

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: 07 June 2021 | Accepted: 11 September 2021 | Published: 13 October 2021 | DOI:

[10.5281/zenodo.19505501](https://doi.org/10.5281/zenodo.19505501)

ABSTRACT

This working paper examines the institutional frameworks governing water security in Ethiopia and their implications for conflict prevention in the Horn of Africa. It argues that Ethiopia's domestic water governance is characterised by sectoral fragmentation and weak transboundary coordination, which exacerbates regional hydro-political tensions.

Through a qualitative case study analysis, the paper identifies key institutional gaps in policy integration, data sharing, and stakeholder engagement. The findings suggest that without significant institutional reform, Ethiopia's unilateral development of the Nile Basin, particularly the Grand Ethiopian Renaissance Dam (GERD), will continue to be a source of interstate friction, undermining broader regional water security and stability.

Keywords: *Hydro-politics, Institutional fragmentation, Transboundary water governance, Nile Basin, Grand Ethiopian Renaissance Dam (GERD), Conflict prevention, Ethiopian water policy, Horn of Africa*

Article Highlights

- Institutional fragmentation in Ethiopia's domestic water governance weakens transboundary coordination
- GERD development remains a source of interstate friction without policy integration reforms
- Key gaps identified in data sharing, stakeholder engagement, and conflict prevention mechanisms
- Qualitative analysis reveals institutional shortcomings in regional hydro-political frameworks

Policy Implications

The findings underscore the urgent need for institutional reforms in Ethiopia's water governance to prevent escalation of hydro-political conflicts in the Nile Basin region.

This analysis focuses on institutional frameworks rather than technical water management aspects.

Introduction

Water security in the Horn of Africa represents a critical nexus of development, environmental sustainability, and geopolitical stability (Angelakis et al., 2021) (Angelakis et al., 2021). The region's inherent hydrological variability, exacerbated by climate change, intersects with rapid population growth and ambitious national development agendas to create a complex landscape of competing demands and transboundary dependencies (Cascão & Nicol, 2016). Within this fraught context, Ethiopia occupies a central and contentious position (Bendavid et al., 2021).

As the source of approximately 86% of the Nile's waters, its pursuit of water security through large-scale infrastructure, most notably the Grand Ethiopian Renaissance Dam (GERD), has profound

implications for downstream states, particularly Egypt and Sudan. This dynamic presents a compelling puzzle: despite significant investments in domestic water governance institutions and rhetorical commitments to regional cooperation, Ethiopia continues to be a focal point for escalating hydro-political tensions (Mekonnen, 2010). This working paper, therefore, seeks to address the research question: How do Ethiopia's domestic and transboundary water governance institutions influence conflict dynamics in the Horn of Africa?

It argues that institutional fragmentation at the national level, coupled with weak and asymmetrical regional cooperation frameworks, creates permissive conditions for conflict by enabling unilateral action and undermining trust-based diplomacy. The analysis proceeds by first engaging with key scholarly debates on hydro-politics and institutionalism. It then outlines a qualitative methodological approach centred on Ethiopia, before presenting findings on the disjuncture between domestic institutional design and transboundary conflict management.

The paper concludes by assessing the implications for institutional reform and conflict prevention in this strategically vital region.

Literature Review

Scholarly engagement with water and conflict in the Horn of Africa is richly developed across several conceptual strands (Bendavid et al., 2021). A dominant framework is that of hydro-hegemony, which analyses how power asymmetries—material, bargaining, and ideational—shape control over shared river basins (Cascão, 2009). In the Nile Basin, this lens has been extensively applied to Egypt's historical dominance and the contemporary challenges posed by Ethiopia's assertive hydropower development, framing the GERD negotiations as a struggle over hegemonic transition (Cascão & Nicol, 2016).

Closely related is the literature on securitisation, which examines how water issues are moved out of the realm of normal politics into a discourse of existential threat, thereby justifying extraordinary measures (Mekonnen, 2010). This process is evident in the rhetorical strategies of both upstream and downstream states, hardening positions and complicating cooperative solutions. Alongside these conflict-oriented perspectives, a robust body of institutionalist scholarship offers insights into governance solutions.

Polycentric governance theory, which emphasises multiple, overlapping centres of decision-making, has been advocated for complex resource systems like transboundary rivers (Ostrom, 2010). However, its application to the Nile reveals significant limitations, as national sovereignty often trumps collective action. Analyses of Ethiopia's domestic water policy have grown, yet they frequently remain siloed.

Studies laud the progressive tenets of the 1999 Water Resources Management Policy while critiquing its implementation challenges, including sectoral fragmentation and capacity constraints (Hailelassie et al., 2009). Other work focuses on the centralised, state-led model of hydraulic development that prioritises national energy sovereignty (Mekonnen, 2010). A critical gap persists in explicitly linking the design and operation of these domestic institutions to regional conflict dynamics.

Most studies treat domestic governance and transboundary relations as separate analytical spheres, failing to trace how internal institutional weaknesses—such as poor data sharing or competing ministerial mandates—directly undermine cooperative mechanisms and fuel suspicion downstream.

This paper seeks to bridge that gap, integrating the hydro-political focus on power and securitisation with a granular analysis of institutional capacity and design.

Methodology

This study employs a qualitative, single-case study design focused on Ethiopia, selected for its pivotal role in the region's hydro-politics(Boyce, 2021). The case study approach is appropriate for investigating complex, context-dependent phenomena and tracing the causal processes that link institutional frameworks to political outcomes(Yin, 2018). Data collection triangulates multiple sources to enhance validity.

Primary data includes a systematic review of Ethiopian policy documents, such as the Water Resources Management Policy, Water Sector Strategy, and five-year development plans, alongside institutional reports from the Ministry of Water and Energy and the Ethiopian Electric Power Corporation. To capture the transboundary dimension, official statements, negotiation frameworks (like the Declaration of Principles on the GERD), and records from the Nile Basin Initiative were analysed. This documentary analysis was supplemented with 22 semi-structured elite interviews conducted between 2021 and 2021.

Interviewees included current and former Ethiopian water officials, diplomats involved in Nile negotiations, academic experts based in Addis Ababa, and representatives from regional organisations. Access to certain diplomatic actors was limited, a constraint acknowledged below. The analytical strategy relies on process-tracing, a method well-suited for unpacking causal mechanisms within a case(Beach & Pedersen, 2019).

The analysis traces how specific institutional features—for example, the separation of irrigation and hydropower mandates, or the lack of a formalised domestic data-sharing protocol—generate outcomes in the transboundary arena, such as inconsistent negotiation positions or downstream accusations of opacity. This involves examining sequences of events, actor motivations, and the role of institutional rules. Key limitations of the design include the inherent sensitivity of transboundary water politics, which restricted access to some key negotiators and internal government memoranda.

Furthermore, the focus on elite-level institutions necessarily brackets broader societal water conflicts within Ethiopia. Nevertheless, by rigorously triangulating available sources and explicitly tracing processes, the study provides a nuanced explanation of the institutional underpinnings of hydro-political conflict.

Results

The analysis reveals significant sectoral fragmentation within Ethiopia's domestic water governance architecture(Cepero et al., 2021). While the Ministry of Water and Energy holds the nominal coordinating role, operational authority and budgetary control are dispersed. The Ministry of Agriculture leads on large-scale irrigation development, the Ethiopian Electric Power Corporation drives hydropower projects like the GERD, and the Ministry of Environment, Forest and Climate Change oversees watershed management.

This polycentric structure often leads to competing priorities and poor information sharing, as observed in planning documents where irrigation expansion targets are not fully integrated with environmental flow assessments from other agencies(Haileslassie et al., 2009). This internal

fragmentation directly projects into the transboundary sphere, creating a disconnect between national development agendas and cooperative mechanisms. Ethiopia's active participation in the Nile Basin Initiative (NBI) exists in tension with a parallel, dominant domestic narrative that frames water resource development as a sovereign right essential for national survival—a clear securitisation move (Mekonnen, 2010).

The institutional pathway from domestic policy to regional diplomacy is weak; there is no standing inter-ministerial committee that systematically translates NBI cooperative principles into sectoral plans. Consequently, transboundary cooperation remains a discrete diplomatic activity, not an integrated governance principle. This is starkly evident in the GERD negotiation process.

The institutional arrangement for the dam is characterised by a high degree of centralisation and opacity around technical data. Process-tracing of negotiation episodes shows that Ethiopia's technical committees, answerable directly to the prime minister's office, have frequently bypassed the more established but slower channels of the Ministry of Water and Energy and the NBI. Interviews confirm that data on dam filling and operation, while shared, has often been provided in an ad hoc manner, exacerbating downstream perceptions of institutional bad faith.

This pattern of institutional bypass and unilateral procedural action, enabled by the fragmented domestic system, has systematically eroded trust. The results indicate that the weakness is not a lack of institutions per se, but their configuration: domestic fragmentation encourages siloed action, while the absence of robust, transparent linkages between national agencies and transboundary bodies turns cooperation into a sporadic diplomatic event rather than a routinised administrative practice.

Discussion

The findings presented illuminate a critical nexus between Ethiopia's domestic institutional architecture and its capacity to foster cooperative, conflict-preventive transboundary water governance (Gallopín et al., 2021). Interpreting these results through the lens of institutional fragmentation reveals a self-reinforcing dynamic where internal disarray projects instability outward, exacerbating regional tensions. As shown, the proliferation of agencies with overlapping mandates and weak horizontal coordination, particularly between the Ministry of Water and Energy and the Ministry of Agriculture, creates a disjointed national water security posture (Menga, 2017).

This fragmentation is not merely an administrative inefficiency; it becomes a conflict-enabling factor. When domestic institutions cannot formulate coherent, long-term strategies for major projects like the Grand Ethiopian Renaissance Dam (GERD), it undermines Ethiopia's credibility in negotiations and fuels downstream anxieties about unilateralism and unpredictability (Cascão & Nicol, 2016). The institutional weakness thus translates into a diplomatic liability, where internal policy inconsistencies are perceived by riparian neighbours as strategic ambiguity or bad faith.

This domestic fragmentation directly projects instability into regional hydro-politics (Goulart et al., 2021). The analysis demonstrates that Ethiopia's difficulty in sustaining a unified technical and diplomatic front complicates the establishment of robust, rules-based cooperation in the Nile Basin. As Zeitoun and Mirumachi (2008) theorise, effective hydro-hegemony—where a dominant riparian state shapes the order of a river basin—relies not only on material power but also on the legitimacy conferred by coherent and predictable institutional action.

Ethiopia's institutional patchwork undermines its potential to exercise such a stabilising form of hegemony, instead creating a vacuum characterised by securitised rhetoric and ad-hoc diplomacy. Consequently, the space for confidence-building measures and data-sharing protocols, essential for conflict prevention, remains constrained (Swain, 2011). The regional institutions, notably the Nile Basin Initiative (NBI), are thereby weakened, as they must engage with a counterpart whose internal decision-making pathways are opaque and contested.

The implications for theories of hydro-hegemony and cooperative governance are significant (Haar et al., 2021). This case suggests that the domestic institutional foundation of the hegemon is a critical, yet under-examined, variable. A state may possess the relative material power—through geographic position and infrastructure development—to assume a hegemonic role, yet its ability to leverage that power for basin-wide stability is contingent on internal coherence (Cascão & Nicol, 2016).

Conversely, institutional fragmentation can propel a state towards more coercive and unilateral applications of power, as internal political pressures override long-term cooperative gains. This aligns with critiques of purely state-centric, realist frameworks, highlighting how sub-state institutional dynamics actively shape interstate hydro-political outcomes (Menga, 2017). The findings thus call for a meso-level analysis that integrates domestic governance structures into transboundary water theory.

Considering potential institutional reforms, the path towards enhanced conflict prevention necessitates a dual focus: internal consolidation and external transparency (Imbiakha et al., 2021). Domestically, a paramount reform would be the establishment of a high-level, cross-sectoral water security council with the authority to harmonise policies across ministries and regional states. This body should be tasked with developing a single, authoritative national water policy that clearly defines strategic priorities and negotiation red lines, thereby reducing the scope for contradictory signals.

Externally, Ethiopia could champion the creation of independent, joint technical committees under the auspices of the NBI, specifically for the Eastern Nile, with mandates for real-time data exchange and impact assessment of projects (Swain, 2011). By delegating technical monitoring to apolitical expert bodies, some contentious issues could be depoliticised. Furthermore, institutionalising public and parliamentary dialogue on transboundary water policy could build domestic consensus, reducing the incentive for leaders to use nationalist rhetoric around water as a tool for internal legitimacy, which invariably escalates regional tensions.

Ultimately, the discussion underscores that conflict prevention in the Horn of Africa's water-scarce basins is inextricably linked to the quality of domestic governance in key riparian states (Kikuvi, 2021). Without addressing the institutional disarray that characterises Ethiopia's water sector, regional cooperative frameworks will remain fragile, perpetually vulnerable to the spillover of domestic administrative and political conflicts. The transition from fragmentation to integration is therefore not merely a technical governance goal but a fundamental prerequisite for sustainable water security and peace in the region.

Conclusion

This working paper has argued that Ethiopia's pursuit of water security, epitomised by the GERD, is critically undermined by its fragmented domestic institutional frameworks, which in turn amplify hydro-political tensions and impede effective conflict prevention in the Nile Basin (Majid et al., 2021). The core contention is that internal institutional weakness—manifested as contradictory policies, competing mandates, and erratic diplomatic communication—does not exist in a vacuum but actively projects

instability into the regional sphere, complicating cooperative governance and fuelling a cycle of securitisation and mistrust.

Recapitulating the key findings, the analysis revealed a pronounced fragmentation within Ethiopia's water governance architecture, where a lack of cohesive strategy and inter-ministerial coordination weakens the state's capacity to engage as a predictable and consistent partner ([Mansour et al., 2021](#)). This domestic disarray directly compromises transboundary coordination, as evidenced by the fraught negotiations over the GERD, where shifting technical positions and diplomatic stances have eroded trust with downstream neighbours (Casção & Nicol, 2016). The resultant environment hinders the operationalisation of confidence-building measures and robust data-sharing regimes, leaving conflict prevention mechanisms underdeveloped and reactive (Swain, 2011).

The policy implications for Ethiopian and regional stakeholders are profound ([Mavisakalyan & Minasyan, 2021](#)). For Ethiopian policymakers, the imperative is to recognise that national water security and regional diplomatic leverage are contingent upon internal institutional reform. Consolidating authority and clarifying strategic lines of command is not a surrender of sovereignty but an exercise of it, enabling more effective and credible international engagement.

For regional stakeholders and international facilitators, the findings suggest that supporting institutional capacity-building and the professionalisation of water bureaucracies may be as crucial as funding physical infrastructure. Strengthening the technical and administrative arms of bodies like the NBI, and insisting on their role as neutral platforms for dialogue, can help insulate cooperative processes from the vicissitudes of domestic politics (Menga, 2017). Future research should build upon this institutional focus by investigating pathways to institutional resilience ([Mena & Hilhorst, 2021](#)).

Studies could productively examine how other basin states have navigated similar internal coordination challenges, or explore the role of non-state actors, such as professional associations and epistemic communities, in fostering cross-border technical consensus that can withstand political fluctuations. Furthermore, research is needed on the political economy of water institutional reform in Ethiopia, identifying the vested interests that sustain fragmentation and the conditions under which integrative reforms become politically feasible. In final reflection, the analysis underscores an unambiguous imperative: integrated domestic governance is the bedrock upon which sustainable transboundary water cooperation must be built ([Omar, 2021](#)).

Without deliberate efforts to harmonise Ethiopia's institutional frameworks, its legitimate aspirations for water-led development will remain a persistent source of regional friction. The journey towards water security and conflict prevention in the Horn of Africa, therefore, begins not at the negotiating table in Khartoum or Cairo, but within the corridors of power in Addis Ababa. Only through internal coherence can Ethiopia hope to champion a stable, cooperative hydro-political order for the Nile Basin.

Contributions

This working paper makes a dual contribution to the literature on environmental governance and conflict. Empirically, it provides a granular analysis of Ethiopia's evolving institutional architecture for transboundary water management during the critical period of 2021–2021, a time of heightened regional tension.

Theoretically, it advances a framework for assessing how specific institutional designs—ranging from formal treaties to informal customary practices—can mitigate or exacerbate hydro-political disputes. By foregrounding the interplay between domestic policy and regional diplomacy, the study offers practical insights for policymakers seeking to strengthen conflict-sensitive water governance in the Horn of Africa.

References

- Angelakos, 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>
- Cepero, O.P., Desmidt, S., Detges, A., Tondel, F., Ackern, P.V., Foong, A., & Volkholz, J. (2021). Climate Change, Development and Security in the Central Sahel
- Gallopín, J., Thomas, E., Detzner, S., & Waal, A.D. (2021). Sudan's political marketplace in 2021: public and political finance, the Juba agreement and contests. *London School of Economics and Political Science Research Online (London School of Economics and Political Science)*.
- 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*
- Haar, R.J., Read, R., Fast, L., Blanchet, K., Rinaldi, S., Taithe, 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)*
- Kikivi, 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*
- 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)
- Sovacool, B.K. (2021). Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation. Energy Research & Social 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
- Zlobina, A., & Andujar, R. (2021). Police violence during citizens' protests: Dehumanization processes, legitimation of violence, and hostility.. Peace and Conflict: Journal of Peace Psychology