

Exploring the Compliance Levels of Some Industries on the Implementation of Environmental Policy

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Abstract— This study investigated the compliance levels of selected manufacturing industries with environmental policies and Pollution Control Officer (PCO) accreditation, examining how coercive pressures influence organizational behavior through the framework of coercive isomorphism under Institutional Theory. The research aimed to assess how industries respond to regulatory demands and to identify strategies that can improve compliance and operational efficiency. A mixed-method approach was employed, combining quantitative surveys and qualitative interviews with PCOs, environmental managers, and regulators. The quantitative data provided measurable indicators of compliance performance, while qualitative responses offered contextual insights into how firms interpret and adapt to external mandates and regulatory expectations.

Findings revealed that firms demonstrate strong compliance with visible and easily monitored requirements, including the appointment of accredited PCOs, adherence to Department of Environment and Natural Resources (DENR) standards, and the conduct of staff training programs. However, notable gaps were identified in consistent report submission, formation of compliance teams, integration of environmental objectives into corporate strategies, and investments in sustainable technologies. These outcomes affirm that coercive isomorphism primarily drives compliance through regulatory enforcement, leading to adherence that is often procedural rather than transformative. The study concludes that while coercive pressures ensure minimum compliance, fostering a genuine culture of sustainability requires internal commitment, strategic integration, and stronger government-industry collaboration. Recommendations include developing shared PCO services for small and medium enterprises (SMEs), creating Local Environmental Assistance Desks, embedding environmental goals into business operations, and forming stakeholder advisory panels to enhance compliance mechanisms and promote long-term environmental stewardship. Future research is encouraged to examine normative and mimetic isomorphic influences to provide a more holistic understanding of institutional dynamics in environmental governance.

Keywords— environmental compliance, coercive isomorphism, institutional theory, manufacturing industries, sustainability strategies, mixed methods, regulatory policy.

INTRODUCTION

Industries play a vital role in national progress by driving economic growth, providing employment, and promoting technological advancement. However, industrialization also brings serious environmental consequences such as air and water pollution, deforestation, and excessive resource consumption (Awan et al., 2021). These issues prompted governments worldwide to enforce stricter environmental policies to balance economic expansion with ecological sustainability (Burritt et al., 2019). Despite global efforts, compliance remains a challenge as many industries struggle to meet environmental standards. The core issue lies in ensuring that industries embrace environmental responsibility as part of their operational systems rather than as an external obligation. This tension between growth and sustainability underscores the need for more effective

monitoring and policy enforcement to ensure long-term environmental protection.

In the Philippine context, the CALABARZON region, being highly industrialized, faces significant environmental problems stemming from industrial waste, emissions, and weak compliance with environmental regulations.

The Department of Environment and Natural Resources (DENR), through the Environmental Management Bureau (EMB), addressed this by mandating the appointment of Pollution Control Officers (PCOs) under DENR Administrative Order (DAO) No. 2014-02, who oversee environmental compliance and waste management (DENR, 2014).

However, persistent gaps remain, including inconsistent enforcement, lack of technical expertise, and inadequate resources among small and medium-sized enterprises (SMEs) (Slaughter & May, n.d.). Reports from the Laguna Lake Development Authority (LLDA) revealed recurring violations related to improper wastewater discharge and air quality non-compliance (LLDA, 2023).

These problems highlight the gap between regulatory frameworks and actual industry practices, calling for stronger institutional mechanisms and enhanced implementation strategies to ensure compliance.

This study aimed to address the gaps in existing literature and practice by examining industry-specific barriers to environmental policy implementation in CALABARZON and assessing the critical role of PCOs in promoting compliance.

Previous studies often generalized compliance trends without focusing on how coercive institutional pressures influence firm behavior and operational efficiency (Reuters, 2024; European Commission, 2024).

Hence, this research sought to provide a deeper understanding of the interplay between regulatory mandates and industry responses through the lens of Institutional Theory.

Its primary goal was to propose strategies that strengthen environmental compliance mechanisms, improve adherence to PCO accreditation requirements, and support sustainable industrial operations.

Through this, the study aspired to help bridge the persistent gap between environmental policies and practical application, contributing to a cleaner, more responsible industrial sector in the Philippines.

Research Questions and Objectives

This study aimed to assess the compliance levels of various industries with regard to Pollution Control Officer (PCO) accreditation and the implementation of environmental policies. To guide the investigation, the following research questions were formulated:

1. What is the level of compliance of selected industries in their implementation of environmental policy in the context of the coercive isomorphism concept of Institutional Theory?

2. What perceptions did selected industries have regarding their operational efficiency in meeting environmental standards under the framework of coercive isomorphism?
3. What strategies could be developed to address the challenges encountered by these industries in complying with environmental policy?

Accordingly, the study pursued the following specific objectives:

1. To identify the level of compliance of selected industries in their implementation of environmental policy within the context of coercive isomorphism.
2. To determine the perceptions of selected industries regarding their challenges in meeting environmental standards based on coercive isomorphism.
3. To develop strategic recommendations to address the challenges these industries face in achieving compliance with environmental policy.

Research Framework

The theoretical framework that the researcher used as basis for the study is the Coercive Isomorphism Theory, which is part of Institutional Theory and explains how organizations conform to external pressures such as laws, regulations, and societal expectations. The framework illustrated the relationship between Pollution Control Officer (PCO) accreditation, environmental policy implementation, and compliance levels across industries in Cavite.

The illustration can be seen in Figure 1, which presents how coercive forces from regulatory bodies influence industrial behavior toward environmental compliance. It examined how agencies like the Department of Environment and Natural Resources (DENR) and the Laguna Lake Development Authority (LLDA) guided industries in Carmona to meet environmental standards.

The framework also identified challenges such as financial limitations, lack of expertise, and weak regulatory mechanisms that hinder effective compliance and policy implementation.

To address these issues, the framework proposed capacity-building initiatives, policy reforms, technical support, and financial aid as strategies to strengthen environmental governance and promote sustainable industrial practices.

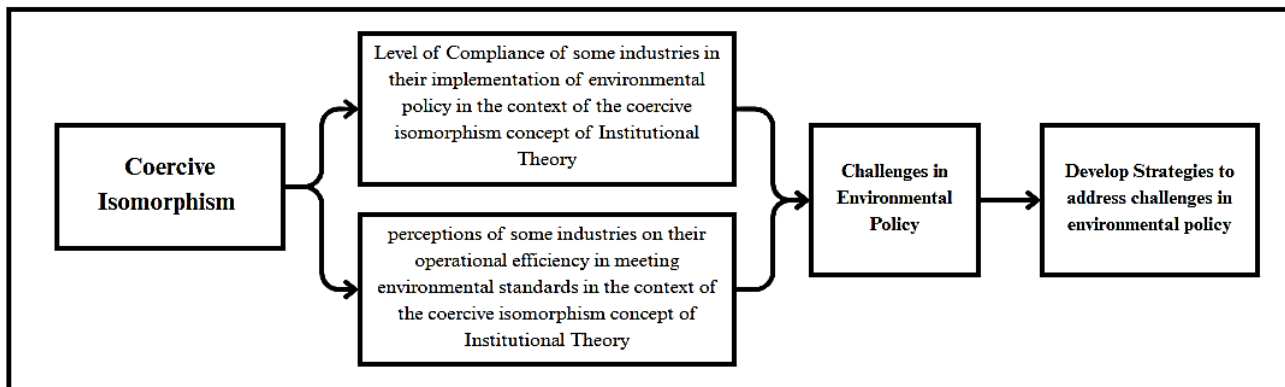


Figure 1. Conceptual Framework of the Study

Significance of the Study

Theory. This research will test the applicability of the Institutional Theory, particularly the coercive framework proposed by Meyer and Rowan (1977) and expanded by DiMaggio and Powell (1983). The theory explains that organizations comply with environmental regulations mainly because of pressures from authoritative institutions. It will help demonstrate how external mandates from agencies such as the Department of Environment and Natural Resources (DENR), the Environmental Management Bureau (EMB), and the Laguna Lake Development Authority (LLDA) influence corporate compliance behavior. The results may strengthen the theoretical link between institutional pressure and organizational environmental performance.

Policy. This research will be useful to policymakers and regulatory agencies in enhancing environmental governance. It can provide empirical evidence that supports the refinement of existing regulations, improvement of enforcement mechanisms, and design of incentive-based programs to encourage industries to adopt sustainable practices and technologies. The findings may also serve as a reference for developing targeted policies that balance industrial growth with environmental protection.

Practice. The knowledge gained from this study may help 1) manufacturing firms identify barriers to Pollution Control Officer (PCO) accreditation and improve compliance systems, 2) company leaders design training programs that strengthen operational efficiency and environmental management, and 3) researchers and practitioners apply evidence-based strategies that promote sustainable industrial practices.

Social Action. This research may contribute to society by promoting environmental accountability and

awareness among industries and communities. It may guide both government and private sectors in working collaboratively to reduce pollution and protect ecological systems. Through this shared commitment, the study aims to support sustainable development and reinforce collective responsibility for environmental preservation.

Scope and Limitations

The study assessed compliance levels of selected industries in the Philippines, focusing on environmental policy implementation under coercive isomorphism in Institutional Theory.

Definition of Terms

- **Compliance Level** – Extent to which firms adhere to environmental laws, standards, and policies.
- **Environmental Policy Implementation** – Enforcement of policies and programs aimed at reducing environmental impact.
- **Pollution Control Officer (PCO)** – Accredited individual by DENR/LLDA responsible for ensuring company compliance.
- **PCO Accreditation** – Certification process qualifying PCOs to oversee environmental compliance.
- **Regulatory Requirements and Enforcement** – Government-imposed environmental rules and their enforcement mechanisms.
- **Operational Efficiency** – Ability of firms to comply with standards while maintaining productivity and cost-effectiveness.

Review of Related Literature

Structuration Theory emphasizes the duality of structure, where regulations shape industry practices while repeated compliance or violations reinforce or weaken these rules (Giddens, 1984; Hoffman, 2001).

Rules and resources, including expertise and tools, guide compliance, while power relations emerge as regulators enforce laws and industries leverage capital (Scott, 2014; Barley & Tolbert, 1997). Compliance thus becomes a negotiated process, with firms actively interpreting and adapting rules rather than passively following them (Gunningham et al., 2003). Environmental Compliance Regulations aim to reduce environmental impact through legal frameworks on emissions, waste, and reporting standards that ensure accountability (Achuora et al., 2020). Compliance protects ecosystems, safeguards public health, and enables firms to avoid penalties while demonstrating responsible corporate practices. Pollution Control Officers (PCOs) are central to compliance, providing technical expertise, monitoring operations, and linking firms with regulatory agencies. Accredited PCOs strengthen sustainability outcomes, yet SMEs often face resource barriers to appointing or retaining them (Gonzales & Rivera, 2022). Their effectiveness depends on being integrated into strategic decision-making, not confined to administrative tasks.

METHODOLOGY

Research Design

This study employed a mixed-methods design with a primary quantitative approach to measure environmental compliance among industries in CALABARZON. Quantitative data were collected through structured surveys on Pollution Control Officer (PCO) accreditation, policy implementation, and compliance challenges, while limited interviews with regulators and firm representatives provided qualitative insights.

Research Locale

The study was conducted in Carmona, Cavite, a major industrial hub in CALABARZON that hosts electronics, automotive, and consumer goods manufacturing firms. Regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the Laguna Lake Development Authority (LLDA) were

included for their oversight roles in air, water, and waste management.

Population and Sampling Design

The population included manufacturing firms in Carmona, Cavite under the supervision of the DENR-EMB and LLDA, with Pollution Control Officers (PCOs) and Environmental Managers as primary respondents. From 702 total personnel, a sample of 256 respondents was determined using Slovin's formula at a 95% confidence level and 5% margin of error, applying stratified random sampling for balanced representation. A pilot test and reliability analysis confirmed the instrument's consistency, while ten purposively selected PCOs were interviewed for deeper insights into compliance challenges.

Research Instruments

A structured survey questionnaire served as the main instrument to assess compliance with PCO accreditation and environmental policy implementation. The tool included four sections—company profile, compliance levels, accreditation–efficiency relationship, and barriers to compliance—validated by experts from the DENR-EMB, LLDA, and accredited PCOs. Reliability testing and pilot validation ensured accuracy, while supplementary document analysis verified compliance data and supported the study's mixed-methods approach.

Data Gathering Procedure

The data collection process followed ethical and systematic steps, beginning with formal permissions from the DENR-EMB, LLDA, and participating firms. Surveys were distributed in printed and online formats, ensuring voluntary participation, informed consent, and respondent confidentiality. Both quantitative and qualitative data were analyzed through descriptive statistics and thematic analysis, integrating findings to present a comprehensive understanding of industrial compliance behaviors.

Management and Treatment of Data

The data analysis developed for this research are as follows:

Objectives	Source of Data	Type of Data	Data Analysis
1. To identify the level of compliance of some industries in their implementation of	Part I: Compliance with Pollution Control Regulations - Part II: Impact of PCO Accreditation and	Discrete-Ordinal	Frequency, Rank , Median and Mode

environmental policy in the context of the coercive isomorphism concept of Institutional Theory.	Environmental Policy Implementation on Operational Efficiency		
2.To determine the perceptions of selected industries regarding their challenges in meeting environmental standards based on coercive isomorphism	Structured Survey Questionnaire: - Section C (Operational Efficiency Indicators)	Qualitative	Thematic Analysis
3. To develop a strategy that can be developed to address the challenges encountered by some industries in complying with environmental policy.	Consolidated Data: - Sections A to D of the Survey - Key Informant Interviews (KIIs)	Mixed: Discrete- Ordinal and Qualitative	Integration of Quantitative Results and Thematic Analysis of KIIs to Develop Strategies

RESULTS AND DISCUSSION

This section presents the findings of the study on the compliance levels of selected industries in Carmona, Cavite with environmental policies under the coercive framework of Institutional Theory. The results are organized according to the major variables of the study, including Pollution Control Officer (PCO) accreditation, environmental policy implementation, operational efficiency, and compliance challenges. Quantitative data gathered through survey questionnaires are supported by qualitative insights obtained from interviews with PCOs, compliance managers, and regulatory representatives.

1. Level of Compliance of Some Industries in Their Implementation of Environmental Policy in the Context of the Coercive Isomorphism Concept of Institutional Theory

Table 2 revealed that across all dimensions, firms prioritize compliance practices that are highly visible to regulators or directly tied to inspections. For PCO accreditation, ensuring that accredited officers meet requirements ranked highest, while full submission of environmental reports was rated lowest, showing that

procedural compliance is easier to sustain than documentation-heavy tasks. In environmental policy implementation, companies emphasized aligning policies with DENR and LLDA standards and providing regular training, but rarely invested in dedicated compliance departments, reflecting limited budgets and legal mandates.

With regard to regulative mechanisms, government regulations were recognized as the strongest driver of compliance, though respondents highlighted insufficient government support as a barrier to long-term sustainability. In organizational policies, firms commonly set measurable environmental performance targets, but often failed to integrate these into overall business strategies, treating compliance as separate from core operations. Industry practices showed that companies respected established benchmarks, yet investments in advanced technologies were limited due to high costs. Finally, in stakeholder and community influence, firms prioritized visible initiatives like awareness programs and community feedback, but showed weak commitment to inclusive decision-making, indicating gaps in participatory governance.

Table 2. *Level of Compliance of Some Industries in Their Implementation of Environmental Policy*

Variable	Statement	Median	Mode
Pollution Control Officer (PCO) Accreditation	Highest: The company fully complies with the required submission of environmental reports to DENR-EMB, LLDA, and other regulatory agencies.	3	5
	Lowest: Our company ensures that the designated PCO meets all requirements set by regulatory agencies.	3	1
Environmental Policy Implementation	Highest: Our company has a dedicated department/team responsible for monitoring environmental compliance.	3	4
	Lowest: Our company implements strict environmental policies that align with DENR-EMB, LLDA, and other regulatory agencies' standards.	3	1

Regulative Mechanism	Highest: There is sufficient government support for pollution control compliance.	3	5
	Lowest: Compliance with pollution control policies increases operational costs.	3	2
Organizational Policies	Highest: Our company integrates environmental policies into its overall business strategy.	3	4
	Lowest: Our company sets clear environmental performance targets.	3	1
Industry Practices	Highest: Our company invests in advanced technologies to enhance our pollution control measures and reduce environmental impact.	3	5
	Lowest: There is a standard industry benchmark for pollution control compliance.	3	1
Stakeholder and Community Influence	Highest: Stakeholders are consulted in decision-making related to environmental policies.	3	5
	Lowest: Our company supports environmental awareness programs for the community.	3	1

II. Industry Perceptions on Operational Efficiency Under Coercive Isomorphism

Table 3 revealed that industries in CALABARZON perceive environmental compliance as both a regulatory requirement and an operational challenge, shaped strongly by coercive pressures. Categories such as roles and responsibilities in compliance and indicators and practices of compliance highlight how Pollution Control Officers (PCOs), routine monitoring, reporting, and auditing become core mechanisms to demonstrate adherence to environmental mandates. However, recurring challenges—such as financial constraints, technical limitations, and delays in regulatory processing—reflect operational inefficiencies that hinder full compliance integration. Consistent with Gunningham et al. (2003), the study suggests that compliance improves when visible regulatory enforcement is combined with strong public pressure, yet firms noted that weak enforcement and high costs often limit effectiveness. These challenges support the idea that coercive isomorphism forces industries to adopt compliance practices, but operational efficiency

suffers when mandates are perceived as burdensome rather than enabling.

At the same time, categories linked to government regulations, industry competition, and stakeholder pressure show how external demands are reshaping firm strategies. Emerging themes such as community complaints, stakeholder expectations, and market-driven sustainability standards echo Bansal and Roth's (2000) claim that industries pursue compliance not only to satisfy regulations but also to preserve legitimacy and competitive advantage. This aligns with Zhou et al. (2021), who found that client and market pressures push firms toward sustainable practices to avoid exclusion. In this study, some firms reported that competitive pressures and reputation management motivated innovation in pollution control despite limited resources. Thus, under coercive isomorphism, industries perceive compliance as a strategic necessity—balancing regulatory discipline with operational efficiency while adapting to financial, technical, and stakeholder-driven constraints.

Table 2. Consolidated Thematic Analysis of Environmental Compliance

Category	Emerging Theme	Narrative / Illustrative Quote (English Translation)
Roles and Responsibilities in Environmental Compliance	Pollution Control Officer Functions	"I propose environmental projects that help the company while also reducing electricity use and natural resource depletion."
Indicators and Practices Used for Environmental Compliance	Submission of Reports and Testing Compliance	"Submission of SMR and conduct Air Emission Test and wastewater Testing."
	Financial Constraints	"To become a pollution control officer, you needed to complete a 40-hour seminar, which cost between 20,000 and

Challenges in Environmental Compliance		30,000 pesos... Each of the permits came with its own set of expenses... These costs added up quickly.”
	Technical Limitations	“We sometimes lack equipment for testing and monitoring, which delays report submissions.”
	Permit and Waste Management Issues	“Yes, there are times when we experience delays because the release of permits takes too long. Sometimes, supporting documents are incomplete, so the application gets sent back and forth.”
	Low Employee Participation	“Yes, there were times when employees weren’t very cooperative, especially during clean-up drives or tree planting.”
Company Practices in Handling PCO Accreditation	Company-Sponsored Training and Seminar as PCO	“The company was the one who registered me for the 40-hour PCO training. They shouldered the cost and gave me time off to complete the requirements.”
	Outsourcing and Consultancy Approach	“Some companies hire consultants to manage environmental documents instead of assigning a full-time PCO.”
Delays or Failures in Regulatory Compliance	Delays Due to Permit Processing and Paperwork	“We experience delays because the release of permits takes too long, and incomplete documents cause repeated revisions.”
	Financial and Resource Constraints	“Compliance activities are sometimes delayed because the company prioritizes production expenses.”
Financial Constraints Affecting Pollution Control Implementation	High Cost of Pollution Control Equipment	“We wanted to switch to a more environment-friendly machine, but it was too expensive. It’s not within our budget right now.”
	Delayed Compliance Due to Budget Cuts	“Budget limitations slow down our efforts to upgrade pollution control systems.”
Impact of Government Regulations and Policies on Compliance Efforts	Government Regulations as Drivers of Compliance Discipline	“Because of the strict DENR requirements, we learned to be more organized with documentation. All reports must be complete and up to date.”
	Complexity and Burden of Regulatory Requirements	“The number of forms and requirements is overwhelming, and it takes time to complete everything.”
Support Challenges in Compliance Initiatives	Lack of Employee Engagement and Participation	“Some employees are not interested in participating in environmental programs like tree planting.”
	Management’s Limited Prioritization	“Sometimes management focuses more on production targets than on compliance matters.”
Industry Competition and Environmental Compliance	Competitive Pressure Driving Innovation	“We adopted energy-efficient equipment because we saw competitors doing it and gaining client interest.”
	Market Demands and Reputation Management	“We improve our compliance because clients prefer suppliers with good environmental records.”
Community and Stakeholder Pressure on Environmental Compliance	Community Complaints Driving Compliance	“Sometimes residents file complaints to the barangay about odor from the plant, so we installed a carbon filter to reduce the smell.”
	Stakeholder Expectations Enhancing Efforts	“Our customers expect us to comply with environmental standards, so we maintain good documentation.”

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III. Strategies to Address the Challenges Encountered by Some Industries in Complying with Environmental Policy

Challenges that are weak or low rank areas	Related Challenge Identified Through Open ended Question	Probable Cause (from Quantitative and Qualitative Data)	Proposed Strategy	Tactical Actions	Responsible Entity	Measure of Success
Low submission rate of environmental reports	SMEs assign compliance tasks to multitasking personnel, resulting in missed deadlines and errors.	<ul style="list-style-type: none"> Overloaded PCOs managing multiple roles Lack of training in report preparation 	Enhance PCO capacity and streamline reporting	<ul style="list-style-type: none"> Develop PCO support toolkit Implement reporting calendar Introduce shared PCO services among SMEs 	Company Management, DENR, Industry Associations	80% of SMEs submit reports on time within 6 months
Absence of dedicated environmental compliance teams	Firms lack technical units; environmental duties are absorbed into unrelated departments.	<ul style="list-style-type: none"> Firms assign environmental tasks to non-specialized departments Budget limitations Lack of technical expertise among staff 	Establish dedicated environmental compliance units	<ul style="list-style-type: none"> Assign trained compliance focal persons per department Provide basic environmental compliance training Allocate budget for environmental units 	Companies, HR Departments, DOLE	At least one dedicated environmental compliance unit per firm within 1 year

Perceived lack of government support	Firms experience bureaucratic delays, minimal training access, and unclear procedures.	<ul style="list-style-type: none"> • Complicated permit processes • Delayed responses from agencies • Lack of accessible training or local support offices 	Improve government support accessibility	<ul style="list-style-type: none"> • Establish Local Environmental Assistance Desks • Launch mobile training units for SMEs • Provide online guides and contact points 	DENR, LGUs, Environmental NGOs	70% of SMEs report improved access to support services within 12 months
Environmental policies not part of strategic plans	Firms treat environmental tasks as administrative chores, not aligned with core operations.	<ul style="list-style-type: none"> • Environmental goals not included in business KPIs • Viewed as external obligations • Weak top management involvement 	Integrate environmental targets into strategic planning	<ul style="list-style-type: none"> • Include environmental KPIs in annual strategy • Tie executive evaluations to environmental performance • Conduct management workshops on environmental integration 	Company Executives, Strategic Planning Teams	Environmental goals reflected in 100% of strategic plans within next fiscal year
Low investment in green technologies	High upfront costs and lack of technical guidance discourage eco-innovation.	<ul style="list-style-type: none"> • High capital cost of eco-friendly tech • No clear ROI • No access to subsidies or technical guidance 	Encourage investment in green technologies	<ul style="list-style-type: none"> • Launch Green Innovation Fund with subsidies • Provide technical audits and guidance • Offer incentives for eco-friendly tech adoption 	DTI, DENR, Financial Institutions	50% of targeted SMEs adopt at least one green technology within 18 months
Minimal stakeholder participation in decisions	Community or client input is informal or reactive, not part of planning or compliance design.	<ul style="list-style-type: none"> • No established consultation mechanism • Stakeholder input seen as optional • Fear of external criticism or delay 	Increase stakeholder engagement in environmental decisions	<ul style="list-style-type: none"> • Create Stakeholder Advisory Committees • Implement public environmental scorecards • Conduct regular consultation meetings 	Companies, LGUs, CSOs	Stakeholder participation incorporated in 80% of environmental decisions within 1 year

RESEARCH IMPLICATIONS

The findings have important implications for both industry and policy. Industries are encouraged to move beyond minimum compliance and adopt proactive environmental management strategies to improve efficiency and sustainability. Policymakers and

regulators should strengthen monitoring systems, enhance capacity-building for Pollution Control Officers (PCOs), and address cost and technical barriers that hinder compliance. Insights from the study may guide revisions of accreditation guidelines and policies, ensuring frameworks remain both practical and

effective. Finally, the research contributes to institutional theory by showing how coercive isomorphism shapes industrial compliance, offering useful perspectives for future studies in environmental governance.

Summary of Significant Findings

The results of the study revealed several key insights into environmental compliance among selected industries in Carmona, Cavite. (1) Industries in Carmona demonstrated strong adherence to visible and easily verifiable requirements, such as the appointment of accredited Pollution Control Officers (PCOs), alignment of company policies with DENR and LLDA standards, and regular implementation of staff training and awareness programs. These efforts illustrated coercive isomorphism, as compliance was primarily motivated by regulatory pressures to avoid sanctions. Nonetheless, weaker areas included incomplete report submissions, insufficient compliance teams, limited policy integration into business strategies, minimal stakeholder participation, and low investment in sustainable technologies. Compliance behavior appeared more externally driven than internally institutionalized. (2) In terms of operational efficiency, industries perceived themselves to be moderately efficient. Large companies tended to have structured systems for audits and reporting, whereas small and medium enterprises relied on multi-role staff and reactive responses due to financial, technical, and knowledge limitations. This indicated that compliance was mainly enforced through external monitoring rather than internal motivation, again reflecting coercive isomorphism. (3) To address these gaps, the study recommended strategic measures such as the establishment of shared PCO services, use of standardized reporting tools, and stronger government assistance through training programs and compliance support desks. Furthermore, the integration of environmental objectives into key business performance indicators, provision of green innovation funds, and the creation of stakeholder advisory panels were suggested to enhance compliance capability, promote accountability, and ensure sustainable environmental management.

Conclusion

Findings showed that most firms met minimum regulatory requirements but struggled with deeper integration of environmental policies. Compliance was reactive and externally driven rather than internally motivated, consistent with coercive isomorphism.

Proposed strategies provide both organizational and institutional solutions, enabling industries to move from surface-level compliance toward sustainable and integrated environmental practices.

Recommendations

Industries, particularly small and medium enterprises, should strengthen their compliance practices through standardized reporting templates, shared Pollution Control Officer services, and the assignment of trained personnel who can manage monitoring and documentation processes.

Companies need to integrate environmental goals into their core business strategies so environmental responsibility becomes a consistent organizational priority rather than a requirement addressed only during inspections.

Government agencies such as the DENR and local government units should establish Local Environmental Help Desks, conduct mobile training programs, and provide financial or technical assistance that supports the adoption of cleaner and greener technologies.

Companies should enhance transparency and accountability by forming community advisory groups, sharing regular updates on environmental performance, and involving nearby communities in planning and monitoring activities that affect local conditions.

Organizations should introduce internal initiatives that strengthen environmental compliance within the workplace culture. These efforts may include in-house training sessions, the selection of compliance advocates in each department, recognition programs for positive environmental practices, and internal audits that encourage continuous improvement.

Future research should consider multiple data-gathering approaches such as surveys, interviews, and document reviews to gain deeper insights into compliance behavior across sectors. Studies should also include more regions, examine compliance patterns over time, and involve government and industry partners for a more complete understanding of environmental performance. Researchers should investigate how company-driven practices shape workplace norms that promote consistent environmental compliance, especially in industries exposed to strong regulatory pressures.

REFERENCES

- [1] Achuora, J. O., Guyo, W., Arasa, R., & Odhiambo, R. (2020). Effect of Green Supply Chain Management Practices on the Performance of Manufacturing Firms in Kenya (Doctoral dissertation). Jomo Kenyatta University of Agriculture and Technology: Kenya.
- [2] Awan, U., Arnold, M. G., & Gölgeci, I. (2021). Enhancing green product and process innovation: Towards an integrative framework of knowledge acquisition and environmental investment. *Business Strategy and the Environment*, 30(2), 1283–1295. <https://doi.org/10.1002/bse.2684>
- [3] Bansal, P., & Roth, K. (2000). Why companies go green: A model of ecological responsiveness. *Academy of Management Journal*, 43(4), 717–736. <https://doi.org/10.5465/1556363>
- [4] Barley, S. R., & Tolbert, P. S. (1997). Institutionalization and structuration: Studying the links between action and institution. *Organization Studies*, 18(1), 93–117. <https://doi.org/10.1177/017084069701800106>
- [5] Burritt, R. L., & Schaltegger, S. (2021). Sustainability accounting and reporting: Fostering compliance and performance improvement. *Journal of Cleaner Production*, 278, 123857. <https://doi.org/10.1016/j.jclepro.2020.123857>
- [6] Burritt, R. L., Christ, K. L., & Rammal, H. G. (2019). Sustainability of the global steel industry: Perspectives on corporate disclosure and assurance. *Journal of Cleaner Production*, 208, 595–607. <https://doi.org/10.1016/j.jclepro.2018.10.091>
- [7] Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- [8] Department of Environment and Natural Resources (DENR). (2014). DENR Administrative Order No. 2014-02: Revised guidelines for Pollution Control Officer accreditation. <https://denr.gov.ph>
- [9] Department of Environment and Natural Resources (DENR). (2022). Environmental policies and compliance monitoring framework.
- [10] Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. University of California Press.
- [11] Gonzalez, P., & Gonzalez, M. (2005). Environmental impact assessment in developing countries: The need for capacity-building. *Environmental Impact Assessment Review*, 25(2), 217–231.
- [12] Gunningham, N., Kagan, R. A., & Thornton, D. (2003). *Shades of green: Business, regulation, and environment*. Stanford University Press.
- [13] Hoffman, A. J. (2001). *From heresy to dogma: An institutional history of corporate environmentalism*. Stanford University Press.
- [14] Laguna Lake Development Authority (LLDA). (2023). Environmental regulations and industrial compliance in the Laguna Lake region.
- [15] Philippine Statistics Authority (PSA). (2021). *Economic and industrial statistics in Calabarzon: Annual Report 2021*. <https://psa.gov.ph>
- [16] Reyes, C. M., & Mendoza, S. D. (2021). Corporate sustainability practices in the Philippine manufacturing sector: Barriers and policy implications. *Sustainability*, 13(9), 4786. <https://doi.org/10.3390/su13094786>
- [17] Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). SAGE Publications.
- [18] Slaughter and May. (n.d.). ESG in APAC 2024 – Philippines. <https://insights.slaughterandmay.com/esg-in-apac-2024-philippines/index.html>
- [19] Tang, X., Zhou, Y., & Zhang, J. (2019). How do market and regulatory pressures influence green innovation? The mediating role of environmental management capability. *Environmental Science and Pollution Research*, 27, 1441–1452. <https://doi.org/10.1007/s11356-019-06993-2>
- [20] Zhou, X., Wang, C., & Zeng, S. (2020). Institutional pressure and the diffusion of environmental management standards in China: The role of firm ownership. *Business Strategy and the Environment*, 29(2), 487–499. <https://doi.org/10.1002/bse.2427>
- [21] Zhou, Y., Tang, X., & Zhang, J. (2020). How do market and regulatory pressures influence green innovation? The mediating role of environmental management capability. *Environmental Science and Pollution Research*, 27, 1441–1452. <https://doi.org/10.1007/s11356-019-06993-2>
- [22] Zhu, Q., Geng, Y., & Lai, K. H. (2013). Environmental supply chain cooperation and its impact on the circular economy practice–performance relationship among Chinese manufacturers. *Journal of Industrial Ecology*, 17(3), 449–457.