

Corporate Social Responsibility in the Logistics Supply Chain toward Green Logistics Development in Phu Tho Province

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ABSTRACT

This study investigates the institutional role of Corporate Social Responsibility (CSR) in shaping the transition toward green logistics in Phu Tho Province, an emerging logistics hub in Vietnam's northern midland region undergoing large-scale administrative restructuring. Building upon the Triple Bottom Line, Stakeholder Theory, and Institutional Theory, the research employs a qualitative content analysis of provincial planning documents (2021–2030), political reports (2023–2025), socio-economic datasets, and international frameworks published by OECD and UNESCAP. The findings reveal that CSR has evolved beyond a voluntary philanthropic activity and now functions as a soft governance instrument that aligns enterprise behavior with green-development objectives. CSR commitments generate measurable improvements in fuel efficiency, emission reduction, occupational safety, and supply-chain transparency, especially among FDI firms operating in industrial zones. The study contributes a three-layer analytical framework: Institutional, Corporate Outcome, which explains the vertical linkages between policy pressures, enterprise capabilities, and sustainable logistics performance. This framework provides a generalizable model for midland provinces pursuing green-growth strategies. The paper concludes with policy recommendations for institutionalizing CSR into provincial logistics planning and identifies pathways for future empirical research.

Keywords: Corporate Social Responsibility; Green Logistics; Sustainable Supply Chain; Institutional Mechanism; Phu Tho Province; Vietnam.

INTRODUCTION

Global logistics systems are undergoing profound restructuring as climate change, carbon-neutral commitments, and circular-economy imperatives increasingly shape the behavior of firms and governments. Logistics accounts for nearly 10–15% of global GDP but is simultaneously one of the world's most carbon-intensive sectors (OECD, 2023). As supply chains become more interconnected, enterprises face new pressures from regulators, customers, and communities to integrate sustainability principles into transport, warehousing, and distribution activities. Consequently, CSR has evolved from an ethical obligation into a strategic tool enabling firms to achieve both economic efficiency and environmental accountability.

In emerging economies such as Vietnam, the integration of CSR with green logistics has gained policy prominence through national strategies, including the Green Growth Strategy (2021–2030, vision 2050) and commitments to net-zero emissions by 2050. These frameworks emphasize reducing logistics-related emissions, improving energy efficiency, and fostering socially responsible business practices. Nevertheless, CSR adoption remains uneven across localities, depending on industrial structure, governance quality, and technological

readiness. Prior research in Vietnam has focused predominantly on CSR in manufacturing and export-oriented sectors (Nguyen, 2021; Tran, 2022), while the logistics sector, especially at the provincial level, remains understudied.

Phu Tho Province offers a distinctive context for examining the CSR–green logistics nexus. Strategically located along the Noi Bai–Lao Cai economic corridor and designated by the central government as a regional logistics hub (Decision No. 1579/QĐ-TTg, 2023), Phu Tho is simultaneously undergoing an unprecedented administrative merger with Hoa Binh and Vinh Phuc in 2025. This restructuring expands its jurisdictional scale, intensifies interprovincial connectivity, and elevates the urgency for sustainable logistics governance. Recent provincial reports (2023–2025) indicate that logistics activities are multiplying, yet CSR implementation among enterprises, particularly domestic SMEs, remains fragmented and mostly compliance-based.

Despite global progress in CSR and green logistics research, three critical gaps remain. First, existing studies largely conceptualize CSR as either an ethical commitment or a regulatory requirement, with limited attention to its role as a soft institutional mechanism that shapes corporate behavior. Second, very few studies investigate CSR within logistics supply chains at the subnational level, where provincial planning, local incentives, and governance capacity exert significant influence. Third, the dynamic transition of a province undergoing administrative restructuring, such as Phu Tho, has not been examined as a testing ground for CSR-driven green logistics.

To address these gaps, this study develops a three-layer analytical framework (Institutional–Corporate–Outcome) to examine how CSR is institutionalized within Phu Tho's logistics sector and how it affects sustainable logistics performance. Specifically, the study aims to: Systematize theoretical perspectives on CSR and green logistics; Analyze CSR implementation in Phu Tho's logistics enterprises using policy and statistical evidence; and Propose policy mechanisms for embedding CSR into provincial green logistics planning.

The findings of this study extend theoretical debates by demonstrating that CSR functions as a form of institutionalized governance rather than a peripheral ethical practice. Empirically, the case of Phu Tho provides new insights into CSR adoption in midland provinces where logistics development intersects with local governance and administrative transformation. The remainder of this paper is structured as follows: Section 2 reviews theoretical foundations and relevant literature; Section 3 describes the methodological approach; Section 4 presents results and discussion; Section 5 proposes policy implications; and Section 6 concludes the study.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Foundation of Corporate Social Responsibility and Green Logistics

Concept and Essence of Corporate Social Responsibility

Corporate Social Responsibility is widely conceptualized as a multidimensional managerial approach through which enterprises integrate social and environmental considerations into their strategic and operational decisions. Rather than merely fulfilling profit-maximization objectives, CSR requires firms to acknowledge and internalize their responsibilities toward key stakeholders, including employees, customers, communities, regulators, and the natural environment. In Carroll's seminal framework (1991), CSR is structured into four interrelated layers: economic, legal, ethical, and philanthropic responsibilities. The economic dimension reflects the foundational requirement to generate value and ensure financial viability; the legal dimension highlights mandatory compliance with laws and regulatory standards; the ethical dimension encompasses moral obligations that exceed legal compliance; and the philanthropic dimension captures voluntary contributions that enhance societal well-being.

In contemporary economic systems characterized by global supply chains, environmental pressures, and heightened stakeholder expectations, CSR has evolved from a peripheral or symbolic activity into a strategic governance instrument. Scholars such as Porter and Kramer (2011) and Moon (2014) argue that CSR forms the conceptual basis of Creating Shared Value, wherein enterprises simultaneously pursue economic performance and address societal and ecological challenges. Within this perspective, CSR is not simply an external obligation but a source of competitive advantage, fostering long-term reputation, strengthening stakeholder trust, and enhancing the resilience of corporate operations. Accordingly, CSR represents an integrated, forward-looking approach that aligns business success with sustainable development objectives

Theoretical Foundation of Green Logistics

Green logistics is the organization, management, and operation of logistics activities in ways that minimize negative environmental impacts across the entire supply chain life cycle - from procurement, warehousing, transportation, and distribution to recycling. According to Wu and Dunn (1995), green logistics pursues three core objectives: (i) efficient use of energy and resources; (ii) reduction of greenhouse gas emissions and solid waste; and (iii) promotion of recycling and reuse of materials.

In essence, green logistics represents a shift from a cost-centric mindset to a sustainable value mindset, in which environmental and social factors are integrated into logistics decision-making. Practices such as fuel-efficient transportation, route optimization, deployment of environmentally friendly vehicles, and the application of digital technologies for monitoring and managing supply chains are concrete manifestations of green logistics.

The Relationship between CSR and Green Logistics

The relationship between CSR and green logistics has been explained through several theoretical approaches.

First, according to Elkington's (1998) Triple Bottom Line (TBL) model, both CSR and green logistics aim to achieve a balance among the three dimensions of People – Planet – Profit. In this framework, green logistics represents the "Planet" dimension - environmental responsibility- while CSR encompasses all three pillars, serving as a comprehensive strategic orientation for the enterprise.

Second, under Freeman's (1984) Stakeholder Theory, firms adopt green logistics practices to meet the expectations of diverse stakeholder groups, including government regulators, customers, employees, and local communities. Doing so enables businesses to maintain their social license to operate and to strengthen trust-based relationships with their stakeholders.

Third, Institutional Theory posits that local policies and regulatory frameworks shape corporate CSR behavior. When local governments establish green development standards, logistics enterprises must adapt their operational models accordingly, thereby internalizing CSR as a new source of competitive advantage (Zhu et al., 2021).

Thus, CSR and green logistics are mutually reinforcing: CSR provides the ethical and institutional motivation for adopting green logistics practices, while the implementation of green logistics allows enterprises to materialize their CSR commitments through tangible outcomes such as improved energy efficiency, reduced emissions, and enhanced social welfare.

Proposed Conceptual Model

Building upon the aforementioned theoretical foundations, this study proposes the following:



Figure 1. Relationship between Corporate Social Responsibility (CSR), Green Logistics, and Sustainable Development Performance

Source: Compiled by the author from Elkington (1998), Freeman (1984), and Zhu et al. (2021)

In this model:

- **CSR** is considered the *input factor*, representing the enterprise's strategic commitment to sustainability.
- **Green logistics practices** serve as the *intermediate mechanism (process)* through which CSR is operationalized within the supply chain.
- **Sustainable development performance** is the *output*, measured across three dimensions:
 1. *Economic efficiency* (e.g., transport productivity, cost savings),
 2. *Social effectiveness* (e.g., labor safety, community relations), and
 3. *Environmental effectiveness* (e.g., emission reduction, energy recycling).

This conceptual model provides the analytical foundation for subsequent sections of the paper, clarifying the role of CSR as an *institutional mechanism* that drives the green logistics transformation in Phu Tho Province.

Overview of Studies on CSR and Green Logistics

International Studies

Over the past two decades, international research has affirmed the growing importance of CSR in driving green logistics transformation and sustainable supply chains. Sarkis (2020) argues that corporate CSR implementation exerts a direct positive impact on logistics performance by optimizing energy efficiency and reducing environmental risks. Zhu, Sarkis, and Lai (2021) demonstrate that institutional pressures from governments and customers compel enterprises, particularly in developing economies, to integrate CSR into logistics operations.

Several studies further emphasize that CSR is not merely an ethical construct but also a dynamic capability that fosters sustainable innovation (Tang & Zhou, 2022; Lee et al., 2023). At the policy level, OECD (2023) and UNESCAP (2024) recommend that emerging economies treat CSR as a soft instrument to promote green logistics, rather than relying solely on administrative controls or environmental taxation.

Synthesizing global research directions reveals three key trends: CSR is increasingly linked with the objectives of *Green Supply Chain Management (GSCM)*; CSR functions as an intermediary factor between technological innovation and sustainable performance; and Local policy frameworks play a decisive role in institutionalizing CSR as a normative standard for logistics operations.

Domestic Studies

In Vietnam, studies on CSR have primarily focused on the manufacturing, textile, and foreign direct investment (FDI) sectors, while the logistics field remains relatively underexplored. Nguyen Thị Kim Anh (2021) analyzed the role of CSR in managing Vietnam's textile supply chains, emphasizing CSR as a tool for risk mitigation and enhancing international reputation. Tran Minh Hai (2022) examined green logistics practices in northern industrial zones, indicating that CSR positively influences firms' environmental awareness, though it has yet to be systematically incorporated into sustainable business strategies.

However, there has been no comprehensive study specifically analyzing CSR in the logistics sector at the local level - particularly in midland and mountainous provinces, where infrastructure potential coexists with constraints in technology and human resources. Meanwhile, provincial planning documents and official reports from Phu Tho (2023–2025) clearly outline a development orientation toward green logistics integrated with social responsibility, yet these policy directions have not been translated into academic research frameworks. This gap provides the rationale for the present study to approach the issue from a local institutional perspective, employing the CSR-green logistics framework as its analytical foundation.

Analytical Framework

Based on the theoretical and empirical review, this paper develops the following analytical framework:

- **Institutional Layer:** Encompasses provincial policies, planning documents, and green development orientations in Phu Tho Province.
- **Corporate Layer:** Represents the CSR commitments of enterprises and the extent to which CSR is integrated into their logistics strategies.
- **Outcome Layer:** Reflects the effectiveness of green logistics practices through indicators such as emission levels, transport efficiency, and community value creation.

This framework enables the assessment of the vertical linkage between *CSR – Green Logistics – Sustainable Development*, while also explaining the variation among logistics enterprises operating under the same institutional environment but exhibiting different levels of CSR commitment.

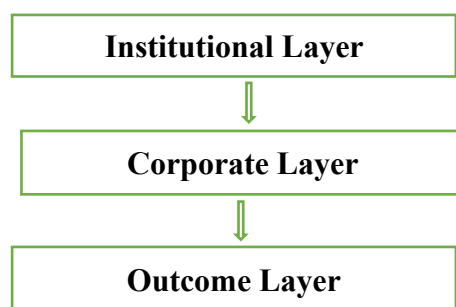


Figure 1. Analytical framework of CSR–Green Logistics within the local institutional context

Source: Compiled by the author, 2025

RESEARCH METHODS AND DATA

Research Design and Methodological Approach

The study adopts a **qualitative descriptive design combined with content analysis**, aiming to explore and interpret the role of CSR in the green logistics transition of Phu Tho Province. The choice of a qualitative approach is based on two main considerations:

First, both CSR and green logistics are interdisciplinary and institutionally embedded concepts that are difficult to quantify through standalone indicators. Therefore, a qualitative method allows for a deeper understanding of policies, orientations, and corporate perceptions.

Second, Phu Tho represents a **case study** of institutional transformation - from a traditional industrial development model toward a green economy. Hence, analyzing policy content, planning documents, and business practices provides a suitable approach to empirically validate the proposed CSR-green logistics theoretical model.

The study's analytical approach is structured according to the three-layer framework outlined in section 2: (i) the institution layer, (ii) the corporate layer, and (iii) the sustainable outcome layer.

Rather than quantifying causal relationships, this study focuses on **describing, comparing, and interpreting** how CSR is institutionalized and operationalized in the practical context of local logistics development.

Data Sources and Research Scope

This study primarily employs **secondary data** collected from official sources of Phu Tho Province and central government agencies, supplemented by international academic data to enable comparison and standardization of the analytical framework. The main data sources include:

Provincial Political and Planning Documents

Political Report of the Phu Tho Provincial Party Committee (2025): outlines the development orientation of the newly expanded Phu Tho Province after its merger with Hoa Binh and Vinh Phuc, emphasizing the pillars of “green economy, green logistics, and sustainable development in the midland–northwestern region.”

Decision No. 1579/QĐ-TTg dated December 5, 2023, by the Prime Minister and the Phu Tho Provincial Planning Document 2021–2030, Vision to 2050, serves as the key basis for shaping the province's vision, economic corridors, logistics center planning, green industrial zones, ICD port systems, and renewable energy and environmental objectives.

Resolution No. 04/2023/NQ-HĐND of the Provincial People's Council and Reports of the Party Committee of the Provincial People's Committee (2023–2024): provide information on investment policies, enterprise support mechanisms, and the province's green growth programs.

Socio-Economic and Statistical Reports

Phu Tho Provincial People's Committee Reports (June and first half of 2024): present socio-economic performance data, including GRDP growth, industrial structure, logistics infrastructure, energy use, environmental indicators, and enterprise activity.

Phu Tho Statistical Yearbook (2023–2024): provides data on the number of logistics enterprises, transport capacity, import–export turnover, emission indicators, and employment in the transport and warehousing sectors.

Report of the Phu Tho Union of Science and Technology Associations (2023) and Report No. 463/TU-2024 of the Provincial Party Committee: supplement data on digital transformation, innovation capacity, and CSR practices among local enterprises.

International Academic and Reference Sources

Reports and guidelines by *OECD (2023)*, *UNESCAP (2024)*, and the *World Bank (2022)* related to green logistics and CSR in supply chains of emerging economies.

Scholarly works such as *Sarkis (2020)*, *Zhu et al. (2021)*, and *Tang & Zhou (2022)* are used to compare theoretical models and align Phu Tho's empirical results with global trends.

Research Scope

Spatial scope: the entire Phu Tho Province (before and after the administrative expansion in 2025).

Temporal scope: focuses on the period 2021–2025, aligned with provincial planning and green logistics policies.

Subject scope: logistics enterprises (transport, warehousing, port services, and integrated logistics) operating in industrial zones such as Thuy Van, Phu Ninh, Tam Nong, and Phu Tho Town.

Data Analysis Methods

The data analysis process was carried out in three main steps:

Step 1. Policy Content Analysis

The author conducted a comprehensive review, coding, and analysis of political, planning, and legal documents categorized into thematic groups:

- *Group 1*: Policies on logistics development and green infrastructure;
- *Group 2*: Policies on corporate social responsibility and sustainable development;
- *Group 3*: Programs supporting enterprises in implementing CSR, green transition, and digital transformation.

The extracted content was compared across three dimensions - objectives, instruments, and implementation level - to determine the institutional role of CSR within the provincial logistics system.

Step 2. Thematic Analysis of the CSR–Green Logistics Linkage

Based on the theoretical model presented in Section 2, the study classified data into three major themes: (i) CSR in transport, warehousing, and energy management; (ii) CSR in human resource management, occupational

safety, and community relations; and (iii) CSR in technological innovation and digital transformation toward green logistics.

Thematic coding was conducted manually to ensure systematic organization and consistency with the context and data of Phu Tho Province.

Step 3. Comparative Analysis with International Frameworks

The domestic policy and practice findings were compared with international standards and frameworks, particularly the *OECD (2023)* guidelines on CSR in logistics and the *Green Logistics Performance Framework* developed by *Zhu and Sarkis (2021)*. This step enabled the assessment of the alignment between Phu Tho's policies and practices and global trends, identifying both gaps and opportunities for improvement in institutionalizing CSR for green logistics.

Reliability and Limitations of the Study

The reliability of this study is ensured by the use of official and updated data sources, primarily reports from provincial and central government agencies that have been verified through formal review processes. The content analysis was conducted through multiple iterative rounds to ensure thematic coherence and logical consistency.

However, the study acknowledges several limitations: (i) No direct quantitative survey was conducted among logistics enterprises, as the paper primarily focuses on policy and institutional analysis; (ii) Certain specific indicators - such as emission volumes or energy cost data - were not publicly available in local reports; and (iii) The long-term impact of CSR on green logistics performance is examined only at a descriptive and comparative level.

These limitations open avenues for future research, particularly for developing quantitative models of the CSR-green logistics relationship at the local level, or for conducting comparative studies across provinces in Vietnam's northern midland and mountainous regions.

RESULTS AND DISCUSSION

Logistics Development Context and Green Orientation of Phu Tho Province

During the period 2021–2024, Phu Tho achieved an average GRDP growth rate of approximately **8.1% per year**, exceeding the national average (Phu Tho Provincial People's Committee, 2024). The provincial economic structure has been shifting markedly toward **industry–services–agriculture**, with the industrial and construction sector accounting for more than 37% and the service sector exceeding 37%. This transformation highlights the growing importance of logistics and trade within the province's value chain.

According to *Decision No. 1579/QĐ-TTg (2023)* and the *Phu Tho Provincial Planning Document for 2021–2030, Vision to 2050*, logistics has been identified as one of the province's four strategic pillars - alongside tourism, healthcare, and education. The province aims to establish a **regional logistics center** in Phu Tho Town (30–50 hectares), two **provincial-level logistics hubs** (15–30 hectares), and an **Inland Container Depot** complex in Viet Tri City, designed to integrate multimodal transport routes by road, waterway, and rail.

Furthermore, Phu Tho is positioned as a critical junction within two major economic corridors: The **Noi Bai - Lao Cai Corridor (CT.05)**, linking the Northwestern region with Hai Phong Port; The **Western North - South Corridor (CT.02)**, connecting Tuyen Quang - Phu Tho - Ba Vi, and extending toward Hoa Binh and the Hanoi Capital Region.

To illustrate the ongoing transition toward green logistics and the evolution of the enterprise sector, **Table 1** summarizes key socio-economic and environmental indicators of Phu Tho Province during 2021–2024.

Table 1. Selected economic, environmental, and logistics indicators of Phu Tho Province, 2021–2024

Indicators	Unit	2021	2022	2023	First half of 2024	Source
GRDP (at 2010 constant prices)	% growth year-on-year	6.8	7.9	8.2	8.16	Phu Tho PPC (2024)
Economic structure: Industry–Construction/Services/ Agriculture–Forestry–Fishery	%	35.2 / 36.5 / 20.3	36.8 / 36.9 / 19.1	37.1 / 37.3 / 18.8	37.3 / 37.2 / 19.3	Phu Tho PPC (2024)
Import–export turnover through logistics systems	Million USD	3,280	3,950	4,210	2,120	Phu Tho Statistical Office
Number of logistics enterprises (transportation, warehousing, forwarding)	Enterprises	195	220	247	~250	Phu Tho Union of Science and Technology Associations (2023)
Enterprises implementing CSR (with environmental, labor safety, and community reports)	%	22	28	34	38	Phu Tho Party Committee (2025)

Share of environmentally friendly transport vehicles (electric, hybrid)	%	2.1	3.8	5.6	6.2	Phu Tho Department of Transport
Average reduction in fuel consumption among logistics firms applying energy management technology	%	—	3.5	6.8	8.0	CSR Enterprise Reports (2023)
Share of municipal and industrial solid waste treated to standards	%	85	88	91	93	Phu Tho Department of Natural Resources and Environment

Source: Compiled from the *Socio-Economic Report for the First Half of 2024*, the *Phu Tho Provincial Planning Document 2021–2030*, *Phu Tho Union of Science and Technology Associations* (2023), and the *Political Report of the Phu Tho Party Committee* (2025). Author's compilation.

The data indicate that Phu Tho's economic structure is undergoing a strong shift toward **industry and services**, accompanied by both quantitative and qualitative growth in the logistics enterprise sector. The proportion of enterprises implementing CSR has steadily increased from **22% in 2021 to 38% by mid-2024**, reflecting the diffusion of sustainable development standards. Notably, the **average 8% reduction in fuel consumption** among firms applying energy management technologies provides tangible evidence of the effectiveness of integrating CSR into green logistics practices.

These findings confirm that Phu Tho is gradually forming a **“green logistics ecosystem”** built on three key pillars: (i) provincial policies and planning frameworks oriented toward greening logistics; (ii) proactive CSR implementation by enterprises; and (iii) community and social organizations fostering monitoring, collaboration, and sustainable development partnerships.

CSR Implementation Practices Among Logistics Enterprises in Phu Tho

An analysis of reports from the Phu Tho Provincial People's Committee (2024) and the Phu Tho Union of Science and Technology Associations (2023) reveals that the province's logistics sector currently comprises around **250 enterprises**, primarily engaged in freight transportation, warehousing, forwarding, and integrated logistics services. Among them, approximately **15–20 enterprises are large-scale FDI firms**, concentrated in industrial zones such as Thuy Van, Phu Ninh, Tam Nong, and Cam Khe.

Table 2. CSR practices by groups of logistics enterprises in Phu Tho Province

Enterprise Group	Scale (employees / annual revenue)	Certifications / Standards	Environmental pillar (E)	Social pillar (S)	Governance pillar (G)	Level of CSR integration into strategy	Illustrative examples
FDI (Thuy Van, Phu Ninh IZs, etc.)	>500 employees / >VND 300 billion	ISO 14001, ISO 45001, ESG/GRI	Energy management, fuel-efficient vehicles, and wastewater treatment	Occupational safety, vocational training, and community engagement	Code of ethics, transparent reporting	High	Namuga, Cosmos, LG Innotek
Domestic medium-sized enterprises	100–300 employees / VND 50–200 billion	ISO 9001, environmental compliance	Route optimization, waste sorting	Labor safety, employee welfare	Basic internal control	Moderate	Phu Ha Logistics, Viet Tri Port
Domestic small-scale enterprises	<100 employees / <VND 50 billion	None	Fragmented saving practices	Short-term social activities	Simple governance structure	Low	Private firms, transport cooperatives

Source: Compiled from *Phu Tho Provincial People's Committee* (2024); *Phu Tho Party Committee* (2025); and *Phu Tho Union of Science and Technology Associations* (2023). Author's compilation.)

The degree of CSR implementation varies significantly between FDI firms and domestic enterprises. The FDI group tends to align CSR practices with **international standards** (e.g., ISO 14001, ESG Reporting, and the GRI Framework), whereas most small and medium-sized domestic firms remain at a level of **legal compliance** and engage in isolated community activities rather than systematic CSR programs.

The data in **Table 2** indicate that FDI enterprises exhibit a higher degree of CSR standardization, closely aligning their CSR initiatives with green operational strategies, whereas most small and medium-sized domestic firms remain at a compliance - based CSR stage. However, the trends of international integration and the province's green growth policies are encouraging domestic enterprises to shift toward a **voluntary CSR** stage, paving the way for the evolution into **strategic CSR**.

This finding is consistent with the observation of Tang and Zhou (2022), who argue that CSR practices among FDI enterprises tend to be more institutionalized than those of domestic firms in transitioning economies.

CSR as an Institutional Mechanism for Green Logistics Transformation

From the perspective of **Institutional Theory**, CSR in Phu Tho is being institutionalized through development policies and planning frameworks. Three main mechanisms can be identified: (i) **Regulatory - planning mechanisms**, (ii) **Incentive - support mechanisms**, and (iii) **Social - community mechanisms**.

To illustrate the relationship between policies, implementation tools, and their impact on CSR and green logistics, **Table 3** summarizes Phu Tho Province's policy matrix for the period 2021–2025.

Table 3. Policy – instrument - expected impact matrix for green logistics in Phu Tho Province

Policy / Planning Document	Implementation Instruments	Enterprises Affected	CSR Practices Activated	Expected Impacts (short/medium term)
Provincial Master Plan 2021–2030 (Decision No. 1579/QĐ-TTg)	Environmental standards, wastewater treatment requirements, and green industrial zone infrastructure	Logistics and infrastructure enterprises	E: emission control, wastewater treatment	Pollution reduction, infrastructure standardization
Provincial Green Growth Program (2023–2030)	Credit and tax incentives, support for electric/hybrid vehicles	Transport and warehousing enterprises	E: energy saving, green transport	Cost reduction, CO ₂ emission reduction
Administrative Reform Initiatives (PCI / PAR Index)	E-government system, data transparency mechanisms	All enterprises	G: compliance, information disclosure	Reduced compliance costs, improved transparency
Training support for the green logistics workforce	University–enterprise partnerships, scholarships	Small and medium-sized enterprises	S: labor safety, green skills training	Productivity improvement, reduced occupational risks

Source: Compiled from the Phu Tho Provincial Master Plan 2021–2030 (Prime Minister, 2023); Resolution No. 04/2023/NQ-HĐND; and Political Report of the Phu Tho Party Committee (2025). Author's compilation.)

Table 3 clearly demonstrates that CSR is no longer merely a voluntary initiative but has evolved into a **soft regulatory instrument** used by local authorities. The interaction between policy and CSR practice reveals a **two-way dynamic**: while government policies exert both pressure and incentives for enterprises to implement CSR, CSR itself becomes a mechanism through which businesses comply, adapt, and innovate within the framework of green logistics.

Challenges in Integrating CSR and Green Logistics

Despite notable progress, the integration of CSR and green logistics in Phu Tho continues to face several challenges: the absence of localized CSR measurement criteria, limited financial and technological capacity among small enterprises, fragmented intersectoral coordination, and a shortage of professionals specialized in green logistics.

To advance toward **data-driven governance** and address the measurement gap, this study proposes a set of **KPIs** for monitoring CSR-green logistics performance at both enterprise and provincial levels, as presented in **Table 4** below.

Table 4. Proposed KPI system for monitoring CSR–green logistics practices in Phu Tho Province

Indicator Group	Code / KPI	Unit of Measurement	Measurement Level	Frequency	Target for 2025–2030
Energy - Environment	Fuel intensity per 100 ton-km	liters / 100 ton-km	Transport enterprises	Quarterly	≥10% reduction vs. 2023
Emissions	CO ₂ e emissions per ton-km	kg CO ₂	Transport/warehousing enterprises	Quarterly	≥15% reduction
Green Vehicles	Share of electric/hybrid vehicles	% of fleet	Enterprise	Annual	25% by 2030
Governance Transparency	Enterprises publishing CSR / ESG reports	% of logistics enterprises	Provincial	Annual	≥50% enterprises disclose
Social Safety	Occupational accident rate per 100 workers	incidents	Enterprise	Quarterly	30% reduction
Circularity	Share of recycled waste	% of total waste	Warehousing enterprises	Quarterly	≥60% achieved

Source: Author's proposal based on data from Phu Tho Provincial People's Committee (2024); Phu Tho Provincial Planning Document 2021–2030 (Prime Minister, 2023); and frameworks from OECD (2023) and Zhu et al. (2021). Author's compilation.

These indicators act as a **bridge between research and policymaking**, enabling regulatory bodies to monitor progress while providing enterprises with tools for self-assessment of CSR–green logistics performance. When applied systematically, this KPI system will help **quantify the transition** from compliance-based CSR to strategic CSR across Phu Tho's logistics sector.

Discussion: From Voluntary CSR to Strategic CSR

The analysis indicates that CSR in Phu Tho is progressing through three developmental stages: **compliance-based, voluntary, and strategic**. The empirical data presented in Tables 1 - 4 illustrate this process of institutional maturity and behavioral transformation among enterprises, where CSR has evolved beyond the realm of ethics and philanthropy to become a **green competitive capability**.

When CSR is internalized into logistics strategies, enterprises not only reduce costs and environmental risks but also generate community value, enhance brand reputation, and improve their attractiveness to FDI. This transformation reinforces the model **CSR → Green Logistics → Sustainable Development**, underscoring Phu Tho's pioneering role as an **institutional laboratory** for developing and testing green logistics models across Vietnam's northern midland region.

POLICY IMPLICATIONS AND CONCLUSION

Theoretical Implications

The findings reinforce the core propositions of theories on CSR, green logistics, and sustainable development, particularly within the context of localized policy implementation.

First, CSR is not merely an ethical category or a voluntary obligation but functions as an institutional mechanism, a governance tool that translates green policy objectives into concrete corporate actions.

Second, the observed relationship CSR - Green Logistics - Sustainable Development Performance in Phu Tho validates the applicability of the Triple Bottom Line model within a transitional economy, where the three pillars - People, Planet, and Profit - are simultaneously realized at both enterprise and provincial levels.

Notably, Phu Tho's case demonstrates a two-way spillover effect: government policies drive CSR adoption, while CSR, in turn, enhances the effectiveness of green policy implementation. This constitutes an important academic contribution, suggesting new directions for institutional research on CSR in logistics at the subnational level - a dimension that remains underexplored in emerging economies.

Managerial and Policy Implications

Develop a Provincial CSR-Green Logistics Index

Phu Tho should establish a comprehensive set of CSR evaluation criteria for the logistics sector, based on the KPIs framework proposed in Table 4. This index should include key indicator groups covering **energy efficiency**, emissions, social safety, green transportation, and governance transparency. The formulation of this index should be jointly undertaken by the Department of Industry and Trade, the Department of Transport, and the Department of Natural Resources and Environment, and integrated into the province's annual sustainable development reports.

Such an index would serve as a practical monitoring tool for assessing the progress of the province's logistics greening process while helping to **standardize CSR practices** among local enterprises.

Institutionalize CSR within Logistics Planning and Investment Policies

CSR should be incorporated as a **mandatory criterion** in logistics infrastructure planning and investment projects - particularly for regional logistics centers, ICD clusters, and industrial zones such as Thuy Van, Phu Ninh, and Tam Nong. Regulatory authorities should require enterprises to submit a **Social - Social-Environmental Impact report (SEIR)** as part of the investment approval or renewal process.

This measure would transform CSR from a **voluntary commitment** into an **operational standard**, ensuring that sustainability principles are embedded in every stage of project design, implementation, and evaluation.

Provide Financial and Technological Support for SMEs

For domestic SMEs, the provincial government should design **green credit programs** and facilitate the **transfer of energy-saving technologies**, combined with **tax incentives** and **CSR management training**. These measures would enable smaller firms to participate in the green transition without facing excessive financial burdens.

In addition, partnerships with **international development organizations** such as *JICA*, *KOICA*, and the *Asian Development Bank* can provide effective sources of technical assistance and funding to strengthen SMEs' capacity for sustainable and socially responsible logistics practices.

Promote Public-Private Partnerships and CSR Value Chain Linkages

CSR can only achieve long-term sustainability when it evolves into a **chain-based partnership** among the **government, enterprises, and the community**. Phu Tho should consider establishing a **"Green Logistics**

Alliance", bringing together major enterprises, universities, professional associations, and regulatory agencies to collaboratively share **emission data**, foster **technological innovation**, and promote a **culture of CSR** throughout the logistics sector.

Such an alliance would serve as a platform for collective learning and co-creation, strengthening both horizontal cooperation among enterprises and vertical coordination between the state and private sector toward a unified green logistics ecosystem.

Enhance Human Resource Capacity for Green Logistics

CSR cannot operate effectively without a skilled and specialized workforce. Therefore, educational institutions in the province, particularly **Hung Vuong University** and **Phu Tho Vocational College**, should develop **specialized training programs** in *green logistics*, *ESG reporting*, and *sustainable supply chain management*, directly aligned with the needs of local enterprises.

These programs should integrate practical modules, case-based learning, and enterprise partnerships to ensure that graduates possess both technical and managerial competencies to support CSR implementation and drive the province's green logistics transformation.

CONCLUSION

This study has demonstrated that CSR plays a pivotal institutional role in driving the green logistics transformation of Phu Tho Province. By synthesizing provincial policy frameworks, socio-economic indicators, and enterprise-level practices, the paper shows that CSR has moved beyond philanthropic activities and now operates as a strategic governance instrument. Through regulatory pressure, incentive mechanisms, and community engagement, CSR enables logistics enterprises, especially large FDI firms, to internalize sustainability principles into daily operations. Observable outcomes include enhanced fuel efficiency, reduced emissions, improved occupational safety, and strengthened transparency in logistics supply chains.

Theoretically, the study contributes to CSR and sustainability literature by conceptualizing CSR as a soft institutional mechanism that mediates the relationship between local governance and sustainable logistics performance. The proposed three-layer analytical framework (Institutional–Corporate–Outcome) offers a generalizable model for understanding how provincial policies shape enterprise sustainability behavior within emerging economies. This enriches existing CSR theory, which has tended to focus on national-level regulations or global supply chains without examining provincial governance structures.

At the policy level, the results highlight the need for Phu Tho to institutionalize CSR through measurable performance indicators, green logistics standards, and cross-sector partnerships. Integrating CSR criteria into logistics infrastructure planning, investment licensing, and enterprise support programs will accelerate the province's green transition and enhance competitiveness following the 2025 administrative merger.

Nevertheless, several limitations remain. The study relies primarily on secondary data and qualitative content analysis, preventing quantitative evaluation of causal relationships between CSR intensity and logistics performance. Future research should employ firm-level surveys, econometric techniques, or panel data models to assess the magnitude of CSR impacts. Comparative studies across midland provinces could also illuminate how differences in governance capacity, industrial structure, and infrastructure readiness condition CSR adoption.

Overall, the findings affirm that CSR is no longer a peripheral or symbolic activity but a foundational capability enabling logistics enterprises to align with national sustainability objectives and global supply-chain expectations. As Phu Tho advances toward becoming a regional logistics hub, embedding CSR into its governance system will be essential for achieving long-term green growth and institutional resilience.

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