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Governance Systems and Natural Resource Management Quality in Tanzania: A Cross-Sectoral Review of *Evolution*, *Challenges*, and *Pathways for Reform*

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Abstract: *Natural resources, including forests, water, wildlife, and fisheries, are central to Tanzania's socio-economic development and the livelihoods of its rural population. Over recent decades, governance of these resources has shifted from centralized state-led models toward more inclusive, decentralized, and community-based systems in response to environmental degradation and sustainability imperatives. Despite reforms such as Participatory Forest Management (PFM) and Wildlife Management Areas (WMAs), persistent challenges, including institutional fragmentation, elite capture, legal ambiguities, and limited local capacity, continue to undermine governance effectiveness. This study provides a wide-ranging, cross-sectoral review of the evolution, challenges, and future directions of natural resource governance in Tanzania. Grounded in institutional economics, political ecology, and participatory governance theories, it examines how different governance systems, state-led, co-management, community-based, and hybrid models, affect the quality and equity of resource management across forestry, wildlife, water, and fisheries sectors. Through a narrative synthesis of peer-reviewed and grey literature (2000–2025), the study evaluates governance quality using dimensions such as transparency, accountability, inclusiveness, and fairness. Findings indicate that participatory approaches have contributed to reduced illegal activities and increased local revenues, but these gains are often constrained by weak legal frameworks, limited institutional autonomy, and inconsistent enforcement. The paper concludes by proposing an integrated governance framework based on polycentric and adaptive principles, emphasizing two focused recommendations: (i) harmonizing sectoral laws to secure community tenure and clarify mandates, and (ii) investing in the autonomy and capability of local institutions to ensure equitable and sustainable resource governance.*

Keywords: *Natural resource governance; Polycentric governance; Adaptive management; Legal pluralism; Tanzania*

1. Background Information

Natural resources, including forests, water, wildlife, and fisheries, are fundamental to Tanzania's socio-economic development and the livelihoods of millions of rural households (URT, 2004; WWF, 2023). These resources provide not only economic value but also cultural, ecological, and subsistence benefits that sustain communities across the country (Kajembe *et al.*, 2003). Historically, natural resource governance in Tanzania was rooted in customary and indigenous systems characterized by communal ownership, local rule-making, and ecologically embedded stewardship practices (Ostrom, 1990; Borrini-Feyerabend *et al.*, 2004). Such systems, enforced through social norms and kinship networks, were often effective in promoting sustainability, regulating access, and maintaining ecosystem health.

In recent decades, however, governance of these resources has become increasingly complex and contested. Rapid population growth, commercial land use, resource commodification, and rural poverty have intensified pressures on forests, water basins, wetlands, and wildlife corridors (Kajembe *et al.*, 2003; World Bank, 2019). Concurrently, climate change impacts, including erratic

rainfall, prolonged droughts, water stress, and biodiversity loss—have further eroded ecosystem resilience and undermined rural livelihoods (IPCC, 2021; UNDP, 2023; World Bank, 2024). These challenges are not unique to Tanzania but reflect broader regional trends observed across East Africa, where overlapping mandates, elite capture, and land-use conflicts similarly hinder effective governance (EAC, 2024).

In response, Tanzania has undertaken significant policy and institutional reforms aimed at shifting from centralized, state-led governance toward more participatory, decentralized, and community-based models (URT, 2002; FAO, 2022; WWF, 2023). Key initiatives include Participatory Forest Management (PFM), Wildlife Management Areas (WMAs), Village Land Use Planning, and Basin Water Boards. These reforms seek to empower local actors, devolve decision-making authority, and integrate local knowledge systems, often influenced by global frameworks such as REDD+, the Convention on Biological Diversity, and the Global Biodiversity Framework (UN CBD, 2022; GCF, 2023).

Despite these efforts, governance outcomes remain uneven across sectors and landscapes (Nelson & Blomley, 2010; Kegamba *et al.*, 2023; Mosha, 2024). While some participatory approaches have led to measurable improvements, such as forest regeneration, wildlife conservation, and increased local revenues, persistent challenges undermine their effectiveness. These include institutional fragmentation, elite capture, legal ambiguities, limited local capacity, and continued centralization of key powers such as licensing and revenue allocation. Moreover, the exclusion of marginalized groups, particularly women and youth, has compromised the inclusiveness and equity of many community-based initiatives (Mandondo *et al.*, 2023; Theodory & Massoi, 2023).

A growing body of research has examined natural resource governance in Tanzania, yet significant gaps remain, especially in cross-sectoral comparisons of governance systems. Most studies focus on individual sectors or localized case studies (e.g., Nelson & Blomley, 2010; Theodory & Massoi, 2023; Mosha, 2024), lacking a systematic framework to assess how different governance models, state-led, co-management, community-based, and hybrid, affect outcomes related to equity, transparency, accountability, and sustainability. Furthermore, indicators of governance quality are often inconsistently applied, limiting their utility for policy learning and institutional reform (Lockwood *et al.*, 2010; Mabele & Müller-Böker, 2024).

This paper addresses these gaps by providing a comprehensive, cross-sectoral review of the evolution, challenges, and future directions of natural resource governance in Tanzania. Grounded in institutional economics, political ecology, and participatory governance theories, the study examines how various governance systems influence the quality and equity of resource management across forestry, wildlife, water, and fisheries sectors. Through a narrative synthesis of peer-reviewed and grey literature (2000–2025), it evaluates governance performance using dimensions such as transparency, accountability, inclusiveness, and fairness. The review concludes by proposing an integrated governance framework based on polycentric and adaptive principles, with targeted recommendations for legal harmonization, institutional strengthening, and enhanced local autonomy to promote equitable and sustainable resource governance.

2. Theoretical and Conceptual Framework

2.1 Theoretical Foundations of Natural Resource Governance

Understanding natural resource governance requires a multidisciplinary approach that integrates institutional economics, political ecology, and participatory governance theories. These frameworks offer complementary lenses for analyzing how authority, power, and responsibility are allocated, contested, and exercised among diverse actors across multiple levels of governance (Agrawal & Gibson, 1999; Leach *et al.*, 1999; Lemos & Agrawal, 2006).

A cornerstone of contemporary theory is Elinor Ostrom's Institutional Analysis and Development (IAD) framework. In her seminal work, Ostrom (1990, 2005) debunked the myth that common-pool resources (CPRs) are inherently mismanaged without privatization or state control. She demonstrated empirically that local communities can sustainably govern CPRs through self-organized systems, contingent upon enabling conditions such as trust, collective rules, monitoring, and sanctions. In Tanzania, Ostrom's insights are particularly relevant to community-based forestry and wildlife governance, such as the Duru-Haitemba and Mgori Village Forest Reserves, where community rule-setting has led to significant reductions in illegal logging (Blomley & Ramadhani, 2006; Chingonikaya *et al.*, 2010; Nelson, 2012).

Complementing this is Mancur Olson's Logic of Collective Action (1965), which explains why individuals may not act in the collective interest without sufficient incentives or enforcement mechanisms. In the Tanzanian context, this theory helps explain the uneven performance of Joint Forest Management (JFM) and other participatory models, which often falter where perceived benefit-sharing is inequitable or incentives are misaligned (Kajembe *et al.*, 2003; Lund & Saito-Jensen, 2013).

The collaborative governance framework, articulated by Ansell and Gash (2008), shifts attention to consensus-driven interactions between public agencies and non-state actors.

Models such as JFM and Wildlife Management Areas (WMAs) exemplify this approach, integrating Ostrom's ideas of self-organization and Olson's focus on incentives but emphasizing trust-building, shared accountability, and joint decision-making. However, their success depends on enabling factors such as facilitation quality, transparent institutional roles, and equitable resource distribution (Blomley *et al.*, 2008; Brockington, 2007; Mustalahti & Lund, 2009).

Another key framework is adaptive governance, introduced by Folke *et al.* (2005) and expanded by Chaffin *et al.* (2014). This theory is especially useful in the context of complex socio-ecological systems experiencing rapid environmental and political change. Adaptive governance emphasizes institutional flexibility, learning, feedback loops, and polycentric coordination. In Tanzania, this is illustrated by Theodory and Massoi's (2023) study of community-based water governance in Kilosa District, where local water user associations implemented seasonal water use schedules and participatory monitoring to manage scarcity. While successful in some aspects, these arrangements faced challenges such as elite capture, low technical capacity, and inconsistent government support, highlighting the need for legal recognition and stronger vertical integration.

While Ostrom's IAD framework provides a robust structure for analyzing local governance, critics such as Ribot (2002) argue that it pays insufficient attention to external power asymmetries and political-economic contexts. Here, political ecology fills the gap by foregrounding issues of marginalization, contestation, and vertical power relations. Scholars like Newell (2000) and Ribot (2002) emphasize how formal institutions often sideline local voices, particularly in highly centralized sectors such as wildlife conservation. In Tanzania, Mosha (2024) and Ribot (2004) show how hybrid governance arrangements, where state and customary institutions coexist, can either empower or marginalize communities depending on how authority is negotiated and shared.

Political ecology also highlights structural constraints rooted in colonial legacies, land tenure regimes, and donor-driven conservation agendas, which often clash with local priorities and knowledge systems (Mandondo *et al.*, 2023). For example, centralized control in Tanzania's wildlife sector has led to limited community input in decision-making over tourism revenues and protected area boundaries, prompting calls for more context-sensitive hybrid models (Mosha, 2024; Ribot, 2002).

Recent contributions further extend these frameworks. Smith *et al.* (2023) examine how digital tools and mobile-based platforms are being used to enhance transparency and monitoring in community forest governance, offering new forms of participatory oversight aligned with Ostrom's principles. Similarly, Kegamba *et al.* (2023) explore how power imbalances persist even in formally decentralized systems, reinforcing the need to critically engage with governance beyond legal design.

This review integrates Ostrom's institutional focus on self-organization, Olson's emphasis on collective incentives, adaptive governance's dynamic and learning-oriented strategies, and political ecology's critical attention to power and exclusion. Together, they offer a comprehensive analytical lens to assess how governance systems, whether centralized, decentralized, community-based, or hybrid, affect natural resource governance outcomes in Tanzania.

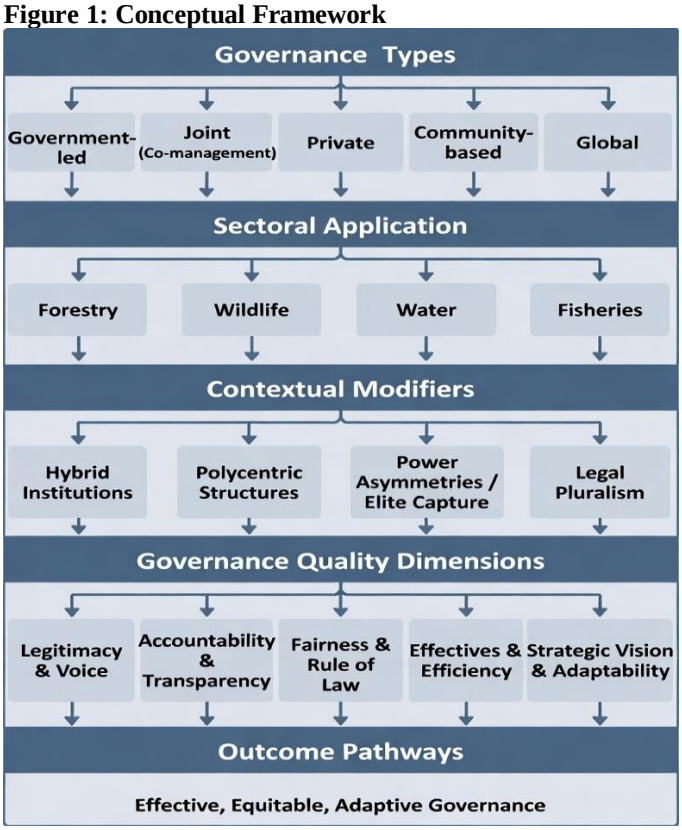
2.2 Conceptual Framework

This study adopts a conceptual framework that links governance types, contextual factors, and governance quality dimensions to explain variations in natural resource governance outcomes in Tanzania (Figure 1). Drawing from the IUCN typology, it identifies five main governance types: government-led, joint (co-management), private, community-based, and global, each representing different power arrangements and decision-making structures across forestry, wildlife, water, and fisheries sectors.

These governance systems operate within dynamic contextual modifiers such as hybrid institutional arrangements, polycentric coordination across levels, legal pluralism, and power asymmetries. These factors shape how authority is exercised and influence the effectiveness of governance models on the ground.

Governance performance is assessed through five dimensions: legitimacy and voice, accountability and transparency, fairness and rule of law, effectiveness and efficiency, and strategic vision. These dimensions reflect globally recognized standards and offer a structured basis for evaluating how governance models perform across sectors. The interaction between governance types and contextual realities determines the quality of outcomes (Figure 1). Where systems are inclusive, transparent, and supported by legal and institutional clarity, they tend to deliver more equitable, sustainable, and adaptive governance. Conversely, unclear mandates, elite capture, or lack of local capacity undermine effectiveness.

Figure 1: Conceptual Framework



3. Methodology

This study employs a systematic qualitative narrative review approach to synthesize and analyze existing literature on natural resource governance systems in Tanzania. This methodological choice is appropriate for integrating diverse theoretical perspectives, sectoral experiences, and governance models into a coherent analytical framework, enabling the identification of patterns, contradictions, and gaps in knowledge without primary data collection (Snyder, 2019; Torraco, 2020). The narrative review design is particularly suited to interdisciplinary research that spans institutional, ecological, and policy dimensions, allowing for a holistic and context-sensitive synthesis (Wong *et al.*, 2013).

3.1 Search Strategy and Source Selection

A systematic search was conducted across several academic databases and institutional repositories to capture both scholarly and policy-oriented literature. Keywords were combined using Boolean operators to reflect the study's focus on governance types, sectors, and quality indicators. The search period (2000–2025) was selected to capture Tanzania's post- decentralization reforms and contemporary

Table 1: Methodological Framework for the Systematic Narrative Review

Step	Description	Purpose	Tools/Approach
1. Research Question Formulation	***Identify key themes:*** governance models, quality indicators, sectoral outcomes, challenges, and reforms.	To guide literature search and analysis.	PICO framework adapted for policy review (Boland *et al.*, 2017).
2. Search Strategy	***Databases:*** Scopus, Web of Science, Google Scholar, institutional repositories (World Bank, IUCN, UNDP, WWF, Tanzanian academic institutions).	To ensure comprehensive and credible coverage.	***Boolean operators, keywords:*** "natural resource governance Tanzania," "participatory forest management," "wildlife management areas," "decentralization," "community-based resource management."
3. Inclusion/Exclusion Criteria	Peer-reviewed articles, policy documents, institutional reports (2000–2025). Exclude non-English texts, non-Tanzanian focus without comparative relevance.	To maintain relevance and quality.	PRISMA-inspired screening (Page *et al.*, 2021).
4. Data Extraction & Synthesis	Thematic coding using governance dimensions: transparency, accountability, inclusiveness, fairness, effectiveness.	To enable cross-sectoral and cross-model comparison.	NVivo software for coding consistency; narrative synthesis (Popay *et al.*, 2006).
5. Quality Appraisal	***Triangulation of sources:*** peer-reviewed vs. grey literature; policy vs. empirical studies.	To mitigate bias and enhance validity.	Critical engagement with donor-funded and government reports.
6. Comparative Analysis	Integration of regional case studies (Kenya, India, Bolivia) for contextual learning.	To situate Tanzanian experience within broader governance debates.	Thematic cross-comparison (Yin, 2018).

governance challenges. Priority was given to Tanzania-specific literature, but relevant comparative studies from Sub-Saharan Africa, Asia, and Latin America were included to enrich the analysis and identify transferable lessons.

3.2 Data Synthesis and Analytical Framework

A thematic narrative synthesis was conducted to organize findings across the four focal sectors: forestry, wildlife, water, and fisheries. Drawing on established governance assessment frameworks (e.g., IUCN, 2004; UNDP, 2023; Kaufmann *et al.*, 2003), the review evaluated governance quality using five dimensions:

i. Legitimacy and Voice
ii. Accountability and Transparency
iii. Fairness and Rule of Law
iv. Effectiveness and Efficiency
v. Strategic Vision and Adaptability

The analysis was supported by NVivo software to ensure systematic coding and reduce researcher bias. Themes such as elite capture, legal pluralism, institutional fragmentation, and community autonomy were iteratively coded and examined across governance models (state-led, co-management, community-based, hybrid).

3.3 Critical Appraisal and Triangulation

To enhance the robustness of the review, findings from peer-reviewed studies were triangulated with grey literature, including government policy documents, NGO reports, and donor assessments. Special attention was paid to potential biases in donor-driven or state-authored documents, and contradictory evidence was critically examined to present a balanced perspective (Denzin, 2017).

3.4 Limitations

While the narrative review allows for depth and contextual richness, it is inherently interpretative and may reflect the authors' analytical positioning. The reliance on published and grey literature may also underrepresent informal or unpublished local knowledge. Nevertheless, the systematic approach and triangulation strategies mitigate these limitations and ensure scholarly rigor.

4. Results and Discussion

4.1 Historical Evolution and Policy Landscape

Natural resource governance in Tanzania has evolved from centralized, exclusionary systems to more participatory models shaped by global influences and domestic reforms. During the colonial and early post-independence periods, management was state-dominated, sidelining customary systems and local communities. This led to widespread non-compliance, deforestation, poaching, and over-extraction (URT, 2002; Kajembe *et al.*, 2003).

In the 1990s, influenced by global decentralization trends, Tanzania introduced policies promoting devolution and community participation, such as the National Forest Policy (1998), Wildlife Policy (1998), and Water Policy (2002). These reforms aimed to empower local actors, integrate indigenous knowledge, and improve ecological outcomes (Borrini-Feyerabend *et al.*, 2004; FAO, 2022).

4.2 Sectoral Governance Reforms and Outcomes

The implementation of participatory models varied across sectors (Table 2), with mixed results in terms of governance quality, equity, and sustainability.

4.3 Cross-Sectoral Governance Challenges

Despite reforms, several cross-cutting challenges undermine governance effectiveness:

i. ***Institutional Fragmentation****:* Overlapping mandates between ministries, NGOs, and customary institutions create coordination gaps (Mosha, 2024).
ii. ***Elite Capture****:* Local elites often control decision-making and benefits, especially in high-value sectors like tourism and timber (Lund & Saito-Jensen, 2013).
iii. ***Legal Pluralism and Tenure Insecurity****:* Inconsistencies between statutory and customary

Table 2: Sectoral Governance Reforms, Outcomes, and Persistent Challenges

Sector	Governance Model	Key Features	Reported Outcomes	Persistent Challenges
Forestry	Participatory Forest Management (PFM)	Village Forest Reserves (VFRs), Joint Forest Management (JFM)	Increased forest regeneration (e.g., Duru-Haitemba), reduced deforestation, enhanced local livelihoods (Blomley *et al.*, 2008)	Weak tenure security, elite capture, limited institutional capacity (Kajembe *et al.*, 2020)
Wildlife	Wildlife Management Areas (WMAs)	Community co-management, tourism revenue sharing	Improved wildlife conservation, increased local revenue (Nelson, 2012)	Delayed revenue disbursement, elite dominance, lack of transparency (Kegamba *et al.*, 2023)
Water	Basin Water Boards & Community-Based Water Supply Organizations	Decentralized management, seasonal water-use planning	Enhanced local accountability, improved seasonal planning (Theodory & Massoi, 2023)	Legal ambiguities, low technical capacity, coordination gaps (UNDP, 2023)
Fisheries	Beach Management Units (BMUs)	Local co-management, rule enforcement by fishers	Increased community engagement, reduced destructive fishing (URT, 2023)	Illegal fishing, weak oversight, limited enforcement capacity (FAO, 2023)

laws weaken community tenure rights (Mandondo *et al.*, 2023).

iv. ***Limited Local Capacity:*** Village institutions often lack technical, financial, and administrative resources (WWF Tanzania, 2023).

v. ***Symbolic Participation:*** Community involvement is often procedural rather than substantive, eroding trust and legitimacy (Ribot, 2002).

4.4 Comparative Regional Insights

Experiences from other regions (Table 3) offer lessons for Tanzania's governance reforms.

Table 3: Comparative Governance Models in Natural Resource Management

Country	Model	Key Features	Lessons for Tanzania
Kenya	Community Conservancies	Devolution of wildlife management, revenue sharing	Need for clear benefit-sharing mechanisms and safeguards against elite capture (Kamau, 2023)
India	Joint Forest Management (JFM)	Co-management between state and communities	Decentralization must go beyond administrative delegation to ensure real community control (Smith et al., 2023)
Bolivia	Indigenous Territorial Autonomies (ITAs)	Legal recognition of indigenous self-governance, customary law integration	Deep devolution combined with legal pluralism can enhance legitimacy and sustainability (Ribot, 2004)

4.5 The Role of Customary and Global Institutions

Customary institutions (e.g., village councils, clan elders) remain vital in rural governance, offering locally legitimate conflict resolution and rule enforcement (Theodory & Massoi, 2023). However, their integration into statutory systems is inconsistent and often marginalizes women and youth (Mosha, 2024). Global frameworks (e.g., REDD+, CBD) have shaped national policies and provided funding, but their effectiveness depends on alignment with local realities and institutional capacity (UN CBD, 2022; GCF, 2023).

4.6 Synthesis: Toward an Integrated Governance Framework

The review indicates that no single governance model is universally effective. Success depends on context-specific hybrids that:

i. Harmonize statutory and customary laws
ii. Ensure meaningful community participation
iii. Build local institutional capacity
iv. Implement transparent and accountable benefit-sharing mechanisms

A polycentric, adaptive governance framework that integrates local, district, and national levels is recommended for enhancing equity, sustainability, and resilience in Tanzania's natural resource management (Ostrom, 2005; Folke *et al.*, 2005).

5. Governance Systems and Their Impact on Governance Quality

The performance of governance systems in managing natural resources in Tanzania reveals that the structure of governance significantly influences both ecological outcomes and the distribution of rights, responsibilities, and benefits among stakeholders. This section draws on qualitative assessments of case studies across forestry, wildlife, fisheries, and water sectors to evaluate governance quality using indicators such as transparency, participation, accountability, and the rule of law, based on secondary literature and empirical studies.

Historically, Tanzania's natural resource management was dominated by centralized governance systems. State agencies retained exclusive control over forests, water catchments, and wildlife areas, often bypassing local communities in both decision-making and benefit-sharing. This exclusion not only eroded local stewardship but also fuelled illegal exploitation and ecological degradation (URT, 2002; Kajembe *et al.*, 2003). For example, centralized protection of forest reserves frequently marginalizes communities, leading to encroachment and illegal harvesting due to weak enforcement and a lack of local legitimacy (Nelson & Blomley, 2010). While centralized governance is often critiqued for its top-down structure, proponents argue that it offers critical advantages, particularly in enforcing national conservation priorities, managing transboundary ecosystems, and ensuring uniform policy implementation (Smith, 2022). In contexts where community capacity is low or where resource systems span multiple jurisdictions, centralized authority may provide necessary oversight. This underscores the importance of striking a balance between centralized regulation and local autonomy, especially in ecologically sensitive regions (Ostrom, 2005).

In response to the limitations of centralization, decentralized and community-based governance models have gained traction since the 1990s. Participatory Forest Management (PFM), including Joint Forest Management (JFM) and Community-Based Forest Management (CBFM), has enabled village governments to take an active role in managing Village Forest Reserves (VFRs). Notable examples from Duru-Haitemba and Mgori show how community rule-setting, monitoring, and enforcement can reverse deforestation trends and improve rural livelihoods (Blomley & Ramadhani, 2006; Chingonikaya *et al.*, 2010). The success of these models depends on clearly defined mandates, tenure security, and adequate institutional support (Kajembe *et al.*, 2020). Wildlife Management Areas

(WMAs) reflect a hybrid governance model in which communities co-manage wildlife resources and benefit from tourism revenues. While this approach aligns conservation objectives with community incentives, its effectiveness hinges on equitable benefit-sharing and strong local governance. Cases of delayed revenue disbursement, elite capture, and limited transparency in decision-making illustrate the vulnerabilities of WMAs when governance safeguards are weak (Kegamba *et al.*, 2023; Mosha, 2024).

In the fisheries sector, community-based co-management has been implemented through Beach Management Units (BMUs), particularly along the Indian Ocean coast and in Lake Victoria. These units engage fishers in rule enforcement, surveillance, and conflict resolution. In some areas, co-management has improved compliance and reduced destructive fishing practices. However, widespread issues such as illegal fishing, insufficient oversight, and weak collaboration with national authorities undermine their effectiveness (FAO, 2023; URT, 2023). These challenges reflect broader tensions between decentralized mandates and the limited technical or financial capacity of local institutions (Theodory & Massoi, 2023). Private and NGO-led governance models also contribute to the governance landscape, especially in ecotourism and conservation. These models often exhibit operational flexibility and speed in implementation, particularly where government agencies are under-resourced. However, they may lack accountability to local populations and prioritize financial outcomes over social and ecological sustainability (Brockington, 2007). Without inclusive participation and oversight, such models risk undermining long-term conservation goals (Ribot, 2002). At the global level, frameworks such as REDD+, the Ramsar Convention, and the Convention on Biological Diversity have influenced national governance reforms by promoting standards of transparency, equity, and sustainability (UN CBD, 2022; GCF, 2023). These initiatives have mobilized donor funding and technical expertise, supporting policy alignment with international norms. However, their implementation is frequently project-based, donor-driven, and susceptible to local institutional weaknesses, limiting their long-term impact without integration into national systems (Mandondo *et al.*, 2023).

Across governance types, community-based and participatory systems generally perform better on governance quality indicators, especially in cases where enabling conditions such as secure tenure, legal recognition, and institutional support are in place. These models tend to promote inclusive decision-making, responsiveness, and stronger accountability. However, performance is highly context-specific. In some WMAs and forest reserves, elite domination and symbolic participation persist, calling into question the authenticity of some decentralization efforts. Tanzania's experience illustrates that no single governance model is universally effective. The quality of governance depends not only on the formal distribution of authority but also on how institutions interact, how power is exercised, and how benefits are negotiated and shared. Governance reforms must therefore address both structural and relational dimensions, ensuring that decentralization is not merely procedural, but transformative in practice (Mosha, 2024).

Table 4: Governance Models, Outcomes, and Quality Indicators in Tanzania's Natural Resource Sectors

Sector	Governance Model	Key Features	Reported Outcomes	Governance Quality Indicators	Key Challenges
Forestry	Participatory Forest Management (PFM) – JFM & CBFM	Legal mandates for community involvement; Village Forest Reserves (VFRs)	Improved forest regeneration (e.g., Duru-Haitemba, Mgori); enhanced local livelihoods	Moderate-high inclusiveness; variable transparency; tenure-dependent accountability	Weak tenure security; elite capture; limited institutional capacity
Wildlife	Wildlife Management Areas (WMAs)	Community co-management of wildlife; tourism revenue-sharing	Conservation improvement; increased local revenue	Low-moderate transparency; delayed accountability; elite-dominated participation	Elite capture; delayed revenue disbursement; limited community voice
Water	Basin Water Boards & Community-Based Water Orgs.	Decentralized water governance; seasonal water-use planning	Enhanced local accountability; improved seasonal planning (e.g., Kilosa District)	Moderate legitimacy; low technical capacity; coordination gaps	Legal ambiguities; low technical/financial capacity; inter-institutional fragmentation
Fisheries	Beach Management Units (BMUs)	Co-management with local fishers; rule enforcement and surveillance	Increased community engagement; reduced destructive fishing	Moderate participation; weak oversight; limited enforcement capacity	Illegal fishing; weak oversight; limited state support
Cross-Sector	Hybrid/Polycentric Governance	Multiple governance centers; legal pluralism; integration of formal/informal rules	Adaptive responses in select areas; potential for increased legitimacy	Context-dependent inclusiveness; variable transparency; fragmented accountability	Inconsistent support; elite capture; legal clarity gaps; institutional fragmentation

Note: Governance quality indicators are assessed based on synthesis of literature across sectors (2000–2025).

6. Critical Factors Influencing Governance Quality

The quality of natural resource governance in Tanzania is shaped not only by the type of governance system in place but also by a complex interplay of institutional, legal, social, and ecological factors. These determinants influence how decisions are made and implemented, how authority is exercised, and how benefits and responsibilities are distributed. Their effects span across sectors, forestry, water, fisheries, and wildlife, and bear directly on the legitimacy, effectiveness, and responsiveness of governance systems.

6.1 Institutional and Legal Frameworks

An enabling legal and institutional framework is fundamental to the success of decentralized and participatory governance. Tanzania's forest, wildlife, water, and fisheries sectors are governed by policies such as the Forest Policy (1998), the Wildlife Policy (1998), and the National Water Policy (2002), all of which promote devolution and stakeholder engagement. However, the implementation of these policies is hindered by overlapping mandates, inconsistencies between statutory and customary authority, and fragmented institutional responsibilities.

Table 5: Key Legal and Institutional Challenges in Tanzanian Resource Governance

Sector	Legal Framework	Institutional Overlaps	Tenure and Compliance Issues
Forestry	Forest Act (2002)	VFRs vs. District Forest Reserves; MNRT vs. Local Gov't	Weak community tenure; elite capture in JFM (Kajembe *et al.*, 2020)
Wildlife	Wildlife Conservation Act (2009)	TANAPA vs. WMAs; MNRT vs. Tourism Division	Delayed revenue sharing; lack of transparency (Kegamba *et al.*, 2023)
Water	Water Resources Management Act (2009)	Basin Boards vs. Village Water Committees; MWI vs. RUWASA	Seasonal conflicts; low technical capacity (Theodory & Massoi, 2023)
Fisheries	Fisheries Act (2003)	BMUs vs. District Fisheries Offices; MAFC vs. Local Gov't	Illegal fishing; weak enforcement (FAO, 2023)

Source: Compiled from reviewed literature (2000–2025)

In forestry, for instance, tenure ambiguity continues to impede effective resource control and benefit-sharing. Recent studies highlight that forest reserves often fall into contested zones between village governments and district or national authorities, complicating enforcement (Kamau, 2024). Similarly, in fisheries, particularly in Lake Tanganyika, weak legal frameworks and unclear co-management mandates have undermined local initiatives, while national agencies lack the operational presence to support sustainable oversight (FAO, 2023).

The disconnect between land tenure systems and natural resource legislation further compounds the problem. Without harmonization, communities remain legally insecure and unable to exercise the full range of their resource rights. As a result, decentralization reforms risk becoming symbolic rather than transformative, offering limited change in power relations or institutional accountability (Mandondo *et al.*, 2023; WWF Tanzania, 2023).

6.2 Participation and Stakeholder Engagement

Participation is a central tenet of good governance, yet in Tanzania its quality and depth vary considerably. Participatory approaches such as Joint Forest Management (JFM), Wildlife Management Areas (WMAs), Beach Management Units (BMUs), and Community-Based Water Supply Organizations have improved stakeholder engagement in planning, rule enforcement, and resource monitoring. Positive examples such as the Duru-Haitemba and Mgori Village Forest Reserves show that where participation is meaningful, institutions are respected, and sustained support exists, both environmental and social outcomes improve (Kajembe *et al.*, 2020; Theodory & Massoi, 2023).

However, in many cases, participation remains procedural rather than substantive. Communities are often involved in project implementation but excluded from strategic decision-making. Gender inequality, limited access to timely information, and token consultations are particularly pronounced in donor-funded programs. These shortcomings lead to growing skepticism about the authenticity of decentralization and weaken local ownership of governance processes (Mosha, 2024).

Table 6: Levels of Community Participation in Tanzanian Resource Governance

Governance Model	Form of Participation	Inclusivity (Women/Youth)	Impact on Decision-Making
JFM (Forestry)	Rule-setting, monitoring	Low to moderate	Moderate (local by-laws)
WMAs (Wildlife)	Revenue sharing, patrols	Low (elite-dominated)	Low (strategic decisions centralized)
BMUs (Fisheries)	Surveillance, conflict resolution	Moderate (women in processing)	Moderate (local enforcement)
Water User Associations	Seasonal planning, fee collection	Variable (gender-sensitive in some cases)	High in local allocation

Source: Synthesized from Mosha (2024), Theodory & Massoi (2023), FAO (2023)

6.3 Power Dynamics and Elite Capture

Power asymmetries within and across governance levels significantly shape who benefits from natural resources and whose voices are heard. Decentralization, while intended to devolve authority, often ends up reinforcing the influence of powerful actors, whether state bureaucrats, village elites, or politically connected individuals. In WMAs and forest reserves, there are recurring reports of tourism and timber revenues being captured by a few actors at the expense of broader community development.

This dynamic is not unique to Tanzania. In Zambia, for instance, similar elite capture patterns have been documented in community forest initiatives, where powerful leaders dominate decision-making and monopolize access to forest royalties (Chileshe, 2023). These parallels highlight the systemic nature of power imbalances in decentralized governance and the urgent need for transparency and enforceable checks and balances to curb exclusionary practices.

6.4 Accountability and Transparency

Strong accountability mechanisms and transparent decision-making processes are vital for ensuring equity and reducing corruption. However, many local governance institutions in Tanzania lack the capacity or incentive to uphold basic standards of transparency. Financial records from timber sales or tourism revenues are often unavailable to community members, and formal audits or performance reviews are rare.

While externally funded programs sometimes introduce temporary safeguards such as public meetings, budget disclosure, or beneficiary feedback systems, these practices tend to fade once project cycles end. Sustaining accountability requires systemic measures, including legal empowerment, civic education, and the institutionalization of feedback mechanisms such as social audits, grievance redress channels, and participatory planning (UNDP, 2023; World Bank, 2024). Downward accountability, where leaders are answerable to their constituencies, remains particularly underdeveloped and requires significant institutional innovation.

6.5 Capacity and Resource Constraints

Institutional and technical capacity remains a critical constraint across all sectors. Forest and wildlife officers often lack basic operational resources, including transportation, personnel, and monitoring tools. Similarly, village-level governance structures frequently operate without training in record-keeping, conflict resolution, or statutory compliance. In fisheries co-management, BMUs are constrained by low literacy levels, inadequate data management, and weak enforcement infrastructure, factors that severely limit their effectiveness in overseeing sustainable fishing practices (FAO, 2023).

Although NGOs and donor programs have contributed to localized capacity building, particularly in participatory planning, bookkeeping, and environmental law, these interventions are often fragmented, short-lived, or overly focused on project outputs. Achieving durable improvements in governance quality demands long-term, coordinated investments in human capital, infrastructure, and cross-sectoral institutional linkages (WWF Tanzania, 2023).

Table 7: Capacity Gaps in Local Natural Resource Governance Institutions

Sector	Technical Skills Needed	Financial & Logistical Constraints	Training & Support Availability
Forestry	GIS, inventory, conflict mediation	Lack of vehicles, GPS, funding for patrols	NGO-driven, project-based
Wildlife	Monitoring, accounting, tourism management	Delayed revenue flows, poor equipment	Occasional donor workshops
Water	Hydrological monitoring, fee collection	Broken pumps, unpaid water fees	Limited to project cycle
Fisheries	Catch recording, enforcement, cold chain	No boats, communication tools, storage facilities	Intermittent state & NGO support

Source: Based on FAO (2023), WWF Tanzania (2023), UNDP (2023)

6.6 Socio-Ecological Context and Customary Institutions

Natural resource governance is deeply embedded in socio-ecological systems shaped by land-use change, population dynamics, and climate variability. Customary institutions such as clan leaders, traditional guards, and spiritual custodians continue to play a significant role, especially in rural areas where state presence is weak. These institutions, often rooted in indigenous knowledge systems, are vital for enforcing community norms and managing access to forests, grazing lands, and water sources (Theodory & Massoi, 2023).

Where they are inclusive and aligned with formal conservation goals, customary institutions can enhance legitimacy, local compliance, and resilience. However, their integration into statutory frameworks remains uneven and often politically contested. Furthermore, informal institutions are not inherently democratic; they may reproduce exclusion based on gender, age, or ethnicity unless guided by clear equity safeguards. Building adaptive governance systems that recognize customary authority while adhering to democratic norms and human rights standards is essential for long-term sustainability (Mosha, 2024; Mandondo *et al.*, 2023).

7. Toward an Integrated Framework for Effective Resource Governance

Designing a coherent and effective governance structure for natural resource management in Tanzania, and similar developing contexts, requires an integrated framework that reflects the complex realities of environmental decision-making. This includes the interplay of formal and informal institutions, sectoral overlaps, socio-ecological dynamics, and embedded power relations. The framework proposed here is not prescriptive but adaptive, building on Elinor Ostrom's concept of polycentric governance while extending it to explicitly incorporate legal pluralism, inclusive participation, sustainable financing, and cross-sectoral coordination tailored to Tanzania's context (WWF Tanzania, 2023; Mosha, 2024).

However, the feasibility of polycentric governance is constrained by entrenched political resistance, as central ministries and local elites often hesitate to devolve meaningful control over lucrative resources and decision-making authority. Overcoming this requires a deliberate, phased strategy. Initiating reform through carefully designed pilot programs in sectors with existing community engagement, supported by inclusive stakeholder dialogue and clear legal safeguards, can build essential trust, demonstrate concrete socio-economic and ecological benefits, and create a credible evidence base for scaling successful, adaptive governance models nationwide (Mosha, 2024; Ribot, 2004).

Table 8: Pillars of an Integrated Governance Framework for Tanzania

Pillar	Key Component	Description	Expected Outcome
1. Polycentric & Multi-Level Governance	Decentralized decision-making, nested institutions	Multiple overlapping centers of authority (village, district, national) operate without rigid hierarchy, enabling local autonomy with higher-level oversight.	Enhanced legitimacy, adaptive capacity, and context-sensitive enforcement (Ostrom, 2005; Nelson *et al.*, 2007).
2. Legal Harmonization & Tenure Security	Harmonized sectoral laws, integrated customary systems	Aligning forest, wildlife, water, and land laws to secure community tenure and recognize customary rights within statutory frameworks.	Reduced legal conflicts, strengthened community rights, improved compliance (Kajembe *et al.*, 2020).
3. Inclusive & Transparent Participation	Participatory planning, grievance mechanisms, social audits	Meaningful engagement of women, youth, and marginalized groups in decision-making, budgeting, and monitoring.	Reduced elite capture, increased accountability, enhanced social equity (Ribot, 2002; UNDP, 2023).
4. Capacity Development & Institutional Support	Technical training, financial resources, monitoring tools	Long-term investment in skills (GIS, conflict mediation, financial management) and operational resources for local institutions.	Improved enforcement, sustainable management, and adaptive learning (WWF Tanzania, 2023).
5. Adaptive & Learning-Oriented Governance	Feedback loops, scenario planning, participatory monitoring	Systems designed for iterative learning, allowing policies to evolve based on ecological and social feedback.	Increased resilience to climate change and socio-economic shifts (Folke *et al.*, 2005).
6. Sustainable Financing & Incentive Alignment	Payment for Ecosystem Services (PES), benefit-sharing models, green finance	Mechanisms that link conservation with livelihood benefits, ensuring transparent revenue distribution.	Long-term motivation for community stewardship, reduced aid dependency (Jones, 2023; GCF, 2023).

7.1 Polycentric and Multi-Level Governance as Structural Anchors

Polycentric governance involves multiple, overlapping decision-making bodies operating at different levels, village, district, and national, without rigid hierarchical control. In Tanzania, polycentric arrangements are increasingly viewed as an antidote to centralized governance, which has historically produced rigidity, poor enforcement, and a disconnect from local knowledge. Evidence from Wildlife Management Areas (WMAs) and Village Forest Reserves suggests that performance improves when local communities have autonomy overrule enforcement and benefit-sharing, while higher-level institutions provide legal recognition and technical oversight (Nelson *et al.*, 2007; Theodory & Massoi, 2023).

Table 9: Examples of Polycentric Governance in Practice

Sector	Example	Key Features	Challenges
Forestry	Duru-Haitemba VFR	Community rule-setting, local monitoring, district-level oversight	Tenure insecurity, elite influence
Wildlife	WMAs (e.g., Burunge)	Revenue-sharing, joint patrols, national policy linkage	Delayed payments, limited transparency
Fisheries	Lake Victoria BMUs	Local co-management, regional coordination	Weak enforcement, inter-jurisdictional conflicts

7.2 Harmonization of Sectoral Laws and Legal Pluralism

Fragmentation and legal incoherence remain major barriers to effective governance in Tanzania. Natural resource sectors such as forestry, water, land, wildlife, and fisheries are governed by separate legal regimes with limited coordination. Harmonizing these frameworks is critical to reduce overlap, close legal loopholes, and streamline enforcement. Clarifying land tenure rights is vital to ensure that community-based governance institutions can exercise their roles with confidence and legal backing (Kajembe *et al.*, 2020).

Equally important is the integration of customary legal systems into statutory frameworks. Legal pluralism, where customary and formal laws coexist, offers a pragmatic solution to governance challenges in rural Tanzania, where traditional authorities still play a pivotal role. However, legal pluralism must be carefully managed to avoid reinforcing gender, generational, or ethnic exclusion. Hybrid models must therefore be guided by clear safeguards that uphold principles of equity, inclusion, and accountability (Mandondo *et al.*, 2023).

7.3 Embedding Participation, Inclusion, and Transparency

A recurring flaw in Tanzania's governance reforms has been the reduction of participation to token consultation. A genuinely participatory approach must embed citizen voice across the full policy cycle, from planning and budgeting to rule-setting, enforcement, and benefit-sharing. Joint Forest Management (JFM) and Community-Based Wildlife Management (CBWM) offer valuable lessons, demonstrating that when local institutions are empowered and adequately supported, participation becomes transformative rather than symbolic (Theodory & Massoi, 2023).

Institutional mechanisms that enable meaningful participation include accessible information systems, community forums, participatory budgeting, and grievance redress procedures. Transparency is equally essential for curbing elite capture and ensuring public trust. Tools such as community scorecards, public expenditure tracking, and mobile-based reporting platforms help institutionalize accountability and promote equitable outcomes (World Bank, 2024; UNDP, 2023).

7.4 Enhancing Institutional and Human Capacity

Capacity deficits, technical, financial, and organizational, are among the most persistent constraints to governance reform. Many village-level committees lack the training, resources, or equipment to implement management plans, enforce rules, or engage with higher-level agencies. District natural resource offices often operate with outdated data systems and insufficient staff (WWF Tanzania, 2023).

A forward-looking framework must include a sustained capacity-building strategy that addresses both technical skills (e.g., ecological monitoring, financial management) and soft skills (e.g., conflict mediation, participatory facilitation). Capacity development should also be responsive to emergent risks such as climate change, technological disruption, and market shifts. Cross-sectoral training platforms and inter-agency learning exchanges are valuable tools for building institutional resilience (Mosha, 2024).

7.5 Building Adaptive and Learning-Oriented Governance

Given the dynamism of ecosystems and rural livelihoods, rigid governance systems are ill-suited to long-term sustainability. Adaptive governance emphasizes iterative learning, feedback loops, and the ability to revise policies and rules in response to social or ecological change. This requires robust monitoring systems and indicators that capture both environmental conditions and social well-being (Ostrom, 2005; Folke *et al.*, 2005).

In Tanzania, adaptive practices are emerging, such as community-led mangrove restoration in coastal regions, rotational grazing in pastoral communities, and seasonal water-use planning by Water User Associations in Kilosa District (Theodory & Massoi, 2023). However, these examples remain fragmented. Institutionalizing adaptive governance will require enabling legal environments, long-term monitoring support, and pathways for integrating local feedback into district and national planning frameworks.

7.6 Integrating Incentive Structures and Sustainable Financing

Financial sustainability is the cornerstone of effective governance but remains underdeveloped in many natural resource sectors. Without tangible, equitable returns, communities have little incentive to engage in conservation or comply with management rules. Mechanisms such as Payment for Ecosystem Services (PES), conservation easements, and biodiversity stewardship agreements offer tools to align environmental goals with local livelihood strategies (Blomley & Ramadhani, 2006; WWF Tanzania, 2023).

In Tanzania, PES initiatives have shown potential, particularly where communities are compensated for maintaining forest cover or protecting critical water sources. In some WMAs, communities benefit from both tourism revenue-sharing and REDD+ payments. These combined income streams increase the resilience of conservation projects.

However, the scalability of PES remains contested. Recent studies caution that without strong verification and monitoring systems, PES programs may be prone to mismanagement or elite capture (Jones, 2023). Ensuring transparency in benefit distribution is essential. This includes establishing participatory fund management systems, community oversight committees, independent audits, and public financial reporting.

For long-term viability, financing mechanisms must be institutionalized into policy and planning processes. This includes integrating ecosystem valuation into land-use planning, creating legal frameworks for community benefit-sharing, and developing blended finance models that attract public, private, and philanthropic capital. International platforms such as the Global Biodiversity Framework and the Green Climate Fund offer opportunities to scale these models, provided local institutions are adequately empowered to access and manage such resources (UN CBD, 2022; GCF, 2023).

8. Conclusion and Policy Recommendations

This comprehensive review affirms that Tanzania's natural resource governance has undergone significant transformation from centralized, exclusionary systems toward more participatory, decentralized, and community-based models. Reforms such as Participatory Forest Management (PFM), Wildlife Management Areas (WMAs), Beach Management Units (BMUs), and Basin Water Boards have demonstrated potential in enhancing local engagement, ecological restoration, and revenue generation. However, the persistence of institutional fragmentation, elite capture, legal ambiguities, limited local capacity, and symbolic participation continues to undermine governance quality, equity, and sustainability. Evidence indicates that no single governance model is universally effective. Success hinges on context-specific, hybrid arrangements that integrate statutory and customary systems, ensure meaningful community involvement, and align incentives with conservation goals. The adoption of polycentric and adaptive governance principles offers a promising pathway to reconcile ecological sustainability with socio-economic equity, enabling Tanzania to navigate the complex interplay of climate change, resource commodification, and rural livelihood pressures.

To strengthen governance outcomes across forestry, wildlife, water, and fisheries sectors, evidence-based recommendations are proposed. First, legal and institutional harmonization is essential. Sectoral laws, including the Forest Act (2002), Wildlife Conservation Act (2009), Land Act (1999), and Water Resources Management Act (2009), should be harmonized to eliminate contradictions, clarify community tenure rights, and recognize customary governance systems within statutory frameworks. Inter-ministerial coordination mechanisms should be established to reduce institutional overlaps and mandate conflicts, particularly between the Ministry of Natural Resources and Tourism (MNRT), local governments, and basin authorities. Second, community tenure and autonomy must be strengthened. This involves formalizing and securing community-based tenure rights over forests, wildlife corridors, and fisheries through legally recognized certificates and participatory mapping, while enhancing the decision-making authority and financial autonomy of local institutions to reduce dependence on delayed state disbursements and mitigate elite capture.

Third, capacity building and multi-level governance support are critical. Long-term, context-specific training programs for local institutions should be invested in, focusing on financial management, ecological monitoring, conflict resolution, and adaptive planning. Polycentric governance should be strengthened by clarifying roles across village, district, and national levels, ensuring consistent technical and logistical support for frontline resource managers. Fourth, transparency, accountability, and inclusive participation must be institutionalized. Mechanisms such as public revenue audits, community scorecards, digital reporting platforms, and participatory budgeting should be integrated into resource governance, with meaningful inclusion of marginalized groups, particularly women and youth, in planning, benefit-sharing, and oversight processes to enhance equity and legitimacy.

Fifth, adaptive and learning-oriented governance frameworks should be mainstreamed. This can be achieved through participatory monitoring, feedback systems, and scenario-based planning that integrate local knowledge with scientific data, alongside supporting pilot initiatives in climate-vulnerable sectors to test and scale innovative, resilience-building practices. Sixth, sustainable financing and incentive alignment are needed. Payment for Ecosystem Services (PES) models, conservation easements, and blended finance mechanisms should be developed and scaled to link conservation with livelihood benefits, while ensuring transparent, equitable, and timely distribution of revenues from tourism, timber, and carbon credits to reinforce local stewardship and reduce aid dependency.

While this review synthesizes cross-sectoral governance insights, further research is needed to evaluate the long-term socio-ecological impacts of hybrid governance models in different agro-ecological zones, examine the role of digital technologies and mobile platforms in enhancing transparency, monitoring, and community engagement, assess the equity implications of global environmental finance mechanisms at the local level, and conduct comparative policy analyses with neighbouring countries to identify transferable governance innovations.

Declaration of Conflict of Interest

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

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