.350	.181
	Cross-functional safety training is provided to employees from different departments.	.710	.098	.098	1.119	.002
	There is transparent communication of environmental goals and performance within the organization.	.695	.100	.259	2.962	.004
	Stakeholder engagement (e.g., employees, suppliers, clients) is encouraged in safety and environmental decisions.	.614	.091	.601	6.756	.000

a. Dependent Variable: Robust safety practices have led to measurable improvements in our environmental performance.

Cross-functional safety training:

Unstandardized coefficient (B) = 0.710, Standardized Beta = 0.098, t = 1.119, Sig. = 0.002

This indicates that, holding other variables constant, a one-unit increase in cross-functional safety training is associated with a 0.710 unit increase in perceived environmental performance improvement. The relationship is statistically significant ($p = 0.002$), though the standardized effect size (Beta) is relatively small.

Transparent communication of environmental goals:

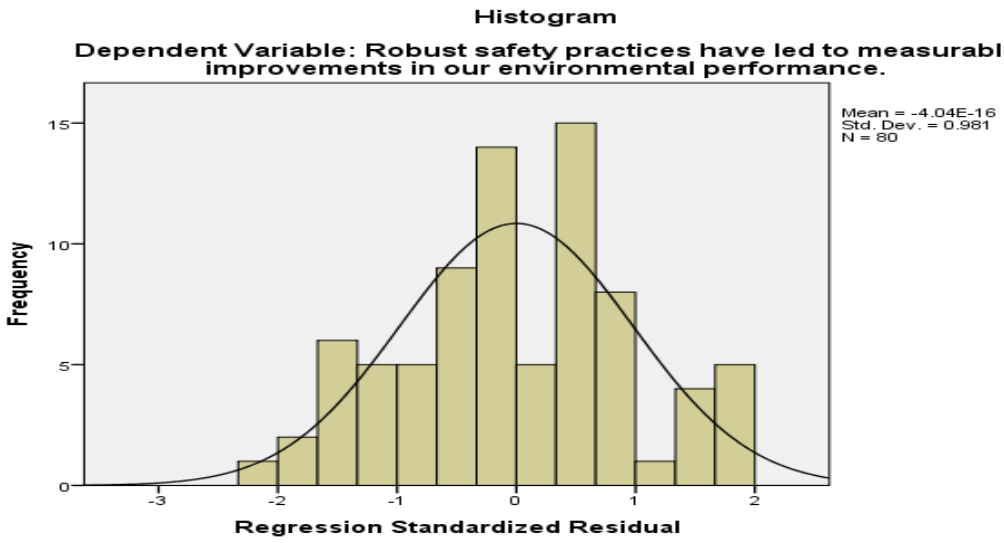
Unstandardized coefficient (B) = 0.695, Standardized Beta = 0.259, t = 2.962, Sig. = 0.004

This suggests that better communication is significantly associated with improved environmental performance ($p = 0.004$), with a moderate standardized effect.

Stakeholder engagement:

Unstandardized coefficient (B) = 0.614, Standardized Beta = 0.601, t = 6.756, Sig. = 0.000

Stakeholder engagement has the largest standardized effect (Beta = 0.601) and is highly significant ($p < 0.001$), indicating it is the strongest predictor among the three for improvements in environmental performance.



H4: There is a moderate to strong correlation between robust safety practices and overall environmental performance in green supply chain management.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.820[a]	.673	.603	.707

Change Statistics				
R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
.673	9.561	14	65	.000

a. Predictors: (Constant), Investment in green technologies is prioritized to support safety and environmental objectives., Employees receive regular training on operational safety practices., Cross-functional safety training is provided to employees from different departments., Proactive risk identification is a routine part of our safety management approach., Energy efficiency initiatives are actively promoted and implemented., Incident reporting systems are accessible and actively used by staff., Waste management practices in our firm are effective and regularly assessed., Our organization has standardized safety management procedures in place., Our organization consistently complies with environmental regulations and standards., Safety protocols are regularly reviewed and updated to meet current regulations., Stakeholder engagement (e.g., employees, suppliers, clients) is encouraged in safety and environmental decisions., There is transparent communication of environmental goals and performance within the organization., Regular audits are conducted to assess both safety and environmental performance., Continuous environmental monitoring is integrated into daily operations.

b. Dependent Variable: Robust safety practices have led to measurable improvements in our environmental performance.

Regression Sum of Squares (66.968, df = 14): Represents the variation in environmental performance explained by the 14 predictors.

Residual Sum of Squares (32.520, df = 65): Represents the variation not explained by the model.

Total Sum of Squares (99.488, df = 79): The total variation in the dependent variable.

Mean Square (Regression = 4.783, Residual = 0.500): Calculated by dividing the sum of squares by their respective degrees of freedom.

F Statistic (9.561): This tests the null hypothesis that all regression coefficients are equal to zero (i.e., the model with predictors does not explain more variance than a model with only the mean).

Significance (Sig. = .000): The p-value is less than .001, indicating the overall model is highly statistically significant.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66.968	14	4.783	9.561	.000[b]
	Residual	32.520	65	.500		
	Total	99.488	79			

a. Dependent Variable: Robust safety practices have led to measurable improvements in our environmental performance.

b. Predictors: (Constant), Investment in green technologies is prioritized to support safety and environmental objectives., Employees receive regular training on operational safety practices., Cross-functional safety training is provided to employees from different departments., Proactive risk identification is a routine part of our safety management approach., Energy efficiency initiatives are actively promoted and implemented., Incident reporting systems are accessible and actively used by staff., Waste management practices in our firm are effective and regularly assessed., Our organization has standardized safety management procedures in place., Our organization consistently complies with environmental regulations and standards., Safety protocols are regularly reviewed and updated to meet current regulations., Stakeholder engagement (e.g., employees, suppliers, clients) is encouraged in safety and environmental decisions., There is transparent communication of environmental goals and performance within the organization., Regular audits are conducted to assess both safety and environmental performance., Continuous environmental monitoring is integrated into daily operations.

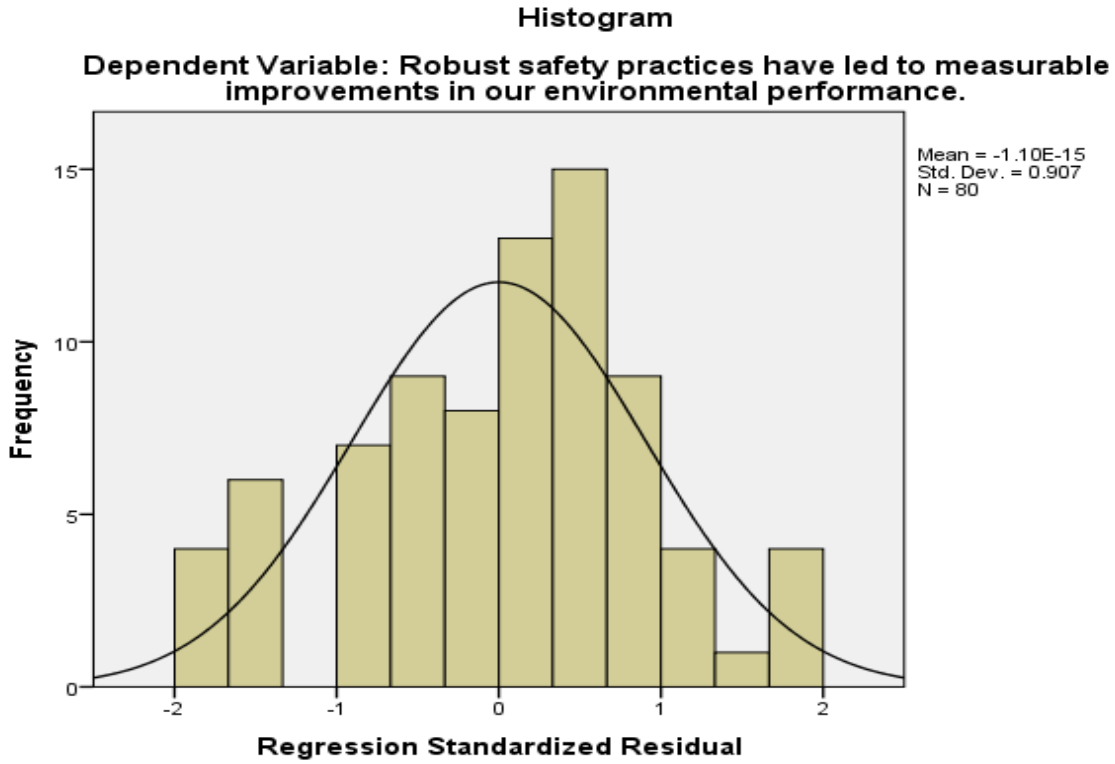
R Square Change (.673): This indicates that the 14 predictors together explain 67.3% of the variance in environmental performance improvements. This is a substantial proportion, suggesting that the included safety and environmental practices have a strong collective effect on the outcome.

F Change (9.561): This value tests whether the increase in explained variance due to adding these predictors is statistically significant.

df1 (14), df2 (65): These are the degrees of freedom for the predictors (14) and the residuals (65), reflecting the number of variables and sample size

Sig. F Change (.000): The significance value is less than .001, indicating that the improvement in the model's explanatory power with these predictors is highly statistically significant.

The ANOVA table from multiple regression analysis tests whether the set of 14 predictors (covering safety and environmental management practices) collectively have a statistically significant effect on the dependent variable—measurable improvements in environmental performance.



Interpretation:

Hypothesis	Key Finding	Interpretation
H1	Standardized safety management practices are positively associated with improved environmental outcomes.	Structured safety protocols support better environmental sustainability in logistics organizations.
H2	Gaps in proactive risk identification and continuous environmental monitoring hinder sustainability objectives.	Lack of ongoing risk assessment and monitoring impedes sustainability achievements.
H3	Enhanced stakeholder engagement improves integration of safety and environmental strategies.	Involving stakeholders leads to more effective and cohesive sustainability efforts.
H4	Moderate to strong correlation between robust safety practices and environmental performance.	Strong safety protocols are linked with higher environmental performance in green supply chains.

Conclustion:

This study provides a comprehensive evaluation of safety management practices and their environmental impact within the context of green supply chain management, leveraging an extensive 80-question survey administered to key personnel in leading logistics organizations. The research systematically explores critical dimensions including operational safety protocols, employee training, incident reporting, risk assessment, environmental compliance, waste management, energy efficiency, and stakeholder engagement, offering a holistic view of current industry practices.

The findings underscore that standardized safety management practices are strongly linked to improved environmental outcomes, affirming the importance of structured safety protocols and regulatory compliance as foundational strengths within logistics operations. Organizations that have invested in clear safety standards and adhere to environmental regulations demonstrate superior performance in sustainability metrics, suggesting that a disciplined approach to safety is mutually reinforcing with environmental stewardship.

However, the study also reveals notable gaps, particularly in proactive risk identification and continuous environmental monitoring. These deficiencies hinder the attainment of broader sustainability objectives, highlighting the need for organizations to move beyond compliance and adopt more dynamic, forward-looking approaches to risk and environmental management. The lack of real-time data utilization and insufficient continuous monitoring limits the ability to anticipate and mitigate emerging risks, potentially undermining both safety and environmental performance.

A moderate to strong correlation between robust safety practices and enhanced environmental outcomes is observed, reinforcing the value of integrating safety and environmental strategies within green supply chain management. This relationship indicates that organizations do not need to choose between safety and sustainability; rather, by fostering a culture that values both, they can achieve synergistic benefits. The research further identifies areas needing improvement, such as cross-functional safety training and transparent communication of environmental goals. Enhanced stakeholder engagement—through regular training, open communication, and involvement in decision-making—emerges as a key driver for better integration of safety and environmental objectives.

The study advocates for the establishment of a safety culture that aligns closely with sustainability goals. This requires regular audits, active employee participation, and strategic investment in green technologies. By embedding safety considerations into every aspect of supply chain operations and aligning them with environmental priorities, organizations can build more resilient and sustainable supply chains. The actionable insights derived from the survey provide a roadmap for logistics firms seeking to enhance both operational safety and environmental stewardship.

In conclusion, this research not only highlights the current strengths and weaknesses in safety and environmental practices within logistics but also provides targeted recommendations for holistic improvement. The comprehensive survey approach ensures nuanced understanding and supports the transition toward more resilient, sustainable, and competitive supply chain practices. As the logistics sector continues to evolve, integrating safety and environmental management will be essential for organizations aiming to meet regulatory demands, stakeholder expectations, and the broader imperative for sustainability

References:

1. EBSCO Research Starters. (2025). Green supply chain management. Retrieved from https://www.ebsco.com/research-starters/environmental-sciences/green-supply-chain-management
2. Frontiers in Psychology. (2022). Going green: Impact of green supply chain management practices. Retrieved from https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.973676/ful
3. MDPI. (2024). Environmental performance through green supply chain. Retrieved from https://www.mdpi.com/2071-1050/16/24/11173
4. Navata SCS. (2025). What is green supply chain management & its effects. Retrieved from https://navatascs.com/what-is-green-supply-chain-management/
5. ClearTax. (2024). What is green supply chain management: Objectives, importance. Retrieved from https://cleartax.in/s/green-supply-chain-management-gscm
6. ScienceDirect. (2024). A literature review on green supply chain management for sustainability. Retrieved from https://www.sciencedirect.com/science/article/pii/S2949750724000993
7. Acuver Consulting. (n.d.). Build a sustainable future with green supply chain. Retrieved from https://acuverconsulting.com/the-evolution-of-green-supply-chains/
8. Nature. (2025). Investigation of green supply chain management practices and blockchain. Retrieved from https://www.nature.com/articles/s41598-025-95940-9
9. Ali, H., & Shoaib, M. (2023). A comprehensive literature review on green supply chain management: Recent advances and potential research directions. International Journal of Supply and Operations Management, 10(4), 1-17.
10. Ba Awain, A. M. S., Al-Ansi, A. M., & Jaboob, M. (2023). Green Supply Chain Management: A Comprehensive Review of Recent Developments and Challenges. Production Engineering Archives, 14(3), 118-129.
11. Fortes, J. (2009). Green Supply Chain Management: A Literature Review. Universidad Icesi.
12. Jabbour, C. J. C., de Sousa Jabbour, A. B. L., Godinho Filho, M., & Roubaud, D. (2020). Green supply chain management and environmental performance: Empirical evidence from developing countries. Journal of Cleaner Production, 245, 118-129.
13. Khan, S. A. R., Yu, Z., & Umar, M. (2024). From systematic literature review to performance criteria evaluation: Green supply chain management in construction. International Journal of Construction Management, 24(2), 123-139.
14. Kumar, S., & Dixit, G. (2024). A literature review on green supply chain management for sustainability. Sustainable Manufacturing and Service Economics, 2(1), 100099.
15. Samad, S., Habib, M., & Huma, S. (2021). The impact of green supply chain management practices on firm performance: Evidence from a developing country. Benchmarking: An International Journal, 28(5), 1534-1552.
16. Sahoo, S., & Vijayvargy, L. (2021). Green supply chain management: A bibliometric analysis of global research and future directions. Operations and Supply Chain Management: An International Journal, 14(1), 1-15.
17. Behera, S. K. (2022). Green supply chain management and its impact on environmental sustainability: Evidence from emerging economies. Environmental Science and Pollution Research, 29(12), 17654-17667.
18. Lin, R. (2022). Improving quality and environmental performance through green supply chain management. Journal of Cleaner Production, 330, 129-139.
19. Novitasari, D., Endyanti, A., & Gawusu, S. (2021). The role of green supply chain management in achieving sustainable performance. Sustainability, 13(9), 4987.
20. Tseng, M. L., Lim, M. K., & Wu, K. J. (2022). Sustainable supply chain management: Trends, challenges, and future research directions. Resources, Conservation and Recycling, 176, 105939.