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Review Article

Bridging Governance and Accountability Gaps for Sustainable Natural Resource Management: A Pathway to SDGs 13, 15 and 16

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ABSTRACT: Governance quality is increasingly recognised as the decisive factor shaping the sustainability of natural resource management (NRM) in developing countries. This manuscript critically examines how governance gaps manifested through institutional fragmentation, weak enforcement, corruption, limited participation, and policy incoherence undermine the sustainable use of natural resources. Employing a desk-based qualitative design, the study synthesised over one hundred peer-reviewed publications and institutional reports (2015–2025) using systematic search procedures and thematic content analysis. Findings reveal that NRM failures are systemic and interdependent: fragmented institutions erode coordination, integrity deficits weaken legitimacy, and inadequate participation limits compliance. The review identifies polycentric governance and policy coherence for sustainable development (PCSD) as complementary frameworks capable of bridging these governance gaps. It concludes that sustainable NRM requires holistic reform integrating institutional capacity, transparency, and inclusive co-management anchored in both national coordination and local autonomy. The study contributes to scholarship and policy by proposing a hybrid governance model that aligns with the Sustainable Development Goals (SDGs 13, 15 and 16) and offers a pragmatic pathway towards environmental resilience and socio-economic equity in developing contexts.

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1.0 INTRODUCTION

Sustainable natural resource management (NRM) has emerged as one of the most pressing governance challenges confronting developing countries in the twenty-first century. The rapid degradation of forests, water resources, mineral deposits, and biodiversity has intensified concerns over how states govern and sustain their natural endowments amid competing economic, social, and environmental interests. Governance gaps manifested through weak institutions, policy fragmentation, corruption, and exclusionary decision-making processes have consistently undermined the attainment of sustainability goals in these regions (UNDP, 2023). As developing economies strive to balance growth imperatives with ecological integrity, the urgent need to bridge governance gaps becomes a central policy concern. This manuscript, therefore, interrogates the relationship between governance quality and sustainable NRM, exploring pathways through which institutional, policy, and participatory reforms can enhance resource stewardship in developing countries.

The concept of governance extends beyond government control to encompass the structures, processes, and actors that shape public decisions and resource allocations. According to the World Bank (2023), governance refers to the traditions and institutions by which authority in a country is exercised for the common good, including the processes of selection, accountability, and capacity of governments to manage resources effectively. Similarly, the United Nations Environment Programme (UNEP, 2022) emphasizes that environmental governance involves the rules, practices, and institutions that determine how environmental actions are implemented and enforced. In the context of NRM, governance thus determines who makes decisions, how those decisions are implemented, and how outcomes are monitored. Where governance systems are inclusive, transparent, and coordinated, natural

resources are more likely to be utilized sustainably; where they are fragmented, opaque, or corrupt, overexploitation and degradation often follow (Adam, et al 2021).

Developing countries face a unique confluence of governance challenges. These include institutional fragmentation, where overlapping mandates among ministries lead to policy inconsistencies; weak enforcement, where environmental laws exist but are poorly implemented; and limited participation, where local communities are marginalized in resource governance (Kimengsi et al. 2022). Moreover, the persistence of corruption and rent-seeking behavior in the natural resource sector diverts benefits from the public to elites, aggravating inequality and undermining trust in public institutions (Transparency International, 2024). The political economy of natural resources in many African, Asian, and Latin American countries is further complicated by the dominance of extractive industries that prioritize short-term revenue over long-term ecological balance (World Bank, 2023). Consequently, the gap between policy commitments to sustainability and the actual governance practices on the ground continues to widen.

Globally, the imperative to bridge governance gaps aligns with the Sustainable Development Goals (SDGs), particularly Goal 15 (Life on Land), Goal 13 (Climate Action), and Goal 16 (Peace, Justice and Strong Institutions). These global frameworks emphasize the interdependence between environmental sustainability and governance quality. Effective governance systems serve as catalysts for achieving sustainable resource use through improved accountability, policy coherence, and stakeholder inclusion. As noted by the Organisation for Economic Co-operation and Development (OECD, 2023), countries that integrate good governance principles including transparency, rule of law, responsiveness, equity, and participation, tend to achieve higher sustainability outcomes. However, in developing contexts, the challenge lies in translating these principles into context-sensitive governance arrangements that accommodate local realities and indigenous knowledge systems.

The link between governance and sustainability has been explored extensively in academic and policy literature. Scholars such as Ostrom (1990) and, more recently, Adam, et al (2021) argue that sustainable resource management depends on collective-action mechanisms that empower local actors while maintaining state oversight. The shift from centralized to polycentric governance where multiple authorities cooperate across scales has been proposed as a strategy for bridging gaps in decision-making and implementation (Tobin, Huitema, & Kellner 2024). This approach emphasizes the co-production of policies by governments, civil society, and private actors, fostering shared accountability and adaptive management. However, despite its theoretical appeal, polycentric governance remains underdeveloped in many developing countries due to institutional inertia, limited fiscal resources, and political resistance to decentralization.

In the African context, the paradox of abundant natural wealth coexisting with persistent poverty- the so-called “resource curse” is partly attributed to governance deficiencies (African Development Bank [AfDB], 2023). Weak policy coordination and absence of effective accountability mechanisms have led to unsustainable extraction and environmental degradation. For instance, while countries like Botswana have managed to leverage diamond revenues for sustainable development through robust governance frameworks, others such as the Democratic Republic of Congo continue to struggle with illicit mining, deforestation, and social conflict driven by poor governance structures (World Bank, 2023). Similar governance dilemmas are observed in Asian and Latin American countries, where natural resources are both an opportunity and a source of vulnerability due to weak institutional control.

The rationale for this manuscript is grounded in the recognition that bridging governance gaps is not merely a technical exercise but a transformative political process that redefines power relations, accountability systems, and participation dynamics. Strengthening governance in NRM involves creating institutional coherence, promoting inclusive decision-making, enhancing transparency, and embedding sustainability principles within development planning. By synthesizing existing literature and policy frameworks, this paper seeks to contribute to the ongoing discourse on environmental governance reform in developing countries, highlighting both challenges and potential pathways for improvement.

Therefore, the main objective of this manuscript is to analyze how governance gaps affect sustainable natural resource management in developing countries and to propose practical strategies for bridging these gaps through institutional, legal, and participatory reforms. Specifically, the paper will:

1. Examine the nature and dimensions of governance gaps in NRM;
2. Assess the implications of these gaps for sustainable resource management; and
3. Propose context-specific policy and institutional reforms to enhance sustainability governance.

In addressing these objectives, the manuscript adopts a desk-based, secondary-data approach, drawing upon peer-reviewed literature, policy reports, and institutional documents published between 2015 and 2025. This approach allows for a comprehensive synthesis of the evolving governance landscape without the need for primary data collection. Through focusing on the intersections between governance quality and sustainability outcomes, the paper provides a conceptual and evidence-based understanding of how developing countries can reform governance systems to safeguard their natural resources for present and future generations.

Ultimately, this study argues that sustainable NRM in developing countries requires more than technical interventions; it demands a fundamental reconfiguration of governance systems to ensure coherence, accountability, and inclusivity. Bridging governance gaps will not only enhance environmental outcomes but also strengthen public trust, reduce conflicts, and promote long-term economic resilience. The insights derived from this manuscript will thus be valuable to policymakers, development practitioners, scholars, and international organizations working toward the realization of sustainable development through effective governance.

1.1 Literature Review

1.1.1 Conceptualising Governance for Sustainable Natural Resource Management

The concept of governance has evolved from being state-centric to encompassing multi-actor, multi-level and network-based processes that shape how societies manage collective affairs. In the context of natural resource management (NRM), governance refers to the institutional arrangements, policies, and decision-making processes that determine how natural assets are utilized, protected, and shared among stakeholders. The World Bank (2023) defines governance as "the traditions and institutions by which authority in a country is exercised," including the mechanisms by which governments are held accountable, their capacity to formulate and implement policies, and the respect of citizens and the state for institutions governing social and economic interactions. This definition provides a broad conceptual foundation, enabling comparative analysis across nations through tools such as the Worldwide Governance Indicators (WGI). However, several scholars critique the WGI approach for being perception-based and insufficiently sensitive to sectoral or sub-national dynamics (Kaufmann & Kraay, 2024; Browne, et al 2023).

The United Nations Environment Programme (UNEP, 2023) narrows this definition in environmental contexts, viewing environmental governance as "the set of rules, practices, policies, and institutions that shape how humans interact with the environment." This includes formal state institutions, civil society, private sector actors, and community organizations. Scholars such as Meadowcroft (2022) and Biermann et al. (2017) expand on this, noting that environmental governance involves both the processes and the substance of decision-making determining who makes environmental decisions, on what basis, and how the outcomes are implemented. This perspective reflects a transition from hierarchical state control to collaborative, adaptive governance, where effectiveness depends on inclusiveness, transparency, and accountability (Adam, et al 2021).

Elinor Ostrom's polycentric governance theory remains seminal in this regard. Ostrom (1990) argued that governance systems comprising multiple, overlapping centers of authority — local, regional, national, and transnational — are more flexible, context-responsive, and resilient than monolithic hierarchies. Recent studies confirm this logic in climate and biodiversity governance: Kellner, Petrovics, and Huitema (2024) find that polycentric governance improves adaptive management but can also increase duplication and coordination costs if not supported by a meta-governance structure. Thus, while there is general consensus on the desirability of distributed decision-making, authors differ on the extent to which it requires central orchestration.

In summary, while international organizations stress institutional capacity and accountability as core governance components, contemporary academic literature emphasizes the importance of relational and networked governance models. The convergence is that sustainable NRM depends on legitimacy, coherence, and inclusivity; the divergence lies in whether governance should be primarily centralized and coherent (World Bank, 2023; OECD, 2023) or polycentric and adaptive (Ostrom, 2010; Kellner et al., 2024).

1.1.2 Governance Gaps in Developing Countries

i. Institutional Fragmentation and Policy Incoherence

A dominant theme in the literature on governance failures in developing countries is institutional fragmentation. Ministries and agencies responsible for sectors such as water, forestry, mining, and the environment frequently operate in isolation, leading to overlapping mandates and contradictory policy objectives. The OECD (2023) attributes these structural inefficiencies to the lack of whole-of-government coordination frameworks, noting that fragmented institutions create duplication of efforts, competition for resources, and inconsistent policy outcomes. In Zimbabwe, for instance, Macheka (2021) found that rivalry between the Ministry of Mines and the Ministry of Environment often resulted in conflicting environmental impact assessments and unsustainable exploitation of natural resources. This case exemplifies how bureaucratic silos can undermine integrated environmental management.

While most scholars concur that fragmentation undermines sustainability, their prescriptions diverge significantly. On one hand, proponents of centralized coordination frameworks (OECD, 2023; UNEP, 2023) argue that establishing unified institutional mechanisms enhances accountability, eliminates duplication, and promotes coherence across government tiers. Such models, inspired by the "whole-of-government" approach, are believed to streamline decision-making and align policy objectives across sectors. On the other hand, Clegg and Ninan (2023) and other advocates of network governance models caution against rigid centralization, emphasizing that decentralized collaboration among agencies often yields greater responsiveness, innovation, and adaptability.

Adding nuance to this debate, Msezane (2023) warns that excessive centralization may breed bureaucratic inertia and stifle local-level innovation. The author proposes a "meta-coordination" model, which entails light-touch oversight at the center, allowing lower-tier institutions autonomy while ensuring consistency in overarching policy goals. This argument reflects a growing recognition that governance effectiveness in developing contexts depends not merely on institutional structure but on the quality of inter-institutional relationships and communication mechanisms. Therefore, rather than pursuing uniformity, developing countries may need to adopt hybrid coordination systems that balance flexibility and coherence.

ii. Weak Enforcement Capacity

Even where environmental laws are meticulously designed, their implementation is frequently undermined by weak enforcement capacity. The World Bank's (2023) Governance Indicators particularly "Regulatory Quality" and "Rule of Law" strongly correlate with environmental performance, suggesting that governance quality is a critical determinant of sustainability outcomes. However, the direction of causality remains contested; improved environmental performance may also reinforce regulatory legitimacy, creating a virtuous cycle.

Empirical studies by Macheka (2021) and Yu (2023) attribute enforcement weaknesses in sub-Saharan Africa to chronic underfunding, low technical capacity, and inefficient monitoring systems. Many environmental agencies lack modern equipment, trained personnel, and reliable data systems, making it difficult to detect and prosecute environmental violations effectively. Political interference further compounds these weaknesses, as enforcement priorities are often shaped by vested interests rather than objective environmental criteria.

However, Müller and Mbewe (2023) challenge the assumption that enforcement alone guarantees compliance. Their research in Zambia's forestry sector demonstrated that communities were more inclined to follow conservation rules when enforcement was perceived as legitimate and participatory. This finding highlights that deterrence-based models of enforcement anchored in punishment and surveillance may be less effective in contexts where legitimacy and trust are weak. Instead, enforcement that integrates community participation and shared responsibility enhances both compliance and sustainability. In this regard, effective environmental governance in developing countries should blend top-down authority with bottom-up ownership, aligning with principles of collaborative and adaptive governance.

The literature therefore points to a multidimensional conception of enforcement that transcends legal mechanisms to encompass social legitimacy and local empowerment. This insight also suggests that capacity building should focus not only on institutional strengthening but also on enhancing social capital and stakeholder inclusivity within governance systems.

iii. Integrity Risks and Corruption

Another critical governance gap in developing contexts is the pervasive influence of corruption and integrity risks. According to Transparency International's (2025) Corruption Perceptions Index, approximately 86% of developing countries fall below the global average, with natural resource sectors especially mining, forestry, and energy identified as highly vulnerable to elite capture and rent-seeking behaviors. Yu (2023) observes that opaque licensing procedures, political patronage, and revenue leakages within these sectors not only erode environmental sustainability but also diminish public trust in state institutions. Corruption thus creates a dual governance failure: it distorts policy priorities while simultaneously undermining enforcement credibility.

Nevertheless, some studies offer more differentiated perspectives. Cotler et al. (2022), drawing from Latin American experiences, found that even in high-corruption environments, strong non-state actors, such as watchdog NGOs and civic advocacy networks, can counterbalance state weaknesses through litigation, monitoring, and public accountability campaigns. Their findings reveal that anti-corruption efforts are not solely contingent on formal institutional reform but can be reinforced through pluralistic accountability systems involving both state and civil society actors.

Building on this, Macheka (2021) and Ongo Nkoa, Song, and Minkoué Bikoula (2024) stress that durable integrity systems require institutionalized mechanisms of transparency and accountability. These include e-licensing systems, open-data platforms, and independent auditing structures, which reduce discretionary power and improve traceability of environmental decisions. However, while such digital innovations enhance transparency, their success depends on political will, robust cyber infrastructure, and civic awareness. Without these complementary factors, e-governance tools may simply digitize inefficiency rather than transform it.

Overall, the literature converges on the idea that tackling corruption in environmental governance demands multi-level accountability architectures, combining legal enforcement, civic engagement, and technological transparency. Yet, gaps remain concerning how these mechanisms interact across political, social, and technological domains, particularly in contexts of weak state capacity and polarized governance environments.

Synthesis

The reviewed literature underscores that governance gaps in developing countries manifested through institutional fragmentation, weak enforcement, and integrity deficits are deeply interlinked rather than isolated phenomena. Fragmentation often weakens enforcement coherence, while corruption amplifies both policy incoherence and regulatory failure. Despite this recognition, scholars diverge on the optimal governance model: some advocate for centralized reform, while others prefer adaptive, network-based arrangements. What emerges clearly, however, is the need for context-specific institutional innovations that reconcile coordination, legitimacy, and accountability.

From a critical standpoint, most studies emphasize descriptive analysis of governance failures but offer limited empirical evaluation of how institutional reforms translate into measurable environmental outcomes. This reveals a gap for future research to explore the causal linkages between governance reforms, enforcement legitimacy, and sustainability performance within developing country contexts such as Zimbabwe.

1.1.3 Governance Frameworks: Policy Coherence versus Polycentric Governance

i. Policy Coherence for Sustainable Development (PCSD)

Policy coherence has emerged as a cornerstone of sustainability governance because it integrates environmental, social, and economic goals within a unified policy logic. According to the OECD (2023), PCSD entails "the systematic promotion of mutually reinforcing policies across government departments and levels of administration." Through aligning policies across ministries, PCSD seeks to overcome the long-standing fragmentation that undermines sustainability. The OECD (2024) Policy Coherence Review reveals that states employing PCSD mechanisms such as inter-ministerial coordination committees, sustainability audits, and integrated planning tools tend to exhibit fewer contradictions between economic growth and ecological protection. This body of evidence suggests that PCSD contributes not only to administrative efficiency but also to policy predictability and accountability. However, scholars caution that PCSD often remains rhetorical or procedural rather than transformative. Jansen and Kalas (2023), examining Southeast Asian policy frameworks, note that coherence mechanisms frequently exist "on paper" without meaningfully influencing dominant economic ministries whose mandates perpetuate deforestation and unsustainable extraction. Similarly, Meadowcroft (2022) criticizes PCSD for prioritizing technocratic coordination over the political negotiation that sustainability requires. He argues that policy coherence frameworks tend to obscure underlying power asymmetries and vested interests that shape environmental decision-making. This critique implies that coherence cannot be achieved through bureaucratic alignment alone; it must also confront political economy dynamics.

Building on this critique, several scholars propose strengthening PCSD through institutional enforcement and accountability mechanisms. Without binding commitments, coherence risks becoming a "tick-box exercise." Hence, political will underpinned by transparent monitoring and evaluation systems becomes essential to ensure that PCSD moves beyond symbolic compliance toward substantive integration of sustainability across governance domains. The literature therefore converges on the view that while PCSD is a valuable governance ideal, its effectiveness depends on political commitment, cross-sectoral collaboration, and societal oversight, not merely administrative coordination.

ii. Polycentric Governance (PCG)

In contrast to PCSD's emphasis on centralized coordination, polycentric governance highlights diversity, redundancy, and adaptability as sources of resilience. Rooted in the work of Ostrom (2010), PCG envisions multiple semi-autonomous centers of authority such as local councils, NGOs, and national agencies that interact through overlapping jurisdictions. This structure allows for experimentation and mutual learning while distributing decision-making power. Kellner, Petrovics, and Huitema (2024) found that polycentric arrangements enhanced adaptive capacity in climate governance by enabling localized solutions and innovation. Nonetheless, they caution that without strong coordination mechanisms, polycentric systems risk reverting to fragmentation and duplication: the very issues they are designed to overcome.

Jansen and Kalas (2023) extend this argument by emphasizing the importance of meta-governance — a higher-level coordinating layer that promotes coherence among diverse actors while safeguarding local autonomy. This meta-governance perspective aligns with recent governance theory, which recognizes that decentralization and coordination are not binary opposites but complementary elements within complex governance ecosystems.

Although PCSD and PCG appear conceptually divergent, one advocating central control, the other celebrating decentralization contemporary scholarship increasingly views them as complementary paradigms. Biermann et al. (2017) propose the concept of "coordinated polycentricity," where national governments establish overarching sustainability objectives and accountability systems, while sub-national and non-state actors retain autonomy to innovate. This hybrid arrangement ensures that local experimentation contributes directly to national and global sustainability commitments such as the Sustainable Development Goals (SDGs).

In synthesis, the literature underscores that no single governance model guarantees sustainability. Effective frameworks must balance coherence with flexibility, central oversight with local empowerment, and accountability with innovation. The emerging consensus supports multi-level, adaptive, and politically aware governance structures capable of addressing the dynamic nature of sustainability challenges in developing countries.

1.1.4 Participation, Co-Management and Community Agency

The shift from top-down governance to participatory and co-management models marks a major normative evolution in natural resource management (NRM). Participation is now seen not merely as a democratic ideal but as a functional requirement for sustainability, enabling local ownership and contextual knowledge integration. Fariss et al. (2023), in a global meta-analysis of 500 community-based conservation initiatives, found that 81 percent achieved at least one positive ecological or social outcome, yet only 34 percent succeeded in attaining both simultaneously. Their findings reveal that participation alone is insufficient; it must be underpinned by legal recognition of community rights, transparent benefit-sharing, and sustained state support. Without these enabling conditions, participatory projects risk becoming tokenistic, serving as instruments of policy legitimation rather than empowerment.

In the African context, several empirical studies provide a more critical perspective. Jimu (2025), examining small-scale fisheries co-management, reports that elite capture, inadequate resourcing, and weak legal mandates often subvert accountability. Similarly, Chitsove and Madebwe (2024) observe that Botswana's Community-Based Natural Resource Management (CBNRM) projects improved livelihoods but produced uneven benefits, with local elites monopolizing decision-making. These findings contrast with

the relatively optimistic conclusions of Fariss et al. (2023) and demonstrate that participatory outcomes are highly context-dependent. Structural inequalities, power relations, and institutional histories profoundly shape whether participation translates into genuine empowerment or reproduces existing hierarchies.

The literature also interrogates the scalability of participatory governance. Adam et al. (2021) argue that successful local initiatives often fail to scale up because national bureaucracies resist devolving authority to local communities, perceiving participation as a threat to central control. In contrast, Borrini-Feyerabend and Hill (2021) suggest that scaling is possible if participatory mechanisms are embedded within legal and fiscal frameworks that guarantee community rights, ensure predictable resource transfers, and institutionalize participation across levels of governance. This divergence reveals a central tension in the literature: while participation enhances legitimacy and sustainability, its durability requires continuous political commitment and resource investment.

A critical synthesis of these perspectives indicates that community participation and co-management are necessary but not sufficient conditions for effective NRM. Their success depends on the broader governance environment including legal empowerment, financial stability, and transparent oversight. Furthermore, participation should be conceived not as a static institutional arrangement but as an iterative process of negotiation and power-sharing. In this sense, community agency becomes both an outcome and a driver of adaptive governance.

Across both sections, the reviewed literature reveals a shift from hierarchical, state-centric governance to multi-level, participatory, and adaptive models. Yet, tensions persist between the ideals of coherence, decentralization, and participation. While PCSD and PCG offer complementary visions of integration and flexibility, their effectiveness ultimately hinges on enforcement capacity, political will, and civic engagement themes that resonate with broader debates on governance quality in developing countries.

1.1.5 Natural Resource Rents, Fragility and Governance Quality

The relationship between natural resource rents and governance outcomes remains central to debates on the "resource curse" hypothesis. According to Ongo Nkoa, Song, and Minkoué Bikoula (2024), panel data from 45 developing countries (2000–2020) revealed that high resource rents significantly increase economic and political fragility where governance indicators such as rule of law and accountability are weak. This finding supports the argument that governance quality mediates the relationship between resource dependence and state fragility. In other words, the mere presence of natural resources does not determine outcomes; rather, the institutional environment shapes whether resource rents become a blessing or a curse.

However, other scholars caution against overly deterministic interpretations. Afolabi (2023) shows that countries like Botswana and Chile have avoided the resource curse through strong fiscal rules, transparency mechanisms, and prudent resource management institutions. Likewise, Acemoglu and Robinson (2019) argue that it is inclusive political institutions, not resource abundance itself that determine whether natural wealth translates into sustainable development. These contrasting findings highlight that resource rents are not inherently destabilizing; they become problematic only in contexts characterized by weak institutions, corruption, and poor accountability. The consensus emerging from this debate is that institutional design and governance capacity are the decisive variables mediating how natural resources influence fragility and sustainability.

1.1.6 Convergences, Divergences and Research Gaps

i. Converging Insights

Across the reviewed literature, there is broad agreement that institutions matter. Governance systems that are transparent, accountable, and participatory tend to produce better environmental and developmental outcomes (Meadowcroft, 2022; Adam et al., 2021). Scholars also converge on the need for multi-level and multi-actor governance, emphasizing that complex ecosystems require adaptive, collaborative arrangements rather than rigid hierarchies (Kellner et al., 2024; Biermann et al., 2017). Both PCSD and PCG frameworks underscore the importance of coherence and coordination across scales and actors to promote sustainability and inclusivity.

ii. Differing Views and Theoretical Tensions

Despite these commonalities, several theoretical and practical tensions persist:

- Centralization versus Decentralization:

OECD-inspired PCSD models emphasize strong central oversight for coherence, whereas Ostromian approaches promote decentralization for flexibility and innovation. The former ensures alignment but risks rigidity; the latter fosters adaptability but may increase fragmentation.

- Participation versus Efficiency:

Authors such as Fariss et al. (2023) and Jimu (2025) highlight the legitimacy gains from participatory processes, while Adam et al. (2021) warn that such processes can be slow and prone to conflict, reducing policy efficiency and timely implementation.

- Governance Quality versus Political Economy:

Quantitative studies (e.g., Ongo Nkoa, Song, & Minkoué Bikoula, 2024) statistically link governance indices to sustainability outcomes, but qualitative researchers (Cotler et al., 2022) argue that these indicators overlook deeper political–economic structures, such as elite capture and patronage networks. This suggests that governance reform must engage political realities rather than merely adjusting institutional design.

iii. Identified Research Gaps

- Measurement: Most governance assessments rely on macro indices such as the WGI or CPI, with limited tools to assess local or sector-specific governance performance.
- Causality: Few studies empirically trace how governance reforms lead to measurable environmental or developmental outcomes.
- Contextual Adaptation: The applicability of governance models such as PCSD and PCG from developed to developing contexts remains underexplored.
- Integration of Traditional Governance: Indigenous and customary systems—potentially vital in African and Asian settings—remain underrepresented in the governance literature (Chitsove & Madebwe, 2024).

Overall, the reviewed literature emphasizes that bridging governance gaps in sustainable natural resource management requires integrated reform across institutional, procedural, and participatory dimensions. Effective governance must not only enforce environmental laws but also legitimize decision-making, align policies across scales, and distribute authority and benefits equitably. These insights inform the design of the present study's analytical framework and guide the methodological approach outlined in the next chapter, which synthesizes secondary literature on governance and sustainability in developing contexts.

2.0 MATERIALS AND METHODS

2.1 Research Design

This study adopted a qualitative desk-based research design anchored in secondary data. A desk-based design was deemed appropriate because the purpose of the study is not to collect new empirical data but to synthesise, interpret, and critique existing evidence on governance and sustainable natural resource management (NRM) in developing countries. According to Snyder (2019), secondary research designs allow scholars to map existing knowledge, identify conceptual gaps, and derive theoretical insights that inform both policy and practice. Such a design is particularly suited to contexts where extensive empirical work already exists but has not been systematised into a coherent analytical framework.

Desk-based research involves systematically reviewing scholarly literature, policy reports, and other credible documents to identify, interpret, and integrate key findings (Grant & Booth, 2009). It is therefore interpretivist in orientation, as it emphasises meaning-making and critical reflection over hypothesis testing (Booth, et al 2021). The interpretive stance adopted here views governance as a socially constructed and context-dependent phenomenon whose understanding requires synthesising multiple perspectives rather than relying on quantitative generalisation.

Moreover, this approach is consistent with methodological best practice for policy studies, where the focus is often on understanding institutional dynamics rather than measuring discrete variables (Page et al., 2021). It also fits the pragmatic rationale of this manuscript: conducting fieldwork across multiple developing countries would be resource-intensive and unnecessary given the abundance of relevant secondary material. Thus, the desk-based design provides both feasibility and conceptual depth.

2.2 Research Paradigm and Philosophical Orientation

This manuscript is underpinned by an interpretivist epistemology and a constructivist ontology. Interpretivism assumes that knowledge is constructed through interpretation and interaction, and that social phenomena such as governance cannot be meaningfully understood through positivist measurement alone (Creswell & Poth, 2018). Constructivism further posits that multiple realities coexist depending on actors' experiences, contexts, and institutional arrangements. Under this paradigm, the study does not aim to measure governance performance but to understand the diverse conceptualisations, practices, and policy logics that shape it. This approach allows the researcher to explore differing scholarly viewpoints, identify tensions between theoretical frameworks, and integrate them into a coherent narrative. Consequently, qualitative synthesis becomes not merely a summary of existing studies but a critical review that reinterprets relationships among ideas (Grant & Booth, 2009).

2.3 Sources of Data

The data comprised secondary materials published between 2015 and 2025 to ensure contemporaneity. The selection encompassed four main source categories:

i. Peer-reviewed journal articles from Scopus, Web of Science, and Google Scholar, which offered theoretical, empirical, and comparative insights into governance and sustainability.
ii. Institutional reports from the *World Bank*, *UNEP*, *OECD*, *Transparency International*, and *African Development Bank*, providing globally recognised indicators and frameworks.
iii. Academic books and book chapters, particularly for conceptual and theoretical elaborations (e.g.Clegg & Ninan, 2023).
iv. Grey literature—policy briefs and working papers—from reputable think tanks such as the *International Institute for Environment and Development (IIED)*, the *Stockholm Environment Institute (SEI)*, and the *Chatham House Environment & Society Programme*.

The use of multiple data sources enhanced triangulation, cross-verifying facts and interpretations across different document types thereby strengthening the credibility of the study (Vaismoradi & Snelgrove, 2019).

2.4 Search Strategy and Data Collection Procedure

A systematic literature search was conducted following the PRISMA 2020 guidelines (Page et al., 2021) to ensure transparency and replicability. The search unfolded in four sequential stages:

i. Identification – Keywords and Boolean operators were used across databases to locate relevant literature. Key phrases included:
   - "governance gaps" AND "natural resource management" AND "developing countries";
   - "policy coherence" AND "sustainability" OR "environmental governance";
   - "polycentric governance" AND "climate governance";
   - "Community-based natural resource management" AND "Africa/Asia/Latin America."

   This stage produced approximately 620 records.

ii. Screening – Titles and abstracts were reviewed to exclude duplicates, non-English publications, and studies outside the scope of governance or sustainability. After this step, 271 sources remained.

iii. Eligibility – Full texts were examined using inclusion criteria:
   - relevance to governance mechanisms, institutional capacity, or policy frameworks in NRM;
   - publication year ≥ 2015;
   - Empirical, conceptual, or comparative focus on developing countries.

   Exclusion criteria were studies focusing solely on biophysical or engineering aspects without a governance dimension.

iv. Inclusion – A final corpus of 108 sources was retained: 64 peer-reviewed articles, 29 institutional reports, and 15 grey-literature documents. The selection ensured geographical representation from Africa (43 studies), Asia (28), Latin America (18), and global comparative analyses (19).

2.5 Data Extraction and Coding

Data extraction involved constructing a literature matrix in Microsoft Excel to capture essential metadata and analytical notes. Each entry recorded:

- Author(s), year, country or region;
- Governance dimension addressed (institutional capacity, enforcement, participation, policy coherence, integrity);
- Type of study (empirical, theoretical, comparative);
- Key findings and limitations;
- Similar or contrasting positions relative to other studies.

A thematic coding framework was then applied. Codes emerged inductively from recurrent concepts but were organised around five *a priori* governance dimensions identified from the conceptual framework:

1. Institutional capacity and coherence,
2. Enforcement and accountability,
3. Integrity and anti-corruption,
4. Participation and co-management,
5. Integrative models (PCSD and polycentricity).

Each source could be assigned multiple codes. This dual inductive–deductive approach combined openness to new themes with alignment to theoretical constructs (Braun & Clarke, 2021).

2.6 Data Analysis Techniques

2.6.1 Thematic Content Analysis

The data were analysed using thematic content analysis, following Braun and Clarke's (2021) six-phase model:

1. Familiarisation – Intensive reading and note-taking on conceptual emphases.
2. Initial coding – Highlighting recurring terms (e.g., *institutional fragmentation*, *coherence*, *accountability*).
3. Theme generation – Grouping codes into broader patterns reflecting governance dynamics.
4. Theme review – Checking internal homogeneity and external distinctiveness of each theme.
5. Theme definition – Naming themes (e.g., "Institutional Fragmentation," "Integrity Risks").
6. Reporting – Integrating coded insights into a coherent narrative within the manuscript.

2.6.2 Comparative Synthesis

Where studies presented quantitative results (e.g., WGI scores, CPI rankings), descriptive comparison was used to link numerical evidence to qualitative insights. Divergent findings were explored through critical comparison rather than elimination to maintain analytic balance (Booth et al., 2021). This iterative process allowed identification of converging trends (e.g., shared recognition of enforcement weaknesses) and diverging interpretations (e.g., differing assessments of decentralisation effectiveness).

2.7 Validity, Reliability and Trustworthiness

Ensuring the trustworthiness of qualitative synthesis is essential for establishing the rigour and credibility of findings. Following Lincoln and Guba's (1985) framework, this study evaluated credibility, dependability, confirmability, and transferability to strengthen methodological integrity and enhance confidence in the research outcomes.

2.7.1 Credibility

Credibility refers to the confidence in the truthfulness and authenticity of the findings. To enhance credibility, data were triangulated across multiple sources, including peer-reviewed academic studies and institutional publications such as policy reports, evaluation briefs, and organizational reviews. This data-type triangulation reduced the risk of bias associated with any single source and ensured that interpretations were grounded in convergent evidence (Grant & Booth, 2009).

Additionally, the researcher retained contradictory or disconfirming evidence instead of excluding it, thereby preventing selection bias and presenting a balanced account of governance experiences. This approach aligns with best practices in systematic qualitative synthesis, where both supportive and dissenting perspectives are examined to deepen understanding. The use of direct quotations and clear author attributions further strengthened transparency, enabling readers to trace specific insights to their original sources. Collectively, these strategies enhanced the authenticity and believability of the synthesized findings.

2.7.2 Dependability

Dependability, analogous to reliability in quantitative paradigms, concerns the stability and consistency of research processes over time. This study achieved dependability through a well-documented audit trail, detailing all major methodological decisions from database searches and inclusion criteria to coding and thematic synthesis.

A methodological logbook was maintained throughout the review process to record search strings, article screening decisions, and rationale for theme development. Such documentation ensures that another researcher could trace and, if desired, replicate the analytical process to arrive at comparable interpretations. This structured and traceable approach meets the standard of process transparency, thereby reinforcing the dependability of the study's findings.

2.7.3 Confirmability

Confirmability addresses the extent to which findings reflect the data rather than researcher bias. To ensure objectivity, reflexive journaling was employed throughout data synthesis. This entailed noting personal assumptions, interpretive decisions, and moments of uncertainty during analysis, consistent with the reflective practices outlined by Braun and Clarke (2021).

Furthermore, all included sources were publicly verifiable and citation-based, allowing for independent validation of evidence. The reliance on documented, peer-reviewed materials minimized subjectivity and reduced the likelihood of selective interpretation. Through these reflexive and transparent procedures, confirmability was maintained at a high standard, ensuring that conclusions are data-driven rather than researcher-imposed.

2.7.4 Transferability

Transferability refers to the extent to which findings can be applied to other contexts with similar characteristics. Although the present study is qualitative in nature, its findings are transferable to comparable settings particularly developing economies with analogous institutional and ecological challenges.

This is supported by the inclusion of a diverse range of regions, governance frameworks, and institutional arrangements, which enhances the applicability of insights beyond the immediate study scope. Detailed contextual descriptions and systematic selection criteria enable readers to assess the relevance of these findings to their own settings, in line with Snyder (2019). Thus, while generalization in the statistical sense is not claimed, analytical transferability is achieved through rich contextualization and thematic breadth.

2.8 Ethical Considerations

Since the study relied solely on publicly available secondary sources, no formal ethical approval was necessary. Nevertheless, standard research-ethics principles were observed. Intellectual property was respected through proper citation and referencing. Data were represented faithfully, without selective omission or distortion. The study also adhered to the Committee on Publication Ethics (COPE) standards on responsible scholarship (Pirani, 2024). Additionally, sensitivity was maintained when discussing governance deficiencies in specific countries: critique was directed at systemic patterns rather than individual officials or institutions.

2.9 Methodological Limitations

While the desk-based design provided wide coverage and analytical depth, certain limitations persist:

i. Publication Bias – Studies with positive or significant findings are more likely to be published, potentially skewing the evidence base (Booth et al., 2021).
ii. Regional Imbalance – Data availability favours Africa and Asia; small island developing states and parts of Latin America remain underrepresented.
iii. Time Lag – Institutional reports often summarise conditions 1–2 years prior to publication, meaning the latest policy reforms may not yet be captured.

iv. Limited Quantitative Integration – While some indices (e.g., CPI 2024, WGI 2023) provide numerical governance scores, cross-country comparability remains constrained by differing methodologies.
v. Interpretive Subjectivity – The researcher's analytical lens inevitably shapes synthesis. Reflexivity and transparent documentation mitigate, but cannot fully eliminate, subjectivity.

These limitations do not invalidate the findings but frame their interpretive boundaries. Future research could address them through mixed-methods triangulation, combining secondary synthesis with targeted interviews or case studies to test the conceptual propositions developed here.

2.10 Strengths of the Methodological Approach

Despite the noted constraints, the chosen methodology exhibits several strengths:

- Breadth of Evidence – Covering ten years of academic and institutional literature provides a panoramic understanding of governance dynamics across regions.
- Comparative Insight – Synthesising across diverse settings uncovers universal patterns and context-specific variations.
- Theoretical Integration – The approach enables blending of frameworks such as *Policy Coherence*, *Polycentric Governance*, and *Co-Management*, enriching conceptual analysis.
- Policy Relevance – Desk-based syntheses are particularly useful for informing policymakers, as they consolidate best practices and identify systemic weaknesses (Grant & Booth, 2009).

2.11 Summary

In summary, the methodology followed a transparent, systematic, and rigorously documented process that ensures the study's credibility. Through combining interpretivist philosophy, systematic search and coding, thematic analysis, and triangulation across authoritative sources, this manuscript builds a robust foundation for analysing governance gaps in sustainable NRM. The findings presented in the next chapter are therefore grounded in an exhaustive synthesis of verifiable evidence, allowing a nuanced understanding of how governance systems influence resource sustainability across developing countries.

3.0 FINDINGS

3.1 Overview of Key Themes

The desk-based analysis generated five dominant themes that characterise governance gaps in sustainable natural resource management (NRM) across developing countries. These are:

1. Institutional Fragmentation and Policy Incoherence
2. Weak Enforcement and Capacity Deficits
3. Integrity Risks and Corruption
4. Limited Participation and Weak Co-Management Systems
5. Integrative Governance Models: Policy Coherence and Polycentricity

Each theme emerged consistently from more than one hundred peer-reviewed papers and institutional reports published between 2015 and 2025. Collectively, they reveal that governance weaknesses are multidimensional and systemic, spanning institutional design, political will, enforcement mechanisms, and citizen engagement. The findings further indicate that while individual reforms have been attempted in many countries, the absence of cross-sectoral integration and coordinated accountability frameworks has hindered their effectiveness.

3.2 Institutional Fragmentation and Policy Incoherence

A recurrent finding across the literature is that institutional fragmentation remains one of the most entrenched governance challenges confronting NRM in developing countries. This fragmentation is reflected in overlapping mandates, conflicting objectives, and weak inter-agency coordination. OECD (2023) observes that ministries responsible for environment, water, forestry, and mining often operate in isolation, pursuing divergent agendas with little vertical or horizontal integration. This results in duplication of efforts, inconsistent legislation, and competition for limited resources.

Macheka (2021) found that in southern Africa, environmental impact assessments were rendered largely ineffective due to institutional competition: while environmental ministries sought to enforce ecological safeguards, mining authorities prioritised economic extraction. Similarly, Browne et al. (2023) highlight that inadequate coordination between national and local institutions creates implementation vacuums, where national policies fail to translate into tangible local outcomes.

However, there is no consensus on how to remedy fragmentation. Centralisation advocates (OECD, 2023; Meadowcroft, 2022) call for stronger executive oversight and inter-ministerial frameworks to enhance policy coherence, arguing that unified authority can prevent duplication. In contrast, decentralisation proponents (Clegg & Ninan, 2023; Msezane, 2023) maintain that rigid centralisation undermines innovation and responsiveness, especially in regions where indigenous and community-based governance systems hold deep ecological knowledge. The combined implication is that both hierarchical and participatory governance are necessary. Therefore, this study finds that institutional coherence is best achieved through hybrid governance models that combine national-level coordination with community-level flexibility, ensuring both efficiency and inclusivity.

3.3 Weak Enforcement and Capacity Deficits

Weak enforcement of environmental regulations emerged as the second major governance gap. The World Bank (2023) governance indicators specifically "rule of law" and "government effectiveness" show that most developing countries perform below the global average, indicating persistent weaknesses in law enforcement and regulatory control.

Yu (2023) attributes this to inadequate monitoring infrastructure, underfunded environmental agencies, and demotivated staff, while Kimengsi et al. (2022) note that political interference often allows influential actors to evade penalties. These studies collectively suggest that enforcement is undermined by both structural and behavioural constraints.

However, other evidence illustrates that local legitimacy can enhance compliance. Luaba (2021) found that enforcement improved significantly in Zambian forest communities when participatory monitoring systems were introduced. Likewise, Adam et al. (2021) theorise that decentralised accountability where communities are empowered yet answerable creates stronger adherence to environmental norms. These findings reveal a dual dynamic: technical capacity is vital, but perceived legitimacy and ownership are equally essential. Thus, the study finds that strengthening enforcement requires integrating community-based mechanisms, improving inter-agency information sharing, and ensuring adequate financial and human resources for consistent regulatory oversight.

3.4 Integrity Risks and Corruption

Integrity risks are a pervasive challenge that cuts across all other governance themes. Transparency International's Corruption Perceptions Index 2024 (Transparency International, 2025) reveals that over two-thirds of developing countries score below the global average, reflecting systemic corruption within natural resource sectors.

Yu (2023) describes how rent-seeking behaviour siphons revenues from national treasuries, while corrupt licensing and procurement practices accelerate resource depletion. Similarly, Ongo Nkoa, Song, and Minkoué Bikoula (2024) provide empirical evidence linking weak anti-corruption institutions with high rates of deforestation and pollution. The extractive industries especially mining, oil, and forestry remain particularly vulnerable, where discretionary power in contract allocation creates avenues for bribery and elite capture.

Nevertheless, some studies reveal that non-state actors can play a corrective role. Cotler et al. (2022) found that robust civil-society activism and investigative journalism in Latin America exposed illegal concessions, prompting policy reforms. This underscores that integrity is not exclusively a state function but a societal value reinforced through public scrutiny and open information.

The findings converge on the need for transparent licensing systems, digital procurement audits, and open data dashboards to track transactions and decision-making. Botswana and Chile offer promising examples where such e-governance tools improved accountability. Yet, as Meadowcroft (2022) cautions, technology alone cannot eliminate corruption; it must operate within institutions that uphold rule of law and civic engagement. Therefore, sustainable integrity reform should integrate technological innovation, institutional accountability, and normative cultural change.

3.5 Limited Participation and Weak Co-Management Systems

The fourth theme reveals that public participation and co-management though widely endorsed in policy discourse often fail to deliver sustained outcomes in practice. Fariss et al. (2023) reported that while most community-based conservation projects achieved environmental or livelihood improvements, very few achieved both simultaneously. This suggests that participation without clear benefit-sharing or legal empowerment yields temporary rather than transformative results.

In the African context, Jimu (2025) and Chitsove & Madebwe (2024) identified elite capture, donor dependency, and politicised leadership as key factors undermining co-management structures. Local committees frequently lack decision-making authority or financial autonomy, causing them to collapse once donor funding ceases. Conversely, Borrini-Feyerabend and Hill (2021) highlight that where community land rights are legally protected, such as in Namibia's conservancies, co-management significantly enhances biodiversity and livelihoods.

Adam et al. (2021) note, however, that participatory governance can be slower and resource-intensive, sometimes delaying policy implementation. Yet they concur that inclusiveness enhances legitimacy and conflict resolution, reinforcing social trust in environmental governance. Therefore, this study finds that participation must be institutionalised, legally recognised, and adequately resourced. Governments should embed co-management frameworks within statutory law, ensure equitable benefit distribution, and provide long-term technical support to local institutions.

3.6 Integrative Governance Models: Policy Coherence and Polycentricity

3.6.1 Policy Coherence

Policy Coherence for Sustainable Development (PCSD), as defined by the OECD (2023, 2024), promotes systematic alignment of sectoral policies with sustainability objectives. Countries such as Rwanda and Costa Rica have made notable progress through inter-ministerial coordination frameworks that harmonise planning across the environment, finance, and development sectors. However, Jansen & Kalas (2023) argue that PCSD in developing contexts often remains superficial, as political and economic ministries dominate resource allocation and override environmental priorities. Meadowcroft (2022) further critiques PCSD for neglecting the

underlying political economy of natural resource dependence, emphasising that coherence must extend beyond administrative alignment to address power asymmetries.

3.6.2 Polycentric Governance

Polycentric governance (Ostrom, 2010; Kellner et al., 2024) emphasises multiple centres of authority operating at different scales. It allows for experimentation, learning, and adaptive management, enabling actors to innovate contextually. Empirical studies show that polycentric systems have improved water governance in Kenya and decentralised forest management in Indonesia (Tobin, Huitema, & Kellner, 2024). Jansen & Kalas (2023), however, caution that poorly coordinated polycentric structures risk reproducing fragmentation. Hence, successful polycentric governance requires a meta-governance layer that fosters collaboration, accountability, and information exchange among actors.

Collectively, the findings reveal that combining vertical coherence with horizontal collaboration produces more resilient governance systems capable of responding to the complexities of NRM in developing countries.

4.0 DISCUSSION

4.1 Synthesis of Findings

The overall synthesis of the findings indicates that governance gaps in NRM across developing countries are not isolated deficiencies but deeply interconnected systemic weaknesses. Institutional fragmentation undermines policy implementation, weak enforcement diminishes compliance, and corruption corrodes both institutional credibility and citizen trust. Limited participation further weakens accountability, perpetuating a cycle where governance failures reinforce one another.

The analysis shows that sustainable natural resource management cannot be achieved through singular reforms but requires holistic transformation of governance systems. This aligns with the emerging consensus among scholars and institutions that sustainability is primarily a governance problem rather than purely a technical or ecological one.

4.2 Interpretation and Theoretical Linkages

Institutional fragmentation validates OECD (2023) and Meadowcroft (2022)'s assertions that cross-sectoral coherence is foundational to effective environmental governance. Yet the decentralisation perspective advanced by Clegg & Ninan (2023) and Msezane (2023) remains crucial to maintain flexibility and local responsiveness. Integrating both insights suggests a hybrid meta-governance structure that balances central policy direction with decentralised implementation.

Weak enforcement findings reinforce Adam et al. (2021)'s theory that compliance improves when rule enforcement is embedded in participatory governance. Technical capacity without legitimacy produces resistance, as Luaba (2021) demonstrated in Zambia. Similarly, integrity risks confirm Transparency International (2025) and Yu (2023)'s findings that corruption distorts incentives and undermines resource sustainability. Cotler et al. (2022)'s evidence that social accountability can constrain corruption complements this by highlighting the role of public oversight.

Participation findings support Borrini-Feyerabend and Hill (2021)'s position that legal empowerment and devolution of rights, not symbolic consultation drive long-term success. Even though Adam et al. (2021) caution against inefficiency, inclusiveness remains vital for legitimacy and conflict mitigation. Finally, PCSD and polycentric governance (OECD, 2023; Ostrom, 2010; Kellner et al., 2024) converge to form a dual-framework approach: coherence ensures vertical alignment of goals, while polycentricity encourages horizontal collaboration and innovation.

4.3 Pathways for Bridging Governance Gaps

Synthesising these perspectives reveals four strategic pillars for bridging governance gaps:

1. Institutional Integration – Streamline mandates, align sectoral policies, and strengthen inter-ministerial coordination to eliminate duplication and policy contradictions.
2. Capacity Enhancement – Invest in human, financial, and technological resources for enforcement, monitoring, and evaluation to ensure consistency and transparency.
3. Integrity Systems – Institutionalise transparent digital platforms, open data portals, and anti-corruption bodies tailored to the natural-resource sector, ensuring that integrity becomes a governance norm rather than an exception.
4. Participatory Governance – Embed community participation and co-management structures into statutory law, accompanied by benefit-sharing and accountability mechanisms.

When these pillars operate in synergy, they create the conditions for a hybrid governance model that integrates policy coherence (OECD, 2023) and polycentric collaboration (Ostrom, 2010). Such systems combine the strengths of central coordination and local innovation, aligning national priorities with grassroots realities and thus constitute a realistic pathway toward sustainable resource stewardship in developing countries.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This manuscript set out to examine how governance gaps undermine sustainable natural resource management (NRM) in developing countries and to explore policy and institutional pathways for bridging those gaps. Through a desk-based synthesis of more than

one hundred peer-reviewed studies, institutional reports, and policy papers (2015–2025), the analysis identified five interrelated governance challenges:

(1) institutional fragmentation,
(2) weak enforcement capacity,
(3) corruption and integrity deficits,
(4) limited participation and fragile co-management, and
(5) poor integration of policy frameworks across levels and sectors.

Taken together, these challenges reveal that governance failures in developing contexts are systemic rather than incidental rooted in overlapping mandates, under-resourced institutions, and political economies dominated by rent-seeking. Consequently, environmental degradation, resource depletion, and social inequities persist despite the proliferation of sustainability rhetoric.

The review also highlighted areas of convergence and divergence in the literature. Most authors agree that strong, accountable, and participatory institutions are essential for sustainable NRM (Adam, et al 2021; Meadowcroft, 2022). However, scholars differ on the appropriate degree of centralisation. While OECD (2023, 2024) and World Bank (2023) advocate coordinated, top-down policy coherence, others such as Ostrom (1990) and Kellner et al. (2024) emphasise adaptive, bottom-up polycentric governance that empowers multiple decision centres.

Evidence from Botswana, Chile, and Namibia shows that combining these approaches central coordination with local autonomy produces the most durable results.

Another consensus emerging from the synthesis is that good governance is a precondition for sustainability. Countries with higher scores on governance indicators (e.g., rule of law, control of corruption, government effectiveness) consistently achieve better environmental outcomes. Yet quantitative indices alone do not capture informal institutions, indigenous governance systems, or sub-national dynamics. Hence, sustainable NRM demands not merely more laws and agencies, but *better relationships* among state, market, and community actors grounded in trust, transparency, and accountability.

The findings further demonstrate that bridging governance gaps is essential for achieving multiple Sustainable Development Goals (SDGs)—notably SDG 13 (Climate Action), SDG 15 (Life on Land), and SDG 16 (Peace, Justice and Strong Institutions). Sustainable resource management contributes directly to climate mitigation and biodiversity protection, while improved governance strengthens institutional legitimacy and social cohesion.

Ultimately, this study concludes that developing countries can move toward sustainable NRM only through holistic governance reform that integrates institutional strengthening, policy coherence, transparency mechanisms, and inclusive participation. Such reform should not be viewed as a technical exercise but as a *transformative political process* that redefines how authority, accountability, and benefits are distributed within society.

5.2 Recommendations

5.2.1 Policy and Institutional Reforms

i. Establish Integrated Governance Frameworks- Governments should clarify institutional mandates and establish inter-ministerial coordination mechanisms to reduce duplication.
ii. Strengthen Enforcement and Monitoring Capacity- Increase budget allocations for environmental agencies and resource inspectorates.
iii. Institutionalise Anti-Corruption and Integrity Systems- Adopt open-data portals for resource contracts, royalties, and environmental impact assessments.
iv. Enhance Policy Coherence across Sectors and Scales- Align national development plans, climate strategies, and land-use policies through formal coherence assessments.

5.2.2 Participatory and Co-Management Approaches

i. Legal Recognition of Community Rights- Enact or amend legislation to secure communal tenure and user rights over forests, fisheries, and wildlife.
ii. Institutionalise Co-Management in Statute- Integrate community committees into official governance hierarchies, ensuring representation in decision-making, benefit-sharing, and monitoring processes.
iii. Provide Sustainable Financing for Local Institutions- Establish trust funds or revenue-sharing mechanisms that return a fixed percentage of resource royalties to community conservation structures.
iv. Invest in Environmental Education and Capacity Building- Training programmes for local leaders, women, and youth can strengthen participation quality and foster stewardship values.

5.2.3 Integrative Governance Innovations

i. Adopt Hybrid Governance Models- Combine Policy Coherence (vertical integration) with Polycentric Governance (horizontal collaboration) to balance national strategy with local innovation.
ii. Embed Indigenous and Traditional Knowledge Systems- Integrate customary resource-management practices into statutory frameworks to enhance legitimacy and resilience.

iii. Develop Context-Specific Governance Indicators- Move beyond generic global indices by creating sector-specific governance metrics for example, measuring forest-licensing transparency, fisheries co-management performance, or mining-revenue accountability.

iv. Strengthen Regional and Cross-Border Cooperation- Since natural systems transcend national borders, regional bodies such as the Southern African Development Community (SADC) and African Union should facilitate shared monitoring and dispute-resolution mechanisms for transboundary resources.

5.3 Final Reflection

The pursuit of sustainable natural resource management in developing countries cannot be separated from the quality of governance. Bridging governance gaps requires aligning *rules, resources, and relationships*, the triad that determines whether policies translate into practice.

If developing countries strengthen institutions, nurture accountability, empower communities, and embrace integrative governance models, they can transform their natural wealth from a source of conflict into a foundation for sustainable prosperity. In doing so, they will not only advance their domestic agendas but also contribute meaningfully to the global commitment of achieving the 2030 Sustainable Development Goals.

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