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Integrating Environmental Sustainability Compliance into Evaluation of Contractors for Qualification in Public Works Procurement: -A Conceptual Framework

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Abstract

This study proposes a conceptual framework for integrating Environmental Sustainability Compliance (ESC) into contractor environmental qualification (EQ) for public works procurement in Ghana. Drawing on Compliance Theory, Institutional Theory, and Stakeholder Theory, the paper identifies through systematic literature review key barriers—organizational constraints, process-related limitations, and contextual challenges—and synthesizes drivers that enable ESC integration. The framework emphasizes the dynamic interplay among regulatory enforcement, institutional legitimacy, and stakeholder demands, while acknowledging Ghana-specific moderators such as weak enforcement capacity, market immaturity, and hierarchical stakeholder influence. It advocates a tiered, context-sensitive approach to ESC evaluation—including feasible metrics, balanced scoring ((10–25% weight (European Commission, 2016)), and graduated verification—to bridge the gap between policy intent and substantive implementation. The study contributes a theoretically grounded, actionable model to advance sustainable public procurement in resource-constrained settings.

Keywords: Environmental Sustainability, Compliance, Environmental Qualification, Tender Evaluation, Works Procurement

1. Introduction

The construction industry is one of the most environmentally impactful sectors globally. It is responsible for approximately 40% of solid waste generation, 30-40% of global energy consumption, and 40% of CO2 emissions (Li et al., 2022; Liu et al., 2019; IEA, 2021). These statistics highlight the urgent need for sustainability in construction practices, especially given the finite nature of natural resources (Wassie, 2020). Environmental sustainability (ES) emphasizes the responsible use of natural resources to meet current needs without compromising those of future generations (Henderson and Loreau, 2023). In this context, Environmental Sustainability Compliance (ESC) refers to the adherence to environmental laws, regulations, and standards in pursuit of sustainable outcomes (Muniru and Nani, 2025). Ensuring compliance minimizes environmental risks and avoids penalties from regulatory authorities (USEPA,

2022). Public procurement accounts for 13-20% of global GDP and thus serves as a critical tool for promoting sustainable development (UNEP, 2021). In response to global agreements such as COP 21 (2015) and evolving national legislations (e.g., UK Procurement Law, 2023; Ghana's Public Procurement Act, 2003 (Act 663) as amended), ESC is increasingly being integrated into procurement decision-making. However, in practice, its application in evaluation for contractor selection remains limited (Agbesi et al., 2020; Da Ponte et al., 2020; Muniru and Nani, 2025). Current evaluation methods often rely on subjective judgments due to a lack of clear criteria, indicators, weighting mechanisms, and standardized evaluation frameworks (Fuentes-Bargues et al., 2017; Montalbán-Domingo et al., 2020). This situation presents a need for a structured and theory-informed conceptual framework. Procurement plays a pivotal role in achieving the sustainability objectives of construction projects, encompassing activities such as sourcing, contracting, monitoring, and evaluation (Kullberg, 2022). Terms like "green procurement"," eco-procurement", and "environmentally responsible procurement" reflect growing global interest in aligning procurement with environmental goals (Grandia and Voncken, 2019). Contractor environmental qualification, that is, assessing a contractor's capability to manage and implement sustainable practices, is vital for ensuring compliance and minimizing environmental harm (Shurrab et al., 2019; Owusu-Manu et al., 2022). Benefits of such qualification include risk mitigation, improved public image, cost savings, and enhanced community trust (Ograh, 2021). Illankoon et al. (2022) highlight construction priorities such as energy efficiency, pollution control, and the use of renewable resources, all of which are aligned with Sustainable Development Goals (SDGs). In Ghana, ESC integration into public works procurement can contribute to achieving SDGs related to clean energy (SDG 7), sustainable cities and communities (SDG 11), water and sanitation (SDG 6), climate action (SDG 13), responsible consumption and production (SDG 12), life below water (SDG 14), and life on land (SDG 15), as in Figure 1.0 (VNRR-Ghana, 2019). Despite this potential, challenges persist, including institutional capacity limitations, limited contractor awareness, and inadequate guidance in procurement documentation (Ayarkwa et al., 2021; Awuzie and Emuze, 2016). To address these gaps, a theory-based framework is essential. Compliance theory provides insights into how entities respond to environmental regulations (Pautz and French, 2023; Celis, 2020). Institutional theory explains how organization conform to societal and regulatory expectations through coercive, mimetic and normative pressures (Greenwood et al., 2022; Scott et al., 2014). Stakeholder theory emphasizes the diverse environmental expectations of actors such as regulators, clients and the public (Harrison et al., 2024; Mitchell et al., 1997; Freeman, 1984). Recent studies advocate for theoretical rigor in green procurement research to support effective implementation (Mensah et al., 2020; Koala and Steinfeld, 2018). This study proposes a conceptual framework that integrates these theories to guide the systematic incorporation of ESC into evaluation for contractor selection in public works procurement.

2. Methodology

a. Data Sources

To develop a robust conceptual framework for integrating ESC into evaluation for contractor selection in public works procurement, a systematic literature review (SLR) was conducted to identify gaps and areas requiring improvement. Developing a framework for conceptualizing ES into contractor selection in procurement requires an exploration of underpinning theories with the potential to advance research (Mensah et al., 2020), especially in the area of ESC evaluation.

To ensure transparency, reproducibility, and rigor in the selection of literature, this study adhered to a structured systematic literature review (SLR) protocol adapted from Webster and Watson (2002). The process comprised three phases: (1) search strategy formulation, (2) screening and selection, and (3) data extraction and synthesis. A comprehensive search was conducted across Web of science, ScienceDirect, and Scopus using a combination of 22 domain-specific keywords grouped into three thematic blocks: Procurement-related terms: Sustainable Public Procurement (SPP), Green Public Procurement (GPP), Environmental Public Procurement (EPP), Environmentally Sustainable Procurement. Sustainability compliance terms: Environmental Sustainability Compliance (ESC), Environmental Compliance, Environmental Sustainability. Contractor evaluation terms: Environmental Qualification, Environmental Pre-Qualification, Tender Evaluation, Contractor Selection. Boolean operators were used to construct reproducible search strings. For example, in Scopus: TITLE-ABS-KEY (("sustainable public procurement" OR "green public procurement" OR "environmental public procurement") AND ("environmental compliance" OR "environmental sustainability compliance") AND ("contractor selection" OR "tender evaluation" OR "environmental qualification"). Similar constructs were adapted for other databases with syntax adjustments. The search was limited to peer-reviewed journal articles, books, institutional reports, and conference papers published between 2011 and 2025 to reflect contemporary developments in ESC integration.

The initial search results yielded 85 potentially relevant documents. These were subsequently screened using a structured set of inclusion and exclusion criteria to refine the selection to the most pertinent literature. The inclusion criteria required documents to have a focus on environmental sustainability compliance or related concepts specifically within the context of public procurement. Furthermore, articles needed to include an explicit discussion of practical procurement phases, such as contractor selection, tender evaluation, or pre-qualification processes. Eligible documents also included empirical, theoretical, or policy-oriented content directly relevant to public works or infrastructure projects. Finally, the scope was limited to materials published in English between the years 2011 and 2025. Conversely, several exclusion criteria were applied to narrow the focus. Studies that concentrated solely on private-sector procurement without clear public-sector applicability were omitted. Articles lacking a clear methodological or conceptual foundation, such as unsupported opinion pieces or editorials, were also excluded. Duplicates and non-peer-reviewed grey literature were removed, with an exception made for key policy documents from authoritative bodies like the United Nations Environment Programme, the European Union, or the Ghana Public Procurement Authority, ensuring critical policy frameworks were retained despite their classification.

A dual-screening process was employed: two independent reviewers assessed titles and abstracts, followed by full-text review. Discrepancies were resolved through discussion. This process resulted in the final selection of 24 sources (15 journal articles, 3 books, 4 institutional reports, and 2 conference papers, as shown in Table 1) that directly informed the theoretical and empirical foundations of the framework. Although the final sample size of 24 sources may appear limited when viewed through a purely quantitative lens, it is methodologically justified by the study's deliberately narrow and nested analytical focus. Rather than pursuing breadth, the review prioritizes depth by concentrating exclusively on literature that directly examines environmental sustainability compliance (ESC) within public works procurement, particularly at the contractor evaluation and selection stages. Consequently, broader sustainability studies

or generic procurement research lacking explicit relevance to ESC integration were intentionally excluded to preserve conceptual precision. In addition, the selection strategy emphasized theoretical depth over numerical representation. Priority was given to sources that explicitly engage with Compliance Theory, Institutional Theory, and/or Stakeholder Theory within the procurement evaluation context. This ensured that the resulting framework is grounded in well-established theoretical mechanisms rather than surface-level sustainability narratives. By privileging theoretically explicit studies, the review strengthens its analytical coherence and explanatory power.

Table 1: Journal types, sources, and their authors

No. Journal Articles	Type	Title / Author(s) / Source	Year
1	Journal Article	Agyekum et al., Buildings	2025
2	Journal Article	Delmonico et al., Resources, Conservation and Recycling	2020
3	Journal Article	Ershadi et al., Cleaner Engineering and Technology	2020
4	Journal Article	Feng et al., Journal of Cleaner Production	2021
5	Journal Article	Fu et al., Environmental Science and Pollution Research	2022
6	Journal Article	Häkkinen and Belloni, Building Research and Information	2011
7	Journal Article	Ho et al., Journal of Environmental Planning and Management	2022
8	Journal Article	Liu et al., Journal of Cleaner Production	203
9	Journal Article	Namian et al., Construction Management and Economics	2020
10	Journal Article	Ograh, International Journal of Procurement Management	2021
11	Journal Article	Ruparathna and Hewage, Journal of Cleaner Production	2015
12	Journal Article	Silvius and Schipper, International Journal of Project Management	2021
13	Journal Article	Testa et al., Journal of Cleaner Production	2020
14	Journal Article	Walker and Brammer, International Journal of Production Economics	2012
15	Journal Article	Zhang et al., Journal of Environmental Management	2020
BOOKS			
16	Book	Freeman et al., Cambridge University Press	2024
17	Book	Greenwood et al., Sage Publication	2022
18	Book	Mitchell et al., Cambridge University Press	2021
REPORTS & INSTITUTIONAL PUBLICATIONS			
19	Report	European Commission, Green Public Procurement (GPP) criteria	2023
20	Report	Ghana PPA, Sustainable Public Procurement Guidelines for Ghana. Accra. PPA.	2022

21	Report	UNEP, Global Review of Sustainable Public Procurement. Nairobi: UNEP.	2023
22	Thesis	Ghasemi, Analyzing Causes of Delays in Financial Institution-Funded Road Projects.	2025
CONFERENCE PAPERS			
23	Conference Paper	Agyekum-Mensah and Knight, Institutionalizing sustainable procurement practices in Sub-Saharan Africa: Challenges and strategies. In proceedings of the International Conference on Sustainable Construction, Cape Town, South Africa.	2023
24	Conference Paper	Pautz and French, Deterrence and compliance in environmental contracting: Lessons from US federal procurement. Public Administration Review.	2023

Source: Authors Construct, 2026

The notable focus areas identified in Table 1 cover specific empirical, policy, and theoretical dimensions. Agyekum et al. (2025) and Ograh (2021) provide direct empirical examinations of Ghana's public procurement system, highlighting persistent challenges such as capacity gaps, cost-driven mindsets, and weak enforcement of sustainability criteria. In contrast, policy documents from UNEP (2023) and the European Commission (2023) establish critical global and regional benchmarks for environmental sustainability in procurement. The theoretical foundations are strengthened by contributions from Freeman et al. (2024) and Greenwood et al. (2022), who apply Stakeholder and Institutional theories to analyze procurement dynamics. Furthermore, Liu et al. (2023) anchor the discussion in compliance theory, emphasizing mechanisms of deterrence and regulatory enforcement.

The geographic and institutional representation within the literature ensures a balanced and comprehensive perspective. The Global North is well-represented through studies and policies from the European Union, the United States, the United Kingdom, and Nordic countries, as seen in works by the European Commission (2023), Pautz and French (2023), and Häkkinen and Belloni (2011). Simultaneously, the Global South perspective is robust, with significant focus on Ghana, as well as studies from China, Turkey, and Latin America. This is complemented by the inclusion of frameworks from international bodies such as UNEP and the World Bank, which imply alignment with Sustainable Development Goals.

Data from the 24 selected sources were extracted using a standardized template and analyzed thematically with NVivo software. The synthesis followed an iterative process of open coding, axial coding, and thematic refinement, leading to the identification of three overarching barrier domains: organizational constraints, process-related limitations, and contextual challenges.

b. Theoretical Mapping and Application

The selected literature was critically analyzed, with particular attention to the theoretical underpinnings, including compliance theory, institutional theory, and stakeholder theory. These theories were then mapped to the identified gaps and used to determine drivers of change that could inform practical strategies for integrating ESC into evaluation for contractor selection processes in public works procurement. The synthesis reveals not only which theories are applied in ESC-related procurement research, but more critically, how each theory explains distinct yet interdependent mechanisms that shape contractor selection outcomes. For instance, Compliance Theory foregrounds the role of formal sanctions, legal mandates, and audit mechanisms (e.g., Pautz and French, 2023), positioning ESC as a rule-bound obligation. In contrast, Institutional Theory explains why organizations adopt ESC criteria even in the absence of enforcement—driven by legitimacy-seeking behavior, professional isomorphism, or alignment with global norms (e.g., Greenwood et al., 2022; Agyekum et al., 2025). Meanwhile, Stakeholder Theory shifts the focus from regulatory or normative pressures to relational accountability, emphasizing how procurement decisions reflect the values and demands of communities, future users, civil society, and international donors (e.g., Freeman et al., 2024; Mitchell et al., 2021).

The novelty of this study lies not in the theories themselves—which are well-established—but in their integrated application to the specific context of public works contractor evaluation in developing economies, particularly Ghana. Prior literature tends to apply these theories in isolation or in generic procurement contexts, often in advanced economies. Few studies interrogate how coercive, normative, mimetic, and stakeholder pressures interact dynamically during the tender evaluation phase, especially where institutional capacity is weak, market maturity is low, and cultural perceptions of sustainability are evolving.

3. Results and Discussion

3.1 Thematic Synthesis of Barriers and Drivers

The barriers to integrating Environmental Sustainability Compliance (ESC) into contractor selection in Ghanaian public works procurement, as synthesized into organizational constraints, process-related limitations, and contextual challenges, are substantiated by empirical and policy-oriented literature documented in Table 1 of the study. Each barrier domain reflects systemic weaknesses that are recurrent across both Global South and Global North contexts—but are particularly acute in resource-constrained environments like Ghana.

3.1.1 Barriers

The entrenched prioritization of cost savings over sustainability stems from a narrow interpretation of "value for money," a theme prominently discussed by Ograh (2021) and Agyekum et al. (2025). In Ghana, public procurement officers are often evaluated based on budget adherence rather than long-term environmental or social returns, creating misaligned incentives. This is compounded by a lack of dedicated personnel and financial resources, as noted in Ghana-specific studies (Agyekum et al., 2025; Ograh, 2021), which reveal that sustainability functions are typically assigned as additional duties to already overburdened staff. The absence of environmental performance-linked indicators in bid evaluation reflects a deeper institutional gap: without metrics tied to outcomes like carbon emissions or waste diversion, ESC remains aspirational. Mensah et al. (2020) critique this disconnect, arguing that theoretical discourse on

sustainable procurement has not translated into operational tools in Ghanaian practice. Even when intent to integrate ESC exists, inadequate evaluation tools and insufficient data systems impede implementation. Fuentes-Bargues et al. (2017) and Montalbán-Domingo et al. (2020)—though focused on Spain—highlight how subjective, non-standardized criteria lead to inconsistent application of environmental requirements. In Ghana, this problem is amplified by the lack of clear implementation guidelines, despite the existence of the Ghana PPA Sustainable Public Procurement (SPP) Guidelines (2022), which remain high-level and non-prescriptive. Additionally, the absence of post-project environmental evaluations means there is no feedback loop to refine future criteria—a gap underscored by Namian et al. (2020), who emphasized the need for performance-based learning in developing economies. Furthermore, competing project priorities, such as political pressure to deliver infrastructure rapidly, often sideline sustainability, as observed in Ayarkwa et al. (2021), where urgency overrides environmental due diligence. At the macro level, limited supply chain traceability and market immaturity pose structural obstacles. Ograh (2021) notes that Ghana's construction sector is dominated by small and medium enterprises (SMEs) lacking certifications like ISO 14001 or capacity to document environmental performance. This market reality limits the pool of qualified bidders when ESC criteria are applied rigidly. Regulatory fragmentation—with overlapping mandates between the Public Procurement Authority (PPA), Environmental Protection Agency (EPA), and sector ministries—creates confusion and weak enforcement, a point corroborated by Muniru and Nani (2025). Moreover, cultural perceptions that frame sustainability as a "Western" or elite concern, as highlighted by Ayarkwa et al. (2021), reduce local ownership and legitimacy of ESC initiatives. Finally, the poor understanding of ESC co-benefits—such as long-term operational savings or climate resilience—is evident in Delmonico et al. (2020), who argue that without demonstrating tangible returns, sustainability is seen as a cost rather than an investment. The sources in Table 1 collectively illustrate that these barriers are not isolated but interconnected. For instance, Agyekum et al. (2025) and the Ghana PPA (2022) report identify how organizational constraints (e.g., no trained staff) and contextual challenges (e.g., market immaturity) jointly undermine even well-intentioned policies. Similarly, UNEP (2023) and Agyekum-Mensah and Knight (2023) emphasize that without addressing process gaps—like standardized scoring or verification—ESC remains symbolic. The literature thus confirms that successful ESC integration requires simultaneous intervention across all three domains, grounded in local institutional realities rather than imported templates.

3.1.2 Drivers

The synthesized drivers for integrating Environmental Sustainability Compliance (ESC) into contractor selection in Ghana's public works procurement are grounded in three interlocking theoretical perspectives—Compliance Theory, Institutional Theory, and Stakeholder Theory—as substantiated by the sources listed in Table 1 of the study. Each driver category not only explains why ESC integration occurs but also how it can be operationalized within Ghana's specific institutional and market context. Compliance Theory emphasizes rule adherence as a response to legal mandates, deterrent mechanisms, and strategic incentives. In Ghana, legal mandates such as the Public Procurement Act, 2003 (Act 663) and environmental statutes enforced by the Environmental Protection Agency (EPA) provide the foundational impetus for ESC integration (Muniru and Nani, 2025; Ghana PPA, 2022). These are reinforced by deterrence mechanisms like audits, penalties, and disqualification from bidding—key insights drawn from Pautz and French (2023), who argue that the threat of sanctions significantly increases compliance when enforcement capacity exists. However, in weak enforcement environments like Ghana,

strategic compliance becomes more salient: contractors adopt ESC not out of fear, but to access donor-funded projects or meet international standards (e.g., World Bank environmental safeguards), as noted by Ograh (2021) and Ghasemi (2025). Furthermore, certification and documentation—such as ISO 14001 or EPA permits—serve as verifiable proxies for environmental capability. Zhang et al. (2020) and Ruparathna and Hewage (2015) underscore that documented environmental management systems enable objective scoring in tender evaluations, reducing subjectivity. Institutional Theory explains ESC adoption through coercive, normative, and mimetic pressures that confer organizational legitimacy. Coercive pressures in Ghana stem from binding instruments like the PPA's Sustainable Public Procurement (SPP) Guidelines (2022) and national climate policies, which formally mandate ESC inclusion (Ghana PPA, 2022; Agyekum et al., 2025). Normative pressures arise from alignment with global sustainability norms, especially the UN Sustainable Development Goals (SDGs) and donor expectations. UNEP (2023) and Testa et al. (2020) highlight how public sector actors internalize these norms as professional ethics, making ESC a marker of credibility. Mimetic isomorphism—the imitation of "best practices"—is evident in how Ghanaian policymakers look to South Africa's green procurement frameworks or EU GPP criteria for guidance, as noted by Agyekum-Mensah and Knight (2023) and the European Commission (2023). This imitation reduces uncertainty in contexts of limited local expertise. Critically, successful integration depends on institutionalization: embedding ESC into routine procurement tools like bid templates and prequalification documents. Greenwood et al. (2022) and Silvius and Schipper (2021) argue that only when ESC becomes "business as usual"—not an add-on—does it yield systemic impact. Stakeholder Theory shifts focus from rules and norms to relational accountability and value co-creation. In Ghana, salient stakeholders—particularly international donors, Ministry of Finance, and urban communities—exert decisive influence due to their power, legitimacy, and urgency (Mitchell et al., 1997; Ograh, 2021). For example, World Bank–funded infrastructure projects often require environmental safeguards as a condition of financing, compelling ESC integration (Ghasemi, 2025; UNEP, 2023; Agyekum-Mensah & Knight, 2023). Public accountability and legitimacy further drive ESC adoption: agencies seek social license by responding to civil society demands for climate-resilient infrastructure and reduced pollution (Ayarkwa et al., 2021; Freeman et al., 2024). Multi-stakeholder engagement—through Environmental Impact Assessments (EIAs), public consultations, and grievance mechanisms—ensures ESC reflects local ecological and social contexts, as emphasized by Ho et al. (2022) and Ruparathna and Hewage (2015). Finally, long-term value creation reframes sustainability not as a cost but as an investment in resilience, equity, and ecological integrity. Delmonico et al. (2020) and Namian et al. (2020) demonstrate that ESC can yield lifecycle cost savings and reduced environmental liability—arguments critical for justifying higher upfront expenditures in Ghana's fiscally constrained environment. The sources summarized in Table 1 collectively demonstrate that the drivers of environmental sustainability compliance (ESC) integration in public works procurement are both context-dependent and interdependent, rather than operating as isolated mechanisms. Across the reviewed literature, compliance, institutional, and stakeholder pressures interact dynamically, with the effectiveness of each contingent on the presence and strength of the others. This interdependence reinforces the argument that ESC integration cannot be explained through a single theoretical lens. Evidence from Pautz and French (2023) alongside the Ghana Public Procurement Authority (2022) highlights that compliance mechanisms—such as mandatory environmental criteria or sanction-based enforcement—are insufficient when institutional support is weak. In the absence of clear guidelines, monitoring capacity, and organizational legitimacy, compliance requirements risk becoming symbolic, encouraging formal box-ticking rather than substantive

environmental performance. This underscores the necessity of institutional backing to translate compliance rules into meaningful procurement outcomes. Further, studies by Ghasemi (2025) and UNEP (2023) illustrate how stakeholder pressure, particularly from development partners and international donors, often serves as the initial catalyst for policy reform in developing-country procurement systems. These external expectations prompt governments to institutionalize sustainability principles through revised procurement policies and guidelines. Once embedded within formal structures, these reforms are subsequently operationalized and enforced through legal and regulatory compliance mechanisms, demonstrating a sequential yet interlinked pathway from stakeholder influence to institutionalization and enforcement. Finally, the combined insights of Freeman et al. (2024) and Greenwood et al. (2022) emphasize that organizational legitimacy in ESC integration emerges only when procurement practices simultaneously respond to stakeholder values and conform to prevailing institutional norms. Compliance with formal rules alone is insufficient if sustainability criteria are perceived as misaligned with societal expectations, just as stakeholder responsiveness without institutional codification lacks durability. Legitimacy, therefore, arises from the alignment of stakeholder demands, institutional structures, and compliance practices, reinforcing the need for an integrated, multi-theoretical approach to understanding ESC integration.

Crucially, the literature cautions against assuming automatic synergy. In Ghana, weak enforcement capacity may render legal mandates inert (Muniru and Nani, 2025), while elite-dominated stakeholder engagement may marginalize community voices (Ograh, 2021). Thus, effective ESC integration demands deliberate alignment of all three drivers—backed by capacity building, transparent scoring, and adaptive policy design. In sum, the drivers identified are not abstract concepts but actionable levers validated by the empirical and policy literature in Table 1. Their strategic orchestration—grounded in Ghana's institutional realities—offers a viable pathway to move from formal to substantive ESC integration in public works procurement.

3.2 Conceptual Framework Development based on the three theories

3.2.1 Institutional Theory

Institutional Theory offers a powerful, non-efficiency-based explanation for how Environmental Sustainability Compliance (ESC) become embedded in organizational practices. It posits that organizations adopt structures and behaviors primarily to gain legitimacy and ensure survival within their broader social and regulatory environments, conforming to established norms, rules, and cultural expectations (DiMaggio and Powell, 1983; Scott, 2014). This pursuit of legitimacy is driven by three isomorphic pressures: Coercive Pressures: Stem from formal rules, laws, and mandates imposed by powerful entities (e.g., states, regulators, international donors). For example, Ghana's Public Procurement Authority (PPA) SPP Guidelines or EU directives legally compel the inclusion of ESC (Ghana PPA, 2022; European Commission, 2023). Normative Pressures: Arise from professionalization, shared values, and ethical standards disseminated through education, networks, and certification bodies. Adherence to global norms like the UN SDGs or professional procurement standards frames ESC as a mark of credibility and ethical practice (Testa et al., 2020; Carter and Rogers, 2008). Mimetic Pressures: Occur in situations of uncertainty, where organizations imitate the practices of perceived successful or legitimate peers to reduce risk. Developing countries like Ghana may mimic frameworks from South Africa or the EU to navigate the complexity of sustainable procurement (Agyekum-Mensah and Knight, 2023). In the context of public

works procurement, institutional theory clarifies why procuring entities might integrate ESC even in the absence of immediate economic benefit. The drive is for social acceptability and alignment with the expectations of stakeholders, regulators, and the international community (Greenwood et al., 2022). Over time, repeated responses to these pressures lead to the institutionalization of ESC—embedding sustainability into core routines like tender documentation, lifecycle costing, and prequalification criteria until it becomes a "taken-for-granted" element of procurement (Silvius and Schipper, 2021). A critical synthesis reveals significant contrasts and gaps in applying institutional theory to ESC integration, particularly in resource-constrained settings: Efficiency vs. Legitimacy: The core contrast institutional theory highlights is between adoption for efficiency (practical, operational benefits) and adoption for legitimacy (symbolic, social acceptance). A university may adopt a sustainability policy more for its reputational alignment with global academia than for direct emissions reduction. In procurement, this manifests when ESC criteria are included in bids to satisfy donor conditions or legal checkboxes without the capacity or intent for rigorous enforcement. Substantive vs. Symbolic (Ceremonial) Compliance: This is the central critique and critical gap. Institutional theory explains why ESC is adopted but also warns that such adoption can be ceremonial or symbolic (Brammer and Walker, 2011). The mere presence of ESC in procurement documents does not guarantee substantive environmental outcomes. In contexts like Ghana, where enforcement capacity is weak and market maturity is low, there is a high risk that institutional responses result in "paper compliance." Contractors may provide generic environmental management plans, and evaluators may lack the expertise to assess them meaningfully, rendering ESC a legitimacy facade rather than a driver of change. The Contextual Gap in Isomorphism: The theory's mechanisms assume a certain level of institutional capacity. In advanced economies (e.g., Spain, Turkey), coercive pressures from "strict environmental laws" can lead to substantive institutionalization (Testa et al., 2016; Akcay, 2023). However, in settings like Ghana, coercive pressures may exist on paper (PPA guidelines) but lack the budgetary, human resource, and technical backing for effective implementation (Agyekum et al., 2025). Similarly, mimetic isomorphism can be problematic—blindly copying "best practices" from the EU without adapting them to local contractor capabilities and data availability can lead to impractical standards that are ignored or circumvented. Agency and Translation: A significant gap in a straightforward application of institutional theory is its tendency to portray organizations as passive conformers. The Ghanaian context requires attention to agency and translation. How do local procurement officers, contractors, and policymakers actively resist, adapt, or translate global ESC norms to fit local realities? For instance, simplifying ISO 14001 requirements into a feasible checklist or reframing the use of local, low-carbon materials as an innovative compliance strategy represents a form of "institutional work" that is crucial for moving from symbolism to substance.

Therefore, while Institutional Theory is indispensable for explaining the formal adoption and embedding of ESC into procurement systems, it must be critically coupled with Compliance Theory (to address enforcement and verification) and Stakeholder Theory (to ground legitimacy in local accountability, not just global norms)

3.2.2 Compliance Theory

Compliance Theory provides a fundamental framework for understanding the mechanisms that compel organizations to adhere to Environmental and Sustainability Compliance (ESC) within public procurement. It moves beyond the simple existence of rules to examine the motivations and conditions under which organizations choose to follow them. At its core, the theory analyzes the decision

calculus where actors weigh the perceived benefits of compliance against the net benefits of non-compliance, factoring in the probability and severity of sanctions (Sutinen and Kuperan, 1999; Becker, 1968). This calculus is driven by two primary, often overlapping, logics: Deterrence-Based (Coercive) Compliance: Compliance is motivated by the rational fear of penalties, audits, disqualification from bidding, or legal repercussions. This logic views sanctions as the primary policy tool (Becker, 1968) and is operationalized through mechanisms like mandatory ESC pre-qualifications, post-award audits, and penalty clauses for environmental breaches (Pautz and French, 2023). Normative (Social) Compliance: Compliance is driven by internalized values, ethical commitments, reputational concerns, or a desire for social legitimacy. Organizations comply not just to avoid punishment, but to align with professional ethics, build a reputable brand, and meet stakeholder expectations (Pautz and French, 2023; Celis, 2020). This is evidenced by voluntary pursuit of certifications (e.g., ISO 14001) or the development of corporate sustainability policies that exceed legal minimums.

In procurement, Compliance Theory explains how ESC can be operationalized. Public agencies leverage deterrence by codifying ESC into binding tender requirements and contract law (e.g., EU GPP, Ghana's PPA Act), making compliance a condition for market access. Simultaneously, they can foster normative compliance by designing evaluation criteria that reward demonstrable environmental stewardship (e.g., scoring extra points for verified carbon reduction plans), thereby encouraging contractors to internalize sustainability standards to gain a competitive edge. Effective integration, therefore, harnesses both the "stick" of penalty and the "carrot" of competitive advantage and reputational gain.

A critical synthesis reveals stark contrasts and significant limitations when applying Compliance Theory to ESC integration, especially in developing economies: Assumption of Effective Enforcement vs. Reality of Weak Capacity: The deterrence model assumes a functioning regulatory state with robust monitoring and enforcement capacity. This stands in stark contrast to the reality in many Sub-Saharan African contexts, including Ghana, where enforcement is often weak, under-resourced, and inconsistent (Agyekum-Mensah and Knight, 2023). Where the threat of sanction is not credible, deterrence-based compliance fails. This creates a critical gap: the theory explains what should work (strict enforcement) but offers little guidance for contexts where such enforcement is politically, financially, or technically infeasible. Economic Calculus vs. Social-Moral Drivers: The classic economic model of compliance (Sutinen and Kuperan, 1999) presents a rational, cost-benefit actor. This contrasts with the theory's own evolution, which acknowledges "moral duty" and "social influences." In practice, the gap lies in predicting which driver dominates. For a small or medium-sized contractor in Ghana, the immediate cost of implementing an environmental management system may far outweigh the low perceived risk of a penalty, making non-compliance rational. Compliance may only occur if normative drivers—like pressure from an international joint-venture partner or the desire to qualify for donor-funded projects—alter the benefit calculus. Formal Compliance vs. Substantive Environmental Outcomes: This is the most critical gap. Compliance Theory is adept at explaining procedural or formal compliance—the submission of the required certificates, plans, and documentation. It is much less effective at ensuring substantive compliance—the genuine, on-the-ground environmental performance that leads to real-world sustainability outcomes. This gap manifests as "box-ticking" or "greenwashing," where contractors meet the letter of the law (or tender requirement) but not its spirit. Without sophisticated, resource-intensive

verification (e.g., independent site audits, performance-based monitoring), compliance mechanisms can incentivize clever documentation over actual behavioral and operational change. Uniform Rules vs. Heterogeneous Capability: Traditional compliance approaches often apply uniform standards. This creates a mismatch in markets like Ghana's, which are characterized by a wide heterogeneity in contractor capability, with many SMEs lacking the resources to meet complex ESC requirements. Rigid application of compliance rules can inadvertently exclude local firms, consolidate the market for large (often foreign) players, and stifle the very market development needed for sustainable procurement. The theory lacks an inherent mechanism for graduated or capacity-sensitive compliance pathways.

Therefore, while Compliance Theory is essential for designing the rules and sanctions that form the backbone of ESC integration, its application in contexts like Ghana requires critical adaptation. The framework must move beyond a reliance on deterrence alone and explicitly address the enforcement capacity gap. This involves: Supplementing deterrence with strategic incentives (e.g., preferential scoring, access to green financing) that make compliance beneficial even in weak enforcement settings. Designing pragmatic, tiered verification systems that match evidence requirements to project value and contractor capability, moving from self-declaration for smaller projects to independent audits for larger ones. Linking compliance mechanisms to Institutional Theory to build the legitimacy and professional norms that support normative compliance, and to Stakeholder Theory to ensure the compliance regime is seen as legitimate and responsive to public, not just regulatory, accountability.

3.2.3 Stakeholder Theory

Stakeholder Theory fundamentally reorients the purpose of public procurement from one of narrow cost efficiency and shareholder (or taxpayer) value to the creation of long-term, multi-dimensional value for a broad constellation of affected parties (Freeman, 1984; Harrison et al., 2024). In this view, a procurement entity is accountable not only to its direct principals (e.g., government, funding bodies) but to all stakeholders who affect or are affected by its decisions. For public works, this explicitly includes local communities, environmental advocates, future generations, regulators, suppliers, and international donors—each with legitimate, albeit often competing, interests in environmental outcomes (Freeman et al., 2024; Preuss, 2009). The theory operates on two key, interrelated premises: Ethical/Responsibility Premise: Organizations have a moral obligation to consider stakeholder welfare. Strategic/Instrumental Premise: Meaningful stakeholder engagement fosters innovation, builds trust and social license to operate, enhances resilience, and ultimately contributes to long-term organizational success and value creation. Stakeholder Theory provides the crucial demand-side rationale for integrating ESC. It explains why procurement agencies might prioritize sustainability even when it appears to conflict with short-term cost minimization: they are responding to explicit or implicit pressure from a network of stakeholders whose legitimacy and support are essential (Mitchell et al., 2021). Embedding ESC into contractor evaluation—through life-cycle costing, low-carbon requirements, or community benefit clauses—is a direct institutional response to these demands (Harrison and Wicks, 2023). Furthermore, the theory prescribes engagement mechanisms (e.g., public consultations, participatory EIAs, multi-stakeholder forums) as tools to legitimate procurement processes, identify material sustainability issues, and drive suppliers to innovate solutions that address specific community or ecological concerns (Ruparathna and Hewage, 2015).

A critical synthesis reveals that while Stakeholder Theory offers a compelling normative vision, its application to ESC in practice, particularly in hierarchical or capacity-constrained contexts like Ghana, is fraught with contrasts and significant implementation gaps. Normative Idealism vs. Power-Laden Reality (The Salience Gap): The theory's ethical premise of considering "all affected parties" stands in stark contrast to the political reality of stakeholder salience and power imbalances (Mitchell et al., 1997). In Ghanaian public procurement, the stakeholders who possess power (e.g., political elites, Ministry of Finance), legitimacy (e.g., international donors like the World Bank), and urgency (e.g., political pressure for rapid project delivery) will dominate the definition of "value" and the priority of ESC. The interests of local communities, environmental NGOs, and future users—while theoretically salient—often lack formal channels of influence and may be marginalized, especially if they conflict with powerful economic or political imperatives (Carter and Rogers, 2008; Salmi et al., 2016). This creates a gap between the theory's inclusive ideal and the reality of whose "stake" actually counts in final procurement decisions. The Consultation vs. Influence Gap: Engagement mechanisms like public consultations are often promoted, but there is a critical gap between ritualistic consultation and meaningful influence. Stakeholders may be "engaged" through EIAs conducted after key design and contractor selection decisions are made, rendering their input peripheral. Without structured feedback loops ensuring that stakeholder concerns are demonstrably weighted in evaluation criteria, engagement risks becoming a symbolic legitimacy tool rather than a driver of substantive ESC integration. Strategic Value vs. Transaction Cost and Complexity: While the theory posits long-term strategic benefits (innovation, trust), the short-term transaction costs of inclusive, meaningful stakeholder engagement are high. It requires significant time, resources, facilitation skills, and conflict management capacity—all of which are often scarce in procurement departments in developing countries. The complexity of managing diverse, conflicting stakeholder demands (e.g., jobs vs. environmental protection) can lead to decision paralysis or the dilution of ESC into vague, unenforceable criteria. Demand Generation vs. Supply-Side Capacity Gap: Stakeholder Theory excels at explaining the demand for ESC but says little about the supply-side capacity to meet it. Intense stakeholder pressure for stringent environmental performance can lead to procurement criteria that exceed the capabilities of the local contractor market (especially SMEs). This can result in bid failure, increased costs, or the awarding of contracts to a small pool of large (often foreign) firms, undermining local economic development goals and potentially reducing the political legitimacy of the ESC agenda itself. Value Creation vs. Accountability Gap: The theory emphasizes creating long-term value but is inherently weak on enforcement. It underscores the need for transparency and reporting (UNEP, 2023) but lacks the coercive mechanisms of Compliance Theory to ensure that promised stakeholder value (e.g., pollution reduction, community benefits) is actually delivered by the selected contractor. Without robust, independent monitoring and consequences for non-delivery, stakeholder-centric ESC promises can remain just that—promises.

3.3 Interrelationship among the three theories for the integration of ESC into Evaluation of Contractors

The integration of ESC into contractor selection in public works procurement is best understood not through any single theoretical lens, but through the interactive and recursive relationship among Stakeholder Theory, Institutional Theory, and Compliance Theory, as shown in Figure 1. Each theory explains a distinct yet interdependent dimension of the process—why ESC is demanded, how it becomes embedded in systems, and what ensures its practical enforcement. Stakeholder Theory provides the ethical

and strategic rationale for ESC integration. It asserts that public procurement entities must respond to the sustainability expectations of a broad constellation of stakeholders—including international donors, regulatory agencies, civil society, future infrastructure users, and local communities (Freeman et al., 2024; Mitchell et al., 2021). In Ghana, salient stakeholders such as the Ministry of Finance, World Bank, or urban constituencies often exert pressure for climate-resilient or low-emission infrastructure. Their demands—grounded in legitimacy, power, and urgency—initiate policy reform and signal to procurement agencies that sustainability is a non-negotiable value. Without this stakeholder-driven impetus, ESC remains peripheral. Institutional Theory explains how stakeholder pressures are translated into enduring organizational practices. Through coercive pressures (e.g., Ghana's Public Procurement Act, PPA SPP Guidelines), normative pressures (e.g., alignment with SDGs, professional procurement standards), and mimetic isomorphism (e.g., emulating South Africa's or EU's green procurement models), ESC becomes institutionalized in policies, bid templates, and evaluation criteria (Greenwood et al., 2022; Agyekum et al., 2025). Over time, sustainability shifts from an "optional add-on" to a "taken-for-granted" component of procurement professionalism. However, this institutionalization risks ceremonial compliance if not backed by tools and capacity—highlighting the need for contextual adaptation rather than blind policy transfer. Compliance Theory addresses what ensures ESC is implemented in practice. It emphasizes that formal inclusion of ESC in tender documents is insufficient without monitoring, verification, and consequences (Pautz & French, 2023). Contractors comply not only to avoid sanctions (deterrence-based compliance) but also to access donor-funded projects, gain certifications (e.g., ISO 14001), or enhance reputation (strategic compliance). In Ghana's weak enforcement context, compliance often hinges on market incentives and tiered verification rather than punitive audits, underscoring the need for pragmatic, graduated mechanisms.

These three theories operate not as a linear sequence but as a continuously interacting and self-reinforcing system in which stakeholder, institutional, and compliance dynamics mutually shape ESC integration. Stakeholder demands—such as those from donors, communities, or civil society—often initiate institutional reforms by influencing policy revisions and procurement guidelines, which then define the scope and nature of compliance expectations for contractors. Compliance outcomes, whether positive (successful green project delivery) or negative (greenwashing or non-compliance scandals), subsequently feed back into stakeholder trust and future pressure, either reinforcing or undermining support for sustainability-oriented procurement. Institutional legitimacy is therefore not secured through the mere formal declaration of ESC but is continuously constructed and tested through substantive implementation and observable outcomes. For instance, a World Bank–funded road project in Ghana may generate stakeholder pressure that prompts the Public Procurement Authority to revise bid evaluation templates to include waste diversion targets. Contractors respond by submitting verifiable waste management plans as part of compliance requirements. When post-project audits confirm actual performance, the resulting success enhances donor confidence and legitimizes the expansion of ESC requirements to domestically funded projects, thereby closing the feedback loop and strengthening the overall system.

However, to advance from description to analytical utility, this paper now critically interrogates the explanatory limits, contextual tensions, and asymmetries among these theories within Ghana's public procurement ecosystem. The notion that stakeholder pressure → institutionalization → compliance → stakeholder satisfaction (and back again) risks circular reasoning if treated as a closed, self-reinforcing

loop. In reality, these mechanisms often pull in competing directions, especially in resource-constrained settings like Ghana. For instance, stakeholder demands for climate-resilient infrastructure (e.g., from civil society or development partners) may clash with institutional inertia (e.g., procurement officers trained only in cost-based evaluation) or compliance realities (e.g., lack of auditors to verify ESC claims). Rather than mutual reinforcement, what often occurs is selective activation: one pressure dominates while others are symbolically acknowledged but operationally sidelined.

Thus, the framework is refined to recognize that:
Stakeholder salience is hierarchical: Not all stakeholders wield equal influence (see Mitchell et al., 2021). In Ghana, political elites and finance ministries often outweigh community or environmental NGOs in procurement decisions (Ograh, 2021).

Institutional pressures are fragmented: Coercive mandates (e.g., PPA guidelines) may exist on paper but lack budgetary or human resource backing, rendering them inert (Agyekum et al., 2025).

Compliance is performative: In weak enforcement contexts, contractors may submit "greenwashed" documentation to meet formal criteria without substantive change (Brammer and Walker, 2011).

Therefore, the framework does not assume harmony among theories but instead anticipates friction, offering a basis to explore which mechanism prevails under specific conditions—a testable proposition for future empirical work.

Compliance theory's emphasis on sanctions assumes a functioning regulatory state—a condition often unmet in Ghana, where environmental enforcement capacity is limited (Muniru and Nani, 2025). In such contexts, deterrence alone is insufficient. Instead, normative and reputational drivers may be more potent: contractors comply to access donor-funded projects, gain certification for export markets, or build legitimacy with urban middle-class clients who value sustainability. This shifts the focus from fear of penalty to pursuit of opportunity—a nuance the framework now explicitly incorporates by distinguishing between coercive compliance (rule-driven) and strategic compliance (market-driven).

Institutional theory explains why Ghana adopts global SPP templates (e.g., from UNEP or the EU), but it risks uncritically endorsing policy transfer. Mimetic isomorphism may lead agencies to copy "best practices" ill-suited to local capacities—such as life-cycle costing tools requiring data systems that don't exist. This can produce ceremonial adoption without implementation (Brammer and Walker, 2011). However, recent work on institutional work (Lawrence and Suddaby, 2006) offers a corrective: it examines how local actors actively resist, adapt, or translate global norms. For example, Ghanaian procurement officers might simplify ISO 14001 requirements into checklists feasible for local contractors, or use "sustainability" to reframe traditional practices (e.g., local material sourcing) as compliant innovations. The framework thus moves beyond passive isomorphism to acknowledge agency and contextual translation as mechanisms of ESC integration.

Stakeholder theory's normative appeal—"consider all affected parties"—masks power imbalances in who gets heard. In Ghana's public procurement, salient stakeholders are often those with power, legitimacy, and urgency (Mitchell et al., 1997):

Powerful: Ministries of Finance, political appointees, large contractors.

Legitimate: International donors (e.g., World Bank), formal regulators (PPA).
Urgent: Taxpayers demanding infrastructure delivery speed.

By contrast, communities, future users, or environmental advocates—though theoretically salient—often lack institutional channels to influence tender evaluation. Their "voice" may be confined to Environmental Impact Assessments (EIAs), which are frequently completed after contractor selection. The framework therefore introduces a critical filter: whose sustainability values are embedded in ESC criteria? It cautions against assuming inclusivity and instead invites empirical scrutiny of stakeholder exclusion.

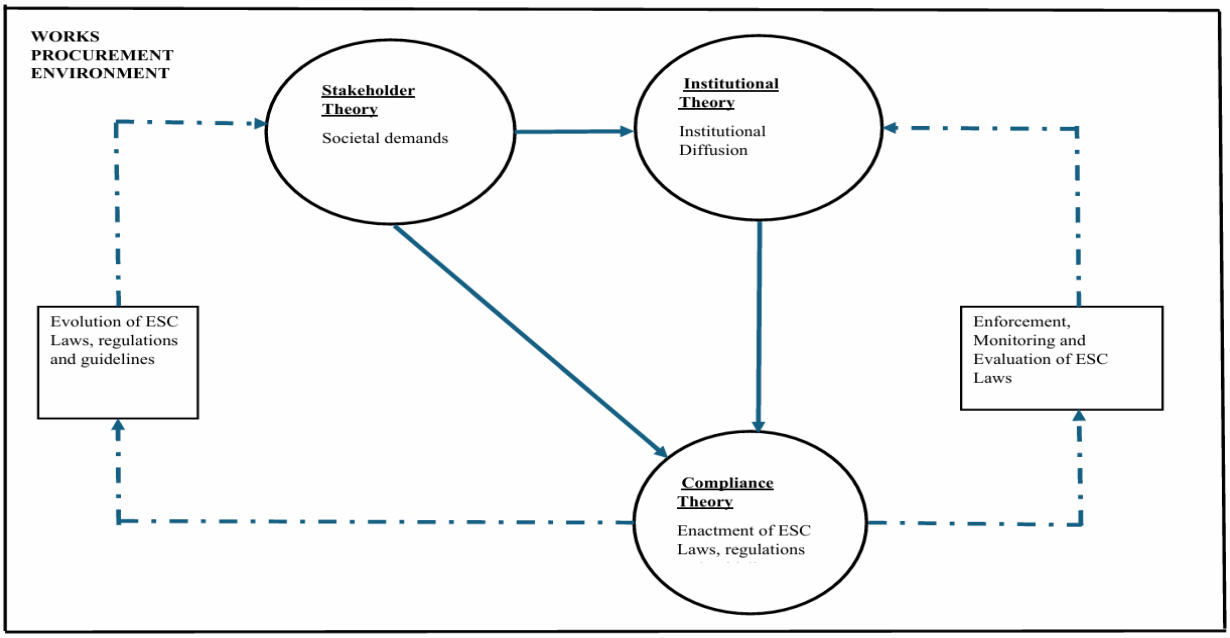

Figure 1: Conceptual Framework for Interrelationship among the three theories for the Integration of ESC into Evaluation of Contractors

Source: Author's Construct, (2026).

3.4 Mutual Reinforcement of Stakeholder, Institutional, and Compliance theories in the Integration of ESC during Contractor Selection

The integration of ESC into evaluation for contractor selection is not explained by a single theory in isolation. Rather, it is the synergistic interaction of the three theories that offers a comprehensive understanding, as shown in Figure 2. During evaluation for contractor selection in public works procurement, stakeholder theory, institutional theory, and compliance theory interact in a complementary and reinforcing manner: Stakeholder pressures, such as demands from citizens, NGOs, or development partners, initiate policy reforms that prioritize ESC in works procurement. These reforms are then institutionalized through official procurement guidelines, regulations, and standard operating procedures. Finally, compliance mechanisms, such as mandatory inclusion of environmental criteria in tender documents or Requirements for ISO 14001 certification, are applied to assess and select contractors. In

other words, stakeholder theory clarifies the rationale for ESC and identifies whose interests must be addressed. Institutional theory however, explains how these sustainability expectations become embedded in procurement systems through formal rules and norms. And lastly, compliance theory ensures that these embedded norms are upheld in actual practice. For instance, a government agency may require bidders to provide evidence of the environmental management systems (a compliance measure), in line with procurement policies that were reformed due to growing public demand for climate-resilient infrastructure (a stakeholder influence), and now codified within national institutional frameworks (Ho et al., 2022; Agyekum-Mensah and Knight, 2023). Together, these theories form a coercive framework that supports an environmentally responsible, accountable and value-driven procurement process within the public sector.

Figure 2: Conceptual Framework for Mutual Reinforcement of Pressures among the three theories for the integration of ESC into Evaluation of Contractors

Source: Author's Construct, (2026).

3.5 Conceptual Framework for Integrating ESC into Tender Evaluation for Qualification

Literature indicates that most public institutions are unable to integrate ESC into evaluation for contractor selection because of organizational constraints, process-related limitations and contextual challenges. The

model in Figure 3 presents ESC Integration as the outcome of three interacting theoretical mechanisms, the traction of which is dependent on specific Contextual Moderators.

While the conceptual framework is informed by global literature, its relevance to Ghana—and other resource-constrained public procurement systems—depends on grounding theoretical insights in the country's unique institutional, political, and socio-economic realities. Ghana's public procurement ecosystem is shaped by a confluence of factors that intensify the generic barriers identified in the literature. First, market immaturity is not merely a supply-side issue but reflects a fragmented construction sector dominated by small- and medium-sized enterprises (SMEs) with limited access to green financing, certification infrastructure (e.g., ISO 14001 auditors), or technical capacity to document environmental performance (Ograh, 2021; Agyekum et al., 2025). Second, regulatory fragmentation arises from overlapping mandates between the Public Procurement Authority (PPA), Environmental Protection Agency (EPA), and Ministry of Works and Housing, often resulting in weak enforcement even when ESC criteria are included in bid documents (Muniru and Nani, 2025). Third, cultural perceptions of sustainability frequently associate it with "Western impositions" or elite environmentalism, which can undermine grassroots legitimacy—especially when immediate infrastructure needs (e.g., roads, schools) are prioritized over long-term ecological concerns (Ayarkwa et al., 2021). These dynamics mean that ESC integration cannot rely on imported templates; it must be calibrated to Ghana's institutional capabilities, political economy, and socio-technical constraints.

To bridge the gap between theory and practice, the proposed framework moves beyond abstract conceptualization to offer actionable guidance for procurement officers. While full standardization of environmental sustainability compliance (ESC) is beyond the scope of this conceptual paper, the framework advances illustrative, context-sensitive ESC metrics that align with Ghana's existing legal and policy architecture, including the Public Procurement Authority's Sustainable Public Procurement (SPP) Guidelines, the Environmental Protection Agency Act, 2025 (Act 1124)- specifically the Environmental Assessment Regulations, 2025 (L.I. 2504) which repealed Environmental Assessment Regulation, 1999 (L.I. 1652), and the National Climate Change Policy. Grounding ESC within these established instruments enhances policy coherence and improves the likelihood of practical uptake by public procuring entities.

Within this framework, contractor evaluation incorporates a limited but meaningful set of ESC metrics designed to be both measurable and feasible under prevailing institutional constraints. These include carbon performance, assessed through baseline estimates of projected CO_2 emissions across project phases using simplified national emission factors; waste management effectiveness, measured by the proportion of construction waste diverted from landfill through reuse or recycling and verified via waste tracking logs; and sustainable material sourcing, with preference given to locally sourced and certified inputs such as timber approved by the Ghana Forestry Commission. Additional criteria capture social and ecological dimensions, including evidence of labor and community impact management through engagement plans, grievance redress mechanisms, and local hiring targets, as well as biodiversity protection through the submission of site-specific mitigation plans for projects located near protected areas or sensitive water bodies.

To ensure that ESC meaningfully influence procurement outcomes without excluding the majority of contractors who may lack advanced green capabilities, the framework proposes a balanced scorecard

weighting system. Under this approach, environmental performance accounts for approximately 10–25% of the total technical evaluation score, complementing rather than displacing traditional criteria such as cost (50–60%) and quality and safety considerations (around 20%). This proportional weighting preserves competitiveness and value-for-money objectives while embedding sustainability as a consequential, rather than symbolic, component of contractor selection.

Recognizing Ghana's limited auditing and monitoring capacity, the framework advocates for pragmatic verification mechanisms anchored in a tiered evidence system. At the basic level (Tier 1), contractors submit self-declarations supported by references from past projects. The intermediate level (Tier 2) requires third-party documentation, such as EPA environmental permits or Energy Commission approvals. The advanced level (Tier 3) involves verified environmental management plans supported by digital monitoring tools, including drone-based site audits or integration with e-procurement platforms. This graduated system encourages continuous improvement by rewarding higher levels of compliance without imposing unattainable standards at the outset.

The framework further acknowledges that ESC integration involves real and unavoidable trade-offs, particularly in a context characterized by fiscal austerity, infrastructure backlogs, and capacity limitations. In the short term, procurement costs may increase due to the use of greener materials or expanded compliance documentation, and the pool of eligible bidders may initially narrow. However, these risks can be mitigated through a carefully sequenced implementation pathway that balances ambition with feasibility.

This pathway begins with a pilot phase, in which ESC are applied selectively to high-visibility, donor-funded, or climate-vulnerable projects—such as coastal or flood-prone infrastructure—where long-term resilience benefits justify higher upfront investments. This is followed by a capacity-building phase that emphasizes training for procurement officers and contractors, delivered in partnership with institutions such as the Ghana Institute of Procurement and Supply (GIPS), focusing on ESC documentation, life-cycle costing, and simplified life-cycle assessment tools. The institutionalization phase embeds mandatory but flexible ESC indicators into the Public Procurement Authority's standard bidding documents, supported by a "green score" dashboard to enable performance tracking and benchmarking. Finally, a market development phase supports the growth of local green supply chains through supplier development programs, access to green microfinance, and symbolic incentives such as recognition awards for high-performing contractors.

Overall, this incremental and adaptive approach respects Ghana's fiscal, institutional, and market realities while building momentum for systemic transformation. It underscores that ESC integration in public procurement is not merely a technical exercise but a socio-institutional process that depends on political will, stakeholder alignment, learning mechanisms, and sustained policy commitment.

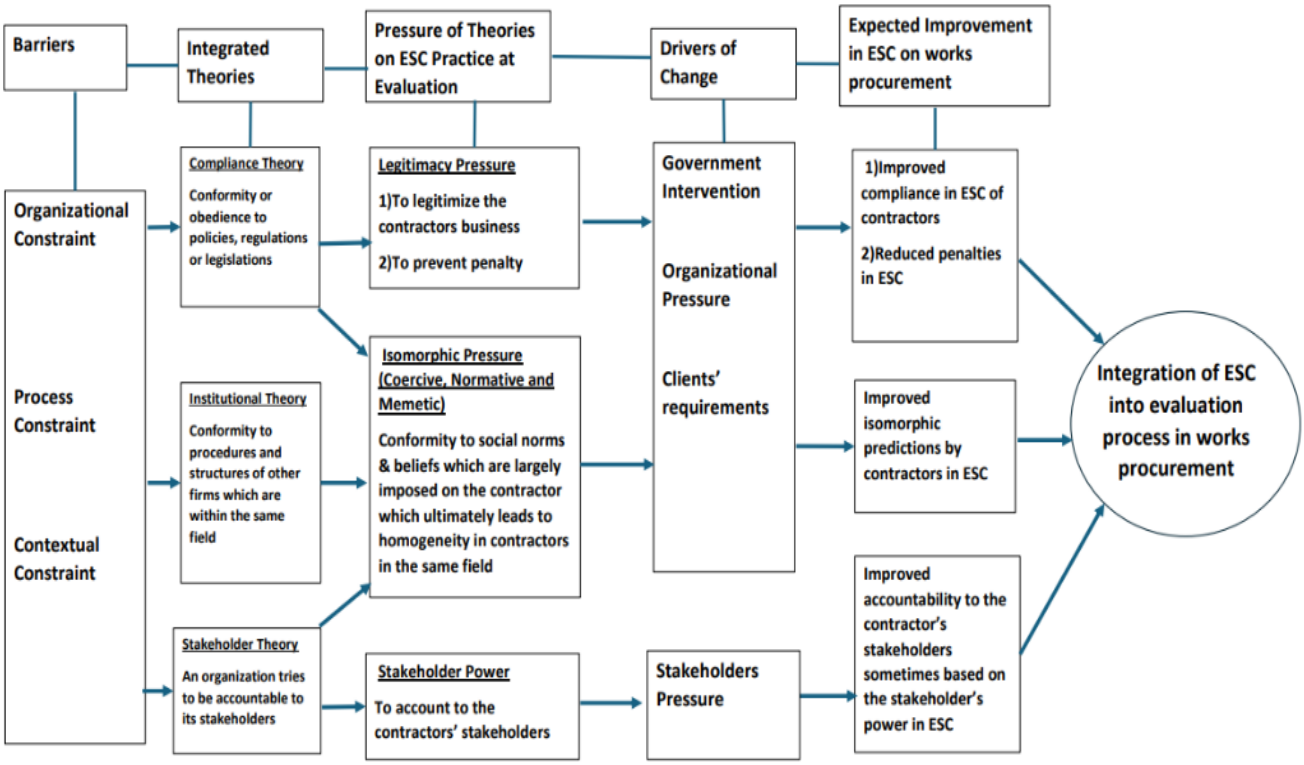

Figure 3: Conceptual Framework Integrating ESC into Evaluation Process in works Procurement
Source: Author's Construct, (2026)

3.5.1 Core Theoretical Mechanisms and Their Conditional Pathways

Stakeholder Pressure: This initiates the process, creating the demand for ESC. However, its translation into action is not automatic. The model specifies that stakeholder influence is hierarchically filtered (Mitchell et al., 2021). Only the interests of stakeholders possessing sufficient Power, Legitimacy, and Urgency—often political elites, finance ministries, and international donors in the Ghanaian context—are likely to be encoded into formal policy.

Institutional Response: This mechanism translates filtered stakeholder demands into formal structures. The pathway is conditional: If political will and policy coherence are high, then mimetic isomorphism (adopting global standards) and normative pressures lead to the formal institutionalization of ESC in policies, guidelines, and tender templates (e.g., Ghana PPA SPP Guidelines). However, without adequate budgetary and human resource allocation, this remains "paper compliance."

Compliance Realization: This mechanism determines whether formal rules manifest in practice. The critical condition is enforcement capacity and market maturity. If enforcement capacity is strong, deterrence works, leading to substantive compliance. If enforcement is weak but market/donor incentives are strong, the model predicts strategic compliance, where contractors comply to access opportunities, risking performative "greenwashing." If both are weak, non-compliance or ceremonial adoption prevails.

3.5.2 Key Contextual Moderators

The effectiveness with which environmental sustainability compliance (ESC) move from policy intent to practical implementation is shaped by several key contextual moderators. Foremost among these is

enforcement capacity, which reflects the state's ability to monitor, audit, and sanction non-compliance. As Agyekum et al. (2025) argue, weak enforcement systems often create a disconnect between formal rules and actual practice, making enforcement capacity a primary moderator of the policy–practice relationship. Where enforcement is robust, organizations are more likely to internalize ESC requirements, whereas weak oversight encourages symbolic or selective compliance. Closely related is political will and policy coherence, which determine the extent to which sustainability objectives are genuinely prioritized within public procurement systems. Strong political commitment ensures that sustainability policies are aligned with budgetary allocations, institutional mandates, and administrative procedures. In contrast, fragmented or inconsistent policies undermine implementation by sending mixed signals to procurement actors, thereby weakening the translation of ESC from strategic documents into operational decisions.

Donor dependence and market incentives further moderate ESC implementation, particularly in contexts where state enforcement is limited. External funding mechanisms, donor conditionalities, or commercial incentives can stimulate ESC adoption by rewarding compliance or innovation. However, in the absence of strong regulatory oversight, these drivers may also foster strategic or performative compliance, where organizations adopt sustainability language or minimal actions primarily to secure funding or reputational benefits rather than to achieve substantive environmental outcomes. Finally, contractor capability and market maturity influence whether ESC can be meaningfully applied in supplier selection. The availability of firms with the technical expertise, financial capacity, and verification systems required to meet sustainability standards is critical. As noted by Ograh (2021), underdeveloped markets constrain procuring entities' ability to enforce ESC, often forcing trade-offs between sustainability ambitions and project feasibility. Thus, market readiness conditions the strength of the relationship between ESC requirements and actual contractor selection.

The model explicitly distinguishes between formal and substantive integration of environmental sustainability compliance. Formal ESC integration refers to the inclusion of sustainability requirements in procurement policies, tender documents, and evaluation frameworks. This dimension is largely driven by institutional pressures, where organizations adopt ESC to signal conformity with global norms, regulatory expectations, or donor requirements, consistent with Institutional Theory.

Substantive ESC integration, by contrast, occurs when contractors are genuinely selected and evaluated based on verified environmental performance, leading to measurable sustainability outcomes. This form of integration is driven not merely by institutional conformity but by effective compliance mechanisms, credible enforcement, and active stakeholder engagement. The distinction highlights that the presence of ESC in procurement documents does not automatically translate into environmentally responsible outcomes, underscoring the importance of implementation capacity and accountability structures.

The model further incorporates feedback loops that enable learning and adaptive management. Both substantive outcomes (such as improved environmental performance) and performative outcomes (such as symbolic compliance or reputational gains) generate feedback that shapes stakeholder perceptions, institutional expectations, and policy legitimacy. Over time, these feedback effects influence regulatory reforms, capacity-building initiatives, and the refinement of compliance strategies.

Through these iterative feedback processes, procurement systems can evolve, allowing lessons from implementation successes and failures to inform future policy design and enforcement approaches. This dynamic perspective emphasizes that ESC integration is not a one-off policy intervention but a continuous learning process shaped by context, capability, and institutional change.

This model generates specific, researchable hypotheses:

P1: Stakeholder Influence on ESC Policy Formation

In Ghanaian public works procurement, ESC criteria are more likely to be formally included in tender documents when the stakeholder's driving sustainability demands possess high levels of power, legitimacy, and urgency (e.g., international donors, finance ministries) than when demands originate from low-salience stakeholders (e.g., local communities or environmental NGOs).

P2: Enforcement Capacity and Compliance Quality

In contexts of weak enforcement capacity (e.g., limited auditing staff or technical resources), the inclusion of ESC criteria in procurement documentation leads primarily to performative or strategic compliance (e.g., greenwashed bids) rather than substantive environmental performance improvements by contractors.

P3: Moderating Role of Donor Dependence

The positive relationship between institutional ESC mandates (e.g., PPA SPP Guidelines) and substantive contractor compliance is stronger in donor-funded projects than in domestically funded projects, due to heightened accountability and monitoring mechanisms in the former.

P4: Market Maturity as a Boundary Condition

Procuring entities in regions with higher green market maturity (e.g., greater availability of ISO 14001-certified contractors and sustainable materials) are more likely to apply stringent ESC evaluation criteria and receive compliant bids, whereas entities in immature markets either dilute ESC requirements or experience bid failure.

P5: Tiered Verification and Compliance Behavior

The adoption of a tiered ESC verification system (e.g., self-declaration → third-party certification → digital monitoring) is positively associated with contractors' progression toward higher levels of environmental management capability over successive bidding cycles.

P6: Political Will vs. Policy-Implementation Gap

Even when ESC policies are formally institutionalized (e.g., through PPA guidelines), the gap between formal inclusion and substantive integration in contractor selection narrows only when political will is accompanied by dedicated budgetary allocations and human resource capacity for sustainability tasks.

P7: Feedback Loops and Learning

Procurement agencies that conduct post-project environmental performance evaluations and publicly report outcomes are more likely to refine and strengthen ESC criteria in subsequent tenders, demonstrating organizational learning and adaptive management.

P8: Trade-off Management and Bidder Pool Dynamics
Assigning 10–25% weighting to ESC criteria in technical evaluations maintains competitive bidder pools in Ghana's construction sector, whereas weights ≥40% significantly reduce the number of qualified bidders—unless accompanied by parallel capacity-building interventions for local contractors.

Conclusion

This study highlights a critical gap in the integration of ESC into the evaluation phase of contractor selection in public works procurement. Despite growing global commitments to sustainability, limited research, particularly theoretical, exists on how ESC can be effectively embedded in procurement practices (Ayarkwah et al., 2021; Ograh et al., 2022). By applying compliance theory, institutional theory, and stakeholder theory, this paper provides a comprehensive framework for understanding the multifaceted challenges and drivers of ESC integration. The review lays the groundwork for empirical investigations into factors influencing ESC integration, offering a theoretical lens to explore organizational, process-related, and contextual barriers. Proper management of organizational constraints focuses on entrenched emphasis on cost savings as the main measure of success, as well as lack of dedicated personnel and financial resources, insufficient training and communication, the absence of environmental sustainability performance-linked indicators, and limited internal capacity to prioritize environmental goals. Process-related limitations involve inadequate evaluation tools, insufficient data systems, a lack of clear implementation guidelines, limited post-project evaluations, and competing project priorities. Contextual challenges include limited supply chain traceability and transparency, limited understanding of ESC co-benefits, rapid technological shifts, regulatory fragmentation, market immaturity, and cultural perceptions of sustainability. Addressing these challenges is essential in building internal capacity, improving transparency, and enhancing decision-making in public procurement. A conceptual model presented in this paper illustrates how the interplay of the three theories can guide the effective incorporation of ESC into contractor evaluation. The model not only explains existing obstacles but also points to strategic areas for reform and improvement. Given the increasing public and policy emphasis on sustainability, it is imperative that leaders actively champion the integration of ESC into procurement evaluations for contractor selection. Doing so will support the achievement of the integration of sustainability in the fields of environmental, infrastructural and human settlements, which will yield substantial benefits for all stakeholders, including advancing existing policy objectives related to Sustainable Development Goals (SDGs).

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