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Linking Environmental Governance to SDG Outcomes: A Theoretical Perspective

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Abstract:
The realization of the Sustainable Development Goals (SDGs) is closely linked to the strength of institutional frameworks and the effectiveness of governance mechanisms. This study develops a theoretical framework that connects environmental governance with SDG outcomes by synthesizing insights from research on governance systems, policy coherence, sustainability transitions, and socio-ecological perspectives. Grounded in theories such as adaptive governance, earth system governance, institutional theory and policy coherence theory, the paper examines how elements including governance quality, stakeholder involvement, institutional coordination, and coherent policy design collectively shape sustainability outcomes. It is argued that environmental governance functions as a pivotal mechanism that brings together economic, social, and environmental dimensions, thereby supporting progress toward the SDGs. The framework further identifies key channels namely energy transition, environmental performance, and green growth through which governance influences development outcomes. By offering an integrated conceptual model, the study contributes to the literature and provides a useful foundation for future empirical research and policy development.

Keywords: Environmental Governance; Institutional Quality; Policy Coherence; SDG Outcomes; Stakeholder Engagement; Sustainable Development Goals.

1. Introduction

The Sustainable Development Goals (SDGs) constitute a comprehensive global framework aimed at addressing interconnected economic, social, and environmental challenges through a coordinated and integrated development approach (Le Blanc, 2015; Allen et al., 2016). The SDGs, in contrast to earlier development frameworks, accentuate the interdependence of several aspects of sustainability, supporting that advancements in fields like social well-being, economic growth, and environmental preservation are highly associated (Pradhan et al., 2017; Bogers et al., 2022). As these goals are closely interconnected, effective policy coordination and strong institutional support become essential to limit trade-offs and strengthen synergies among development objectives (Browne et al., 2023; Wiegant et al., 2024). Thus, governance systems have taken center stage in the discussion of sustainable development since they influence how well policies are created, carried out, and overseen in order to achieve SDG goals (Omri & Ben Mabrouk, 2020; Naz et al., 2024). (Lemos & Agrawal, 2006; Agrawal et al., 2022) states that by controlling environmental resources, reducing pollution, and encouraging sustainable practices, environmental governance has become a essential element that directly influence sustainability outcomes

within this major governance framework. (Debbarma & Choi, 2022; Cheng et al., 2020) states that environmental governance refers to the combination of formal institutions, policy tools, and informal processes through which governments, markets, and civil society work together to manage environmental concerns. As environmental challenges in the Anthropocene age such as resource depletion, biodiversity loss, and climate change become more complex, the importance of adaptable and multi-level governance systems has become increasingly evident (Biermann et al., 2012; Biermann et al., 2010). (Folke et al., 2005; Ostrom, 2009) says theories such as adaptive governance and socio-ecological systems elucidate that environmental governance is potent when it incorporates learning, stakeholder participation, and institutional flexibility to cope with emerging environmental challenges. (Zhang & Zhang, 2024; Cheng et al., 2020) explains that augmenting environmental performance and facilitating sustainability transitions are two further ways that environmental governance is imperative. Studies show that effective governance frameworks help strengthen regulation, encourage innovation, and promote the sustainable use of resources. Furthermore, by fostering supportive policy settings and encouraging investments in clean technology, environmental governance plays important role in easing the shift towards low-carbon economies and renewable energy (Bakhsh et al., 2024; Bergougui et al., 2025; Zheng et al., 2025). According to (Sadiq et al., 2023) and (Phan, 2024) these shifts are crucial for accomplishing SDGs pertaining to clean energy, climate action, and sustainable production and consumption. Additionally, embedding Environmental, Social, and Governance (ESG) principles within policy and business practices has helped strengthen the connection between governance and sustainable development by aligning economic actions with environmental and social priorities (Koundouri et al., 2025; Kim & Yang, 2025). While environmental governance is considered essential, challenges such as inefficiencies, fragmented policies, and poor coordination across sectors and institutions continue to limit progress toward the SDGs (Dzebo et al., 2025; Browne et al., 2023). According to (May et al., 2006; Yunita et al., 2022) in many countries, policy coherence remains a concern, as conflicting priorities across domains can hinder sustainability efforts. At the same time, governance systems often face issues such as low stakeholder participation, weak institutional capacity, and inadequate monitoring mechanisms, which reduce the effectiveness of environmental policies (Glass & Newig, 2019; Dong et al., 2023; Munro, 2021).The nexus between governance and sustainability is further complicated by time lags in policy implementation and results, which makes it difficult to assess the immediate impacts of governance reforms (Hocherman et al., 2025). (Usman et al., 2024; Cavalheiro et al., 2025) explains another significant challenge arises from the fragmented nature of research on environmental governance and sustainable development. Although many studies examine governance in areas such as economic growth, energy transition, and environmental performance, they often remain disconnected and do not provide a complete picture of how governance mechanisms influence SDG outcomes. (Ghafoor et al., 2023; Odugbesan et al., 2021) explain some studies focus on governance and green growth or environmental quality while others explore its role in supporting sustainable development through policy coordination and institutional alignment (Naz et al., 2024; Hamid & AlObaid, 2025). According to (Del Río Castro et al., 2021; He et al., 2025) despite existing contributions, there is still no clear theoretical framework that brings these perspectives together and explains how environmental governance contributes to achieving the SDGs. The evolving complexity of governance systems, driven by globalization, digitalization, and multi-level institutional dynamics, has simultaneously generated new challenges and opportunities for advancing sustainability. Governance today extends beyond national governments and involves multiple actors, including international organizations, local governments, private sector players, and civil society (Masuda et al., 2022; González-

Rodríguez et al., 2026). (Biermann et al., 2010; Karpouzoglou et al., 2016) says this multi-level and multi-actor structure necessitates effective coordination and collaboration to ensure sustainability goals in an efficient and equitable manner. As per (Usman et al., 2024; Giupponi et al., 2025), emerging governance paradigms such as integrated sustainability frameworks and green governance emphasize the need of coordinating social, economic, and environmental goals within a unified policy framework. In this context, there is a strong need for a comprehensive theoretical framework that clearly connects environmental governance with SDG objectives. This framework should combine insights from governance theory, sustainability science, and policy studies to explain how governance mechanisms influence sustainability outcomes through multiple pathways, including environmental performance, energy transition, and green growth (Glass & Newig, 2019; Wiegant et al., 2024). (Le Blanc, 2015; Lemos & Agrawal, 2006) states that a theoretical framework helps bring together fragmented empirical findings by providing a clear and organized understanding of these relationships, thereby supporting future research and policy development. Accordingly, the present study aims to develop a comprehensive framework linking environmental governance with SDG outcomes by identifying key mechanisms and pathways through which governance influences sustainability and integrating existing literature. This study seeks to contribute to existing knowledge by presenting an integrated conceptual model that explains the complexity of governance systems and their role in sustainable development. It also provides useful insights for researchers and policymakers interested in designing effective governance approaches to support the implementation of the SDGs (Agrawal et al., 2022; Wiegant et al., 2024).

2. Literature Review

2.1 Environmental Governance

Environmental governance is now widely recognized as an important concept in sustainability discourse, referring to the systems, processes, and institutions used to manage environmental resources and challenges (Lemos & Agrawal, 2006; Agrawal et al., 2022). Environmental challenges are managed through the interaction of governments, markets, and civil society using formal regulations, policy tools, and informal processes (Debbarma & Choi, 2022; Cheng et al., 2020). According to (Goodland, 1995; Obydenkova, 2024) this concept has gained importance due to increasing environmental degradation along with the requirement for coordinated efforts to ensure the sustainable use of resources. (Folke et al., 2005; Ostrom, 2009) defines that theories of environmental governance emphasize its adaptive and multi-level nature, highlighting the importance of flexibility, learning, and stakeholder involvement in managing complex socio-ecological systems. The Earth system governance framework builds on this idea by focusing on global environmental change and the importance of governance mechanisms functioning across local, national, and international levels (Biermann et al., 2010; Biermann et al., 2012). It also highlights that effective governance requires collaboration among different actors and institutions to address environmental challenges holistically (Karpouzoglou et al., 2016).Recent studies emphasize that environmental governance plays a vital role in improving environmental performance and supporting sustainable development. Strong governance systems help manage pollution, ensure efficient use of resources, and protect ecosystems through effective regulations (Zhang & Zhang, 2024; Cheng et al., 2020). (Bakhsh et al., 2024; Bergougui et al., 2025) says that governance processes support technological innovation and the transition to renewable energy systems, which are necessary for addressing climate change and achieving environmental sustainability. Stakeholder participation is a significant aspect of environmental governance, as it improves transparency, accountability, and the effectiveness of policies

(Dong et al., 2023; Munro, 2021). Including different perspectives and local knowledge helps strengthen decision-making and leads to better sustainability outcomes (Glass & Newig, 2019). Additionally, digital technologies and data-driven governance systems has transformed environmental governance by improving monitoring, enforcement, and policy implementation (He et al., 2025). Despite recent progress, environmental governance still faces challenges such as fragmented institutions, poor coordination, and delays in policy effectiveness (Hocherman et al., 2025; González-Rodríguez et al., 2026). These challenges suggest that more flexible and integrated governance systems are required to manage the growing complexity of environmental problems in a rapidly changing world (Usman et al., 2024).

2.2 Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) provide a global framework that brings together economic, social, and environmental objectives to support sustainable development (Le Blanc, 2015; Allen et al., 2016). (Pradhan et al., 2017) described that 17 interconnected goals and 169 targets aim to address key global challenges such as poverty, inequality, climate change, and environmental degradation. Because these goals are interlinked, progress in one area can influence outcomes in others so, it is necessary to make coordinated and integrated policy approaches (Bogers et al., 2022). (May et al., 2006; Browne et al., 2023) said the SDGs highlight the concern of institutional coordination and policy coherence for accomplishing sustainable development outcomes. Policy coherence refers to the alignment of policies across different sectors and levels of governance to ensure consistency and effectiveness. As per (Dzebo et al., 2025; Yunita et al., 2022) studies show that policy coherence is important for managing trade-offs and synergies among different SDGs to revamp overall sustainability performance. Governance also plays a significant role in implementing the SDGs, as it influences institutional effectiveness, resource allocation, and policy design (Omri & Ben Mabrouk, 2020; Naz et al., 2024). Effective governance systems ensure proper policy implementation and help monitor and evaluate progress toward SDG targets (van Zanten & Putintseva, 2025). (Masuda et al., 2022) explained local governments and organizations also play a crucial role in adapting global SDG frameworks into policies that are relevant at the local level. The integration of Environmental, Social, and Governance (ESG) frameworks has further supported SDG implementation by aligning economic activities with sustainability goals (Koundouri et al., 2025; Kim & Yang, 2025). ESG practices contribute to achieving the SDGs by promoting ethical business practices, encouraging green investments, and ensuring sustainable use of resources (Sadiq et al., 2023; Phan, 2024). Additionally, green growth strategies and sustainable economic models have been identified as important drivers of SDG progress, emphasizing the need for environmentally sustainable economic development (Ghafoor et al., 2023; Merdan, 2024). However, several challenges remain in implementing the SDGs, including weak governance, limited institutional capacity, and poor coordination among stakeholders (Raman et al., 2025; Cavalheiro et al., 2025). These issues highlight the need to strengthen governance frameworks to ensure successful SDG implementation.

2.3 Linking Environmental Governance to SDGs

The nexus between environmental governance and the attainment of Sustainable Development Goal (SDG) outcomes has received more attention in recent research as governance is recognized as a crucial enabling factor for sustainable development (Glass & Newig, 2019; Wiegant et al., 2024). Environmental performance, policy coherence, and stakeholder involvement are some of the ways environmental governance affects SDG results (Naz et al., 2024; Sadiq et al., 2023). Improving environmental performance, such as lowering pollution and increasing resource efficiency, is one of the main ways that environmental governance influences SDGs (Zhang & Zhang, 2024; Cheng et al., 2020). Better

environmental performance directly supports the SDGs for life on land, clean water, and climate action, which in turn supports overall sustainability outcomes (Naseer et al., 2025). According to (Bakhsh et al. 2024) and (Zheng et al. 2025), environmental governance is crucial for facilitating energy transitions and encouraging green growth, both of which are necessary for accomplishing SDGs pertaining to affordable and clean energy and sustainable economic development. According to (Bergougui et al., 2025) and (Wu, 2024) governance frameworks are indispensable for developing and carrying out policies related to sustainable investment strategies, technical innovation, and renewable energy. Another crucial factor is policy coherence, which guarantees that policies in numerous sectors are aligned and reinforce one another (May et al., 2006; Dzebo et al., 2025). By harmonizing actions across institutions and reducing policy disputes, effective governance mechanisms enhance policy coherence (Yunita et al., 2022; Browne et al., 2023). In order to administer the interdependencies across SDGs and achieve integrated sustainability results, this alignment is essential. A central element of the governance and SDG link is stakeholder participation, which improves accountability, transparency, and the efficacy of policies (Dong et al., 2023; Munro, 2021). By ensuring that different viewpoints are taken into account throughout decision-making procedures, participatory governance enhances the legitimacy and efficacy of sustainability programs (Glass & Newig, 2019). The nexus between environmental governance and SDG results is still ambiguous despite the expanding body of evidence, with studies frequently concentrating on particular elements like economic growth or environmental performance (Usman et al., 2024; Cavalheiro et al., 2025). A thorough theoretical framework that incorporates these viewpoints and formulates the ways in which environmental governance affects SDG results is required (Wiegant et al., 2024).

3. Theoretical Foundation

This study develops an integrated theoretical framework by synthesizing multiple perspectives to elucidate how environmental governance influence Sustainable Development Goal (SDG) outcomes (Lemos & Agrawal, 2006; Le Blanc, 2015). (Agrawal et al., 2022; Usman et al., 2024) defined unlike previous studies that examine governance mechanisms separately, it brings together adaptive governance theory, earth system governance, institutional theory, policy coherence theory, and ESG frameworks to provide a unified understanding of governance–sustainability linkages. This approach is important because the SDGs are complicated, interconnected, and multi-dimensional which require coordinated governance across sectors and levels (Pradhan et al., 2017; Wiegant et al., 2024). (Folke et al., 2005; Ostrom, 2009) states adaptive governance theory provides an important perspective by emphasizing flexibility, learning, and stakeholder participation in managing complex socio-ecological systems. The theory posits that governance systems need to be progressive and capable of adapting to environmental uncertainties through unceasing feedback and institutional learning (Karpouzoglou et al., 2016). In this study, adaptive governance serves as a key theoretical lens through which mechanisms such as participatory decision-making, decentralized management, and iterative policy processes improve the responsiveness of governance systems, thereby supporting sustainable development outcomes (Glass & Newig, 2019). In this way, adaptive governance acquaint the process dimension of environmental governance by elucidating how governance systems evolve and respond to sustainability challenges (Wiegant et al., 2024). Complementing this perspective, (Biermann et al., 2010; Biermann et al., 2012) defined the Earth system governance framework extends the analysis by emphasizing on the global and multi-level aspects of environmental governance. It underscores the exigency for coordination across local, national, and international levels and the involvement of various actors, including governments, international

organizations, and civil society (Masuda et al., 2022). The framework emphasizes institutional integration, accountability, and interactions across different levels as central features of effective governance (González-Rodríguez et al., 2026). In this study, the framework explains how environmental governance operates across levels to influence SDG outcomes through coordinated policies and institutional alignment (Browne et al., 2023). Accordingly, it advances the understanding the structural dimension of governance systems (Wiegant et al., 2024). (Lemos & Agrawal, 2006; Debbarma & Choi, 2022) defined institutional theory strengthens the theoretical foundation by focusing on how formal rules, norms, and governance structures shape environmental outcomes. The theory suggests that strong institutions improve governance quality by promoting transparency, accountability, and effective enforcement of environmental regulations (Bisogno et al., 2025; Omri & Ben Mabrouk, 2020). In this study, institutional theory helps explain how governance quality through regulatory effectiveness, institutional capacity, and policy enforcement affects environmental performance and sustainability outcomes (Naz et al., 2024). Therefore, it supports the quality dimension of environmental governance by linking governance effectiveness to SDG achievement (van Zanten & Putintseva, 2025). (May et al., 2006; Browne et al., 2023) states Policy coherence theory adds another important dimension by focusing on the alignment and coordination of policies across sectors and levels of governance. In the words of (Pradhan et al., 2017) since the SDGs are interconnected, achieving sustainability requires policies that support each other rather than create conflicts. The theory explains how governance systems can manage trade-offs and synergies among different goals through integrated policy approaches (Dzebo et al., 2025; Yunita et al., 2022). In this study, policy coherence represents the coordination dimension of environmental governance, ensuring that environmental, economic, and social policies work together to achieve SDG outcomes (Wiegant et al., 2024). (Koundouri et al., 2025; Kim & Yang, 2025) defined the Environmental, Social, and Governance (ESG) framework provides a modern and practical perspective by linking governance practices with sustainability performance. As per (Sadiq et al., 2023) ESG framework focuses on integrating environmental and social considerations into governance structures to align economic activities with sustainability goals. ESG also highlights the role of governance in promoting green investments, sustainable business practices, and responsible resource use (Phan, 2024; Wu, 2024). In this study, ESG represents the outcome dimension of governance by showing how governance mechanisms lead to measurable sustainability outcomes, particularly related to the SDGs (Giupponi et al., 2025). Bringing these theoretical perspectives together provides a comprehensive and multi-dimensional framework for understanding environmental governance and its impact on SDG outcomes. In this framework, adaptive governance explains how systems adapt, earth system governance shows where governance operates across multiple levels, institutional theory highlights why governance effectiveness matters, policy coherence theory explains how policies are aligned, and ESG frameworks demonstrate how governance leads to sustainability outcomes (Agrawal et al., 2022; Usman et al., 2024). Collectively, these theories constitute an integrated conceptual model in which environmental governance influences SDG outcomes through pathways such as environmental performance, energy transition, and green growth (Zhang & Zhang, 2024; Bakhsh et al., 2024; Naseer et al., 2025). This integrated theoretical foundation helps address the limitations of fragmented approaches in the extant literature and provides a coherent basis for analyzing the governance–SDG nexus (Cavalheiro et al., 2025; Usman et al., 2024). By associating theoretical concepts with governance dimensions and sustainability outcomes, the study enhances the understanding of environmental governance as a central driver of sustainable development (Glass & Newig, 2019; Wiegant et al., 2024). As a result, this framework

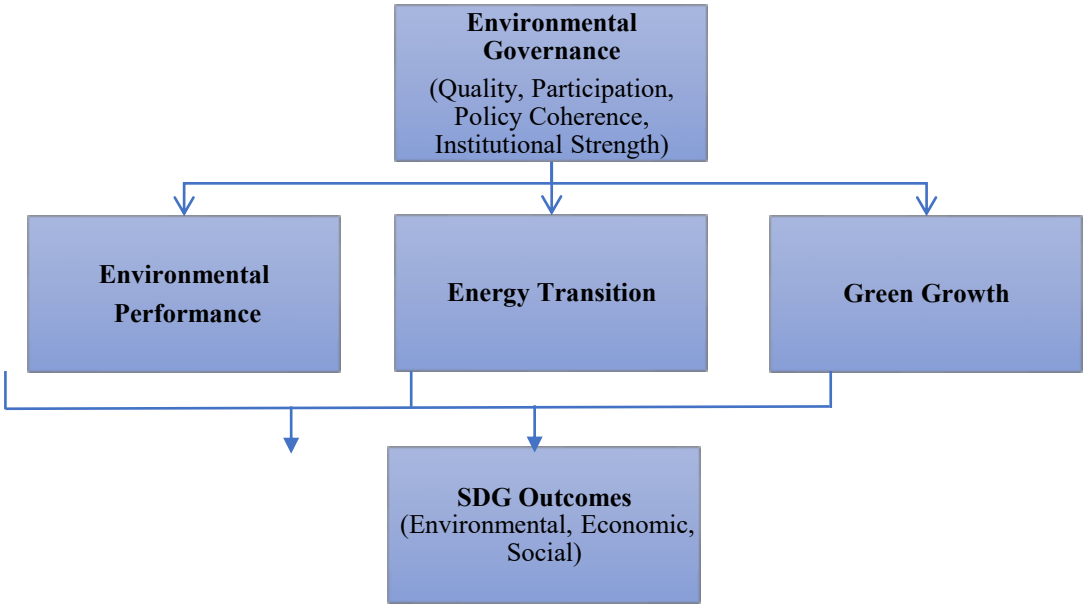
facilitate the development of a comprehensive conceptual model and paves the way for future empirical research on the role of governance in achieving the SDGs (Le Blanc, 2015; Lemos & Agrawal, 2006).

4. Conceptual Framework

This study develops a conceptual framework to explain how environmental governance affects Sustainable Development Goal (SDG) outcomes through several interconnected pathways, based on insights from governance theory and sustainability literature (Lemos & Agrawal, 2006; Le Blanc, 2015). In this framework, environmental governance is regarded as the main independent factor that influences sustainability outcomes by shaping institutional processes, policy alignment, and environmental performance (Agrawal et al., 2022; Naz et al., 2024). Environmental governance is understood as a multidimensional concept that integrates governance quality, stakeholder participation, policy coherence, and institutional coordination (Debbarma & Choi, 2022; Glass & Newig, 2019). As noted by (Bisogno et al., 2025; Omri & Ben Mabrouk, 2020), these dimensions influence how effectively environmental policies are designed, implemented, and monitored, ultimately affecting sustainability outcomes. A robust governance systems improve regulatory effectiveness, ensure accountability, and encourage inclusive decision-making, which are important for achieving the SDGs (Dong et al., 2023; Munro, 2021). The framework proposes that environmental governance influences SDG outcomes through three main pathways: environmental performance, energy transition, and green growth (Zhang & Zhang, 2024; Bakhsh et al., 2024; Ghafoor et al., 2023). Environmental performance reflects how well governance systems reduce pollution, manage natural resources, and safeguarding ecosystems, which directly contribute to SDGs concerning climate action, clean water, and biodiversity (Cheng et al., 2020; Naseer et al., 2025). Effective governance improves environmental performance by enforcing regulations, ensuring compliance, and fostering the adoption of sustainable practices (He et al., 2025). Energy transition represents another significant pathway through which governance influences sustainability outcomes, as governance mechanisms encourages the uptake of renewable energy and low-carbon technologies (Bakhsh et al., 2024; Zheng et al., 2025). Policy frameworks, regulatory incentives, and support for technological innovation enable the transition toward sustainable energy systems, which are fundamental to attaining SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action) (Bergougui et al., 2025; Phan, 2024). Green growth represents an additional route that connects governance to SDG outcomes by combining environmental sustainability with economic development (Merdan, 2024; Odugbesan et al., 2021). Governance systems foster green growth by encouraging sustainable investments, driving innovation, and aligning economic activities with environmental goals (Wu, 2024; Sadiq et al., 2023). This pathway demonstrates how governance facilitates the balance between economic advancement and environmental sustainability, which is central to the SDG framework (Koundouri et al., 2025). Policy coherence acts as an important moderating factor in the framework by ensuring alignment across environmental, economic, and social policies (May et al., 2006; Browne et al., 2023). Coherent policies improve the effectiveness of governance systems by reducing conflicts and supporting synergies among SDGs (Dzebo et al., 2025; Yunita et al., 2022). Likewise, institutional quality strengthens the relationship between governance and SDGs by enhancing regulatory capacity, transparency, and accountability (Bisogno et al., 2025; Naz et al., 2024). The framework also includes stakeholder participation as an important factor that improves governance effectiveness and sustainability outcomes (Dong et al., 2023; Glass & Newig, 2019). Participatory governance allows diverse perspectives to be considered in decision-making, which enhances policy legitimacy and implementation effectiveness

(Munro, 2021). This is consistent with adaptive governance theory, which highlights the importance of participation and learning in managing complex socio-ecological systems (Folke et al., 2005). Overall, the conceptual framework shows that environmental governance influences SDG outcomes through both direct and indirect pathways, mediated by environmental performance, energy transition, and green growth, and supported by policy coherence and institutional quality (Wiegant et al., 2024; Usman et al., 2024). This integrated view helps explain how governance systems contribute to sustainable development by aligning policies, institutions, and stakeholder actions toward common sustainability goals (Agrawal et al., 2022; Le Blanc, 2015).

Conceptual Framework Diagram



Moderators:

- Policy Coherence
- Institutional Quality

Enablers:

- Stakeholder Participation

Source of Conceptual Framework

The conceptual framework is developed by the author based on the synthesis of existing literature on environmental governance and sustainable development (Lemos & Agrawal, 2006; Le Blanc, 2015; Wiegant et al., 2024; Usman et al., 2024).

5. Propositions Development

The following propositions are grounded in the theoretical foundation and conceptual framework, which aim to articulate the link between environmental governance and SDG outcomes. These relationships draw upon existing literature and reflect not only direct impacts but also the mediating, moderating, and enabling roles that have been established in governance and sustainability studies (Lemos & Agrawal, 2006; Le Blanc, 2015).

Direct Effect

Environmental governance has a significant impact on sustainability outcomes by making institutions more effective, refining policy implementation, and bolstering regulatory enforcement (Omri & Ben Mabrouk, 2020; Naz et al., 2024). When governance systems are robust, they promote transparency, accountability, and coordination, which contribute to improved SDG performance (Bisogno et al., 2025; Sadiq et al., 2023).

P1: Environmental governance has a positive and significant effect on Sustainable Development Goal (SDG) outcomes.

Mediating Role of Environmental Performance

Environmental performance reflects how environmental quality improves, such as through lower pollution and more efficient use of resources, and it depends on how well governance systems are designed and implemented (Cheng et al., 2020; Zhang & Zhang, 2024). When governance frameworks are well-established, environmental performance improves, which results in progress toward the SDGs (Naseer et al., 2025).

P2: Environmental performance mediates the relationship between environmental governance and SDG outcomes.

Mediating Role of Energy Transition

Environmental governance helps promote the shift toward renewable energy by fostering enabling policies, regulations, and technological development (Bakhsh et al., 2024; Zheng et al., 2025). This shift supports overall sustainability outcomes, particularly advancement on SDGs pertaining to energy and climate action (Bergougui et al., 2025; Phan, 2024).

P3: Energy transition mediates the relationship between environmental governance and SDG outcomes.

Mediating Role of Green Growth

Green growth connects environmental sustainability with economic development and is influenced by governance instruments like environmental regulations and green investment policies (Ghafoor et al., 2023; Merdan, 2024). When governance promotes green growth, it contributes to improved SDG outcomes by moving economies toward more sustainable ways of producing and consuming (Wu, 2024; Odugbesan et al., 2021).

P4: Green growth mediates the relationship between environmental governance and SDG outcomes.

Moderating Role of Policy Coherence

Policy coherence helps governance systems work more effectively by harmonizing policies across different sectors and reducing contradictions among them (May et al., 2006; Browne et al., 2023). When policies are well-aligned, governance has a stronger influence on sustainability outcomes because different policy areas support each other rather than undermine one another (Dzebo et al., 2025; Yunita et al., 2022).

P5: Policy coherence positively moderates the relationship between environmental governance and SDG outcomes, such that the relationship is stronger when policy coherence is higher.

Enabling Role of Stakeholder Participation

Stakeholder participation makes governance stronger by rendering decision-making more transparent, inclusive, and legitimate (Dong et al., 2023; Munro, 2021). It further encourages learning and collaboration, which contribute to the attainment of better sustainability outcomes (Folke et al., 2005; Ostrom, 2009).

P6: Stakeholder participation positively enhances the effectiveness of environmental governance in achieving SDG outcomes.

6. Discussion

This study presents a comprehensive conceptual framework that regards environmental governance as a key determinant of Sustainable Development Goal (SDG) outcomes, functioning through interconnected pathways such as environmental performance, energy transition, and green growth (Lemos & Agrawal, 2006; Le Blanc, 2015). In this framework, governance is perceived not merely as a background factor but as a pivotal mechanism that steers sustainability outcomes by influencing institutional processes, policy coherence, and the engagement of stakeholders (Agrawal et al., 2022; Naz et al., 2024). This perspective aligns with adaptive governance and earth system governance approaches, which emphasize the significance of flexible, multi-level, and participatory arrangements in managing intricate environmental issues (Folke et al., 2005; Biermann et al., 2010). The conceptual analysis demonstrates that environmental governance influences SDG outcomes both directly and indirectly through different pathways. Environmental performance serves as a key role in this process by linking governance to sustainability through enhancements in environmental quality and more efficient use of resources (Cheng et al., 2020; Zhang & Zhang, 2024). This resonates with prior studies showing that governance contributes to improved environmental performance and mitigating environmental degradation (Naseer et al., 2025). The framework also underscores energy transition as a significant pathway, shedding light on how governance facilitates the move toward renewable energy and low-carbon technologies through supportive policies and technological innovation (Bakhsh et al., 2024; Zheng et al., 2025). This echoes prior research that highlights the contribution of governance in driving sustainable energy transitions and advancing progress toward climate related SDGs (Bergougui et al., 2025; Phan, 2024). The inclusion of green growth as a mediating pathway enriches the framework by connecting environmental sustainability with economic development (Ghafoor et al., 2023; Merdan, 2024). This further corroborates evidence that governance stimulates sustainable economic growth by promoting green investments and innovation (Wu, 2024; Odugbesan et al., 2021). Through integrating governance with both environmental and economic aspects, the framework reflects how interconnected the SDGs are and underscores the importance for coordinated policy strategies (Pradhan et al., 2017; Koundouri et al., 2025). It also points to policy coherence as an important moderating factor, showing that aligning policies across sectors can strengthen the link between governance and SDG outcomes (May et al., 2006; Browne et al., 2023). This outcome resonates with recent studies showing that policy coherence improves the effectiveness of sustainability policies and aids in balancing competing trade-offs across SDGs (Dzebo et al., 2025; Yunita et al., 2022). It further underscores the importance of stakeholder participation, illustrating how inclusive governance makes policies more legitimate and improves the efficiency of their implementation (Dong et al., 2023; Munro, 2021). This aligns with adaptive governance theory, which recognizes participation and collaboration as vital drivers of sustainability outcomes (Folke et al., 2005; Ostrom, 2009). In contrast to much of the existing research, this study consolidates multiple dimensions of environmental governance into a single, comprehensive framework. Earlier studies have predominantly focused on governance in separate areas such as environmental performance, energy transition, or economic growth without adequately exploring how these aspects are connected (Usman et al., 2024; Cavalheiro et al., 2025). Distinguished from prior research, this study provides more holistic approach by establishing nexus between governance mechanisms and SDG outcomes through multiple interrelated pathways, helping to bridge notable gaps in the existing literature (Wiegant et al., 2024). Furthermore, whereas prior studies mainly focus on governance quality and institutional effectiveness, they have often given insufficient attention to how policy coherence and stakeholder participation influence sustainability outcomes (Glass & Newig, 2019).

By incorporating these aspects, the framework delivers a more comprehensive and connected view of how governance relates to sustainability. This study also adds to the literature by combining several theoretical perspectives—such as adaptive governance, earth system governance, institutional theory, policy coherence theory, and ESG frameworks—into one unified analytical model (Agrawal et al., 2022; Usman et al., 2024). Bringing these perspectives together strengthens the framework by reflecting the complex and multi-dimensional nature of environmental governance. For example, adaptive governance focuses on the dynamic and participatory aspects of governance, earth system governance highlights coordination across different levels, institutional theory looks at governance quality, policy coherence theory explains how policies are aligned, and ESG frameworks connect governance with sustainability performance (Koundouri et al., 2025; Sadiq et al., 2023). Overall, the discussion shows that environmental governance is essential for achieving the SDGs, as it shapes sustainability outcomes through several interconnected mechanisms. The framework highlights the importance of an integrated approach that combines institutional effectiveness, policy coherence, stakeholder participation, and economic strategies focused on sustainability (Le Blanc, 2015; Agrawal et al., 2022). By taking a broad theoretical perspective, this study improves understanding of how governance is linked to the SDGs and provides a useful base for future empirical research and policy design (Glass & Newig, 2019; Wiegant et al., 2024).

7. Implications

This study contributes to the literature on environmental governance and sustainable development by developing an integrated conceptual framework that links governance mechanisms to Sustainable Development Goal (SDG) outcomes. First, it advances existing research by combining multiple theoretical perspectives including adaptive governance, earth system governance, institutional theory, policy coherence theory, and ESG frameworks into a unified analytical model. This approach addresses gaps in prior research, where governance and sustainability have often been studied separately, and provides a more comprehensive understanding of governance and SDG linkages. Second, the study contributes to theory by viewing environmental governance as a multidimensional concept that includes governance quality, policy coherence, stakeholder participation, and institutional coordination. This perspective builds on earlier research, which mainly focused on governance quality, by adding other important dimensions that affect sustainability outcomes. As a result, the study improves the explanatory power of governance theory in the context of sustainable development. Third, the study introduces a pathway-based approach by identifying environmental performance, energy transition, and green growth as key mechanisms through which governance influences SDG outcomes. This contribution is important because it goes beyond direct relationships and provides a clearer understanding of how governance leads to sustainability outcomes. In addition, the study contributes to the literature by including moderating and enabling factors, such as policy coherence and stakeholder participation, which strengthen the relationship between governance and SDGs. This supports recent calls for more integrated frameworks that reflect the complexity of sustainability governance. Overall, the study provides a strong theoretical base for future research on environmental governance and SDGs.

8. Future Research Directions

Future research can be done on this framework by empirically examining the relationship between environmental governance and Sustainable Development Goal (SDG) outcomes across different contexts, such as countries, regions, or time periods. Using panel data and cross-country datasets would allow

researchers to better capture variations in governance systems and their impact on sustainability. Environmental governance can be operationalized through indicators like governance quality, regulatory effectiveness, and institutional capacity to provide more robust empirical insights. Further studies can also investigate the underlying mechanisms through which governance influences sustainability outcomes. In particular, the roles of environmental performance, energy transition, and green growth can be examined as potential mediating factors. Applying advanced analytical techniques such as structural equation modelling, panel regression, or two-way fixed effects models can help establish stronger causal relationships. Additionally, future research may explore how factors like policy coherence and stakeholder participation shape or strengthen these relationships across different institutional settings. There is also scope to extend this line of inquiry by focusing on emerging dimensions of governance, including digital governance, ESG practices, and multi-level institutional arrangements. Comparative analyses across developed and developing economies, as well as sector-specific studies, can offer deeper insights into how governance mechanisms operate under varying socio-economic conditions. Finally, longitudinal research designs can be used to capture the evolving nature of environmental governance by examining time-lag effects. Such approaches would assist in explaining how policy interventions translate into sustainability outcomes over time. Overall, future empirical work in these areas would not only validate the proposed framework but also contribute to a more nuanced understanding of governance and SDG linkages across diverse contexts.

9. Conclusion

This study proposes an integrated theoretical framework that connects environmental governance with Sustainable Development Goal (SDG) outcomes, drawing upon key insights from the governance and sustainability literature. A critical review of prior research indicates that environmental governance functions not merely as an enabling condition, but as a central determinant of sustainable development. In particular, it shapes sustainability outcomes through mechanisms such as institutional effectiveness, coherence in policy design, and active stakeholder engagement. By viewing governance as a multidimensional concept, the study highlights how governance quality, policy coherence, and participatory processes work together to shape the success of sustainability efforts. The analysis also identifies important pathways through which environmental governance contributes to SDG progress, particularly through improvements in environmental performance, the advancement of energy transition, and the promotion of green growth. These pathways explain how governance mechanisms translate into real outcomes by improving environmental quality, encouraging the use of renewable energy, and supporting more sustainable forms of economic development. In addition, the framework emphasizes the role of coordinated policies and active stakeholder involvement in strengthening governance effectiveness and improving the implementation of SDGs. By bringing together multiple theoretical perspectives including adaptive governance, earth system governance, institutional theory, and policy-oriented approaches the study provides a more integrated understanding of the relationship between governance and sustainability. Overall, the findings highlight the importance of strengthening governance systems to accelerate progress toward sustainable development and to achieve long-term environmental, economic, and social balance.

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