

Received: 29.08.2025; Revised: 13.09.2025, Accepted: 26.10.2025, Published Online: 21.11.2025

CORPORATE SOCIAL RESPONSIBILITY, AND THE TRANSITION TO A GREEN ECONOMY: EVIDENCE FROM PHU THO PROVINCE, AND DIRECTIONS FOR PHU THO PROVINCE AFTER THE MERGER

PhD. Pham Thi Thu Huong

Email: phamthuhuong266@gmail.com

Hung Vuong University, Phu Tho, Vietnam

Ph.D. Dang Van Sang

Email: anhsang7176@gmail.com

Hung Vuong University of Ho Chi Minh City

PhD. Luu The Vinh

Email: luuthevinh227@hvu.edu.vn

<https://orcid.org/0000-0002-4104-1891>

Hung Vuong University, Phu Tho, Vietnam

Abstract

Corporate social responsibility (CSR) is increasingly recognized as a strategic mechanism for driving green innovation in emerging economies. However, its role in accelerating green transition at the subnational level remains insufficiently examined, particularly in Vietnam, where provincial economic structures and governance capacities vary widely. This study investigates how CSR contributes to the green economic transition in Phu Tho Province, a rapidly industrializing region undergoing major administrative restructuring. Using secondary data from provincial statistical yearbooks, socio-economic reports (2022–2024), and policy documents, the study applies a conceptual framework linking economic, social, and environmental CSR with green innovation and sustainable performance. Results show that CSR practices have strengthened across all three dimensions, facilitating renewable energy adoption, cleaner production, labor welfare improvement, and inclusive economic growth. Evidence indicates a shift from compliance-based CSR toward strategic, innovation-oriented CSR, driven by both regulatory pressure and supply-chain requirements. The study contributes theoretically by extending CSR–green innovation research to the provincial scale, and practically by identifying policy mechanisms for institutionalizing CSR in the new post-merger governance structure.

Keywords: Corporate Social Responsibility (CSR), green economy, sustainable development, green innovation, Phu Tho.

1. Introduction

The transition to a green economy has become a strategic priority for many emerging

economies, where rapid industrialization and environmental pressures coexist. In this context, corporate social responsibility (CSR) is increasingly recognized not merely as voluntary corporate behavior but as a governance mechanism for aligning firm-level actions with national and subnational sustainability objectives (Carroll, 2021; Porter & Kramer, 2019). For developing countries such as Vietnam, where economic growth is driven by manufacturing, export-oriented production, and foreign direct investment (FDI), CSR plays a dual role, supporting competitiveness while mitigating environmental and social externalities. However, the effectiveness and strategic orientation of CSR at the provincial level remain uneven and underexamined.

Vietnam's green transition agenda has accelerated since the adoption of the National Green Growth Strategy (2021–2030) and commitments to net-zero emissions by 2050. Despite these national efforts, empirical studies on how CSR contributes to subnational green transformation, especially in industrial provinces, are still limited. Most existing research conceptualizes CSR at the firm level, focusing on compliance, philanthropy, or reporting practices, while insufficiently addressing CSR as a driver of green innovation and sustainable performance within provincial development trajectories. This creates a notable research gap in understanding how CSR is institutionalized and operationalized as a component of green transition governance at the local level.

Phu Tho Province provides an illustrative case, as it is undergoing both economic restructuring and administrative reorganization following the 2025 merger with Vinh Phuc and Hoa Binh. As an emerging industrial and logistics hub in northern Vietnam, Phu Tho exhibits rising energy demand, expanding manufacturing sectors, and increasing environmental pressures. At the same time, local enterprises, particularly in electronics, textiles, food processing, and logistics progressively adopting environmental CSR practices such as renewable energy use, waste reduction, and compliance with international ESG standards. These dynamics make Phu Tho an ideal setting for examining how CSR shapes and is shaped by provincial green transition processes.

This study addresses the aforementioned research gap by investigating the role of CSR in the transition to a green economy in Phu Tho Province. Building on an integrated framework linking economic, social, and environmental CSR to green innovation and sustainable performance, the study utilizes secondary data from provincial statistical yearbooks, socio-economic reports, and policy documents for the period 2022–2024. The empirical patterns derived from these data offer insights into how CSR practices contribute to environmental improvement, renewable energy expansion, and inclusive socio-economic development at the subnational level.

The study contributes to the literature in three ways. First, it extends CSR research by examining CSR as a driver of green innovation within a provincial governance context, an underexplored dimension in developing economies. Second, it provides empirical evidence on how CSR can be institutionalized through local policies, regulatory mechanisms, and multi-stakeholder collaboration. Third, it offers practical implications for integrating CSR into provincial development planning, particularly in the context of administrative restructuring and regional green transition.

Based on the identified research gap and the conceptual orientation of this study, the following research questions are proposed:

RQ1: How have the economic, social, and environmental dimensions of corporate social responsibility evolved in Phu Tho Province during the period 2022–2024?

RQ2: In what ways do CSR practices contribute to green innovation at the provincial level, particularly in relation to renewable energy adoption and cleaner production?

RQ3: How does CSR-driven green innovation influence sustainable performance within the context of Phu Tho's emerging green transition?

These questions guide the analytical structure of the study and provide a basis for interpreting the observed empirical patterns in relation to the conceptual model.

2. Literature Review

Corporate social responsibility has evolved from a primarily normative or philanthropic notion toward a more strategic, performance-oriented perspective that links firm responsibilities with long-term sustainability and green transformation. Foundational frameworks such as Carroll's four-part model, which integrates economic, legal, ethical, and philanthropic responsibilities, and Elkington's triple bottom line, which emphasizes the simultaneous pursuit of economic, social, and environmental value, provide an initial theoretical basis for understanding how CSR can underpin sustainable development rather than simply satisfy compliance requirements. Within this line of thinking, CSR is increasingly interpreted as a strategic mechanism through which firms internalize environmental and social externalities, restructure their production and governance processes, and contribute to broader green transition agendas at different territorial scales.

Building on these classic contributions, recent empirical research highlights the role of CSR in fostering green innovation (GI) as a crucial transmission channel between CSR practices and sustainable performance. Studies show that when CSR is embedded in corporate strategy, it strengthens firms' capabilities to develop, and adopt environmentally friendly products, processes, and technologies, thereby improving resource efficiency, and reducing negative ecological impacts (Zhu et al., 2022; Chen et al., 2018). In this view, CSR is not treated as a set of symbolic activities or isolated projects, but as an integrated governance approach that shapes incentive structures, investment decisions, and stakeholder relationships in ways that favour innovation for sustainability.

Evidence from emerging economies provides further support for this strategic interpretation of CSR. Research on Chinese firms demonstrates that environmental CSR is positively associated with the adoption of clean technologies, renewable energy solutions, and eco-efficient production processes, contributing to both environmental performance and competitive advantage (Qi et al., 2021). Similar patterns are observed in Malaysia and Indonesia, where CSR commitments, especially those relating to environmental responsibility, are found to encourage compliance with green standards, stimulate investment in low-carbon technologies, and deepen firms' integration into global sustainable value chains (Halim et al., 2020; Purwanto & Sudarma, 2021). These studies suggest that, in developing contexts, CSR can function as a lever for technological upgrading and institutional change, supporting a shift toward greener growth trajectories rather than serving merely as a reputational tool.

Despite these advances, two important gaps are apparent in the literature. First, most studies on the CSR–green innovation performance nexus focus on firm-level determinants and outcomes, paying limited attention to the subnational governance context that shapes corporate behaviour. Yet, in practice, firms operate within specific provincial or regional environments characterised by distinct regulatory regimes, infrastructural conditions, industrial structures, and environmental pressures.

Second, research on CSR in Vietnam remains largely concentrated on issues such as CSR reporting, community-based activities, or compliance with labour and environmental regulations. There is still a lack of systematic analysis of how CSR contributes to green transition processes at the provincial level, particularly in rapidly industrialising localities such as Phu Tho, Vinh Phuc, or Bac Ninh, where the intensity of industrial activities, environmental risks, and policy responses may differ substantially from national averages.

Integrating insights from the global literature with Vietnam's provincial context allows CSR to be conceptualised as a multidimensional driver of green transformation. Economic CSR, reflected in responsible profit generation, employment creation, productivity enhancement, and resource efficiency, can support firms' ability to invest in cleaner technologies and process upgrading. Social CSR, through improved working conditions, human capital development, occupational safety, and community engagement, contributes to labour welfare and social resilience, while building internal support and external legitimacy for environmental initiatives. Environmental CSR directly targets pollution prevention, waste minimisation, energy efficiency, and the deployment of renewable energy, acting as an immediate catalyst for ecological upgrading. When these three dimensions of CSR are aligned with local regulatory instruments, incentive schemes, and green-growth strategies, they can jointly stimulate green innovation, defined as the development or adoption of products, processes, and technologies that reduce environmental harm and support sustainable resource use.

Within this conceptual landscape, green innovation is viewed as the mediating mechanism through which CSR affects sustainable performance. CSR-induced investments in cleaner technologies, eco-design, process optimisation, and circular practices enable firms to reduce emissions, increase renewable energy usage, and enhance resource productivity. These improvements, in turn, generate simultaneous gains across the three pillars of sustainable performance: economic performance (e.g., cost savings, productivity, competitive advantage), environmental performance (e.g., reduced pollution, lower carbon intensity), and social performance (e.g., better health and safety outcomes, stronger community relations). Empirical evidence from China, Malaysia, and Indonesia indicates that this CSR–GI–performance pathway can accelerate subnational green transitions, particularly in regions that combine industrial dynamism with rising environmental constraints.

However, the extent to which this pathway operates in Vietnam's provincial settings remains underexplored. Industrialising provinces such as Phu Tho are subject to specific configurations of industrial structure, FDI presence, environmental pressures, and local governance capacity, which are likely to condition how CSR practices translate into green innovation and sustainable performance. Moreover, the ongoing process of territorial and administrative restructuring, including provincial mergers, poses new challenges and opportunities for designing coherent CSR and green transition policies at the subnational level. The absence of empirical studies that explicitly link CSR, green innovation, and sustainable performance in this evolving provincial context limits both theoretical understanding and policy design.

Against this backdrop, the present study adopts a conceptual model in which economic, social, and environmental CSR are treated as key antecedents of green innovation, and green innovation serves as the immediate driver of sustainable performance at the provincial level. CSR is thus conceptualised not as a voluntary add-on but as a strategic alignment mechanism between firms and

provincial green transition objectives. By applying this model to Phu Tho Province during the period 2022–2024, and by situating the province within the broader literature on CSR in emerging economies, the study seeks to address a critical gap: how CSR practices can be mobilised to support subnational green transition processes, and to inform future policy directions for Phu Tho Province in the context of administrative merger, and green economic restructuring.

The proposed conceptual framework can be described by a causal relationship: CSR (economic, social, environmental) → Green innovation → Sustainable performance.

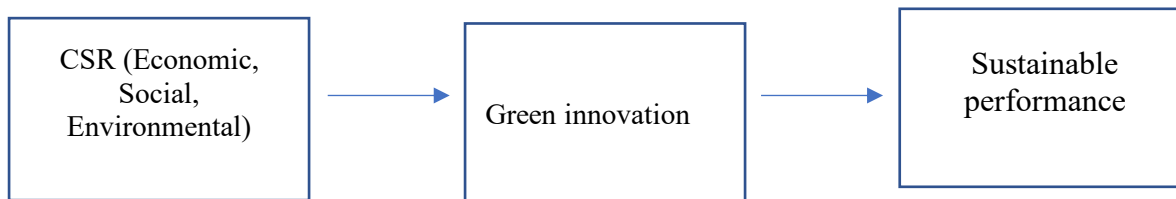


Figure 1. Conceptual model of the relationship between CSR, Green innovation, and Sustainable development

Source: Author's proposal, compiled from Elkington (1997), Porter & Kramer (2006), and Zhu et al. (2022).

This model allows for an assessment of the mediating role of green innovation in the relationship between CSR and sustainable development, while reflecting the logic of the transition from traditional CSR to green CSR in the context of Phu Tho restructuring its economy towards green growth.

This conceptual framework is not intended for quantitative testing, but rather to examine Phu Tho Province's practical data through the lens of green CSR, thereby identifying appropriate policy mechanisms for the regional green economic transition phase.

4. Research methodology

This study adopts a qualitative, secondary-data-based analytical approach to examine the relationship between corporate social responsibility (CSR) practices and the transition to a green economy in Phu Tho Province. The methodological design is appropriate for two reasons. First, the objective of the study is to assess CSR dynamics at the provincial rather than firm level, which requires macro-institutional and sectoral data rather than firm-specific survey information. Second, the transition to a green economy is inherently shaped by public policy, infrastructure, and regional socio-economic structures; these elements are best captured through statistical yearbooks, official reports, and regulatory documents.

4.1. Data sources

The study relies exclusively on authoritative secondary data collected from:

- Phu Tho Statistical Yearbooks (2022 and 2024) provide detailed indicators on economic growth, industrial structure, energy consumption, environmental performance, labor conditions, and social development.

- Socio-economic performance reports of the Phu Tho Provincial People's Committee (2022–2024) supply annual updates on environmental management, renewable energy adoption, investment trends, and enterprise development.

- Policy documents, including provincial resolutions, development strategies, and sectoral plans detailing regulatory instruments related to green transition, CSR institutionalization, and industrial environmental standards.

- Supplementary documents, such as Party Committee reports and administrative restructuring guidelines clarifying institutional changes following the 2025 provincial merger.

These data sources ensure completeness and consistency, reduce measurement error, and allow for multi-dimensional analysis of CSR at the subnational level.

4.2. Analytical approach

The analysis follows a three-step procedure aligned with the conceptual framework:

- Step 1. CSR dimension mapping

Economic, social, and environmental indicators from secondary data were grouped according to widely recognized CSR categories. This step allowed the study to trace the evolution of CSR practices across multiple sectors.

- Step 2. Green innovation assessment

Indicators related to renewable energy adoption, clean production activities, pollution control, and technology upgrading were analyzed to evaluate the extent to which CSR practices contribute to green innovation in the province.

- Step 3. Sustainable performance evaluation

The study linked CSR-driven green innovation patterns to provincial-level economic, environmental, and social outcomes. This included trends in GRDP growth, emission reduction, renewable energy consumption, labor welfare, and community development.

The analysis is descriptive–explanatory rather than causal. It does not attempt to test statistical relationships but instead interprets empirical patterns in light of the conceptual model, and existing literature. This design reflects the objective of understanding how CSR contributes to green transition processes under provincial governance conditions.

4.3. Methodological limitations

The study faces several limitations inherent in secondary data analysis. First, the absence of firm-level survey data limits the ability to measure CSR practices directly or to test the conceptual model statistically. Second, sectoral differences within the province cannot be fully captured due to the aggregated nature of official statistics. Third, the short time frame (2022–2024) restricts long-term trend analysis, although it remains relevant for understanding early-stage green transition dynamics.

These limitations suggest that future research should incorporate primary data collection, mixed-methods approaches, and comparative analyses across provinces in northern Vietnam.

5. Results and Discussion

5.1. Economic CSR and sustainable economic performance

During the 2022–2024 period, Phu Tho's economy achieved stable growth, maintaining its role as the industrial and service center of the Northern Uplands and Mountains region. Statistical data show that the province's GRDP has increased steadily over the years, with the economic structure continuing to shift towards modernization, reflecting efforts to restructure the growth model towards green and sustainable development.

Table 1. GRDP growth and economic structure of Phu Tho Province

Indicators	2022	2023	2024	2023/2022 (%)	2024/2023 (%)
GRDP growth rate (%)	7.8	8.5	8.1	+9,0	-4,7
GRDP (current prices, billion VND)	90,320	98,510	106,500	+9,1	+8,1
GRDP per capita (million VND)	65,4	74,5	81,2	+13,9	+9,0
Industry – Construction (%)	46.3	47.6	47.9	+2,8	+0,6
Services (%)	35.9	36.2	36.5	+0,8	+0,8
Agriculture – Forestry – Fisheries (%)	13.7	12.8	12.3	-6,6	-3,9
Budget revenue (billion VND)	10,250	11,230	11,800	+9,6	+5,1
Public investment disbursement (%)	91.2	94.5	95.3	+3,6	+0,8

(Source: Phu Tho Province Statistical Yearbook 2022, 2024; Phu Tho Provincial People's Committee (2024))

Economic CSR in Phu Tho has strengthened over the period 2022–2024, reflected in rising GRDP, expanding industrial production, and growing fiscal capacity. GRDP increased from VND 90,320 billion in 2022 to VND 106,500 billion in 2024, driven primarily by the manufacturing, energy, and logistics sectors. This growth is accompanied by improvements in labor productivity and the diversification of the industrial base, which indicates that enterprises are increasingly aligning their business strategies with efficient resource use and technological upgrading.

Businesses contribute more than 65% of total budget revenue, demonstrating their leading role in economic CSR. However, differences between business groups remain significant: FDI firms are able to integrate CSR into their long-term strategies, while small and medium-sized enterprises mainly stop at legal compliance. Phu Tho Province needs to continue expanding green credit and supporting policies for clean technology investment to promote economic CSR as a driver for green innovation.

From a conceptual perspective, these patterns demonstrate how economic CSR provides the enabling conditions for green innovation, particularly by expanding the financial and technological capabilities required for clean production. Firms investing in modern machinery, digitalization, and energy-efficient processes indirectly contribute to provincial-level green transformation. The consistency between GRDP growth and rising investment in cleaner technologies supports the proposition that economic stability is a critical driver of CSR-induced innovation, a trend also observed in emerging economies such as China and Malaysia.

5.2. Social CSR and inclusive development

Social CSR is reflected in businesses caring for welfare, improving labor skills, and contributing to the community. During the 2022–2024 period, the province's social indicators improved significantly, reflecting the effective combination of public policy and corporate responsibility.

Phu Tho's social CSR improved steadily through increased employment, expanded social welfare programs, and better workplace conditions. Data from 2022–2024 show rising average wages, expanded job creation in industrial parks, and strengthened social security coverage. Enterprises also participated more actively in community development initiatives, vocational training, and labor safety programs.

Table 2. Selected social and labor indicators for Phu Tho Province

Indicators	2022	2023	2024	2023/2022 (%)	2024/2023 (%)
Working population (thousands)	815	823	832	+1.0	+1.1
Percentage of trained workforce (%)	68.0	69.3	70.2	+1.9	+1.3
Average income (million VND/month)	5,4	6,0	6,4	+11.1	+6.7
Multidimensional poverty rate (%)	2.95	2.35	2.18	-20.3	-7.2
Percentage of schools meeting national standards (%)	78.6	81.2	84.0	+3.3	+3.4
Doctors per 10,000 people (persons)	14,2	15,1	16,0	+6,3	+6,0

(Source: Phu Tho Province Statistical Yearbook 2022, 2024; Phu Tho Provincial People's Committee (2024))

These developments indicate that social CSR strengthens internal firm capabilities and stakeholder relations, which in turn support environmental upgrading. A stable and well-trained workforce facilitates the adoption of cleaner technologies and green production systems, while improved community trust reduces resistance to environmental investments. This mechanism aligns with the literature suggesting that social responsibility reduces stakeholder conflict and enhances legitimacy for green innovation.

Thus, social CSR does not function as an isolated dimension but interacts with environmental initiatives, reinforcing the multidimensional character of green transition at the provincial level. This reinforces the mediating role of green innovation proposed in the conceptual model.

5.3. Environmental CSR, renewable energy adoption, and green innovation

Phu Tho is one of the few northern provinces with nearly 39% forest coverage, and 100% of industrial zones are equipped with centralized wastewater treatment systems. During the 2022–2024 period, all environmental indicators improved, clearly reflecting the results of the green growth program and corporate CSR efforts.

Table 3. Selected environmental and energy indicators for Phu Tho Province

Indicators	2022	2023	2024	2023/2022 (%)	2024/2023 (%)
Forest cover (%)	38.5	38.6	38.7	+0.3	+0.3
Urban waste collection (%)	95.2	96.4	97.0	+1.3	+0.6
Rural waste collection (%)	78.0	81.5	83.0	+4.5	+1.8
Enterprises implementing ISO 14001 (%)	53.0	58.0	60.0	+9.4	+3.4
Renewable energy (million kWh)	32.1	37.4	42.8	+16.5	+14.4
Industrial zones with wastewater treatment systems (%)	100	100	100	0.0	0.0

(Source: Phu Tho Province Statistical Yearbook 2022, 2024; Phu Tho Department of Natural Resources and Environment (2024))

Environmental CSR shows the most notable improvement during the review period. Renewable energy consumption increased from 32.1 million kWh in 2022 to 42.8 million kWh in 2024, reflecting accelerated adoption of rooftop solar systems, industrial energy-efficient technologies, and cleaner production methods. Figure 2 illustrates the parallel upward trends in GRDP and

renewable energy consumption, highlighting the co-evolution of economic growth and environmental improvement.

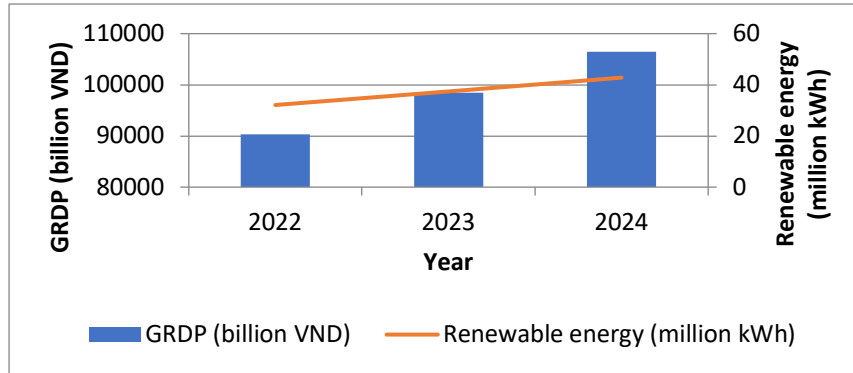


Figure 2. Trends of GRDP and renewable energy consumption in Phu Tho (2022–2024)

Alongside economic growth, renewable energy consumption and production have surged from 32.1 million kWh to 42.8 million kWh, representing a 33.3% increase over two years. This increase was not spontaneous but resulted from the expansion of rooftop solar power projects in the Phu Ninh, Thuy Van, and Cam Khe industrial parks, and the process of converting the power supply system for FDI enterprises to ISO 14001 standards, and the ESG standards of Korean and Japanese corporations.

The parallel trend of the two lines in the graph shows that green transformation in Phu Tho does not reduce economic growth; on the contrary, there are signs of mutual reinforcement, consistent with the theoretical argument that environmental CSR and green innovation play an intermediary role in enhancing sustainable development effectiveness (Zhu et al., 2022; Elkington, 1997). This is preliminary evidence that businesses in Phu Tho, despite varying levels of CSR practice, have begun to absorb the province's green policies through energy conservation, investment in clean equipment, and the purchase of renewable electricity.

This structure also reflects the local government's correct orientation in continuously issuing policies to support energy transition, such as the rooftop solar power plan, the carbon emission reduction plan for industrial enterprises, and environmental criteria in the evaluation and ranking of enterprises (Phu Tho Provincial People's Committee, 2023; 2024).

Importantly, this co-evolution pattern provides empirical support for the conceptual model: CSR (particularly environmental CSR) → drives → Green Innovation → enhances → Sustainable Performance.

The increase in renewable energy use suggests that green innovation is not merely rhetorical but is taking place through concrete technological adoption. This aligns with trends in Chinese provinces where environmental CSR significantly boosts clean energy uptake (Qi et al., 2021). In Phu Tho, the mechanisms include: Compliance with ISO 14001 standards among FDI firms; Provincial incentives for solar power and energy efficiency; Tightening environmental monitoring; Integration of ESG requirements in supply chains.

These mechanisms show that environmental CSR has become an important lever for green institutional transformation at the provincial level. These patterns suggest that CSR adoption in Phu Tho extends beyond firm-level initiatives, and increasingly reflects the influence of provincial governance mechanisms, a topic further explored in the next subsection.

5.4. Integrating CSR and provincial green governance

The convergence of economic, social, and environmental CSR trends reveals a broader process of governance transformation in Phu Tho. CSR is increasingly embedded in provincial development planning, particularly through green growth strategies, renewable energy policies, industrial environmental regulations, and incentives for clean production and ESG compliance.

This institutional embedding indicates that Phu Tho is shifting from voluntary CSR toward strategic and regulated CSR, consistent with international experiences in Indonesia and Malaysia. The province's administrative restructuring in 2025 provides additional momentum for harmonizing CSR practices with regional green transition strategies, strengthening multi-level environmental governance, and improving policy coherence.

The findings suggest that CSR-driven green innovation is emerging as a pathway for enhancing provincial sustainable performance. Stronger institutional coordination, expanded incentives, and standardized ESG reporting frameworks will be essential to sustain this trajectory.

6. Conclusion, and contributions

This study examined the role of corporate social responsibility (CSR) in supporting the transition toward a green economy in Phu Tho Province, using secondary data for the period 2022–2024. The findings indicate that CSR has contributed positively across all three sustainability pillars. Economic CSR supported stable growth, and enhanced firms' technological capacity; social CSR improved labor welfare, and strengthened community engagement, and environmental CSR accelerated renewable energy adoption, and reduced ecological pressures. Together, these trends illustrate how CSR practices are becoming increasingly aligned with provincial green transition objectives. The co-evolution of GRDP and renewable energy consumption provides additional evidence that CSR-driven green innovation is emerging as a meaningful pathway for sustainable development at the subnational level.

Theoretical contributions

This study extends existing CSR literature in three ways. This provincial-level perspective provides a missing scale of analysis in CSR research, which has been dominated by firm- and national-level studies.

First, it conceptualizes CSR as a strategic mechanism for green innovation rather than a voluntary or philanthropic activity, contributing to a deeper understanding of CSR's transformative potential in emerging economies. Second, it provides a province-level analysis at an underexplored scale of inquiry in Vietnam, highlighting how local governance, industrial structure, and policy incentives shape CSR outcomes. Third, the study strengthens the theoretical linkage between CSR, green innovation, and sustainable performance by offering empirical insights into how these relationships manifest in a rapidly industrializing province.

Practical and policy implications

Several implications arise from the findings. Provincial authorities should integrate CSR more explicitly into green growth strategies by establishing clear ESG reporting guidelines, promoting renewable energy incentives, and enhancing environmental compliance monitoring. Strengthening public–private partnerships and encouraging sector-specific CSR frameworks can further accelerate green innovation. Enterprises should also adopt long-term CSR strategies that align with provincial

sustainability goals, particularly in energy-intensive industries. Given the ongoing administrative restructuring, Phu Tho has the opportunity to harmonize CSR practices across the newly merged region, positioning itself as a model for green governance in northern Vietnam.

Limitations and future research

The study faces inherent limitations due to its reliance on secondary data, which restricts the ability to assess firm-level CSR practices or test causal relationships statistically. Sectoral variations within the province could not be fully captured due to the use of aggregated indicators. Future studies should incorporate primary data through surveys or interviews to evaluate CSR implementation more directly. Comparative analyses across provinces such as Phu Tho, Vinh Phuc, Bac Ninh, and Thai Nguyen would provide deeper insights into how industrial structure, FDI concentration, and regulatory capacity shape CSR–green innovation dynamics. Developing a provincial green CSR index is another promising direction for advancing research and informing policy.

References

1. International references

Bansal, P., & Song, H.-C. (2017). Similar but not the same: Differentiating corporate responsibility from sustainability. *Academy of Management Annals*, 11(1), 105–149. <https://doi.org/10.5465/annals.2015.0095>

Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business & Society*, 38(3), 268–295. <https://doi.org/10.1177/000765039903800303>

Elkington, J. (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Capstone Publishing.

González-Rodríguez, M. R., Díaz-Fernández, M. C., & Simonetti, B. (2020). The social, economic, and environmental dimensions of corporate social responsibility: The role of innovation, and a firm's competitiveness. *Journal of Cleaner Production*, 247, 119–129. <https://doi.org/10.1016/j.jclepro.2019.119129>

Hazarika, N., & Zhang, X. (2019). Evolving theories of eco-innovation: A systematic review. *Sustainable Production, and Consumption*, 19, 64–78. <https://doi.org/10.1016/j.spc.2019.03.002>

Lee, S. M., Park, S. H., & Trimi, S. (2019). Green smart innovation: A new roadmap for sustainable growth. *Technological Forecasting, and Social Change*, 149, 119–127. <https://doi.org/10.1016/j.techfore.2019.119-127>

Nguyen, T. H., & Nguyen, V. T. (2021). Corporate social responsibility practices in Vietnamese manufacturing enterprises: Status and policy implications. *Journal of Asian Business and Economic Studies*, 28(4), 312–328. <https://doi.org/10.1108/JABES-04-2020-0033>

Porter, M. E., & Kramer, M. R. (2006). Strategy, and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78–92.

Zhu, Q., Zou, F., & Zhang, P. (2022). The role of corporate social responsibility in green innovation: Evidence from Chinese manufacturing firms. *Business Strategy, and the Environment*, 31(1), 368–381. <https://doi.org/10.1002/bse.2903>

2. The Vietnamese government and provincial documents

Party Committee of the People's Committee of Phu Tho Province. (2023). Report No. 252-BC/BCS-UBND on the results of leadership and guidance in 2023 and directions for 2024. Phu Tho.

Phu Tho Provincial People's Council. (2023). Resolution No. 04/2023/NQ-HĐND on policies to support the development of industry and logistics in Phu Tho Province until 2030. Phu Tho.

Phu Tho Provincial Union of Science and Technology Associations. (2023). Summary report on science and technology activities in 2023. Phu Tho.

Department of Natural Resources and Environment of Phu Tho Province. (2024). Report on environmental status and sustainable development in 2024. Phu Tho.

Phu Tho Provincial Party Committee. (2023). Report No. 397-BC/TU on the results of implementing socio-economic development tasks in 2023 and directions for 2024. Phu Tho.

Phu Tho Provincial Party Committee. (2024). Report No. 463-BC/TU on the implementation of the socio-economic development plan for 2024. Phu Tho.

Phu Tho Provincial People's Committee. (2023). Report on socio-economic development in 2023 and directions for 2024. Phu Tho.

Phu Tho Provincial People's Committee. (2024). Report on the socio-economic situation in the first 6 months of 2024. Phu Tho.

People's Committee of Phu Tho Province. (2024). Statistical Yearbook of Phu Tho Province 2024. Phu Tho Provincial Statistics Office.

People's Committee of Phu Tho Province. (2022). Statistical yearbook of Phu Tho Province 2022 (summary). Phu Tho Provincial Statistics Office.

Prime Minister. (2023). Decision No. 1579/QĐ-TTg dated December 5, 2023, approving the Phu Tho Province master plan for the period 2021–2030, with a vision to 2050. Hanoi.