ORIGINAL RESEARCH PAPER
Volume - 15 | Issue - 05 | May - 2026 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# DRIVING SUSTAINABLE LOGISTICS: AN EMPLOYEE-CENTRIC STUDY ON THE IMPACT OF ESG PRACTICES ON OPERATIONAL EFFICIENCY IN LOGISTICS IN ERNAKULAM DISTRICT

Management

**Sanchana Elizebath Robin*** MBA Student / Research Scholar sanchana*Corresponding Author

**Mr. Naibin George** Assistant Professor / Research Guide

## ABSTRACT

The increasing emphasis on sustainability has led organizations to integrate Environmental, Social and Governance (ESG) practices into their operational strategies, particularly in the logistics sector where efficiency and environmental impact are closely interconnected. This study examines the impact of ESG practices on operational efficiency in logistics from an employee-centric perspective in Ernakulam district. A quantitative research approach was adopted and primary data was collected from 265 respondents using a structured questionnaire. The study analyzes the influence of waste and energy management, employee safety and welfare, training and engagement and compliance and ethical practices on operational efficiency. Data were analyzed using descriptive statistics, correlation, multiple regression and ANOVA. The findings reveal that waste and energy management, compliance and ethics and training and engagement have a significant positive impact on operational efficiency, while employee safety and welfare show a significant but negative relationship. The results highlight the importance of integrating ESG practices into logistics operations for improving performance and achieving sustainable growth.

## KEYWORDS

Esg Practices, Operational Efficiency, Logistics, Sustainability, Employee Perspective, Regression Analysis

## INTRODUCTION

The growing concerns regarding environmental degradation, climate change and resource depletion have compelled organizations to adopt sustainable business practices. Environmental, Social and Governance (ESG) practices have emerged as a comprehensive framework that enables organizations to align their operations with sustainability goals while maintaining efficiency and competitiveness (Magaletti et al., 2025; Cho, 2022).

The logistics sector plays a critical role in economic development by facilitating the movement and storage of goods. However, it is also associated with environmental challenges such as high fuel consumption, emissions, waste generation and inefficient resource utilization. As a result, logistics organizations are increasingly integrating ESG practices such as energy-efficient transportation, waste reduction, employee welfare programs and ethical governance frameworks (Leogrande, 2024; Osintsev & Rakhmangulov, 2025). Employees are key stakeholders in logistics operations as they are directly involved in implementing these practices. Their perception and participation significantly influence the effectiveness of ESG initiatives. Studies highlight that employee engagement, safety and well-being contribute to improved productivity and operational performance (Jain et al., 2024; Lulewicz-Sas et al., 2025). Therefore, understanding ESG practices from an employee-centric perspective is essential. This study aims to examine how ESG practices influence operational efficiency in logistics organizations in Ernakulam district.

### Review of Literature

The integration of Environmental, Social and Governance (ESG) practices has gained increasing attention in sustainability and logistics research, particularly in the context of improving operational efficiency and long-term organizational performance (Magaletti et al., 2025). Previous studies indicate that environmental practices such as energy efficiency, waste reduction and emission control significantly enhance logistics efficiency; however, the effectiveness of these practices depends on proper implementation and employee involvement (Cho, 2022; Zheng et al., 2025).

Stakeholder Theory explains that organizational performance improves when the interests of key stakeholders, especially employees are considered in decision-making processes (Jain et al., 2024). In logistics operations, employee safety, welfare and engagement play a crucial role in enhancing productivity and operational efficiency. Similarly, the Triple Bottom Line approach emphasizes the integration of environmental, social and economic dimensions to achieve sustainable performance in logistics systems (Savi et al., 2025).

The Resource-Based View (RBV) theory further highlights that ESG practices can be considered strategic organizational resources that enhance competitive advantage and operational capabilities (Das, 2023). Digital transformation and smart logistics systems support ESG implementation by improving coordination, transparency and resource utilization (Mutambik, 2024; Barykin et al., 2023).

Despite the growing body of literature on ESG and logistics performance, limited studies have examined the combined impact of ESG dimensions on operational efficiency from an employee-centric perspective, particularly in the context of regional logistics operations such as Ernakulam district. This highlights a significant research gap addressed by the present study.

### Methodology

### Research Design

The study adopts a quantitative and empirical research design.

### Data Collection

Primary data was collected from 265 employees working in logistics operations in Ernakulam district using a structured questionnaire based on validated constructs from previous studies on ESG practices and logistics performance (Creswell & Creswell, 2017).

### Sampling Design

A convenience sampling technique was used due to accessibility and time constraints. The population consisted of employees working in logistics operations in Ernakulam district and 265 valid responses were considered for analysis (Kothari, 2004).

The questionnaire consisted of multiple sections covering demographic details and measurement of variables using a five-point Likert scale ranging from “strongly disagree” to “strongly agree.” Each construct was measured using multiple items related to ESG practices and operational efficiency, adapted from previous studies to ensure validity. The structured design of the questionnaire helped in capturing consistent and reliable responses from the participants.

### Variables of the Study

- **Dependent Variable:** Operational Efficiency in Logistics
- **Independent Variables:**

1. Waste and Energy Management, 2. Employee Safety and Welfare, 3. Training and Engagement, 4. Compliance and Ethics

### Reliability and Data Analysis

Reliability of the measurement instrument was tested using Cronbach's Alpha, with values exceeding 0.7, indicating good internal consistency. Data analysis was conducted using SPSS and applying descriptive statistics, correlation analysis and multiple linear regression to examine the relationships between ESG practices and operational efficiency (Setiawan & Rizkalla, 2023).

## RESULTS AND DISCUSSION

The results indicate a moderate to high level of ESG practice implementation in logistics organizations in Ernakulam district, with

strong emphasis on environmental practices such as waste and energy management. Correlation analysis shows that all ESG variables are positively related to operational efficiency, with waste and energy management and compliance and ethics having stronger relationships. Regression analysis confirms that the model is statistically significant, with waste and energy management ($\beta = 0.527$), compliance and ethical practices ($\beta = 0.508$) and training and engagement ($\beta = 0.370$) having a significant positive impact on operational efficiency. Waste and energy management emerges as the most influential factor.

However, employee safety and welfare shows a weaker impact, suggesting the need for better implementation. Overall, environmental and governance factors play a more dominant role in improving logistics performance, while social factors require stronger alignment to achieve effective outcomes.

## CONCLUSION

Operational efficiency in logistics is primarily influenced by waste and energy management, compliance and ethical practices, and training and engagement. While employee safety and welfare is important, it does not show a strong direct impact on operational efficiency.

Organizations should focus on strengthening environmental sustainability practices and ensuring effective governance through transparency and compliance. Training and employee engagement should be enhanced to improve workforce productivity. Policymakers and organizations should also support ESG adoption through clear regulations, awareness initiatives and infrastructure development to promote sustainable logistics operations.

## REFERENCES


1. Barykin, S., Strimovskaya, A., Sergeev, S., Borisoglebskaya, L., Dedyukhina, N., Sklyarov, I., Sklyarova, J., & Saychenko, L. (2023). Smart City logistics on the basis of digital tools for ESG Goals Achievement. Sustainability, 15(6), 5507. https://doi.org/10.3390/su15065507
2. Cho, Y. (2022). ESG and firm performance: Focusing on the environmental strategy. sustainability, 14(13), 7857.https://doi.org/10.3390/su14137857
3. Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.
4. Das, A. (2023). Predictive value of supply chain sustainability initiatives for ESG performance: a study of large multinationals. Multinational Business Review, 32(1), 20–40. https://doi.org/10.1108/mbr-09-2022-0149
5. George, N., & Andrejs Cekuls. (2023). Addressing the moral conundrum: Integrating informal e-waste workers into sustainable management systems. In Rural Development 2023: Bioeconomy for the Green Deal: The 11th International Scientific Conference, 26–28 September 2023: Proceedings (pp. 298–303). https://doi.org/10.15544/RD.2023.011
6. George, N., & Andrejs Cekuls. (2024). Driving sustainable e-waste recycling behaviors in India: Challenges, models, and solutions. In Proceedings of the 23rd International Scientific Conference "Engineering for Rural Development" (Vol. 23, pp. 1098–1105). Latvia University of Life Sciences and Technologies. https://www.iitf.lbtu.lv/conference/proceedings2024/Papers/TF227.pdf
7. Jain, A., Zwetsloot, G., & Torres, L. (2024). Sustainability, business responsibility and occupational health, safety and wellbeing in the future of work. Safety science, 174, 106463.https://doi.org/10.1016/j.ssci.2024.106463
8. Leogrande, A. (2024b, November 14). Integrating ESG Principles into Smart Logistics: Toward Sustainable Supply Chains. https://hal.science/hal-04784306v1
9. Lulewicz-Sas, A., Kinowska, H., Zubek, M., & Danilewicz, D. (2025). Examining the impacts of environmental, social and governance (ESG) on employee engagement: a study of Generation Z. Central European Management Journal.https://doi.org/10.1108/CEMJ-08-2024-0242
10. Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
11. Magaletti, N., Notarnicola, V., Di Molfetta, M., Mariani, S., & Leogrande, A. (2025b). Logistics Performance and the Three Pillars of ESG: A detailed Causal and Predictive investigation. Sustainability, 17(24), 11370. https://doi.org/10.3390/su172411370
12. Mutambik, I. (2024). Digital transformation as a driver of sustainability performance—a study from freight and logistics industry. Sustainability, 16(10), 4310.https://doi.org/10.3390/su16104310
13. Osintsev, N., & Rakhmangulov, A. (2025). Green Logistics Instruments: Systematization and Ranking. Sustainability, 17(13), 5946. https://doi.org/10.3390/su17135946
14. Savi, A., Santos, L., & Savi, M. (2025b). Sustainability Evaluation: Assessing supply chain impact on company performance. Sustainability, 17(3), 1158. https://doi.org/10.3390/su17031158
15. Zheng, X., Li, L., Wang, Z., & Cao, M. (2025). Solid Waste Governance Action and Corporate ESG Performance: Evidence from China's "Zero-Waste City" Pilot Policy. Sustainability, 17(8), 3625. https://doi.org/10.3390/su17083625