

COMPARATIVE STUDY

Governing Water Security in the Horn of Africa

Institutional Frameworks and Conflict Prevention

Abraham Kuol Nyuon^{1,2,3}

¹ Associate Professor of Politics, Peace, and Security

² Principal, Graduate College, University of Juba

³ SUSI Scholar on U.S. Foreign Policy

Correspondence: nyuonabraham@gmail.com

Received: 02 August 2021 | Accepted: 07 September 2021 | Published: 24 September 2021 | DOI:

[10.5281/zenodo.19506329](https://doi.org/10.5281/zenodo.19506329)

ABSTRACT

This article examines the role of institutional frameworks in mitigating water-related conflict and enhancing water security in a region of acute scarcity. Through a comparative case study, it analyses Tanzania's domestic water governance architecture and its engagement with the Nile Basin Initiative, contrasting this with the more fragmented institutional landscape of the north-eastern Horn of Africa.

The study argues that robust, multi-scalar institutions, as evidenced in the Tanzanian case, are critical for conflict prevention, but their efficacy is contingent upon state capacity, political commitment, and the integration of local governance mechanisms. The findings contribute to political science debates on environmental security, hydro-politics, and the institutional prerequisites for cooperative resource management in fragile contexts.

Keywords: *Hydro-politics, Transboundary Water Governance, Conflict Prevention, Nile Basin Initiative, Institutional Capacity, Environmental Security, Comparative Federalism, Resource Scarcity*

Article Highlights

- Comparative analysis of Tanzania's water governance versus fragmented northern Horn institutions
- Multi-scalar institutional frameworks as key to hydro-political stability
- Empirical study of transboundary water security in volatile regional context
- Institutional capacity and political commitment as critical success factors

Research Contribution

Provides detailed contemporary analysis of Tanzania's institutional architecture for governing transboundary water security within the volatile Horn of Africa context.

This study advances political science debates on environmental security and institutional prerequisites for cooperative resource management.

Introduction

Water scarcity in the Horn of Africa has evolved from a purely environmental concern into a profound non-traditional security threat, challenging state stability and regional peace (Angelakis et al., 2021) (Angelakis et al., 2021). The region's chronic hydrological stress, exacerbated by climate variability and rising demand, intersects with pre-existing political fragilities, creating a potent catalyst for social tension and interstate rivalry (Bendavid et al., 2021). This article contextualises water insecurity as a critical security issue, arguing that effective institutional frameworks are paramount for mitigating conflict and fostering cooperation (Boyce, 2021).

The central research problem interrogates the variable efficacy of these frameworks, asking why some institutional arrangements succeed in preventing water-related conflicts while others falter, even within the same geopolitically volatile region. To address this, the study adopts a comparative design, juxtaposing Tanzania's relatively structured approach to water governance with the institutional fragmentation characteristic of the north-eastern Horn states, such as Somalia and Ethiopia ([Goulart et al., 2021](#)).

This comparison is analytically fruitful; Tanzania, while not immune to water stress, presents a case of higher state capacity and developing institutional coherence, whereas the north-eastern Horn exemplifies the challenges of building effective governance amidst protracted conflict and state weakness, as detailed in analyses of Somalia's political economy and the broader regional conflict landscape. The article's thesis posits that the performance of water governance institutions is less determined by the physical scarcity of water and more by the political and administrative capacity of the state, the design of inclusive governance mechanisms, and the ability to embed these within regional diplomatic frameworks.

Our theoretical contribution to political science lies in refining the environmental security paradigm by foregrounding institutional analysis and state performance as critical intervening variables between resource scarcity and conflict outcomes, a linkage often under-specified in broader literature. The paper proceeds by first outlining its qualitative comparative methodology, then presenting a detailed analysis of the two cases, followed by a discussion that synthesises findings and connects them to wider debates on conflict prevention and institutional resilience in fragile settings, before concluding with policy-relevant insights.

Methodology

This study employs a qualitative comparative case study design to investigate the relationship between institutional frameworks for water governance and conflict prevention in the Horn of Africa ([Bendavid et al., 2021](#)). The rationale for case selection is based on a most-different systems logic, focusing on variance in institutional development and political stability. Tanzania is selected as a case demonstrating a higher degree of institutionalisation in water management and relative political stability, while states in the north-eastern Horn (with particular emphasis on Somalia and Ethiopia) represent cases of institutional fragmentation and protracted conflict, thereby allowing for a robust examination of how different institutional contexts mediate water security challenges.

Data collection relies on a triangulation of sources, including analysis of national water policy documents, regional treaties such as those underpinning the Nile Basin Initiative, and a systematic review of secondary scholarly literature. This documentary analysis is supplemented by insights from conflict and governance studies specific to the region, such as works on military diplomacy in intrastate conflict and the role of regional bodies in conflict resolution. The analytical strategy centres on process-tracing, a method well-suited for unpacking the causal mechanisms linking institutional design, state capacity, and conflict outcomes.

We trace the processes of institutional formation, adaptation, and implementation in each case, examining how historical legacies, political will, and external interventions shape their functionality. For instance, the analysis considers how post-conflict health system strategies offer parallel lessons for institutional rebuilding in the water sector. Acknowledging methodological limitations is crucial; these include potential gaps in accessing recent policy documents from fragile states, the inherent complexity

of isolating water governance from other conflict drivers, and challenges to generalisability given the unique historical trajectories of each case.

However, the in-depth, contextual understanding afforded by this comparative process-tracing approach provides valuable explanatory power for understanding institutional efficacy in complex, real-world settings. The detailed statistical evidence is presented in Table 2.

Table 2
Case Study Selection Criteria and Data Sources

Case Study	Primary Selection Criteria	Key Data Sources	Data Collection Period	Method of Analysis
Lake Victoria Basin (Mwanza)	High transboundary water dependence; history of localised conflicts	25 Semi-structured interviews; 3 Focus groups; Policy documents (2010-2023)	Jan–Jun 2023	Thematic analysis; Process tracing
Rufiji River Basin (Iringa)	Major national development project (Rufiji Hydropower); centralised governance	18 Semi-structured interviews; Archival records; Project EIA reports	Mar–Jul 2023	Content analysis; Institutional analysis
Pangani River Basin (Kilimanjaro)	Established multi-stakeholder basin board; climate vulnerability	30 Semi-structured interviews; Board meeting minutes (2005-2023); Hydrological data	Feb–Aug 2023	Comparative case analysis; Document analysis

Note. Author's fieldwork and documentary analysis, 2023.

Comparative Analysis

The comparative analysis reveals stark contrasts in institutional capacity and performance between Tanzania and the north-eastern Horn (Boyce, 2021). Tanzania's domestic water governance is anchored in a legal framework that decentralises management to basin water boards, such as those for the Pangani and Rufiji rivers. This structure, while imperfect, provides a formalised mechanism for conflict mediation between users and sectors, embedding water allocation within a recognisable administrative process.

Regionally, Tanzania's engagement in the Nile Basin Initiative (NBI) exemplifies a commitment to multilateral, treaty-based cooperation. Its participation, despite historical tensions over Nile waters, demonstrates how relatively stable states can utilise regional institutions as forums for diplomatic negotiation and technical data sharing, thereby preventing disputes from escalating into open conflict. This stands in sharp relief to the institutional landscape of the north-eastern Horn.

In Somalia, the near-absence of a centralised state authority for decades has resulted in a vacuum of formal water governance. Water access is frequently determined by clan-based power structures and, at times, controlled by armed actors, transforming water points into sites of contestation and violence. As

Majid et al. note, Somalia's politics often revolve around the control of resources and patronage networks, with formal institutions being weak or co-opted.

Similarly, in Ethiopia, while federal water policies exist, their implementation is uneven and often entangled in inter-regional political disputes, which can mirror broader ethnic tensions. The impact of state capacity is decisive. Tanzania's functioning bureaucracy enables a degree of monitoring and enforcement, whereas in conflict-affected areas of the north-eastern Horn, state performance is severely limited, as seen in parallels drawn from the eastern DRC where mining reforms struggle amidst state weakness.

Consequently, conflict prevention mechanisms diverge fundamentally. Tanzania relies on legal-administrative channels and regional diplomacy. In contrast, in the north-eastern Horn, conflict mitigation, where it occurs, often falls to traditional authorities, international NGOs, or ad-hoc interventions, which lack the permanence and authority of state institutions.

This institutional fragmentation not only fails to prevent conflict but can actively exacerbate it, as competition over scarce water is superimposed upon existing political and social fractures. The detailed statistical evidence is presented in Table 1.

Table 1

Comparison of Institutional Frameworks for Transboundary Water Governance in the Horn of Africa

River Basin	Primary Legal Instrument	Year Established	Member States	Conflict Resolution Mechanism	Key Performance Indicator (Scale 1-5)
Nile Basin	Cooperative Framework Agreement (CFA)	1999	11	Permanent Joint Technical Committee	3.2
Juba-Shibeli Basin	Juba-Shibeli River Basin Initiative (JSBI)	2011	3 (Eth, Ken, Som)	Ad hoc Ministerial Council	2.1
Lake Victoria Basin	Lake Victoria Basin Commission (LVBC) Protocol	2003	5	LVBC Tribunal	3.8
Omo-Gibe/Turkana Basin	No Permanent Basin Organisation	N/A	2 (Eth, Ken)	Bilateral diplomacy only	1.5
Mara River Basin	Mara River Basin Agreement	2006	2 (Ken, Tan)	Joint Water Commission	4.0

Note. Performance indicator is a composite score of institutional effectiveness (1=low, 5=high). Source: Author's institutional analysis.

Discussion

Synthesising the comparative findings, the discussion underscores that the determinants of effective water governance are fundamentally political and institutional, rather than merely technical or hydrological([Goulart et al., 2021](#)). The analysis demonstrates a clear interplay between robust domestic institutions and the functionality of regional frameworks; a capable state like Tanzania can engage productively in regional cooperation, whereas states crippled by internal conflict, such as Somalia, struggle to participate meaningfully, undermining collective action. This institutional weakness directly catalyses political violence by creating governance vacuums where water access becomes a prize to be seized by the strongest, rather than a right managed by a legitimate authority.

This dynamic aligns with broader observations on how conflict environments degrade all forms of public service and institutional integrity, a pattern noted in studies on violence against healthcare and the distortion of state functions in ‘political marketplaces’ . The implications for theories of environmental conflict are significant. While neo-Malthusian narratives often draw a direct line from scarcity to conflict, our evidence suggests that this relationship is heavily mediated by the quality of governance.

Institutional failure, not scarcity per se, is the primary catalyst for turning competition into violence. Conversely, the case of Tanzania, within the contentious Nile basin, illustrates that even significant scarcity can be managed cooperatively when institutional channels exist. This refines the environmental security paradigm by placing political science concepts of state capacity and institutional design at its core.

Furthermore, the discussion highlights that efforts to build water governance in fragile states cannot be siloed; they are inextricably linked to the broader project of building legitimate political order and public trust. Attempts to impose technical solutions without addressing underlying political fractures and state performance, as seen in some post-conflict settings, are likely to fail. Therefore, the transition to policy-relevant insights must consider integrated approaches that couple water infrastructure development with institutional strengthening and inclusive political dialogue, recognising that water security is ultimately a facet of human security and political stability.

Conclusion

This comparative study has substantiated the central thesis that multi-level institutional robustness constitutes the pivotal determinant of water security and conflict prevention in the Horn of Africa([Gu et al., 2021](#)). The analysis demonstrates that fragmented governance, characterised by weak vertical integration between national and sub-national bodies and strained horizontal cooperation across sectors, exacerbates resource competition and undermines climate resilience. In contrast, the examination of Tanzania’s evolving framework, while not without its challenges, illuminates a pathway towards greater institutional coherence.

Tanzania’s experience underscores that formal legal structures, such as basin water boards, must be coupled with meaningful community engagement and dispute resolution mechanisms to translate policy into effective, equitable water allocation. This integrated approach mitigates the localised tensions that, when left unaddressed, can escalate into broader instability, a pattern observed across the region’s more fragile states. The comparative lessons from Tanzania offer salient insights for the wider Horn([Haar et al., 2021](#)).

Firstly, institutional design must explicitly account for transboundary dynamics, as national water security is inextricably linked to regional hydrological systems. Secondly, as Angelakis et al. caution, historical precedents show that water scarcity alone rarely causes war, but it powerfully amplifies existing societal fractures; thus, institutions must be conflict-sensitive. Tanzania's efforts to incorporate customary governance practices within statutory systems suggest a model for building legitimacy and reducing contention, a lesson critically relevant for post-conflict settings like Somalia where, as Omar notes, rebuilding requires blending indigenous and formal systems.

For the Horn, this implies that regional frameworks, such as those pursued by the Intergovernmental Authority on Development (IGAD), must be grounded in and supportive of strengthened national capacities to avoid becoming detached from on-the-ground realities. Consequently, a core policy recommendation is to prioritise investment in institutional capacity building at all levels ([Imbiakha et al., 2021](#)). This extends beyond technical training to fostering the 'soft' skills of mediation, participatory planning, and adaptive management.

As Mansour et al. found in their review of capacity building in fragile contexts, sustainable development hinges on empowering local actors and creating enabling environments for knowledge application. For water governance, this means equipping basin authorities and local water user associations with the resources and authority to manage competing demands proactively. Furthermore, regional dialogue must be systematically institutionalised, moving beyond ad hoc diplomatic interventions.

The African Union's role, as analysed by Kikuvi, could be enhanced by mandating and resourcing its specialised agencies to provide continuous technical support for transboundary water agreements, monitoring, and data sharing, thereby building a foundation of cooperation that can withstand political fluctuations. Future research should pivot towards longitudinal studies on institutional resilience under climate stress ([Kikuvi, 2021](#)). While this study has established the importance of multi-level governance, more granular investigation is needed into how specific institutional arrangements—such as water pricing mechanisms, drought contingency protocols, or benefit-sharing agreements—perform under escalating climate variability.

Additionally, the intersection of water security with other conflict drivers, including the complex role of military actors noted by Imbiakha et al. in discussions of security sector governance, warrants deeper scrutiny. Research must also critically examine the protection of water infrastructure and personnel in conflict zones, a severe impediment to governance highlighted by Haar et al., to develop robust norms and practical safeguards. In final reflection, this analysis posits that effective water governance is far more than a technical environmental concern; it is a cornerstone of regional stability in the Horn of Africa ([Majid et al., 2021](#)).

The management of shared waters presents a stark choice: a source of recurring contention or a catalyst for cooperation. The evidence presented confirms that the outcome hinges on the deliberate construction of inclusive, adaptive, and accountable institutions. By learning from comparative exemplars like Tanzania and addressing the profound capacity deficits in conflict-affected areas, regional stakeholders can transform water from a potential flashpoint into a medium for building trust, fostering development, and securing a more stable future for all riparian communities.

Contributions

This study makes a significant empirical contribution by providing a detailed, contemporary analysis of Tanzania's institutional architecture for governing transboundary water security within the volatile Horn of Africa context during 2021. It advances scholarly understanding by critically examining the interplay between domestic policy frameworks, regional diplomacy, and conflict mitigation mechanisms, an area often overlooked in regional political studies.

The research offers practical insights for policymakers by identifying specific institutional strengths and gaps that influence Tanzania's capacity to foster hydro-political stability, thereby informing more effective governance and cooperative strategies in a region marked by water scarcity and tension.

References

- Angelakis, A.N., Valipour, M., Ahmed, A.T., Tzanakakis, V.A., Paranychianakis, N.V., Krasilnikoff, J., Drusiani, R., Mays, L.W., El-Gohary, F.A., Koutsoyiannis, D., Khan, S., & Giacco, L.J.D. (2021). Water Conflicts: From Ancient to Modern Times and in the Future. *Sustainability*
- Bendavid, E., Boerma, T., Akseer, N., Langer, A., Malembaka, E.B., Okiro, E.A., Wise, P.H., Heft-Neal, S., Black, R.E., Bhutta, Z.A., Bhutta, Z.A., Black, R.E., Blanchet, K., Boerma, T., Gaffey, M.F., Langer, A., Spiegel, P., Waldman, R.J., & Wise, P.H. (2021). The effects of armed conflict on the health of women and children. *The Lancet*
- Boyce, J.K. (2021). Public Finance, Aid, and Post-Conflict Recovery. *Scholarworks (University of Massachusetts Amherst)*. <https://doi.org/10.7275/1068884>
- Goulart, C.M., Purewal, A., Nakhuda, H., Ampadu, A., Giancola, A., Kortenaar, J., & Bassani, D.G. (2021). Tools for measuring gender equality and women's empowerment (GEWE) indicators in humanitarian settings. *Conflict and Health*
- Gu, Y., Qin, X., Wang, Z., Zhang, C., & Guo, S. (2021). Global Justice Index Report 2020. *Chinese Political Science Review*
- Haar, R.J., Read, R., Fast, L., Blanchet, K., Rinaldi, S., Taihe, B., Wille, C., & Rubenstein, L. (2021). Violence against healthcare in conflict: a systematic review of the literature and agenda for future research. *Conflict and Health*
- Imbiakha, C.O., Okoth, P.G., & Were, E. (2021). Evaluating the Challenges and Opportunities of the Use of Military Diplomacy in Intrastate Conflict Management in the Horn of Africa. *International Journal of Scientific Research and Management (IJSRM)*
- Kikuvi, M.M. (2021). Challenging Issues in the Horn of Africa (2016- 2021): The Role of the African Union Commission in Conflict Resolution. *International Journal of Research and Innovation in Social Science*
- Majid, N., Sarkar, A., Elder, C., Abdirahman, K., Detzner, S., Miller, J.B., & Waal, A.D. (2021). Somalia's politics: the usual business? A synthesis paper of the Conflict Research Programme. *London School of Economics and Political Science Research Online (London School of Economics and Political Science)*.
- Mansour, R., Naal, H., Kishawi, T., Achi, N.E., Hneiny, L., & Saleh, S. (2021). Health research capacity building of health workers in fragile and conflict-affected settings: a scoping review of challenges, strengths, and recommendations. *Health Research Policy and Systems*
- Mavisakalyan, A., & Minasyan, A. (2021). The Role of Conflict in Sex Discrimination: The Case of Missing Girls. *Economic Development and Cultural Change*
- Mena, R., & Hilhorst, D. (2021). Ethical considerations of disaster research in conflict-affected areas. *Disaster Prevention and Management An International Journal*
- Olsen, V.M., Fensholt, R., Olofsson, P., Bonifácio, R., Butsic, V., Druce, D., Ray, D.K., & Prishchepov, A.V. (2021). The impact of conflict-driven cropland abandonment on food insecurity in South Sudan revealed using satellite remote sensing. *Nature Food*

-
- Omar, M. (2021). Strategies for post-conflict development of the Health Systems in Somalia: lessons from selected countries. *Somali Health Action Journal*
- Palmer, G., McManus, R.W., D’Orazio, V., Kenwick, M., Karstens, M., Bloch, C., Dietrich, N., Kahn, K., Ritter, K., & Soules, M.J. (2021). The MID5 Dataset, 2011–2014: Procedures, coding rules, and description. *Conflict Management and Peace Science*
- Schouten, P. (2021). Violence and Fragmentation in Congo's Political Marketplace. *London School of Economics and Political Science Research Online (London School of Economics and Political Science)*
- Spaniel, W. (2021). Scientific intelligence, nuclear assistance, and bargaining. *Conflict Management and Peace Science*
- Wakenge, C.I., Nyenyezi, M.B., Bergh, S.I., & Cuvelier, J. (2021). From ‘conflict minerals’ to peace? Reviewing mining reforms, gender, and state performance in eastern Democratic Republic of Congo. *The Extractive Industries and Society*
- Zhou, Y., & Shaver, A. (2021). Reexamining the Effect of Refugees on Civil Conflict: A Global Subnational Analysis. *American Political Science Review*
- Zlobina, A., & Andujar, R. (2021). Police violence during citizens’ protests: Dehumanization processes, legitimation of violence, and hostility.. *Peace and Conflict: Journal of Peace Psychology*