



# Can Legislative Reform Reshape Climate Governance? Evaluating Tanzania's Environmental Management (Amendment) Act, 2025, as a Legal Foundation for Carbon Market Regulation

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**Abstract:** *The intensifying urgency of climate change demands that national legal systems move beyond discretionary policy frameworks toward enforceable regulatory architectures that integrate mitigation, adaptation, and market-based mechanisms. This article addresses a central question facing developing countries: how can domestic law effectively translate global climate governance norms into binding institutional and compliance structures? Using Tanzania as a critical case study following its recent legislative reforms, the article examines the extent to which the Environmental Management (Amendment) Act, 2025, establishes a legally grounded framework for climate governance and carbon market regulation. Employing a doctrinal and qualitative analytical methodology, the study systematically analyzes primary legal sources; including the amended Act, subsidiary regulations, and institutional mandates; situating these within broader global and regional climate governance frameworks under the Paris Agreement and African Union climate strategies. The analysis reveals that the 2025 amendments effectuate a fundamental normative transformation by embedding climate change within statutory definitions, creating the National Carbon Monitoring Centre as a dedicated oversight institution, mandating climate-sensitive environmental assessments, and establishing legally binding systems for monitoring, reporting, and verification (MRV) of greenhouse gas emissions. These reforms collectively construct an institutional architecture that aligns domestic law with the integrity and transparency requirements of Article 6 carbon markets. However, inferential analysis of the framework's practical implications suggests that the legal provisions alone are insufficient to guarantee effective implementation. The study identifies critical dependencies: institutional capacity constraints at sub-national levels, unresolved customary land tenure disputes that threaten carbon project viability, gaps in technical expertise for robust MRV systems, and the absence of clearly defined, legally enforceable benefit-sharing mechanisms. These factors collectively mediate the gap between legal formality and governance effectiveness. The article contributes empirically by providing a systematic analysis of a recent legislative reform within an underexplored African context, and theoretically by demonstrating how polycentric governance principles can be operationalized through domestic legal design. It concludes that while the 2025 Act provides a necessary and credible legal foundation, its transformative potential will be realized only through sustained institutional strengthening, targeted capacity-building, and complementary regulatory measures that address land rights and benefit distribution. The study recommends prioritizing investments in sub-national institutional capacity, finalizing regulations that reconcile customary and statutory land tenure for carbon projects, and embedding participatory governance mechanisms to ensure that carbon market participation delivers both environmental integrity and equitable socio-economic outcomes.*

**Keywords:** *Climate governance; Carbon markets; Legal integration; Tanzania; Environmental Management Act*

## 1. Background Information

Climate change constitutes one of the most complex and systemic challenges confronting contemporary environmental governance. Unlike conventional environmental problems that can often be addressed through sector-specific, localized interventions, climate change presents a suite of interconnected risks that permeate economic planning, social welfare, ecological stability, and

Institutional integrity (Adger *et al.*, 2003; Stern, 2007). This has fundamentally reshaped the expectations placed upon national legal systems. Environmental law can no longer be confined to pollution control or resource conservation; it must now function as an integrative mechanism capable of steering development pathways, managing cross-sectoral risks, and enforcing accountability for long-term, often



uncertain, climate impacts (Fisher, 2017; Peel & Osofsky, 2018).

This evolution is reflected in the architecture of global climate governance. The United Nations Framework Convention on Climate Change (UNFCCC) established the foundational principle of common but differentiated responsibilities, while the Paris Agreement marked a decisive shift toward nationally determined contributions, transparency frameworks, and the operationalization of market-based mechanisms under Article 6 (Bodansky, 2016; Rajamani & Werksman, 2018). These instruments collectively demand that states move beyond aspirational policy statements toward legally embedded systems for mitigation, adaptation, and reporting. In particular, the Paris Agreement's emphasis on monitoring, reporting, and verification (MRV) has elevated the importance of domestic legal frameworks that can ensure the integrity and credibility of climate action, especially in the context of carbon markets (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019).

At the regional level, African climate governance frameworks increasingly recognize the continent's acute vulnerability to climate impacts and the necessity for coordinated, development-aligned responses. The African Union's Agenda 2063 and the African Climate Change Strategy articulate a vision for climate-resilient development that integrates low-carbon growth with poverty reduction and economic transformation (African Union, 2014; Nhamo, 2011). Sub-regional bodies, such as the East African Community (EAC) and the Southern African Development Community (SADC), have developed protocols and strategies aimed at harmonizing environmental standards and facilitating cooperative climate action (EAC, 2011; SADC, 2010). These regional norms create a framework of expectations that influence national legal reforms, particularly as African states seek to participate in global carbon markets while ensuring equitable benefit-sharing and local ownership of projects (Maumoh & Onoja, 2024; Ehanmo, 2026).

Within this broader context, Tanzania faces acute climate-induced pressures, including recurrent droughts, erratic rainfall patterns, flooding, and coastal erosion, which threaten agriculture, water security, energy systems, and the livelihoods of vulnerable communities (Paavola, 2008; Smucker *et al.*, 2015; Wangui *et al.*, 2012). For much of the past two decades, national responses to these challenges were characterized by a reliance on non-binding policies, sectoral strategies, and donor-supported projects. Instruments such as the National Climate Change Strategy (2012) and various sectoral action plans acknowledged climate risks but lacked the legal force necessary to ensure consistent implementation, coordination, and accountability across government levels (Ampaire *et al.*, 2016; Pilato *et al.*, 2018).

This resulted in fragmented institutional responsibilities, uneven enforcement, and a persistent gap between policy intent and on-the-ground action (Sokile & van Koppen, 2004; Saria *et al.*, 2015).

The enactment of the Environmental Management (Amendment) Act, 2025, represents a deliberate effort to address these long-standing weaknesses. By embedding climate change within the core environmental legal framework, the amendments seek to transform climate action from a matter of discretionary policy into a system of binding legal obligations supported by dedicated institutions, mandatory planning processes, and enforceable compliance mechanisms. This legislative shift aligns with broader trends in African climate governance, where countries are increasingly incorporating climate considerations into foundational environmental laws to enhance regulatory coherence and credibility (Lema, 2025; Gwambene *et al.*, 2025).

Given these developments, this article addresses a central question: how does the Environmental Management (Amendment) Act, 2025, integrate climate change into Tanzania's environmental legal and institutional architecture, and to what extent does this integration align with global and regional climate governance norms while addressing long-standing implementation challenges? Therefore, by examining the legal reforms in detail, the article aims to assess their potential to establish a credible foundation for climate governance and carbon market participation, while identifying the persistent institutional and practical factors that will ultimately determine their effectiveness.

## 2.0 Theoretical Framework

This study is anchored in a multi-theoretical framework that integrates global climate governance theory, polycentric governance theory, and African regional climate governance principles. This integrative approach provides a robust analytical lens for examining how Tanzania's Environmental Management (Amendment) Act, 2025, operationalizes climate governance norms within a domestic legal and institutional context. The framework is designed to capture both the vertical interplay between international, regional, and national governance levels and the horizontal coordination among state and non-state actors, institutions, and regulatory mechanisms.

### 2.1 Global Climate Governance and Legalization

The evolution of international climate governance under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement reflects a broader trend toward the legalization of climate obligations. Legalization is understood as a process through which international commitments acquire binding character, precision, and



delegated authority to interpret and enforce rules (Abbott *et al.*, 2000; Abbott & Snidal, 2000). Within the climate regime, this is evident in the shift from the Kyoto Protocol's top-down architecture to the Paris Agreement's hybrid model of nationally determined contributions (NDCs) underpinned by binding procedural obligations related to transparency, reporting, and review (Bodansky, 2016; Rajamani & Werksman, 2018).

A central feature of this legalized framework is Article 6 of the Paris Agreement, which establishes a dual system for international carbon markets: cooperative approaches under Article 6.2 and a centralized mechanism under Article 6.4 (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019). These provisions mandate robust accounting standards, avoidance of double counting, and environmental integrity, thereby creating enforceable expectations that participating states must domesticate through national legislation (Ventura *et al.*, 2015; Espelage *et al.*, 2022). Scholars have argued that effective participation in carbon markets requires not only policy commitments but also legally embedded institutions capable of monitoring, reporting, and verification (MRV), as well as clear rules on carbon rights and benefit-sharing (Mehling, 2009; Bernstein *et al.*, 2010). This perspective informs the present study's examination of whether Tanzania's legal reforms meet these international expectations.

## 2.2 Polycentric Governance Theory

Polycentric governance theory provides a complementary lens for understanding how climate action is coordinated across multiple, overlapping centers of decision-making authority. Originating in the work of Vincent and Elinor Ostrom, polycentricity describes governance systems where multiple independent but interacting authorities operate at different scales, engaging in mutual adjustment and collaborative problem-solving (Ostrom, 2009, 2010; McGinnis & Ostrom, 2011). In the context of climate governance, polycentric approaches have been advanced as a pragmatic response to the limitations of centralized, state-centric models, emphasizing the roles of sub-national governments, private actors, civil society, and transnational networks (Cole, 2011; Jordan *et al.*, 2015).

Polycentric governance is particularly relevant to carbon markets, which typically involve interactions among international registries, national regulatory authorities, local project implementers, private investors, and affected communities (Hickmann *et al.*, 2017; Jänicke, 2017). Effective carbon governance requires not only a central coordinating institution but also functional linkages across governance levels, shared information systems, and mechanisms for accountability and feedback (Spaargaren & Mol, 2013; van Asselt, 2021). This theoretical lens allows the study to assess how Tanzania's legal framework, particularly the establishment of the National Carbon

Monitoring Centre (NCCM), creates structures for polycentric coordination while also identifying potential gaps in vertical integration with local government authorities and horizontal engagement with non-state actors.

## 2.3 African Regional Climate Governance

### Principles

The African context introduces distinctive normative and practical considerations that shape the operation of climate governance and carbon markets. African climate governance frameworks, including the African Union's Agenda 2063 and the African Climate Change Strategy, emphasize climate justice, equitable benefit-sharing, and the integration of climate action with sustainable development priorities (African Union, 2014; Nhamo, 2011). These instruments recognize that African states face unique vulnerabilities; including high dependence on climate-sensitive sectors, limited fiscal space, and persistent development deficits; that require tailored governance responses (Conway & Schipper, 2011; Serdeczny *et al.*, 2017).

Scholarship on African carbon markets has highlighted the importance of strong national regulations, secure land tenure, and inclusive governance structures to ensure that carbon projects deliver tangible benefits to local communities and do not exacerbate existing inequalities (Maumoh & Onoja, 2024; Scheba, 2018; Ehanmo, 2026). Regional initiatives such as the Africa Carbon Market Initiative (ACMI) reinforce these principles by advocating for transparent benefit-sharing, local ownership, and alignment with national development plans (Maumoh *et al.*, 2022). These regional norms provide a normative benchmark against which to evaluate whether Tanzania's legal framework adequately addresses equity, participation, and development outcomes.

## 2.4 Integrated Conceptual Framework

Drawing on these three theoretical streams, this study develops an integrated conceptual framework for analyzing Tanzania's climate governance reforms. The framework conceptualizes effective climate governance as emerging from the interaction of three core dimensions: (1) legalization, referring to the binding character, precision, and enforceability of climate obligations; (2) polycentric coordination, referring to the distribution of authority across governance levels and the mechanisms linking them; and (3) regional alignment, referring to the compatibility of domestic frameworks with African normative principles of equity, participation, and development integration.

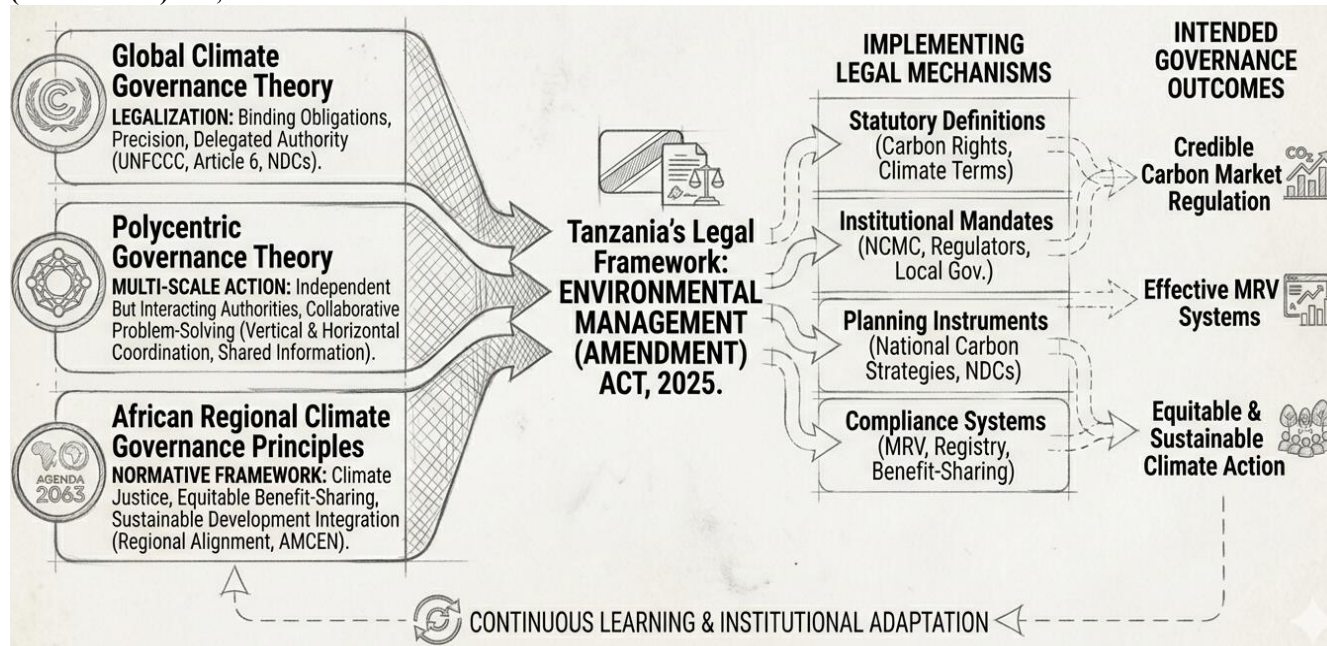
These dimensions converge in the institutional design of the Environmental Management (Amendment) Act, 2025, and are operationalized through specific legal mechanisms, including statutory definitions, institutional mandates, planning instruments, and compliance systems. The framework posits that the effectiveness of these mechanisms in achieving credible climate governance and carbon market

participation depends on both their formal design and their implementation in practice, which is mediated by institutional capacity, stakeholder engagement, and contextual governance realities.

Figure 1 presents this integrated conceptual framework visually, illustrating how the three theoretical lenses inform the analysis of Tanzania’s legal reforms and the pathways through which these reforms are expected to influence governance outcomes.

statutory provisions and systematically evaluating the coherence and structure of legal rules (Hutchinson & Duncan, 2012; Smits, 2015). This methodology is particularly suited to the study’s central objective of examining how climate considerations have been embedded within Tanzania’s Environmental Management (Amendment) Act, 2025, and associated regulatory instruments. The approach enables a rigorous examination of the law as it exists, focusing on the interpretation of legal provisions, the identification of legal obligations, and the

**Figure 1: Integrated Multi-Theoretical Framework for Analyzing Tanzania’s Environmental Management (Amendment) Act, 2025**



The figure is a conceptual diagram with three vertical pillars on the left representing the theoretical foundations: Global Climate Governance (Legalization), Polycentric Governance Theory, and African Regional Principles. These pillars converge into a central box labeled Tanzania’s Legal Framework (Environmental Management Amendment Act, 2025). Arrows then flow from this central box to key governance mechanisms: Statutory Definitions, Institutional Mandates, Planning Instruments, and Compliance Systems. From these mechanisms, arrows lead to intended governance outcomes: Credible Carbon Market Regulation, Effective MRV Systems, and Equitable & Sustainable Climate Action. Below the diagram, a feedback loop connects the outcomes back to the theoretical pillars, indicating a continuous process of learning and institutional adaptation.

### 3.0 Methodology

This study employs a doctrinal legal research methodology complemented by qualitative analytical techniques to examine the integration of climate governance norms into Tanzania’s environmental legal framework. Doctrinal legal research, also known as black-letter law methodology, is the foundational approach for analyzing legal texts, interpreting

assessment of institutional arrangements established by statute (Chynoweth, 2008; Dobinson & Johns, 2017).

The choice of a doctrinal approach is justified by the nature of the research question, which concerns the legal design, institutional architecture, and normative integration of climate governance within a specific legislative reform. Doctrinal analysis allows for the systematic examination of primary legal sources, including the Environmental Management Act, Cap 191 RE 2023, the Environmental Management (Amendment) Act, 2025, the Carbon Trading Regulations of 2022 and their 2023 amendments, and relevant ministerial directives. These materials constitute the core data for the study and are analyzed to determine how the law defines climate-related concepts, allocates institutional responsibilities, establishes procedures for greenhouse gas management, and creates mechanisms for carbon market oversight (McConville & Chui, 2017; Hutchinson, 2018).

The methodological framework is structured around three interconnected analytical dimensions, as illustrated in Figure 2. The first dimension involves the textual analysis of

statutory provisions, focusing on definitional clarity, the scope of legal obligations, and the precision of institutional mandates. This dimension draws on established techniques of statutory interpretation, including textual, contextual, and purposive approaches (Sullivan, 2014; Barak, 2018). The second dimension examines institutional architecture, analyzing the design, functions, and interrelationships of governance institutions created or modified by the amendments, including the National Carbon Monitoring Centre, the National Climate Change Steering Committee, and sectoral reporting mechanisms. This dimension is informed by institutional analysis frameworks developed in legal and governance scholarship (Hickmann *et al.*, 2017; Cole, 2011). The third dimension assesses regulatory mechanisms, focusing on the legal provisions governing environmental assessments, greenhouse gas inventories, monitoring, reporting and verification (MRV) systems, and carbon market transactions. This dimension draws on scholarship examining the legal design of carbon markets and climate governance mechanisms (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019; Ventura *et al.*, 2015).

literature to interpret legal developments and assess their practical implications. The literature reviewed was selected through a systematic process targeting three thematic areas: global carbon governance and market integrity (Bernstein *et al.*, 2010; Espelage *et al.*, 2022; Michaelowa *et al.*, 2019), the institutional role of law in climate regulation (Fisher, 2017; Peel & Osofsky, 2018; van Asselt, 2021), and African perspectives on climate governance and carbon markets (Ehanmo, 2026; Maumoh & Onoja, 2024; Scheba, 2018). The selection prioritized peer-reviewed journal articles, scholarly monographs, and authoritative policy analyses to ensure the credibility and academic rigor of the interpretive framework.

The analysis of practical implementation challenges draws on existing empirical scholarship examining institutional capacity, governance dynamics, and carbon market experiences in Tanzania and comparable contexts. Rather than conducting primary fieldwork, the study synthesizes findings from peer-reviewed empirical studies that have examined climate governance implementation in Tanzania,

**Figure 2: Methodological Framework for Analyzing Climate Governance Integration**

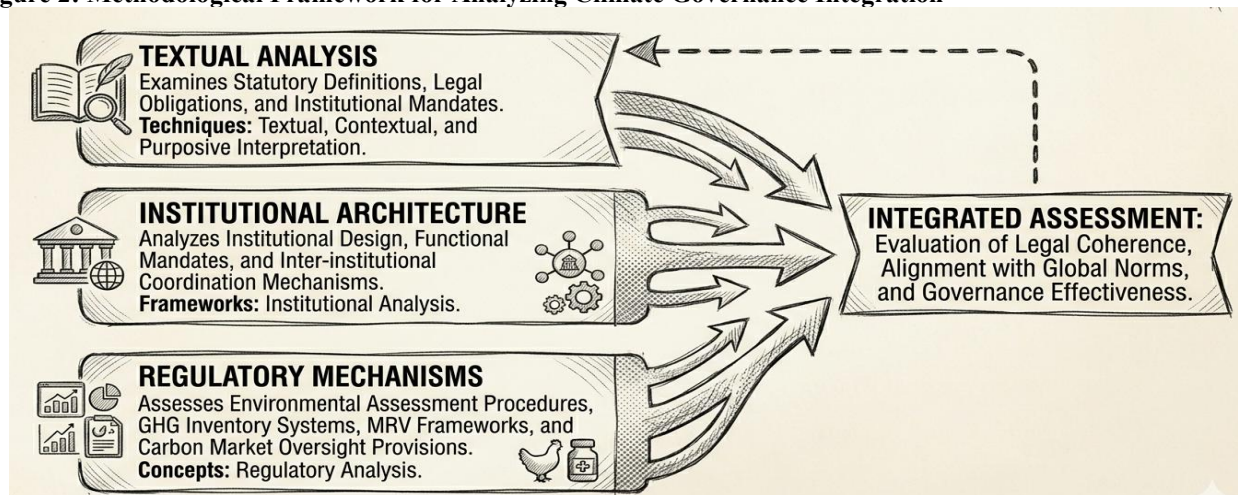


Figure 2 presents a three-tiered analytical framework. The first tier, *Textual Analysis*, examines statutory definitions, legal obligations, and institutional mandates through the techniques of textual, contextual, and purposive interpretation. The second tier, *Institutional Architecture*, analyzes institutional design, functional mandates, and inter-institutional coordination mechanisms. The third tier, *Regulatory Mechanisms*, assesses environmental assessment procedures, greenhouse gas inventory systems, MRV frameworks, and carbon market oversight provisions. These three dimensions converge in the *Integrated Assessment* of legal coherence, alignment with global norms, and governance effectiveness.

To complement the doctrinal analysis, the study incorporates qualitative analytical techniques that situate the legal reforms within their broader governance, institutional, and policy environment. This involves the use of secondary scholarly

including assessments of local government capacity (Ampaire *et al.*, 2016; Pilato *et al.*, 2018), analyses of carbon project outcomes (Mombo *et al.*, 2018; Matekele & Mlengule, 2025), and evaluations of institutional coordination mechanisms (Kitogo, 2025; Pauline & Lema, 2024). This approach allows the study to assess the likely practical implications of legal reforms based on established empirical evidence, while maintaining the doctrinal focus on legal analysis.

Table 1 summarizes the key components of the methodological approach, outlining the data sources, analytical techniques, and interpretive frameworks employed in each dimension of the analysis.



**Table 1: Methodological Components and Analytical Focus**

Analytical Dimension	Primary Data Sources	Analytical Technique	Interpretive Framework
Textual Analysis	Environmental Management Act, Cap 191 RE 2023; Environmental Management (Amendment) Act, 2025; Carbon Trading Regulations, 2022 and 2023	Statutory interpretation (textual, contextual, purposive)	Legal doctrine; legislative intent analysis
Institutional Architecture	Sections 29A–29E, 75A, 174A; ministerial directives; institutional mandates	Institutional analysis; functional mapping	Polycentric governance theory (Ostrom, 2010; Cole, 2011)
Regulatory Mechanisms	Sections 15, 30, 31, 36, 105A, 174, 179; MRV frameworks	Regulatory analysis; compliance assessment	Global climate governance frameworks (Michaelowa et al., 2019; Schneider et al., 2019)
Implementation Context	Peer-reviewed empirical studies; policy analyses; governance assessments	Qualitative synthesis; gap analysis	African regional governance principles (Ehanmo, 2026; Maumoh & Onoja, 2024)

As presented in Table 1, the methodology integrates four interconnected analytical dimensions. The textual analysis dimension focuses on the interpretation of primary legal sources to establish the meaning, scope, and legal effect of statutory provisions. The institutional architecture dimension examines the design and functional relationships of governance institutions established or modified by the amendments. The regulatory mechanisms dimension assesses the legal provisions governing environmental assessment, emissions monitoring, and carbon market operations. The implementation context dimension synthesizes empirical scholarship to evaluate the practical implications and implementation challenges associated with the legal framework.

The integration of these dimensions enables a comprehensive assessment of Tanzania’s climate governance reforms. The doctrinal analysis provides rigorous examination of the law as enacted, while the engagement with empirical scholarship allows for an evidence-based assessment of implementation prospects. This combined approach addresses a limitation of purely doctrinal research, which can sometimes overlook the gap between law in books and law in action (Chynoweth, 2008; Hutchinson, 2018), while maintaining the methodological integrity and analytical depth characteristic of high-quality legal scholarship.

#### 4.0 RESULTS AND DISCUSSION

This section presents the findings of the doctrinal analysis structured around four interconnected themes: (1) alignment of Tanzania’s legal framework with global climate governance norms, (2) regional and sub-regional influences on carbon market regulation, (3) institutional architecture for carbon governance, and (4) implementation challenges and governance risks. The discussion integrates these findings with the theoretical framework of legalization, polycentric governance, and African regional principles, providing a comprehensive assessment of Tanzania’s climate governance reforms.

#### 4.1 Alignment with Global Climate Governance Norms

The analysis of the Environmental Management (Amendment) Act, 2025, reveals significant alignment with the core legalization principles of the global climate governance regime. As established in the theoretical framework, legalization encompasses three dimensions: obligation (binding character of rules), precision (clarity of rule content), and delegation (authority for implementation and enforcement) (Abbott et al., 2000). The amendments exhibit notable progress across all three dimensions, representing a departure from the earlier policy-dominated approach to climate governance.

*Obligation* is reinforced through the transformation of climate-related duties from discretionary policy commitments into binding statutory obligations. Section 174A mandates the National Carbon Monitoring Centre to establish and operate a Greenhouse Gas Inventory System, with sector ministries legally required to submit biennial emissions reports. This creates enforceable reporting duties that did not previously exist. Section 179(1)-(2) further strengthens obligation by requiring ministerial coordination for the implementation of international environmental agreements, thereby domesticating global climate commitments. This aligns with Bodansky’s (2016) observation that the Paris Agreement’s effectiveness depends on the translation of international norms into binding domestic law.

*Precision* is enhanced through the revised definitions introduced in Section 3, which provide statutory meanings for “climate change,” “greenhouse gases,” “emissions,” “vulnerability,” and “energy transition.” Definitional clarity is essential for reducing interpretive ambiguity and enabling consistent application by regulators, project developers, and courts (Sullivan, 2014). The explicit inclusion of “energy transition” is particularly significant, as it situates renewable energy development within the normative framework of



environmental law rather than treating it as a discretionary policy choice. Comparative scholarship confirms that such definitional precision is critical for translating international climate obligations into enforceable domestic practice (Fisher, 2017; Rajamani & Werksman, 2018).

*Delegation* is institutionalized through the creation of dedicated bodies with clear mandates for implementation. The establishment of the National Carbon Monitoring Centre (NCMC) under Sections 29A–29E represents a significant delegation of authority to a specialized institution. The NCMC is empowered to coordinate greenhouse gas management, regulate carbon trading, operate MRV systems, and provide advisory services to government and private actors. This institutional design mirrors global best practices for carbon market oversight, where specialized bodies enhance credibility and technical capacity (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019).

community participation and benefit-sharing provisions within the Carbon Trading Regulations.

The African Climate Change Strategy articulates a vision for low-carbon development that supports poverty reduction and economic transformation, recognizing that African states face distinct vulnerabilities that require tailored governance responses (Serdeczny *et al.*, 2017; Conway & Schipper, 2011). Tanzania’s legal framework responds to this regional orientation by embedding climate considerations within broader environmental governance structures rather than treating climate change as a standalone issue. Section 105A’s requirement for climate risk assessment within environmental impact assessments exemplifies this integrated approach, aligning with regional calls for mainstreaming climate action across development planning (EAC, 2011; SADC, 2010).

**Table 2: Alignment of Tanzania’s Legal Framework with Global Climate Governance Norms**

Legalization Dimension	Global Norm/Requirement	Tanzania’s Legal Provision	Alignment Assessment
Obligation	Binding NDC implementation (Paris Agreement Art. 4)	Section 179(1)-(2): Ministerial duty to implement international agreements	Strong alignment through statutory duty
Obligation	MRV requirements (Paris Agreement Art. 13)	Section 174A: Mandatory biennial greenhouse gas inventories	Strong alignment with binding reporting
Precision	Clear definitions of climate terms (UNFCCC practice)	Section 3: Definitions of climate change, GHG, emissions, energy transition	Strong alignment through statutory clarity
Precision	Additionality and permanence standards (Art. 6)	Carbon Trading Regulations, 2022: Project verification requirements	Partial alignment; requires further regulatory detail
Delegation	Dedicated oversight authority (Art. 6.4 Supervisory Body)	Sections 29A–29E: National Carbon Monitoring Centre	Strong alignment through specialized institution
Delegation	Transparency framework (Paris Agreement Art. 13)	Section 174: Central Environmental Information System	Moderate alignment; implementation pending

As shown in Table 2, Tanzania’s legal framework demonstrates strong alignment with the obligation, precision, and delegation dimensions of global climate governance norms. The most notable gaps relate to the operationalization of additionality and permanence standards for carbon credits, which are addressed in the Carbon Trading Regulations but require further regulatory elaboration to meet evolving international standards (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019).

#### 4.2 Regional and Sub-Regional Influences on Carbon Market Regulation

The analysis reveals that Tanzania’s climate governance framework is significantly influenced by regional and sub-regional governance architectures. At the continental level, the African Union’s Agenda 2063 and the African Climate Change Strategy emphasize climate justice, equitable benefit-sharing, and the integration of climate action with sustainable development priorities (African Union, 2014; Nhamo, 2011). These principles are reflected in Tanzania’s regulatory approach, particularly in the emphasis on local

At the sub-regional level, the East African Community (EAC) Climate Change Policy, Strategy and Master Plan provides a framework for harmonized climate action among member states (EAC, 2011). Key provisions include the development of common MRV standards, coordination of carbon market participation, and alignment of national climate policies. Tanzania’s establishment of the NCMC and its associated MRV systems creates the institutional infrastructure necessary for regional coordination, addressing earlier critiques that fragmented national systems impeded cross-border cooperation (Maumoh & Onoja, 2024).

The Southern African Development Community (SADC) Climate Change Strategy similarly emphasizes coordinated climate governance, with particular attention to transboundary water resources, energy systems, and ecosystem management (SADC, 2010). Tanzania’s position at the intersection of the EAC and SADC regions creates both opportunities and challenges for regulatory harmonization. The legal framework’s emphasis on centralized carbon market oversight through the NCMC



provides a single point of coordination that could facilitate regional integration but also requires that the Centre engage effectively with multiple regional bodies and their respective standards.

The Africa Carbon Market Initiative (ACMI) represents a more recent regional initiative aimed at scaling up carbon market participation across the continent while ensuring that benefits remain within Africa (Maumoh *et al.*, 2022). ACMI principles emphasize transparent benefit-sharing, local ownership, and alignment with national development plans. Tanzania’s legal framework partially addresses these principles through its provisions on carbon project registration and verification but lacks detailed statutory mechanisms for ensuring equitable benefit distribution to local communities. This gap has been identified in empirical studies of carbon projects in Tanzania, which find that benefit-sharing arrangements often favor external investors over local communities (Scheba, 2018; Mombo *et al.*, 2018; Matekele & Mlengule, 2025).

The NCMC’s statutory design reflects key polycentric principles. Section 29A establishes the Centre as a body corporate with legal personality, enabling it to enter contracts, own property, and litigate. This legal status provides operational autonomy while maintaining accountability to the Ministry responsible for environment and climate change. Such semi-autonomous institutional design allows for specialized expertise and operational flexibility while remaining connected to political oversight structures (Hickmann *et al.*, 2017; Jänicke, 2017).

Section 29B vests the NCMC with comprehensive authority over greenhouse gas management and carbon trading. This includes responsibility for project registration and certification, operation of MRV systems, management of carbon transactions, investment promotion, research, capacity building, and advisory services. Centralizing these functions within a single institution reduces fragmentation and enhances coordination, addressing weaknesses identified in earlier governance arrangements where responsibilities

**Table 3: Regional and Sub-Regional Influences on Tanzania’s Carbon Market Regulation**

Regional Framework	Key Principle/Requirement	Tanzania’s Legal Response	Implementation Status
African Union Agenda 2063	Climate-resilient development	Section 105A: Climate risk integration in EIAs	Legally mandated; implementation pending
African Climate Change Strategy	Climate justice and equity	Carbon Trading Regulations: Benefit-sharing provisions	Partial alignment; enforcement mechanisms weak
EAC Climate Change Policy	Harmonized MRV standards	Section 174A: National GHG inventory system	Institutional framework established
SADC Climate Change Strategy	Transboundary coordination	Section 29B: NCMC coordination mandate	Centralized oversight; regional engagement developing
Africa Carbon Market Initiative	Local ownership, benefit retention	Carbon Trading Regulations: Project registration	Moderate alignment; benefit-sharing requires strengthening

As presented in Table 3, Tanzania’s legal framework demonstrates moderate to strong alignment with regional climate governance principles, with notable gaps in benefit-sharing enforcement and regional coordination mechanisms. These gaps reflect broader challenges identified in African climate governance scholarship, where policy commitments often outpace implementation capacity (Ehanmo, 2026; Maumoh & Onoja, 2024).

### 4.3 Institutional Architecture for Carbon Governance: *The National Carbon Monitoring Centre*

The establishment of the National Carbon Monitoring Centre (NCMC) under Sections 29A–29E represents the most significant institutional innovation in Tanzania’s climate governance framework. Evaluated through the lens of polycentric governance theory, the NCMC functions as a coordinating hub linking multiple governance levels and actors. Polycentric systems, characterized by overlapping centers of decision-making authority that interact and adapt, are increasingly recognized as effective structures for complex governance challenges such as climate change (Ostrom, 2009, 2010; Cole, 2011; Jordan *et al.*, 2015).

were dispersed across multiple agencies with unclear mandates (Kitogo, 2025; Pauline & Lema, 2024).

The governance structure established under Section 29D reinforces polycentric principles through a hybrid arrangement combining political oversight with technical independence. A Board of Directors, chaired by a presidential appointee, provides strategic direction, while a Chief Executive Officer, appointed by the Minister, manages day-to-day operations. Gender inclusivity is embedded through the requirement that at least two board members be women, reflecting regional commitments to equitable participation in environmental decision-making (Kironde *et al.*, 2022; Techera & Mlay, 2024).

Section 29E ensures financial sustainability through diversified funding sources, including parliamentary allocations, fees for services, grants, consultancy income, and revenue from research and training. This funding model supports operational independence while maintaining accountability, enabling the Centre to engage with private sector actors and international partners without



compromising regulatory integrity (Gomera *et al.*, 2010; Espelage *et al.*, 2022).

Despite these institutional strengths, the effectiveness of the NCMC depends on resolving polycentric coordination challenges. The theoretical framework emphasizes that polycentric governance requires not only multiple centers of authority but also effective linkages between them (McGinnis & Ostrom, 2011; van Asselt, 2021). In the Tanzanian context, critical linkages include vertical coordination with local government authorities, horizontal coordination with sector ministries, and external coordination with regional and international bodies. Empirical research from Tanzania indicates that local government authorities often lack the capacity to implement climate programs effectively, creating implementation gaps that undermine national policy objectives (Ampaire *et al.*, 2016; Pilato *et al.*, 2018). Similarly, sectoral coordination remains challenging, as climate considerations intersect with agriculture, energy, water, forestry, and land management, each governed by separate institutional frameworks with competing priorities (Sokile & van Koppen, 2004; Gwambene *et al.*, 2025).

#### 4.4 Implementation Challenges and Governance Risks

The analysis reveals persistent challenges and risks that mediate the gap between legal formality and governance effectiveness. These challenges span institutional capacity, technical expertise, land tenure security, benefit distribution, and market integrity.

*Institutional capacity constraints* remain the most immediate implementation challenge. Local government authorities (LGAs), which are central to translating national climate obligations into local action, often lack skilled personnel, financial resources, and technical infrastructure. This limits their ability to conduct climate risk assessments, monitor project compliance, and engage meaningfully with communities. Research by Ampaire *et al.* (2016) found that capacity constraints at local levels consistently undermine climate policy implementation across Tanzania, with similar findings reported by Pilato *et al.* (2018) in their analysis of climate change integration in development strategies. From a polycentric perspective, these constraints disrupt the vertical linkages essential for effective coordination, leaving the NCMC as a centralized institution with limited reach at the local level.

*Technical capacity for MRV systems* presents a related challenge. Accurate measurement, reporting, and verification of emissions reductions are essential for carbon market credibility but require specialized skills and reliable data systems that remain under development in Tanzania. International scholarship emphasizes that MRV capacity is a prerequisite for participation in high-integrity carbon

markets, and its absence can undermine both market access and environmental credibility (Michaelowa *et al.*, 2019; Schneider *et al.*, 2019). In the East African context, Maumoh and Onoja (2024) document how limited technical capacity in MRV systems has constrained carbon market participation across the region, creating barriers that developing countries must overcome through sustained investment and technical assistance.

*Land tenure security* represents a fundamental governance challenge for carbon projects, particularly those involving forestry and land-use change. Carbon projects require clear and secure land ownership to establish carbon rights and ensure long-term project permanence. In Tanzania, land governance is characterized by overlapping statutory and customary tenure systems, with village lands governed by the Village Land Act and reserved lands governed by separate statutory regimes. Research by Scheba (2018) on REDD+ projects in Tanzania found that unclear land tenure arrangements create conflicts between investors, government authorities, and local communities, delaying implementation and undermining community support. The Environmental Management (Amendment) Act, 2025, strengthens national oversight of carbon projects but does not resolve underlying land tenure disputes, leaving customary claims contested in practice (Matekele & Mlengule, 2025; Xu *et al.*, 2023).

*Unequal benefit distribution* threatens the social sustainability of carbon markets. Empirical studies of carbon projects in Tanzania consistently find that private companies capture the majority of financial gains while communities providing land and labor receive minimal returns (Mombo *et al.*, 2018; Matekele *et al.*, 2024). This pattern reflects broader critiques of market-based conservation approaches, which have been shown to produce inequitable outcomes where participation mechanisms are weak and benefit-sharing arrangements are not legally enforced (Maumoh *et al.*, 2022; Matos, 2020). The Carbon Trading Regulations include provisions on benefit-sharing, but these lack the specificity and enforcement mechanisms necessary to ensure equitable distribution.

*Market integrity risks* include price volatility, double counting, and fraud. Carbon credit prices are influenced by global demand, policy shifts, and speculation, creating financial instability that affects communities dependent on carbon payments (Monasterolo & De Angelis, 2018, 2020). The Paris Agreement's Article 6 rulebook establishes requirements for corresponding adjustments to prevent double counting, but implementing these requirements requires robust national accounting systems that are still being developed (Schneider *et al.*, 2019; Ventura *et al.*, 2015). Limited MRV capacity can undermine carbon credit credibility and create opportunities for mismanagement or



fraud, risks that have been documented in emerging carbon markets globally (Kanamura, 2021; Dong *et al.*, 2024).

*Governance coordination weaknesses* amplify these risks. Poor coordination among government agencies, project developers, and communities can cause compliance failures, while investor risks from project underperformance or sudden policy shifts may reduce access to climate finance (Hansson *et al.*, 2020; Ajayi *et al.*, 2025). The polycentric governance framework emphasizes that effective coordination requires not only institutional design but also ongoing mechanisms for communication, information sharing, and mutual adjustment (Ostrom, 2010; Jordan *et al.*, 2015). Tanzania's legal framework establishes institutional structures for coordination but does not mandate specific coordination mechanisms, leaving their development to administrative practice.

## 5.0 Conclusions and Recommendations

This study has systematically examined the integration of climate governance norms into Tanzania's environmental legal framework through the Environmental Management (Amendment) Act, 2025, revealing a fundamental normative shift from policy-driven, discretionary approaches toward a legally binding and institutionally anchored system of climate governance. The analysis demonstrates that the amendments embed climate change within the core architecture of environmental law through statutory definitions that provide precision and legal certainty, institutional mandates that consolidate authority and create specialized oversight mechanisms, and compliance frameworks that establish enforceable obligations for greenhouse gas management and carbon market participation. The creation of the National Carbon Monitoring Centre represents a particularly significant institutional innovation, operationalizing polycentric governance principles by establishing a centralized coordinating hub capable of linking international carbon market standards with national regulatory oversight and local-level implementation. This institutional design addresses long-standing critiques of fragmented climate governance in Tanzania while aligning the domestic framework with the legalization imperatives of the Paris Agreement, particularly the transparency, monitoring, reporting, and verification requirements essential for credible participation in Article 6 carbon markets. The findings further reveal that Tanzania's legal framework is substantially informed by African regional governance principles, including the African Union's emphasis on climate justice, equitable benefit-sharing, and the integration of climate action with sustainable development priorities, reflecting a convergence between global normative expectations and regionally specific development realities.

Despite these significant legal and institutional achievements, the analysis reveals persistent implementation challenges that mediate the gap between statutory formality and governance effectiveness, with profound policy and empirical implications. Institutional capacity constraints at local government authorities remain the most immediate barrier, as district-level actors lack the technical expertise, financial resources, and administrative infrastructure necessary to translate national climate obligations into localized action. This finding carries critical policy implications: without targeted investments in sub-national capacity-building, the centralized institutional architecture established by the amendments risks functioning as a hollow structure incapable of delivering tangible climate outcomes. Empirically, this confirms earlier scholarship demonstrating that polycentric governance systems depend not only on institutional design but also on the functional linkages between governance levels, linkages that remain underdeveloped in the Tanzanian context. The analysis further identifies land tenure security as a foundational governance challenge, as carbon projects; particularly those involving forestry and land-use change; require clear and secure property rights that remain contested under Tanzania's dual statutory and customary land tenure systems. The policy implication is that carbon market regulation cannot be effective in isolation; it must be complemented by land tenure reforms that clarify carbon rights and establish mechanisms for reconciling customary claims with investor interests. Empirically, the persistence of land-related conflicts in existing carbon projects underscores that legal provisions alone are insufficient without corresponding institutional mechanisms for dispute resolution and community engagement.

The findings on benefit distribution carry significant implications for both policy design and empirical understanding of carbon market outcomes. The analysis reveals that while the Carbon Trading Regulations include provisions for benefit-sharing, these lack the specificity and enforcement mechanisms necessary to ensure equitable distribution, resulting in empirical patterns where private investors capture disproportionate gains while local communities bear opportunity costs and receive minimal compensation. This has direct policy implications: regulatory frameworks must be strengthened to mandate transparent benefit-sharing agreements, establish minimum benefit thresholds for participating communities, and create enforceable mechanisms for community consent and ongoing participation. Empirically, this finding aligns with broader critiques of market-based conservation approaches, which have demonstrated that inequitable benefit distribution undermines both social sustainability and long-term project viability. The study also identifies technical capacity gaps in monitoring, reporting, and verification systems as a critical



vulnerability, with implications for both market integrity and climate finance mobilization. Without strong MRV systems capable of ensuring additionality, permanence, and verifiability of emission reductions, Tanzania's carbon credits risk being discounted in international markets, undermining the very climate finance objectives the reforms seek to achieve. The policy implication is that investments in MRV infrastructure and technical training must be prioritized alongside legal reform, recognizing that institutional capacity and data systems are co-requisites for credible market participation.

From a theoretical perspective, this study contributes to understanding how legalization, polycentric governance, and regional normative frameworks intersect in the design of domestic climate governance. The analysis demonstrates that Tanzania's reforms exemplify a polycentric approach that distributes authority across multiple governance levels while centralizing coordination functions within the National Carbon Monitoring Centre, a design that balances the need for technical specialization with the imperative of political accountability. However, the findings also reveal that polycentric governance is not self-executing; its effectiveness depends on sustained investment in the institutional infrastructure that enables coordination, including information systems, technical expertise, and mechanisms for stakeholder engagement. The study further contributes empirical evidence from an underexplored African context, demonstrating that the translation of global climate norms into domestic law is shaped by regional governance frameworks and local institutional realities in ways that theoretical models often oversimplify. This reinforces the importance of context-sensitive approaches to climate governance scholarship that attend to the specific legal, institutional, and socio-economic conditions shaping implementation outcomes.

The policy implications of this study extend beyond Tanzania to other African states seeking to develop legal frameworks for carbon market participation. The analysis suggests that effective climate governance requires not merely the adoption of international norms but their active domestication through statutory provisions that establish clear obligations, specialized institutions, and enforceable compliance mechanisms. It also demonstrates that legal reform must be accompanied by investments in institutional capacity, technical infrastructure, and stakeholder engagement, as these factors mediate the gap between law in books and law in action. For Tanzania, the path forward requires prioritizing capacity-building for local government authorities to strengthen vertical linkages within the polycentric system; finalizing and enforcing regulations on benefit-sharing to ensure that carbon projects deliver equitable outcomes for participating communities; investing in MRV infrastructure and technical training to meet

international market standards; and developing mechanisms to reconcile customary and statutory land tenure systems to provide the secure property rights essential for carbon project viability. Additionally, the government should establish clear protocols for community engagement and consent that go beyond procedural requirements to ensure meaningful participation in carbon project design, implementation, and benefit distribution.

In general, the Environmental Management (Amendment) Act, 2025, provides a necessary and credible legal foundation for integrating climate governance into Tanzania's environmental law and for positioning the country to participate in emerging carbon markets. The reforms represent a substantive normative achievement, transforming climate action from discretionary policy into legally grounded governance obligations supported by institutional structures and compliance mechanisms. However, the transformative potential of this legal framework will be realized only through sustained implementation that addresses institutional capacity constraints, resolves land tenure uncertainties, ensures equitable benefit distribution, and builds the technical systems essential for market credibility. The study underscores that law is a necessary but insufficient condition for effective climate governance; it must be complemented by institutional strengthening, capacity-building, and inclusive governance practices that enable legal provisions to achieve their intended outcomes. For Tanzania and similarly situated developing countries, the challenge lies not in the absence of legal frameworks but in the sustained commitment to implementation, coordination, and accountability that transforms legal possibility into tangible climate action.

### ***Declaration of Conflict of Interest***

I declare that there are no competing financial interests or personal relationships known to me that could have influenced the research and findings presented in this paper.

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