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Why Environmental Governance Struggles to Transform: A Business Governance Perspective on Credibility-Scaling-Resilience across Firms

Mubanga Lackson Chipimo

School of Postgraduate Studies, University of Lusaka, Zambia. ORCID: 0009-0006-5656-6160. Email: chipimomubanga@gmail.com

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Abstract

The scope and ambition of environmental governance has grown, but with a variable ability to deliver credible and enduring environmental improvement. This theory-building review analyses environmental governance through the Credibility-Scaling-Resilience framework, through the governance dilemmas that are enacted through firms and industries that translate regulatory expectations into practice. Drawing on fifteen empirical studies from Asia, Africa, Latin America, and emerging Europe, the review uses PRISMA-guided procedures combined with insights from institutional theory, stakeholder theory, legitimacy theory, and the resource-based view. The findings reveal that governance credibility is driven by firms' perceptions of enforcement consistency and stakeholder scrutiny, scaling by the extent to which practices are diffused across industries and value chains, and resilience by organizational capabilities that allow them to sustain environmental commitments when facing economic or institutional adversity. Firms are prone to respond symbolically and opportunistically when these governance dynamics are misaligned; but when they are reinforcing, more substantive forms of environmental practice are likely to emerge. The review extends the framework by grounding it in firm and industry-level governance dynamics, and offers insights for policymakers, regulators, industry associations, and corporate decision-makers who wish to improve their environmental governance performance.

Keywords: environmental governance; credibility–scaling–resilience framework; firm-level governance; institutional theory, polycentric governance

1. Introduction

Environmental governance has become a central arena in which contemporary societies negotiate the tensions between ecological protection, economic activity, and political authority. As ecological pressures intensify—including climate change, biodiversity loss, and resource degradation—governments, firms, and civil society actors increasingly confront the limits of traditional regulatory models. Environmental problems are ecological in origin, but their causes and solutions are fundamentally social, institutional, and political. The ways societies organise authority, negotiate competing interests, and construct legitimacy therefore play a central role in shaping sustainability outcomes. These questions lie at the heart of environmental sociology, which examines how institutions, actors, and power relations interact under conditions of ecological risk and uncertainty.

Over the past 20 years, governance innovation has proliferated worldwide from the corporate level, through sectoral and national governance, to global governance. Corporate responsibility mechanisms, such as ISO 14001, Corporate Social Responsibility (CSR), and more recently, Environmental, Social and Governance (ESG) criteria (Ijomah et al., 2024), have transformed norms relating to private sector responsibility for environmental

stewardship. Fiscal and financial tools, such as environmental taxation, eco-levies, and green finance tools, have been established to help internalize externalities and incentivize sustainable investment (Sapiri, 2025; Naeem et al., 2025). Analytical tools, such as ecological footprint methodologies (Wu et al., 2025), neighbourhood sustainability ratings (Ramiller, 2018), and urban low-carbon policy guidance (Mu & Zou, 2025) have been developed to help render environmental performance more visible and calculable. While these examples point to a growing sophistication of governance tools, they also highlight a continuation of implementation geographies that are characterized by unevenness, institutional fragility and vulnerability to economic or political disruption (Leung et al., 2025; Cashore et al., 2024; Schoneveld, 2015).

Theoretically, these changes have been informed by several perspectives. Institutional theory has revealed how officially enforced and informal rules structure organisational behaviour, offer legitimacy and delineate the boundaries of compliance (North, 1990; Ostrom, 2005). Sustainability transition theory has shown how niche innovations interact with incumbent regimes and a broader socio-technical landscape (Geels, 2011; Shao, 2024). Polycentric governance perspectives have shown how authority is dispersed over multiple centres of decision-making and the coordination challenges this raises (Ostrom, 2010; Jordan et al., 2018). Political economy perspectives have shown structural limitations to fiscal capacity, macroeconomic cycles or distributional conflicts (Meadowcroft, 2011; Leung et al., 2025). Yet, for all these advances, the field remains fragmented, lacking both theoretical integration across these traditions and ultimately limited to explain why governance innovations have repeatedly produced outcomes that are so uneven and fragile.

While there have been considerable efforts to experiment with new governance institutions, instruments and models, these invariably produce inconsistent environmental governance outcomes. Many have been observed to primarily produce symbolic outcomes without substantive behavioural change (Ijomah et al., 2024); generate strong localised impacts, but fail to diffuse or scale across systems, as seen in community forestry, agricultural land governance and urban sustainability (Schoneveld, 2015; Riyadi & Rhamadan, 2025; Samnakay, 2021); or collapse or degenerate in times of fiscal crisis, political instability or shifting macroeconomic priorities (Leung et al., 2025; Adams, 2024). Such patterns may imply the existence of deeper structural dilemmas embedded within governance system dilemmas that mediate institutional performance across contexts, irrespective of the context and scale within which they feature.

Much of the existing scholarship explains these uneven outcomes by focusing on governance design, regulatory capacity, and institutional coherence at the system level (Ostrom, 2010; Meadowcroft, 2011). While these analyses offer valuable insights into governance architectures, they often treat firms as passive recipients of external rules and norms. This assumption obscures the organisational processes through which governance signals are interpreted, prioritised, and enacted. Empirical research increasingly shows that firms operating under similar regulatory and stakeholder environments frequently exhibit divergent environmental behaviours, suggesting that governance effects are mediated within organisations rather than transmitted mechanically from policy to practice (Delmas & Toffel, 2008; Aguilera et al., 2007). This review addresses this gap by advancing the Credibility–Scaling–Resilience framework as a diagnostic lens for understanding why environmental governance struggles to generate durable outcomes, while explicitly grounding the framework in firm- and industry-level governance realities. Credibility refers to the perceived consistency and enforceability of governance rules; scaling captures the diffusion and normalisation of environmental practices beyond early adopters; and resilience reflects the durability of such practices over time and under pressure. Although these dimensions are often discussed as system-level properties, they are ultimately experienced and enacted through organisational decision-making, sectoral norms, and value-chain relationships (Bansal & Roth, 2000; Christmann, 2004; Gereffi et al., 2005).

Firms play a central role in translating governance pressures into environmental action because internal governance structures, managerial incentives, and organisational capabilities shape how external demands are interpreted and implemented. Board oversight, leadership commitment, compliance systems, and financial slack influence whether firms invest in substantive environmental practices or adopt symbolic responses aimed at legitimacy preservation (Meyer & Rowan, 1977; Bansal & DesJardine, 2014; Jamali et al., 2017). At the same time, industry characteristics and value-chain governance arrangements condition exposure to regulatory scrutiny and stakeholder pressure, further shaping the prospects for scaling and

sustaining environmental practices across firms (Gereffi et al., 2005; Ponte, 2019). Drawing on a theory-building review of empirical studies from emerging market contexts published between 2000 and 9 September 2025, this review retains the Credibility-Scaling-Resilience framework as its core theoretical contribution while extending its explanatory reach by anchoring credibility, scaling, and resilience in business governance. By linking system-level governance dilemmas to firm-level behaviour and industry dynamics, the study explains why environmental governance initiatives often yield symbolic compliance in some contexts and substantive transformation in others. In doing so, the review contributes to environmental governance and management scholarship by offering a more grounded account of governance outcomes and by outlining implications for policymakers, regulators, industry associations, and corporate decision-makers seeking to strengthen environmental governance effectiveness.

This review also aims to facilitate conceptual understanding on how environmental governance regimes enable three interrelated capacities, (i) policy credibility, (ii) institutional scaling and (iii) fiscal resilience. These three capacities enabled by multiple governance domains determine whether environmental policies can translate beyond hollow promises, scale up across levels and sectors and weather economic or political disruptions. To do so, the review draws on evidence from institutional theory, sustainability transitions, polycentric governance and political-economy perspectives. The review employs a theory-building systematic review design rather than a more exhaustive evidence-mapping or meta-analytic approach. In contrast to systematic reviews that seek to quantify effect sizes or prevalence, theory-building reviews seek to maximise explanatory depth, conceptual integration, and mechanism identification (Tranfield et al., 2003; Dixon-Woods et al., 2005). The purpose of this review is therefore not to provide a statistically representative account of the environmental governance literature, but to synthesise theoretically influential studies that elucidate how and why governance systems succeed or fail to generate durable sustainability outcomes. Study selection was guided by theoretical relevance, explanatory leverage, and conceptual saturation rather than numerical completeness. As such, the review emphasises analytical richness and cross-contextual insight, consistent with established theory-generative review strategies in interdisciplinary governance and policy research.

2. Theoretical Framework

The effectiveness of environmental governance is contingent on the interplay of policy frameworks, institutional incentives and fiscal structures that shape pathways to sustainability. Environmental problems are inherently ecological, but their solutions are fundamentally economic and institutional – matters of credibility, investment and policy coordination. This section draws together four complementary theoretical perspectives that together provide explanations for why governance systems emerge, evolve and perform in particular contexts: institutional theory, sustainability transition theory, polycentric governance theory and political economy perspectives. Each theoretical lens highlights different contributing mechanisms that impact the credibility, scaling and durability of governance systems.

2.1. Institutional Theory: Rules, Norms, and Legitimacy

Institutional theory highlights the way that institutions – formal and informal rules – shape organisational and policy behaviour. In the environmental context, ISO 14001, Corporate Social Responsibility (CSR) standards and the Environmental, Social and Governance (ESG) framework demonstrate the evolving governance mechanisms that have emerged in response to regulation and societal demands (Ijomah et al., 2024). Institutional rules provide organisations with incentives to engage with sustainability issues that also signal tensions between symbolic compliance and substantive change.

2.2. Sustainability Transition Theory: System Change and Innovation Diffusion

Sustainability transition theory gives useful insights into how large socio-technical system shift onto more sustainable trajectories. Transition theory draws attention to interactions, feedback loops and tensions between niche innovations, dominant regimes and surrounding landscapes over time, in ways that can highlight how governance reforms create windows of opportunity for experimentation that are transformed, eventually, into system transformations. In China, for example, ecological footprint pressures and effective

governance has been a relatively effective 'landscape' incubator and catalyst for renewable energy roll out, buy equally entrenched growth-oriented regimes of production, consumption and supply continue to block wider system transitions (Wu et al., 2025).

2.3. Polycentric Governance Theory: Multi-Level Coordination and Collective Action

Polycentric governance theory situates multi-level environmental governance. According to this theory, sustainability outcomes are better achieved from decision-making authority being dispersed across centres of governance (polycentric) than concentrated in a single centre with clear hierarchical lines of authority (monocentric). Evidence from agricultural investment landscapes in Ethiopia and Nigeria illustrate that interaction between a variety of actors, including local communities, state authorities and international investors, can provide for both more inclusive governance as well as more contested governance, depending on institutional arrangements designed (Schoneveld, 2015). Evidence from urban sustainability programming similarly illustrates both the transformative potential and challenge of polycentric arrangements, in that urban sustainability interventions necessitate governance be shared between municipal authorities, developers and civil society.

2.4. Political Economy Perspectives: Fiscal Capacity and Structural Constraints

Finally, political economy perspectives emphasise the structural role of finance and macroeconomic stability in enabling or undermining governance outcomes. Leung et al. (2025) attest that economic crises undermine ESG performance globally, and with the most acute impacts in developing countries with weak fiscal capacity. Sapiri (2025) finds that environmental taxation can be an important lever to internalise externalities and facilitate just and sustainable transitions, but its effectiveness hinges on specific institutional design and distributive equity. These approaches caution against studying governance innovations apart from the financial and economic systems that mediate their viability and durability.

2.5. Integrating the Theoretical Perspectives

These four perspectives offered on their own provide individual building blocks of explanation, but together they offer a holistic framework for analysing how institutions are formed and shaped in response to economic and policy dynamics. Institutional theory highlights the importance of credible rules; transition theory clarifies how innovations spread; polycentric theory shows the coordination mechanisms required for scaling; political economy theory illustrates the fiscal basis of resilience. Combining these perspectives allows a dynamic vision of environmental governance to emerge as a co-evolutionary system through economic, political and institutional feedbacks. Within this synthesis, credibility provides for governance commitments to be genuine and enforceable; scaling for practices to be shared effectively; and resilience for environmental and fiscal priorities to persist in times of crisis. The interplay among these elements in part determines whether governance innovations achieve transitory compliance or lasting sustainability outcomes. This integrative framework forms the conceptual basis for the systematic review and theory-building synthesis that follows.

2.6. The Credibility–Scaling–Resilience Framework

Environmental governance scholarship has long recognised that the effectiveness of governance arrangements depends not only on formal policy design, but also on how rules, incentives, and expectations are interpreted and enacted in practice (Ostrom, 2010; Meadowcroft, 2011). Building on this insight, the Credibility–Scaling–Resilience framework conceptualises environmental governance outcomes as the product of three interrelated dimensions: credibility, scaling, and resilience. Together, these dimensions explain why environmental governance initiatives often struggle to deliver durable transformation, even where regulatory ambition is high. While the framework is frequently discussed at the system level, this study emphasises that its dynamics are ultimately realised through firms and industries, where governance pressures are translated into organisational decisions and sectoral practices. In this sense, the framework does not replace existing institutional or stakeholder-based explanations, but integrates them by clarifying how governance dilemmas materialise in concrete organisational contexts.

2.7. Credibility: Governance Signals as Experienced by Firms

Credibility refers to the extent to which environmental governance rules and expectations are perceived as consistent, enforceable, and consequential by regulated actors. Prior research shows that firms respond more substantively to governance regimes they perceive as credible—where enforcement is predictable, sanctions are meaningful, and reputational risks are salient (Delmas & Toffel, 2008; Marquis et al., 2016). Conversely, when enforcement is inconsistent or symbolic, firms are more likely to decouple formal compliance from actual practice (Meyer & Rowan, 1977). Importantly, credibility is not an abstract institutional property; it is experienced at the firm level. Boards, managers, and compliance officers assess credibility through inspection practices, litigation risk, buyer requirements, and media scrutiny. These perceptions shape whether environmental commitments are treated as strategic priorities or as box-ticking exercises designed to maintain legitimacy (Aguilera et al., 2007; Christmann, 2004).

2.8. Scaling: Diffusion across Firms, Industries, and Value Chains

Scaling captures the extent to which environmental practices diffuse beyond early adopters and become normalised across firms and industries. Governance initiatives often succeed in generating pilot projects or isolated corporate leaders but fail to scale across sectors or value chains (Auld et al., 2008). The framework highlights scaling as a distinct governance challenge, shaped by coordination costs, competitive pressures, and uneven capabilities across firms. From a business governance perspective, scaling occurs through industry norms, peer imitation, and supply-chain governance mechanisms. Industry associations, certification schemes, and buyer standards play a critical role in translating governance expectations into widely adopted practices (Gereffi et al., 2005; Ponte, 2019). Where such mechanisms are weak or fragmented, environmental practices remain confined to a subset of firms, limiting their systemic impact.

2.9. Resilience: Sustaining Environmental Practices over Time

Resilience refers to the durability of environmental practices once they have been adopted. Even where credibility and scaling are initially achieved, governance outcomes may erode over time due to economic shocks, leadership turnover, or shifting regulatory priorities (Bansal & DesJardine, 2014). The framework therefore treats resilience as a separate dimension, concerned with the capacity of firms and industries to sustain environmental commitments under pressure. At the firm level, resilience is shaped by organisational capabilities, including financial slack, learning capacity, and the embedding of environmental practices into core governance routines (Christmann, 2004; Jamali et al., 2017). At the industry level, resilience is influenced by market stability, long-term contracting, and the persistence of sectoral norms. Without such supports, environmental practices are vulnerable to reversal, even in the presence of formal governance frameworks.

2.10. Integrating Credibility-Scaling-Resilience Framework through Business Governance

Taken together, the framework explains environmental governance outcomes as the interaction of governance credibility, the ability to scale practices across firms and industries, and the resilience of those practices over time. This study advances the framework by explicitly linking these dimensions to business governance mechanisms, positioning firms and industries as the primary sites where governance dilemmas are resolved or reproduced. By anchoring the framework in organisational and sectoral contexts, the framework bridges system-level governance analysis with firm-level behaviour. This integration allows the Credibility-Scaling-Resilience framework to explain not only why environmental governance struggles to transform outcomes, but also how such struggles materialise through corporate decision-making, industry coordination, and value-chain dynamics. As shown in Figure 1, the Credibility–Scaling–Resilience framework conceptualises environmental governance outcomes as the interaction of governance credibility, the scaling of practices across firms and industries, and the resilience of those practices over time, with firm- and industry-level governance mechanisms serving as the primary channels through which system-level governance pressures are translated into organisational behaviour.

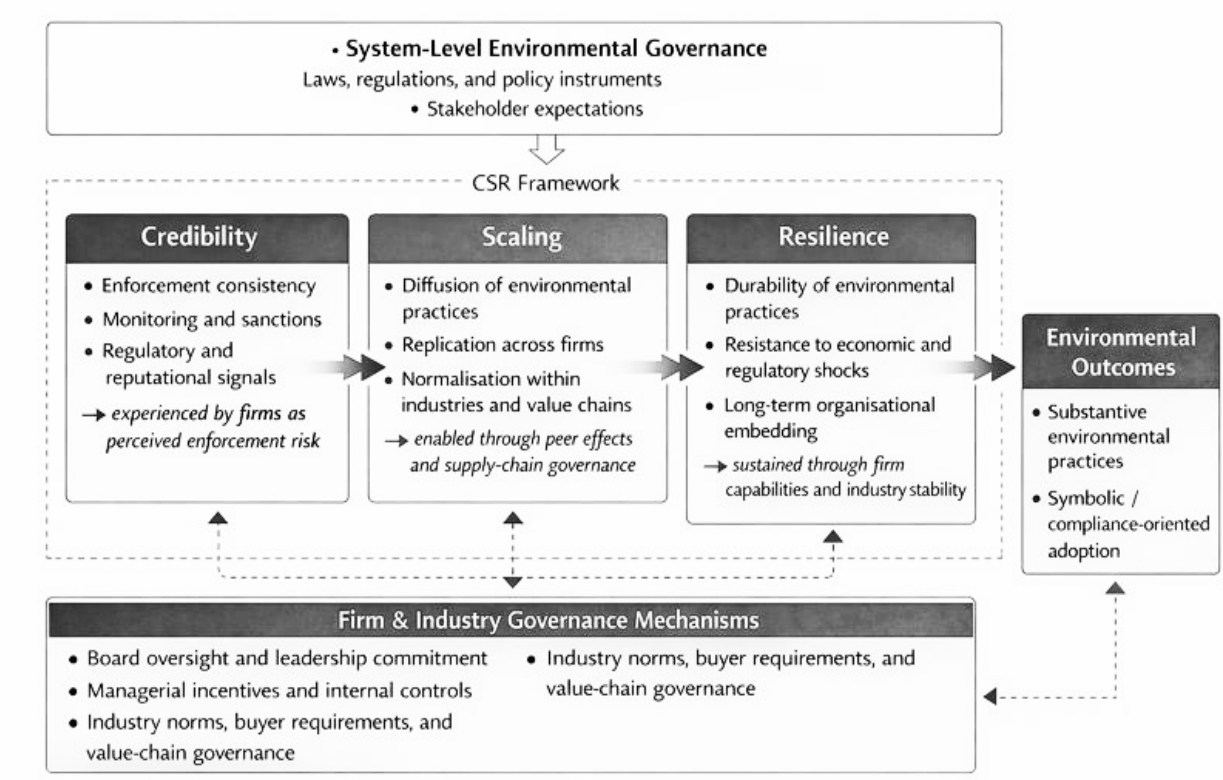

Figure 1. Credibility-scaling-resilience framework anchored in firm and industry governance mechanisms. Source: Author's own.

3. Materials and Methods

3.1. Research Design

This review takes a theory-building systematic review rather than a comprehensive evidence-mapping SLR. In environmental governance, the volume of available scholarship is vast and heterogeneous, spanning political science, sociology, environmental policy, economics and transition studies. A traditional systematic review designed to quantify patterns across hundreds of studies would not have served the conceptual purpose of this study. Instead, a purposive theoretical SLR was intentionally selected to allow depth over breadth foregrounding seminal works that reveal mechanisms of credibility, scaling and resilience across governance contexts. The 15 studies included were not intended to be statistically representative of the entire field; rather, they function as analytical anchors that illuminate causal processes and tensions within governance systems. This approach is consistent with theory-generative review strategies in interdisciplinary social science, where conceptual integration not exhaustive accumulation of sources is the primary goal.

Conducting a systematic review was methodologically appropriate for three reasons. Firstly, environmental governance is conceptually fragmented, and a systematic review is needed to synthesise the insights developed in institutional, transition, polycentric, political-economy and other traditions. A narrative review would be suitable for this exercise because they do not offer the replicability or transparency needed to build theory (Tranfield et al., 2003). Secondly, the governance dilemmas identified in this study such as credibility, scaling and resilience reside in multiple levels of analysis and sectors; systematic approaches ensure that patterns can be distinguished with discipline and clarity across these contexts. Thirdly, SLRs are increasingly recognised as essential tools for developing conceptual frameworks in emergent and interdisciplinary fields in cases where the purpose is to generate new theoretical propositions rather than to quantify effect sizes (Dixon-Woods et al., 2005). This rationale situates the purpose of this review and makes clear that it is not seeking to provide an exhaustive mapping of the entire governance literature.

3.2. Protocol and Registration

The review was guided by the PRISMA 2020 guidelines to structure the workflow in such a way as to maximise transparency and reproducibility, whilst acknowledging that PRISMA was principally developed to guide aggregative, effect-oriented systematic reviews. However, and consistent with recent methodological guidance, this study uses PRISMA as a scaffold for reporting rather than as an inflexible procedural template, reporting key information about search, screening and inclusion decisions to ensure transparency, but deliberately leaving room for flexibility required in theory-building synthesis. The review was not formally registered with a protocol as it was designed as a standalone conceptual synthesis of established and emerging scholarship, not as a pre-registered evidence-mapping exercise. This is consistent with previous theory-driven systematic reviews of research in the broad field of governance and sustainability.

3.3. Search Strategy

The review followed the steps outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021) with some adaptation to disciplinary particularities of the field of environmental governance research. The review mainly relied on Google Scholar-based searches. Additional scans of doctoral dissertations and select policy reports ensured that emerging and practice-oriented insights were included. Google Scholar was selected as the primary search platform as environmental governance scholarship is highly interdisciplinary, spread across journals in environmental policy, sociology, political science, development studies and sustainability science. Google Scholar, unlike discipline-specific databases, allows wider retrieval of conceptually relevant studies across academic articles, policy-oriented research, and theoretically influential doctoral work. Such breadth is particularly pertinent for theory-building reviews aiming to trace governance mechanisms across diverse empirical and institutional contexts. While reliance on Google Scholar runs the risk of selection bias, this risk was offset through purposive screening, citation triangulation, and close assessment of each study's theoretical contribution to credibility, scaling, and resilience dimensions. Key search terms combined three strands:

1. Governance focus – "environmental governance," "multi-level governance," "polycentric governance."
2. Policy innovation focus – "policy instruments," "environmental taxation," "green finance," "corporate responsibility."
3. Outcome focus – "sustainability outcomes," "ESG performance," "ecological footprint," "SDGs."

Boolean operators (AND/OR) and wildcards were used to maximize coverage, while filters restricted results to English-language publications between 2000 and 9 September 2025. The following is the search string used in this study; ("environmental governance" "policy innovations" "sustainability outcomes").

3.4. Inclusion and Exclusion Criteria

Inclusion criteria were designed to ensure conceptual and empirical relevance. Studies were included if they:

- explicitly engaged with environmental governance or policy frameworks,
- examined policy innovations, institutional arrangements, or financial mechanisms, and
- reported sustainability-related outcomes (environmental, social, or economic).

Exclusion criteria eliminated purely technical studies (e.g., engineering models without governance discussion), non-English publications, and works published before 2000 unless of foundational importance.

3.5. Study Selection and Dataset

The search initially returned over 47 records. Screening by abstract and assessment against inclusion criteria resulted in selection of 15 core studies that were retained for analysis (see PRISMA Diagram in Figure 2). These consisted of peer-reviewed journal articles (e.g., Leung et al., 2025; Schoneveld, 2015; Wu et al., 2025) and

targeted policy reports, and collectively address a wide range of topics, including: corporate governance and responsibility (Ijomah et al., 2024); financial and fiscal instruments (Sapiri, 2025); analytical tools, including ecological foot printing (Wu et al., 2025); and sectoral case studies, in agriculture, forestry, and urban governance (Schoneveld, 2015; Samnakay, 2021). The studies included in this review are outlined in Table 1.

Table 1. Included studies in the review.

Author(s) & Year	Domain	Innovation Type	Outcomes
Schoneveld (2015)	Agriculture (Africa)	Policy arrangements for agricultural investments	Land conflict, dispossession, weak institutions
Leung et al. (2025)	Global ESG performance & crises	Analysis of financial crises on ESG	Erosion of ESG performance in crises
Wu et al. (2025)	China's ecological footprint & governance	Ecological footprint & renewable energy adoption	Governance effectiveness influences sustainability
Ijomah et al. (2024)	Corporate governance & CSR/ESG	Corporate ESG/CSR frameworks	Accountability gaps, risk of greenwashing
Shao (2024)	Transition studies (China)	Policy instruments for sustainability transitions	Transition dynamics in socio-technical systems
Sapiri (2025)	Fiscal instruments & taxation	Environmental taxation models	Equity & sustainability impacts of taxation
Xia et al. (2025)	Digital tech & sustainability	Tech-driven environmental governance	Sustainability via digital innovation
Riyadi & Rhamadan (2025)	Community-based conservation	Collaborative governance & conservation	Local empowerment & sustainability outcomes
Abujder Ochoa et al. (2025)	Urban sustainability & circular economy	Circular economy integration	Urban sustainability integration
Naeem et al, (2025)	Finance & green investment	Finance & environmental degradation mitigation	Green investment & awareness reduce degradation
Tahir & Mointi (2025)	Island leasing governance	Public-private partnerships in island governance	Governance tensions in investment partnerships
Mu & Zou (2025)	Low-carbon city policy in China	Urban low-carbon growth policies	Mixed results in inclusive green growth
Cashore et al. (2024)	Biodiversity governance policy design	Peatland conservation policy design	Policy drift undermines conservation outcomes
Adams (2024)	Nature-based solutions in cities	Urban planning nature-based solutions	Implementation challenges in urban governance
Ramiller (2018)	Neighbourhood sustainability certification	Neighbourhood sustainability frameworks	Scaling & certification challenges

The relatively small number of studies (n = 15) reflects the study's conceptual orientation rather than a limitation of scope. This review does not claim to represent the full global evidence base on environmental governance; instead, it synthesises theoretically influential studies that explicitly demonstrate governance mechanisms relevant to credibility, scaling and resilience. In theory-building review design, analytical richness outweighs numerical scope, and insight emerges from tracing mechanisms across carefully selected cases rather than aggregating large quantities of literature. The intention was therefore not to generalise statistically, but to map recurring institutional patterns and generate propositions for environmental governance theory. Future reviews may expand the sample to test or operationalise these propositions empirically.

3.6. Data Extraction and Coding

Each study was systematically coded along four dimensions:

1. Domain (corporate, financial, sectoral, or national/global).
2. Innovation type (policy reform, financial instrument, measurement tool, participatory mechanism).
3. Governance mechanism (institutional design, participation, enforcement, adaptive learning).
4. Sustainability outcomes (environmental, social, and economic impacts).

This coding framework allowed for a comparative synthesis across contexts, providing for both thematic clusters and cross-case insights. For instance, coding across corporate studies offers a synthesis of ESG commitments and symbolic compliance; while coding across financial studies illustrates how crises and taxation forms mediate sustainability.

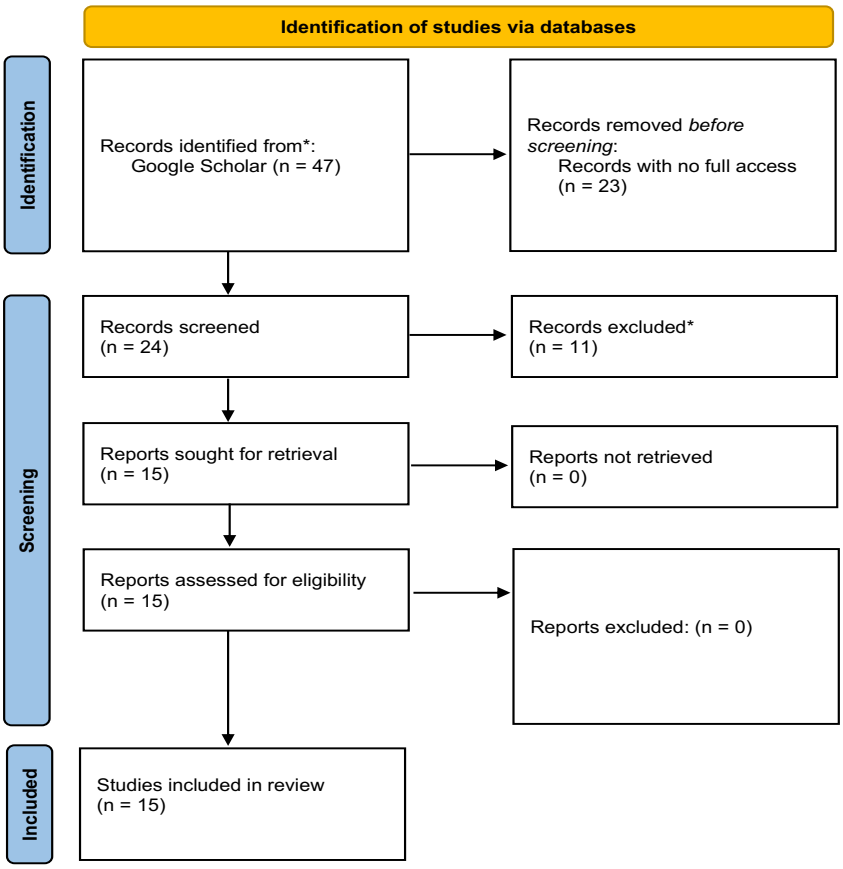

Figure 2. PRISMA diagram.

3.7. Synthesis Approach

The synthesis strategy used in the review is a narrative synthesis (Dixon-Woods et al., 2005) combining thematic analysis with conceptual mapping. In contrast to an aggregation of effect sizes, the focus of the synthesis is on building causal mechanisms and governance dilemmas across different studies. In particular, we pay attention to feedback dynamics (e.g., crisis-induced erosion of ESG performance, Leung et al., 2025; institutional drift in biodiversity governance, Cashore et al., 2024). The synthetic route is as follows: Thematic grouping of studies into corporate, financial, sectoral and national/global domains, and Cross-case comparison, tracing common dilemmas of credibility, scaling and resilience. The aim was not only descriptive mapping, but theory building that would produce testable propositions about governance design.

3.8. Limitations

While the review is systematic, it has a number of limitations. First, drawing on Google Scholar and selective grey literature is likely to make the results subject to a degree of selection bias, prioritising studies that have drawn more attention and are published in English, and potentially overlooking publications on innovations in local governance published in other languages. Second, the relatively modest number of studies retrieved (15) speaks more to the relatively youthful and fragmented state of environmental governance than to a complete mapping of the field as a whole. Third, despite conducting intercoder checks, the identified studies were not double-coded in their entirety due to resource constraints. These limitations are outlined here in the interest of transparency and in order to highlight areas for future reviews.

4. Results

The systematic review identified 15 studies illustrating evolutions in environmental governance across corporate, financial, sectoral and national/global contexts. Although wide ranging and based on divergent methodologies and scales, the studies collectively illustrate common dilemmas of credibility, scaling and

resilience spanning governance domains. Referencing relevant literature, the results are classified into five thematic groupings: (i) corporate governance and environmental responsibility, (ii) financial and fiscal governance mechanisms, (iii) analytical tools and measurement, (iv) sectoral case studies and (v) national and global governance transitions. Finally, a comparative synthesis of the results is provided. Although the studies included in this review span diverse national, sectoral, and regulatory contexts, their findings converge on a common pattern: the dilemmas of credibility, scaling, and resilience are most visible at the level of firms and industries, where environmental governance pressures are translated into organisational decisions and sectoral practices. Across the reviewed literature, governance outcomes are shaped not only by policy design, but by how firms perceive enforcement credibility, how practices diffuse within industries and value chains, and how organisational capacities sustain or undermine environmental commitments over time.

4.1. Corporate Governance and Environmental Responsibility

Corporate governance has become a central arena for environmental innovation, with firms increasingly adopting frameworks such as ISO 14001, Corporate Social Responsibility (CSR), and Environmental, Social and Governance (ESG) reporting to signal environmental responsibility. Ijomah et al. (2024) illustrate how multinational corporations—exemplified by companies such as Unilever and Patagonia—have sought to internalise sustainability within their business strategies, using globally recognised standards to communicate commitment and legitimacy. These frameworks generate reputational incentives, promote organisational learning, and, in some cases, improve operational efficiencies.

Nevertheless, the empirical literature consistently emphasises a disconnect between disclosure and performance. Weak verification systems and the voluntary nature of corporate standards creates conditions for symbolic compliance and greenwashing, which privilege symbolic compliance over substantive environmental performance. Taken together, this tension represents what this review refers to as the credibility dilemma. While governance innovations in corporations have increased considerably in sophistication, their success depends on mechanisms in place in institutions that ensure genuine implementation, accountability and transparency. Without these measures environmental responsibility is largely rhetorical.

4.2. Financial and Fiscal Governance Mechanisms

Research on fiscal and financial governance shows that macroeconomic structures and fiscal conditions significantly shape environmental governance outcomes. Sapiri (2025) claims that environmental taxation—including carbon tax and eco-levy—can internalise externalities and simultaneously bring a double dividend, i.e. reduce emissions while generating revenue (e.g. education, research & innovation). However, distributional equity and esteem are critically important for success. A tax burden so high that inevitably transferred to the most vulnerable in society could lead to a public resistance and thus erosion of legitimacy.

Leung et al. (2025) document that economic crises undermine ESG performance for a sample of 100 countries over the 1990-2019 period. Economic crises reduce macro-level fiscal space and shift political priorities towards economic stabilisation, which in turn weakens commitments to environmental pursuits. These effects were particularly pronounced in constrained developing and emerging financial markets where fiscal buffers are limited. Naeem et al. (2025) likewise find that financial instability undoes the environmental gains arising from the mediating role of green investment and environmental awareness in combating environmental degradation.

Together, these findings demonstrate the resilience dilemma demonstrating that the durability of environmental governance depends on financial stability and macro-economic cycles. Governance systems lacking robust, countercyclical financial mechanisms remain highly vulnerable to exogenous shocks

4.3. Analytical Tools for Governance and Measurement

Analytical tools and measurement frameworks play an increasingly prominent role in environmental governance. Wu et al. (2025) apply ecological footprint analysis to evaluate China's ability to sustain sustainability trajectories given current institutional and governance tendencies. Their study shows that recent iterations of improved governance have helped facilitate renewable energy expansion but ultimately insufficient to outweigh the increased ecological footprint resulting from ongoing economic growth.

Similarly, Ramiller (2018) demonstrates that neighbourhood sustainability certification schemes translate general sustainability principles into quantifiable indicators, enabling local governments and communities to measure progress. However, such analysis techniques have little traction in the absence of their institutional uptake by governing stakeholders. Thereby forms a gap between measurement and governance practice.

These findings confirm the broader hypothesis that measurement instruments can enhance transparency and accountability only to the extent that they are integrated into institutional infrastructures to facilitate learning, policy feedback, and policy integration. In the absence of such connections, analytical innovations risk merely turning into technocratic exercises with no real practical leverage, indirectly deepening the credibility dilemma.

4.4. Sectoral Case Studies: Agriculture, Forestry, and Urban Sustainability

Sector-specific studies provide detailed understanding of the structural determinants of governance outcomes. On large-scale agricultural investment in Africa, Schoneveld (2015) shows how land deals that promote modernisation and economic growth often conflict with customary land rights and livelihood systems. Weak tenure arrangements and institutional fragility create conditions of dispossession, conflict, and environmental degradation. These failures of governance underline a need for inclusive, multi-actor policy arrangements that align with local institutions. In forestry, decentralisation efforts studied in the Workshop on Forest Governance (2004) showed that decentralising, when coupled with a strong institutional framework, can improve accountability and sustainability by devolving power to the local communities. Yet, decentralising without a strong institutional framework can lead to the devolution of authority onto local actors who are not prepared to handle the increased responsibility.

Urban sustainability initiatives also vividly demonstrate uneven results. Policies supporting circular economy (Abujder Ochoa et al., 2025), low-carbon city development (Mu & Zou, 2025), and nature-based solutions (Adams, 2024) similarly expose the opportunities for innovation at the level of municipalities. But these initiatives frequently prove incapable of diffusing beyond early adopters or are distorted through implementation delays, constraints on funding and human resources, or socio-economic pressures contributing to eco-gentrification. Time and again, local experimentation generates valuable local outcomes but never escapes constraints in the absence of institutional mechanisms to horizontally or vertically scale. Together, these studies elucidate the scaling problem, as local innovation often remains scattered amid weak coordination, fragmented authority, and lack of institutional support for diffusion.

4.5. National and Global Governance Transitions

Studies at the national and international scale highlight the complex interplay between policy instruments, political economy and multi-level governance. Wu et al. (2025) describe how the effectiveness of governance in China influences renewable energy implementation and long-term sustainability pathways, but also note enduring contradictions between economic growth and ecological goals in practice. Adams (2024) likewise highlights how nature-based solutions in urban governance often fail because of institutional drift in implementation, whereby ambitious goals become diluted into hands-off objectives in implementation across multi-level governance. Global level shocks such as macroeconomic disruptions counteract decades of ESG progress (Leung et al., 2025), revealing the fragility of the international commitment to sustainability. A lesson for governance is therefore to ensure policy coherence and institutional stability across phases of the political and economic business cycle are essential for maintaining environmental progress. Across these studies, multi-

level governance appears as an opportunity and a risk. Polycentric arrangements are able to foster innovation and participation, provided that coordination mechanisms are in place to link local, national, and international actors: Without which, governance transitions remain partial and unstable— again reflecting both the scaling and resilience dilemmas.

4.6. Comparative Synthesis: Credibility, Scaling, and Resilience Across Domains

Table 2 provides a comparative summary across domains, highlighting how credibility, scaling, and resilience dilemmas manifest differently across governance contexts.

Table 2. Comparative synthesis of governance domains and dilemmas.

Governance Dimension	Key Innovations	Observed Challenges	Institutional Levers	Dominant Dilemma
Corporate Governance	ISO 14001, ESG reporting, CSR frameworks	Symbolic compliance, weak verification	Independent audits, incentive alignment	Credibility
Sectoral Governance	Urban sustainability, forestry decentralisation	Fragmented coordination, limited diffusion	Bridging institutions, policy linkages	Scaling
Fiscal Governance	Green finance, environmental taxation	Fiscal fragility, inequality, policy reversal	Countercyclical instruments, equity mechanisms	Resilience

Table 2 summarises the comparative insights across governance domains, showing how the three dilemmas manifest differently in corporate, fiscal, sectoral, and multi-level contexts. Across all domains, the evidence suggests that: Credibility depends on verification, institutional legitimacy, and the alignment between formal commitments and substantive behaviour; Scaling requires bridging institutions, coordinated multi-level governance, and mechanisms that facilitate horizontal and vertical diffusion; and Resilience relies on fiscal capacity, political stability, and long-term financing mechanisms capable of withstanding crises. Together, these findings demonstrate that environmental governance innovations succeed not only because of their technical design but because of the institutional, sociological, and economic conditions that sustain them.

5. Discussion

Environmental governance does not unfold in a linear or orderly manner as a reform trajectory dictated by specific actors, but as a contested and dynamic space of institutional innovations, socio-technical experimentation, changing power relations, and superseding macroeconomic pressures. Synthesizing insights from fifteen studies, we show that governance systems repeatedly fail to anchor bold sustainability commitments into enduring outcomes. Drawing on institutional theory, sustainability transition theory, polycentric governance, and political-economy perspectives (North, 1990; Ostrom, 2005; Geels, 2011; Jordan et al., 2018; Meadowcroft, 2011), we identify three interdependent dilemmas - credibility, scaling, and resilience - that systematically condition environmental governance performance in corporate, sectoral, fiscal and national systems. We use these dilemmas to construct three conceptual propositions.

The Credibility–Scaling–Resilience framework developed in this paper is not a performance index, maturity model, or evaluative scorecard. It is offered as a relational dilemma framework that accounts for persistent failure conditions in environmental governance systems across contexts and scales. Unlike capacity-based or institutional effectiveness frameworks that assess governance strength at any one point in time, the framework highlights dynamic tensions that compromise governance durability even when formal institutions, policies, or resources appear strong. By interpreting credibility, scaling, and resilience as interdependent governance dilemmas rather than independent capacities, the framework offers a different explanatory contribution that builds theory on why governance innovations repeatedly generate symbolic, fragmented, or fragile outcomes.

5.1. The Credibility Dilemma: Symbolic Versus Substantive Change

The first proposition recognises credibility as a necessary condition for effective environmental governance. Institutional theory accounts for organisational behaviour in terms of compliance with rules and expectations to earn legitimacy (North, 1990; Ostrom, 2005). In the reviewed studies, credibility emerges as a governance dilemma that is enacted through firm-level perceptions and responses, rather than through formal regulatory

design alone. Nevertheless, this review demonstrates how many governance innovations in particular voluntary standards including ISO 14001, Corporate Social Responsibility (CSR) frameworks and Environmental, Social and Governance (ESG) reporting are potentially more symbolic than transformational. The corporate governance literature has demonstrated that sustainability standards are often adopted by firms to meet reputational demands and may not produce any significant change to underlying practices (Ijomah et al., 2024). This gap between formal and substantive change is driven by multiples issues including the dangers of greenwashing, weak verification mechanisms and ineffective supervision.

Research on ecological footprint governance (Wu et al., 2025) and urban sustainability certifications (Ramiller, 2018), for example, also highlight the limits of disclosure-based tools in contexts where institutional uptake is weak. Failures of credibility take place where organisations can gain greater reward for the signal of compliance than for taking substantive, but expensive or politically risky transformations. This analysis hence supports the observation that governance innovations deliver credible outcomes only when they are accompanied by strong accountability structures 'such as third-party audits, binding reporting requirements, non-expert coordinating or overseeing bodies and costs or penalties for non-compliance' (Cashore et al., 2024). Without such accountability structures in place, transparency might widen, but legitimacy and environmental performance remain superficial.

5.2. The Scaling Dilemma: Local Gains Versus Systemic Transformation

The second scaling dilemma concerns the difficulty of scaling up governance innovations from the local or experimental scales at which they often emerge. Sustainability transition theory emphasises that socio-technical change hinges on the co-evolution of niche innovation, incumbent regimes and wider landscape pressures (Geels, 2011; Shao, 2024). While localised experiments e.g., community forestry, neighbourhood certification, and low-carbon city pilots often track improvements in sustainability performance, evidence suggests that such experiments rarely diffuse horizontally or vertically. Scaling challenges are most evident in the uneven diffusion of environmental practices across firms and industries. While governance initiatives often succeed in motivating a subset of firms, particularly large or export-oriented organisations, the absence of effective industry coordination and value-chain governance limits broader uptake.

This insight that decentralized and experimental governance can empower local actors yet remain institutionally isolated from the more structural forces shaping political outcomes directs attention to the literatures on the governance of agricultural investment in Ethiopia and Nigeria (Schoneveld, 2015), community-based conservation (Riyadi & Rhamadan, 2025), and urban low-carbon innovation (Mu & Zou, 2025). The theory of polycentric governance (Ostrom, 2010; Jordan et al., 2018) is able to explain the virtues of dispersed authority in fostering innovation, but not the vices of fragmentation when coordination mechanisms are absent: local actors may indeed innovate, but they innovate in isolation, without the kind of scalar linkages through which they might influence national policy, international finance, or regime-level socio-technical change.

This synthesis supports the hypothesis that bridging institutions organisations or mechanisms that align actors across scales are critical for success in overcoming scaling failures. Bridging institutions advance alignment and learning by enhancing policy alignment, knowledge sharing, and vertical coordination as well as horizontal diffusion. In the absence of bridging institutions, governance systems evolve as patchworks of disconnected experiments rather than integrated transformations.

5.3. The Resilience Dilemma: Fragile Versus Durable Governance

The third dilemma addresses resilience, or the ability of governance systems to maintain environmental priorities even as they confront economic, political, or ecological shocks. Political-economy perspectives stress how environmental commitments are ensconced within broader fiscal and structural constraints (Meadowcroft, 2011). Resilience emerges in the reviewed studies as a firm-level and industry-level capacity to sustain environmental practices over time, rather than as a stable property of governance systems. Across a range of studies, fiscal instability consistently undermines sustainability performance. Leung et al. (2025) show

that economic crises undermine ESG performance on a global scale, with especially acute impacts in developing countries with weak fiscal buffers. Similarly, Sapiri (2025) showed that environmental taxation regimes can internalise externalities, but remain vulnerable to distributive tensions, public opposition, and fiscal pressures.

These findings confirm the critique that governance systems often revert to short-term economic priorities when facing crises, placing environmental objectives in jeopardy. Therefore, the resilience dilemma is the fragility of governance arrangements that rely on stable financial conditions or political continuity. Durable governance has countercyclical fiscal instruments, long-term financing mechanisms and guards against austerity-led retrenchment, which may comprise environmental trust funds, green bonds, debt-for-nature swaps and international climate finance (Naeem et al., 2025).

5.4. Integration of Theoretical Perspectives

Figure 3 summarises how the three dilemmas emerge at the intersection of four theoretical perspectives. Institutional theory provides the primary framing for understanding why symbolic compliance occurs and thus informs the credibility dilemma. Sustainability transition theory and polycentric governance perspectives provide two converging, but ultimately distinct, accounts of why structural barriers prevent innovations from scaling in distributed and multi-level systems. Political-economy perspectives also shed light on why even resilient, formally legitimate governance systems fail during crises, thereby resulting in resilience failures. Together, they depict environmental governance as a co-evolutionary system that is simultaneously shaped by institutional legitimacy, actor coordination, socio-technical dynamics, and fiscal capacity. This contribution to theory advances explanations beyond analysis in siloes to offer a framework identifying shared causal mechanisms across governance domains. By conceptualising the credibility, scaling and resilience dilemmas as central organising forces in environmental governance, the framework provides a unifying explanation for recurring patterns across corporate, sectoral, national, and global contexts.

Taken together, the findings demonstrate that credibility, scaling, and resilience are not sequential stages but interdependent governance dilemmas enacted through firms and industries. Weak credibility undermines firms' incentives to invest in substantive practices, limited scaling isolates environmental efforts within a narrow subset of organisations, and low resilience exposes such practices to reversal under economic or institutional pressure. The interaction of these dynamics explains why environmental governance initiatives frequently generate symbolic compliance rather than sustained transformation.

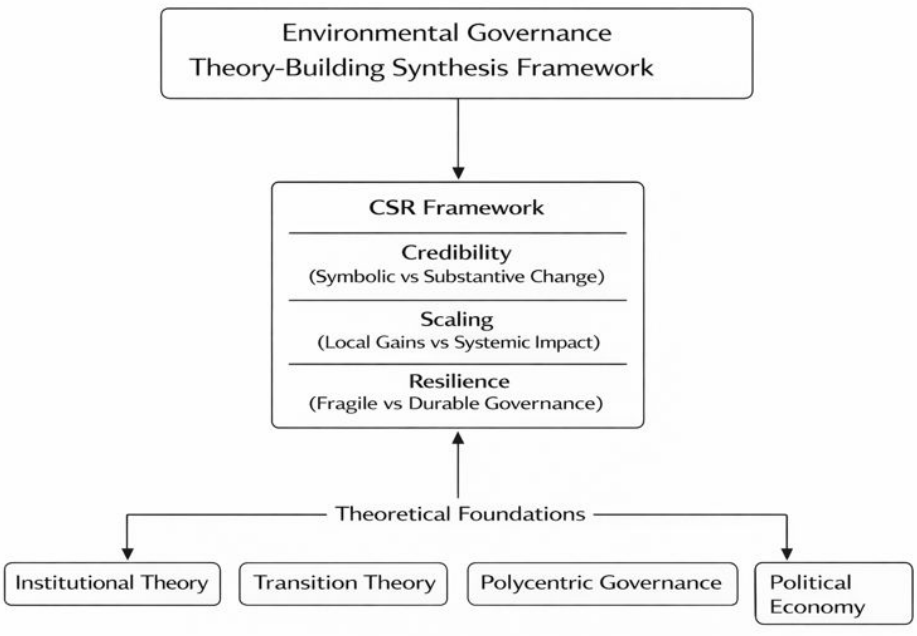

Figure 3. Conceptual framework of environmental governance as a theory-building synthesis.
Source: Author's own.

5.5. Contributions to Theory and Practice

This review makes three key contributions to scholarship and practice. First, it provides a holistic sociological account of governance dynamics by integrating institutional, transition, polycentric and political-economy perspectives into an explanatory model. Many fields of environmental governance scholarship work with these perspectives independently; this review shows that they are overlapping and interdependent. Second, it advances theory by identifying credibility, scaling and resilience as governance dilemmas that cut across contending theoretical traditions and by identifying mechanisms which can be tested empirically and comparatively between countries, sectors and levels of governance. These dilemmas explain why governance innovations often have differential or inconsistent impacts, and they provide an analytic agenda for future comparative research. Third, the framework outlines concrete actions stakeholders can take. Resolving the credibility dilemma requires strengthening verification systems, enforcement regimes and institutional accountability. Resolving the scaling dilemma requires building bridging institutions enabling vertical and horizontal coordination across governance scales. Resolving the resilience dilemma requires embedding environmental obligations in stable fiscal frameworks that are robust to shocks. By embedding multiple theoretical lenses within a coherent model, the analysis goes beyond piecemeal interpretations and enables richer and more practically meaningful explanations of environmental governance.

5.6. Theoretical Implications

The study connects with the environmental governance scholarship on three inter-connected fronts. First, we draw together disparate theoretical traditions in environmental governance into a coherent framework governing institutional legitimacy (Ostrom, 2005; North, 1990), socio-technical transitions (Geels, 2011; Shao, 2024), polycentric coordination (Jordan et al., 2018; Ostrom, 2010), and political-economy constraints (Meadowcroft, 2011; Leung et al., 2025). By synthesising these traditionally-disparate theoretical literatures, our framework reveals how no single overarching theoretical tradition can adequately explain governance performance, and that instead governance systems are shaped by their underlying interactions between institutional, social, technological and fiscal processes. Second, it builds on a theory-building contribution by defining credibility, scaling and resilience as cross-cutting mechanisms spanning across governance domains. These mechanisms can be replicated as a comparative analytical lens for future empirical inquiry from corporate environmental responsibility to landscape governance and financial sustainability. Third, our theoretical synthesis contributes to sociological problematic about power, legitimacy, actor networks and institutional adaption (Newig & Fritsch, 2009). It suggests how governance failure represents not only as a symptom of poor policy design but rather as part of broader sociological processes including symbolic compliance, fragmented authority, unequal fiscal burden-sharing and conflicting political priorities.

5.7. Practical and Policy Implications

The framework provides concrete operational and prescriptive guidance to public policymakers, regulators and practitioners interested in improving the effectiveness of environmental governance systems. First, credibility-enhancing means going beyond disclosure-based approaches. Examples of initiatives that can be explored and designed to help bridge symbolic and substantive environmental efforts are independent third-party audit and verification systems, enforceable environmental standards and frameworks, and performance-based incentives (Ijomah et al., 2024). Second, sustainability innovations can be harnessed by investing in bridging institutions. Bridging institutions can take the form of cross-level coordination bodies, multi-stakeholder coordination platforms, trans local learning networks, and regulatory frameworks for linking municipal innovations to regional and national governance systems (Schoneveld, 2015; Jordan et al., 2018). Third, resilience-enhancing involves embedding fiscal stability provisions in governance design. Examples of initiatives that can be explored and designed to provide a buffer for protecting sustainability commitments from economic shocks are countercyclical environmental funds, green bonds, environmental trust funds, progressive tax regimes, and long-term financing frameworks (Sapiri, 2025; Leung et al., 2025). Prioritising these governance improvements can help steer governance systems away from reactive and fragmented responses towards more durable and integrated sustainability trajectories.

5.8. Implications for Firms and Industries

For firms, the Credibility-Scaling-Resilience framework highlights the strategic importance of internal governance arrangements. Board oversight, managerial incentives, compliance systems, and organisational learning are not peripheral but central to sustaining environmental commitments. Firms that treat environmental governance as a core governance issue—rather than a reporting or reputational exercise—are better positioned to navigate credibility pressures, participate in scaling, and maintain resilience under changing conditions. At the industry level, collective governance mechanisms play a critical role in enabling scaling and resilience. Industry standards, peer coordination, and buyer-led governance can reduce first-mover disadvantages and normalise environmental practices across sectors, enhancing the overall effectiveness of environmental governance.

6. Conclusion and Future Research

6.1. Summary of Key Findings

This theory-building review has shown that environmental governance struggles to deliver durable transformation not because of a single design flaw, but due to interrelated dilemmas of credibility, scaling, and resilience. By anchoring the Credibility-Scaling-Resilience framework in firm- and industry-level governance, the study demonstrates how these dilemmas are enacted through organisational behaviour and sectoral dynamics. The contribution of this review lies in preserving the framework as a system-level diagnostic framework while grounding it in business governance practice. In doing so, it offers a more complete explanation of why environmental governance outcomes vary across contexts and provides a foundation for future research that further integrates governance theory with organisational analysis.

6.2. Directions for Future Research

The conceptual framework developed in this article could serve as a basis for future research in four directions. First, empirical analyses of the differential credibility mechanisms in various governance contexts e.g., corporate ESG regimes, community-based natural resource management, urban sustainability or national climate policies would allow further specification of the proposed framework. Second, comparative research of the enabling and constraining effects of bridging institutions on the upscaling of innovations between governance levels e.g., from local to city, regional, national or international levels would assist researchers in studying unreflective governance and institutional inertia. Third, more research on the fiscal resilience of environmental governance systems is required to understand how fiscal shocks, debt stress and austerity measures shape sustainability performance. Fourth, research could address the interface between governance dilemmas and social inequality by examining empirically how distributive tensions shape environmental performance and political support of sustainability reforms.

While the Credibility-Scaling-Resilience framework is designed to be analytically transferable, its applicability is most relevant to governance systems characterised by multi-level coordination, institutional pluralism, and some degree of fiscal discretion. The framework may be less explanatory in contexts of highly centralised authoritarian governance, emergency decision-making environments, or purely market-driven voluntary regimes where institutional contestation and coordination dynamics differ fundamentally. Recognising these boundary conditions does not diminish the framework's contribution; rather, it clarifies the institutional settings in which credibility, scaling, and resilience dilemmas are most likely to emerge and interact. Future empirical research can refine these boundaries by testing the framework across contrasting political and governance regimes.

Author Contributions:

Conceptualization: Mubanga Lackson Chipimo.
Data curation: Mubanga Lackson Chipimo.
Formal analysis: Mubanga Lackson Chipimo.

Funding acquisition: Mubanga Lackson Chipimo.
Investigation: Mubanga Lackson Chipimo.
Methodology: Mubanga Lackson Chipimo.
Project administration: Mubanga Lackson Chipimo.
Resources: Mubanga Lackson Chipimo.
Software: Mubanga Lackson Chipimo.
Visualization: Mubanga Lackson Chipimo.
Writing – original draft: Mubanga Lackson Chipimo.
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