

Fragility in Motion: Comparative Conflict Systems and External Pressures in the Horn of Africa

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ABSTRACT

The Horn of Africa is encompassing Somalia, Ethiopia, Eritrea, Djibouti, Sudan, South Sudan, Kenya, and Uganda which constitutes one of the world's most fragile and conflict affected regions. This paper develops an integrated conflict systems framework that maps cascading interactions among six drivers of regional fragility: climate stress, governance fragility, resource competition, hydro-politics, recognition politics, and external intervention. Using comparative case study methodology across Somalia, Ethiopia, Sudan, and Eritrea as primary cases, the analysis traces six cascading pathways linking climate induced livelihood collapse to resource competition, governance overload, hydro-political failure, recognition disputes, and external intervention. An expanded hydro-politics analysis examines the Grand Ethiopian Renaissance Dam dispute, Somalia's dependence on the Shabelle and Jubba rivers, the absence of Ethiopia Somalia water agreements, the Baardhere Dam dispute, and the 2021 ICJ Somalia Kenya maritime ruling within the framework of international water law. The paper introduces an original composite Horn of Africa Fragility Index and concludes with policy recommendations addressing governance, climate adaptation, transboundary water cooperation, sovereignty disputes, and the management of external intervention.

Keywords: Horn of Africa, conflict systems, state fragility, climate security, hydropolitics, transboundary water governance, recognition politics, external intervention, cascading pathways, comparative analysis

INTRODUCTION

The Horn of Africa stands as one of the world's most fragile, conflict-affected, and geopolitically contested regions. Encompassing Somalia, Ethiopia, Eritrea, Djibouti, Sudan, South Sudan, Kenya, and Uganda, the region is home to approximately **400 million people** and has experienced virtually uninterrupted armed conflict since the early 1960s (Clapham, 2017; Menkhaus, 2014). In 2024, four Horn of Africa states occupied positions among the ten most fragile countries on the Fragile States Index: Somalia ranked first globally with a score of **111.3**, Sudan ranked second at **109.3**, South Sudan ranked third at **109.0**, and Ethiopia ranked eleventh at **98.1** (Fund for Peace, 2024). The region's conflicts have produced staggering humanitarian costs: as of early 2025, Sudan alone accounted for **over 11.3 million internally displaced persons** and nearly **4 million refugees**, constituting the world's largest displacement crisis (IOM, 2025; OCHA, 2025). Somalia's three-decade civil war continues to defy resolution, Ethiopia's Tigray war left an estimated **600,000 to 800,000 dead** before the November 2022 Pretoria Cessation of Hostilities Agreement, and Eritrea's garrison state model has driven hundreds of thousands into exile (de Waal, 2021; Connell, 2011).

Conventional analyses of conflict in the Horn tend to treat individual conflict drivers, climate change, governance failure, ethnic tensions, resource competition, geopolitical rivalry as discrete phenomena amenable to separate investigation and policy responses (Hagmann & Hoehne, 2009; World Bank, 2023). While this approach has produced valuable insights within specific analytical domains, it systematically obscures the cascading interactions and feedback loops that connect these drivers into a dynamic conflict system (Brusset et al., 2016; de Coning, 2018). Climate induced drought does not simply cause food insecurity; it degrades pastoral livelihoods, intensifies intercommunal resource competition, overwhelms weak governance institutions, and generates displacement that compounds security challenges in receiving areas (Barnett & Adger, 2007; Raleigh, 2010). Governance fragility does not merely reflect institutional weakness; it prevents effective transboundary

water cooperation, invites external intervention, and creates governance vacuums that armed groups exploit (Menkhaus, 2006; Zeitoun & Warner, 2006). Hydro-political disputes do not remain confined to technical water management; they intersect with recognition politics, sovereignty claims, and alliance formation, as the January 2024 Ethiopia Somaliland Memorandum of Understanding vividly demonstrated (ICG, 2024; Cannon & Rossiter, 2024). This paper addresses three interrelated research questions. First, how do climate stress, governance fragility, resource competition, hydro-politics, recognition politics, and external intervention interact as a conflict system in the Horn of Africa? Second, what specific cascading pathways link these drivers, and how do disruptions in one domain propagate through the system to amplify fragility in others? Third, how do transboundary water disputes particularly over the Nile, Shabelle, and Jubba rivers compound regional fragility, and what legal and institutional frameworks govern (or fail to govern) these disputes? These questions are urgent not only for academic understanding but for policy. The Intergovernmental Authority on Development (IGAD), the African Union, the United Nations, and bilateral actors all engage the Horn through frameworks that address individual conflict drivers, yet the region's trajectory suggests that the interactive dynamics among these drivers are poorly understood and inadequately addressed (OECD, 2022; World Bank, 2023).

The paper's principal contribution is the development of an integrated conflict systems framework that maps cascading interactions among six conflict drivers, illustrated through comparative case study analysis of Somalia, Ethiopia, Sudan, and Eritrea as primary cases and Djibouti, South Sudan, Kenya, and Uganda as secondary cases. This framework draws on systems theory (Jervis, 1997; Bousquet & Curtis, 2011), complexity science applied to conflict analysis (de Coning, 2018), and political ecology (Peluso & Watts, 2001) to model the Horn's conflicts not as isolated events but as emergent properties of a complex adaptive system. The paper also provides an expanded analysis of hydro-politics, a dimension that remains critically underexamined in Horn of Africa conflict studies with particular attention to Somalia's extreme vulnerability as a downstream state dependent on rivers originating in Ethiopian territory, the legal vacuum created by the absence of bilateral water agreements and non-ratification of international water conventions, and the historical Baardhere Dam dispute. An original composite fragility index tailored to the Horn of Africa is introduced, comprising six dimensions that correspond to the conflict system model. The paper is structured as follows. **Section 2** reviews the relevant literature across five thematic domains: state fragility and governance failure, climate change and environmental stress, hydro-politics and transboundary water governance, recognition politics and sovereignty disputes, and external intervention and geopolitical competition. **Section 3** presents the conceptual framework, the conflict systems model that integrates these domains. **Section 4** describes the comparative case study methodology. **Section 5** provides comparative conflict systems analysis across the primary and secondary cases. **Section 6** traces six specific cascading pathways through the system. **Section 7** offers an expanded analysis of hydro-politics, including international water law, the Grand Ethiopian Renaissance Dam (GERD) dispute, Somalia's river dependence, and the ICJ maritime boundary ruling. **Section 8** introduces the composite fragility index. **Section 9** presents policy recommendations. **Section 10** concludes with a synthesis and a call for systems thinking in both research and policy.

LITERATURE REVIEW

State Fragility and Governance Failure

The concept of state fragility has been central to scholarly and policy analyses of the Horn of Africa since the early 1990s, when Somalia's state collapse catalyzed a wave of theoretical work on failed and failing states (Rotberg, 2004; Zartman, 1995). Rotberg (2004) defined state failure as the inability of a state to provide political goods such as security, rule of law, political participation, economic opportunity, education, health, and infrastructure to its citizens, situating failure on a continuum from weakness through failure to collapse. Zartman (1995) conceptualized state collapse as a situation in which "the structure, authority, law, and political order have fallen apart," a formulation that Somalia paradigmatically illustrated after the overthrow of Siad Barre in January 1991 (Menkhaus, 2014; Haggmann & Hoehne, 2009). The failed states paradigm has, however, attracted substantial criticism for its state centric bias, its conflation of diverse political orders under a single label, and its normative assumption that the Weberian state represents the only legitimate form of political organization (Haggmann & Hoehne, 2009; Boege et al., 2009).

Neopatrimonialism has provided a complementary analytical lens for understanding governance dynamics in the Horn. Bratton and van de Walle (1997) demonstrated that African political systems characteristically combine formal bureaucratic institutions with informal networks of personal rule, patron client exchange, and patrimonial distribution, producing hybrid governance regimes in which formal rules coexist with, and are often subordinated to, informal logics of power. Erdmann and Engel (2007) refined this framework, arguing that neopatrimonialism should be understood not as a static structural type but as a variable configuration of formal and informal institutions whose balance shifts over time and across policy domains. In Ethiopia, neopatrimonial dynamics have operated through the ruling party apparatus, the Ethiopian People's Revolutionary Democratic Front (EPRDF) and its successor the Prosperity Party, which centralized resource allocation, security management, and political appointments along ethnic and factional lines (Abbink, 2011; Clapham, 2017; Aalen & Tronvoll, 2009). In Sudan, the al-Bashir regime exemplified neopatrimonialism through the systematic distribution of state resources, security sector positions, and economic rents among loyalist networks, with devastating consequences for marginalized regions such as Darfur, the Nuba Mountains, and Blue Nile (de Waal, 2015; Jok, 2015; Sidahmed et al., 2012).

Boege et al. (2009) introduced the concept of "hybrid political orders" to describe situations in which customary governance institutions, non-state armed actors, religious authorities, and community based organizations coexist alongside remnants of the formal state, producing governance outcomes that cannot be understood through the state failure/state building binary alone. Menkhaus (2006) applied this framework productively to Somalia, demonstrating that the collapse of the central state did not produce a governance vacuum but rather a complex mosaic of localized governance arrangements in which clan elders, sharia courts, business associations, and community organizations provided essential governance functions albeit unevenly and without the legal protections associated with functioning state institutions. The Fragile States Index, produced annually by the Fund for Peace (2024), has become a widely used quantitative tool for measuring state fragility, employing twelve indicators across four domains namely cohesion, economic, political, and social to generate composite fragility scores for 179 countries. While methodologically useful, the Index has been critiqued for its aggregation methodology, its limited capacity to capture governance hybridity, and its tendency to rank countries in ways that obscure significant subnational variation (Menkhaus, 2014; Hagmann & Hoehne, 2009; Bryden, 2013).

Climate Change, Environmental Stress, and Conflict

The relationship between climate change, environmental stress, and conflict has generated one of the most vigorous and methodologically diverse debates in the social sciences over the past two decades (Barnett & Adger, 2007; Buhaug, 2010; Hsiang et al., 2013; Ide, 2015; Scheffran et al., 2012). Barnett and Adger (2007) advanced a theoretical framework linking climate change to conflict through two principal pathways: the undermining of human security through livelihood disruption, food insecurity, and displacement; and the diminishing of state capacity to manage the resulting social pressures. Their framework emphasized that climate change does not cause conflict directly but operates through social, economic, and political mediating variables, a position now widely accepted in the literature (Ide, 2015; Scheffran et al., 2012). Buhaug (2010), however, challenged the empirical evidence for a direct climate conflict nexus, demonstrating through statistical analysis of sub-Saharan African conflicts that political and economic variables explained conflict onset more robustly than climate variables. This critique catalyzed more nuanced research designs that examined the conditional and context dependent pathways through which climate stress contributes to conflict (Raleigh, 2010; Meier et al., 2007).

In the Horn of Africa, the climate security nexus is mediated primarily through pastoral livelihoods and agricultural production systems that are acutely sensitive to rainfall variability and drought cycles (Markakis, 1998; Lind & Sturman, 2002). Markakis (1998) demonstrated that competition over water and pasture has historically been a central axis of intercommunal conflict in the Horn, with pastoral groups in borderlands between Somalia, Ethiopia, and Kenya engaging in cyclical patterns of resource competition, negotiation, and violent confrontation. Meier et al. (2007) found that drought conditions intensified livestock raiding and resource competition among pastoral communities in northwestern Kenya, though the relationship was mediated by governance quality, customary conflict resolution mechanisms, and the availability of small arms. Raleigh (2010) analyzed georeferenced conflict data from East Africa and found that areas experiencing environmental

stress were more prone to communal violence, but that this effect was strongest where state presence was weakest and governance institutions least capable of mediating resource disputes.

The 2020 to 2023 drought cycle in the Horn was the most severe in over four decades, with five consecutive failed rainy seasons producing catastrophic impacts on pastoral and agropastoral livelihoods (OCHA, 2023; FEWS NET, 2024). An estimated **13 million livestock** perished across Somalia, Ethiopia, and Kenya, and **over 2.3 million pastoralists** were displaced, with many moving into urban areas and IDP camps where they confronted additional security, livelihood, and governance challenges (OCHA, 2023; Adger et al., 2014). The drought coincided with and compounded ongoing armed conflicts in all three countries, illustrating the cascading dynamics this paper seeks to analyze. Hsiang et al. (2013) provided large scale quantitative evidence that deviations from normal temperatures and precipitation increased the risk of both interpersonal violence and intergroup conflict, though their findings generated methodological debate regarding causal identification strategies.

Hydropolitics and Transboundary Water Governance

Hydro-politics is about the politics of transboundary water resources that emerged as a critical analytical domain for understanding conflict dynamics in water scarce regions (Zeitoun & Warner, 2006; Cascao, 2009; Turton, 2002; Wolf, 1998; Conca, 2006). Zeitoun and Warner (2006) developed the concept of “hydro hegemony” to describe how power asymmetries between riparian states shape transboundary water arrangements, often to the disadvantage of weaker downstream states. Their framework identified three pillars of hydro hegemony: geographic position (upstream vs. downstream), material power (economic, military, and technological capacity), and bargaining power (diplomatic leverage and international support). Cascao (2009) refined this framework through analysis of the Nile Basin, demonstrating how upstream states could challenge established hydro hegemonic arrangements through counter hegemonic strategies including dam construction, alliance formation, and appeals to international law. Wolf (1998) provided historical evidence that transboundary water disputes rarely escalate to interstate war but frequently generate diplomatic tensions, coercive hydro-political interactions, and low intensity conflict.

The Nile Basin has been the most extensively studied hydro-political system in the Horn of Africa (Waterbury, 2002; Cascao & Nicol, 2016; Salman, 2013; Swain, 1997; Yihdego et al., 2017). Waterbury (2002) provided the definitive analysis of Nile hydro-politics, tracing the evolution from colonial era allocation agreements through the 1959 Nile Waters Agreement between Egypt and Sudan to the emerging challenge of upstream riparian states asserting their rights to utilize the Nile for development purposes. The Grand Ethiopian Renaissance Dam, with its reservoir capacity of approximately **74 billion cubic meters** and installed power capacity of approximately **5,150 MW**, has become the focal point of contemporary Nile hydro-politics, fundamentally challenging Egypt’s historical dominance over Nile water allocation (Cascao & Nicol, 2016; Yihdego et al., 2017; Salman, 2013). Ethiopia completed the final filling of the GERD reservoir in September 2024 and inaugurated the dam in September 2025, marking a decisive shift in Nile hydro-politics. By comparison, scholarship on the Jubba and Shabelle river systems—Somalia’s only perennial rivers, both originating in Ethiopia’s highlands is remarkably limited (Mohamed, 2013; Salman, 2011; World Bank, 2021). Mohamed (2013) provided one of the few comprehensive analyses of these rivers’ hydro-political significance, documenting their critical role in supporting Somalia’s irrigated agriculture and the growing pressures on their flows from upstream water development in Ethiopia. Salman (2011) examined the legal dimensions of Jubba and Shabelle governance, noting the absence of bilateral treaties, joint commissions, or any formal institutional mechanism for cooperative management. The World Bank (2021) published a Somalia Water Security Assessment that highlighted the country’s extreme water vulnerability and the urgent need for transboundary water cooperation, but concrete institutional progress has remained elusive (World Bank, 2021; FAO, 2023). International water law frameworks particularly the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses establish principles of equitable and reasonable utilization, the obligation not to cause significant harm, and requirements for prior notification, but no Horn of Africa state has ratified or acceded to either convention, creating a binding legal vacuum (McCaffrey, 2007; Salman, 2007; Rieu-Clarke et al., 2012; Tanzi & Arcari, 2001).

Recognition Politics and Sovereignty Disputes

The politics of international recognition is necessary for one to understand who is recognized as a sovereign state, by whom, and under what conditions which constitutes a significant but undertheorized driver of conflict in the Horn of Africa (Caspersen, 2012; Pegg, 1998; Coggins, 2014; Geldenhuys, 2009). Caspersen (2012) developed a framework for understanding “unrecognized states” as political entities that control territory, govern populations, and seek international recognition but lack the formal sovereignty that comes with membership in the international state system. Pegg (1998) introduced the concept of “de facto states” to describe such entities, arguing that their existence poses fundamental challenges to the international legal order and creates persistent instability in the regions where they operate. Coggins (2014) examined the geopolitics of recognition, demonstrating that great power interests, rather than normative criteria such as democratic governance or human rights performance, have historically determined which secessionist entities achieve international recognition. Geldenhuys (2009) provided a comprehensive comparative analysis of contested states globally, identifying patterns in the recognition process and the factors that facilitate or obstruct the transition from de facto statehood to international recognition. Somaliland represents one of the most prominent cases of contested statehood in the contemporary international system (Bradbury, 2008; Walls, 2014; Phillips, 2013; Renders, 2012). Since declaring independence from Somalia in May 1991, Somaliland has established functioning governmental institutions, conducted multiple competitive elections, maintained relative peace and security, and developed a constitutional order that contrasts sharply with the protracted state collapse in southern Somalia (Bradbury, 2008; Walls, 2014). Despite this record, Somaliland has not achieved international recognition from any UN member state, constrained by the African Union’s strong normative commitment to the inviolability of colonial borders and by the international community’s reluctance to set precedents that might encourage secessionism elsewhere on the continent (Phillips, 2013; Renders, 2012).

The Ethiopia Somaliland Memorandum of Understanding of January 2024 dramatically elevated recognition politics as a conflict driver in the Horn (ICG, 2024; Cannon & Rossiter, 2024). Under the terms of the MOU, Ethiopia paperedly agreed to recognize Somaliland’s independence in exchange for a 50 year lease on a naval base and commercial port facility at Berbera. The agreement provoked a fierce diplomatic response from the Federal Government of Somalia, which characterized it as a violation of Somali sovereignty and territorial integrity, and drew international attention from the African Union, the Arab League, and the United Nations (ICG, 2024). The subsequent Ankara Declaration of December 12, 2024, brokered by Turkish President Recep Tayyip Erdogan, saw Ethiopia and Somalia reaffirm their respect for each other’s sovereignty, unity, independence, and territorial integrity, and agree to pursue mutually advantageous commercial arrangements for Ethiopia’s access to the sea under Somalia’s sovereign authority (Republic of Türkiye Ministry of Foreign Affairs, 2024). Somalia’s President Hassan Sheikh Mohamud subsequently made a surprise visit to Ethiopia in January 2025, and the two countries agreed to restore bilateral relations (Ali, 2025). Nevertheless, the underlying dynamics that generated the MOU crisis—Ethiopia’s landlocked status, its search for port access, Somaliland’s desire for recognition, and Somalia’s insistence on territorial integrity remain unresolved.

External Intervention and Geopolitical Competition

The Horn of Africa has become one of the most intensely contested arenas of geopolitical competition in the contemporary international system, with the United States, China, Russia, Turkey, the United Arab Emirates, Saudi Arabia, Qatar, and European powers all pursuing strategic interests in the region (Verhoeven, 2015; de Waal, 2019; Cannon & Donelli, 2020; Melvin, 2019; Soliman, 2024). Verhoeven (2015) analyzed the evolving role of external actors in the Nile Basin, demonstrating how great power interests shaped hydro-political dynamics and influenced the bargaining positions of riparian states. De Waal (2019) introduced the concept of the “political marketplace” to describe the transactional logic underlying political dynamics in the Horn, arguing that external actors participate in a competitive market for political loyalty and allegiance through financial patronage, arms supplies, and diplomatic support. Cannon and Donelli (2020) documented the rapid expansion of Turkish engagement in the Horn, particularly Turkey’s deep involvement in Somalia through humanitarian aid, infrastructure development, military training, and diplomatic mediation. Melvin (2019) analyzed the growing role of Gulf states—particularly the UAE, Saudi Arabia, and Qatar—in the Horn, demonstrating how competition among Gulf rivals was projected onto Horn of Africa states through military basing, port

investments, arms supplies, and political patronage. Djibouti has emerged as the principal hub of external military engagement in the Horn, hosting military installations from the United States (Camp Lemonnier), France, China (its first overseas military base, operational since 2017), Japan, and Italy, in addition to smaller facilities operated by other states (Styan, 2013; Cabestan, 2020). Styan (2013) analyzed how Djibouti leveraged its strategic location at the Bab al-Mandeb strait to attract foreign military investment, generating substantial revenue but also creating dependencies and vulnerabilities. Cabestan (2020) examined China’s Djibouti base in the context of Beijing’s broader strategic engagement with Africa and the Indian Ocean region, arguing that it signaled a fundamental shift in China’s approach to power projection and maritime security.

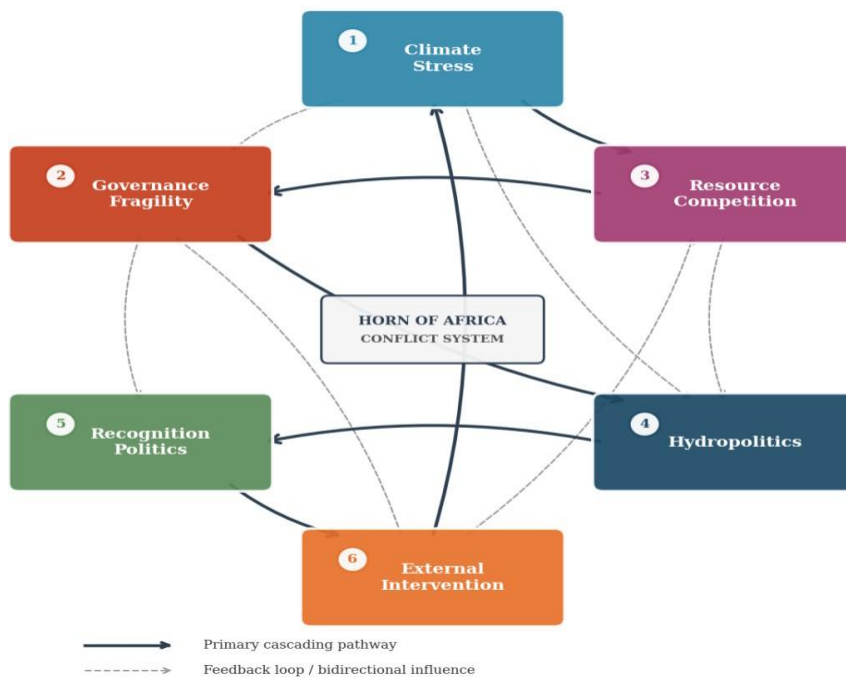
The AU peacekeeping presence in Somalia has undergone significant transitions, from the African Union Mission in Somalia (AMISOM), deployed in 2007, to the African Union Transition Mission in Somalia (ATMIS) in 2022, and most recently to the African Union Support and Stabilization Mission in Somalia (AUSSOM), which commenced operations on January 1, 2025 (Williams, 2018; ICG, 2023; AU, 2025). The AU Peace and Security Council authorized AUSSOM to deploy approximately **11,900 personnel**, including military, police, and civilian staff, contributed by Uganda, Ethiopia, Djibouti, Kenya, and Egypt (AU, 2024; UNSC Resolution 2767, 2024). However, the mission has been hampered from its inception by severe funding challenges, with disputes over the implementation of UNSC Resolution 2719—which allowed for up to 75% UN financing of AU led peace support operations—remaining unresolved amid US opposition (Marangio, 2025; ICG, 2024). Soliman (2024) documented how the UAE’s support to the RSF in Sudan, its investments in Somaliland’s Berbera port, and its broader engagement with multiple Horn actors created an interconnected web of external influence that reshaped internal conflict dynamics across the region.

Conceptual Framework: The Conflict Systems Model

This paper proposes an integrated conceptual model that understands fragility and conflict in the Horn of Africa not as products of individual causal variables but as emergent properties of a dynamic system comprising six interconnected conflict drivers. Drawing on systems theory (Jervis, 1997), complexity science applied to peace and conflict studies (de Coning, 2018; Bousquet & Curtis, 2011), and political ecology (Peluso & Watts, 2001), the model conceptualizes the Horn’s conflict landscape as a complex adaptive system in which six principal nodes interact through bidirectional causal arrows and feedback loops: (1) Climate Stress, (2) Governance Fragility, (3) Resource Competition, (4) Hydro-politics, (5) Recognition Politics, and (6) External Intervention.

Figure 1. Conceptual Framework: The Conflict Systems Model

Cascading Pathways and Feedback Loops in Horn of Africa Fragility



Source: Author’s analytical framework (Hersi, 2026).

Jervis (1997) demonstrated that political systems exhibit emergent properties that cannot be predicted from the characteristics of individual components alone, because the interactions among components generate outcomes that are qualitatively different from what any single component would produce in isolation. De Coning (2018) applied complexity theory to peacebuilding, arguing that conflict systems are characterized by nonlinearity, path dependence, emergence, and sensitivity to initial conditions, and that these properties have profound implications for how interventions are designed and implemented. Bousquet and Curtis (2011) mapped the diverse applications of complexity theory to international relations, distinguishing among computational, systemic, and relational approaches and identifying the analytical advantages and limitations of each. Peluso and Watts (2001) provided the political ecology foundation for understanding how environmental change interacts with political economy, power relations, and institutional configurations to produce violent outcomes, challenging apolitical narratives that attribute conflict to resource scarcity alone.

The conflict systems model identifies the following primary cascading pathways, each of which is analyzed in detail in Section 6. **Pathway 1: Climate Stress → Resource Competition.** Climate stress degrades agricultural productivity and pastoral livelihoods through drought, flooding, and rainfall variability, intensifying competition over diminishing water, pasture, and arable land resources (Barnett & Adger, 2007; Raleigh, 2010). **Pathway 2: Resource Competition → Governance Overload.** Resource disputes overwhelm weak local and national governance institutions that lack the capacity, legitimacy, or reach to mediate competing claims, leading to institutional failure, vigilantism, militia formation, and state retreat (Menkhaus, 2014; Lind & Sturman, 2002). **Pathway 3: Governance Fragility → Hydropolitical Failure.** Governance weakness prevents states from negotiating, ratifying, and enforcing transboundary water agreements, leaving downstream states vulnerable to unilateral upstream water development (Zeitoun & Warner, 2006; Cascao, 2009). **Pathway 4: Hydropolitics → Recognition Politics.** Hydropolitical leverage intersects with sovereignty disputes, as illustrated by the Ethiopia Somaliland MOU, which linked Ethiopia's port access ambitions (driven partly by its landlocked status since Eritrean independence in 1993) to possible diplomatic recognition (ICG, 2024; Cannon & Rossiter, 2024). **Pathway 5: Recognition Politics → External Intervention.** Recognition disputes attract external mediators and patrons, reconfiguring alliance patterns: Turkey mediated the Ankara Declaration; the UAE expanded Berbera port investments; Egypt aligned with Somalia against the MOU (Cannon & Donelli, 2020; de Waal, 2019). **Pathway 6: External Intervention → Conflict Reconfiguration.** Arms flows, military basing, financial patronage, and diplomatic support from external actors reshape internal conflict dynamics, altering the balance of power among domestic factions and creating new incentives for violence or cooperation (Soliman, 2024; Melvin, 2019).

Crucially, the model is not linear. Each pathway generates feedback loops that can amplify or, in some cases, dampen conflict dynamics. External intervention, for instance, does not merely respond to recognition disputes; it also reshapes governance fragility (through institution building programs or arms flows to factions), resource competition (through development aid or economic sanctions), and climate adaptation capacity (through humanitarian assistance or neglect). Hydropolitical dynamics feed back into governance fragility by generating interstate tensions that divert state resources toward security and diplomacy and away from domestic institution building (Cascao & Nicol, 2016; Waterbury, 2002). Recognition politics feed back into governance fragility by creating internal divisions within states (Somalia's federal government versus Somaliland) and between states (Somalia versus Ethiopia) that complicate cooperative governance arrangements (Bradbury, 2008; Walls, 2014). The model thus captures the systemic, self-reinforcing character of fragility in the Horn of Africa, in which multiple conflict drivers interact to produce outcomes that are greater than the sum of their parts (Brusset et al., 2016; de Coning, 2018).

Textual Description of the Conceptual Model Diagram. The model may be visualized as a hexagonal network with six nodes arranged around a central space. Each node represents one conflict driver: Climate Stress (top), Resource Competition (upper right), Governance Fragility (lower right), Hydro-politics (bottom), Recognition Politics (lower left), and External Intervention (upper left). Each node is connected to every other node by bidirectional arrows, representing the potential for causal influence to flow in either direction. The arrows are of varying thickness, representing the empirical strength of the relationship: the thickest arrows connect Climate Stress to Resource Competition, Resource Competition to Governance Fragility, and Governance Fragility to Hydro-politics, reflecting the strongest empirical pathways identified in the literature. The six cascading

pathways described above form a circular chain around the perimeter of the hexagon, while the interior cross connections represent the feedback loops and secondary interactions that create the system's emergent properties. At the center of the hexagon, the label "Horn of Africa Conflict System" identifies the emergent phenomenon that arises from the interaction of all six nodes.

METHODOLOGY

This paper employs a comparative case study methodology, drawing on the foundational work of Gerring (2007), George and Bennett (2005), and Yin (2018). Comparative case study analysis is particularly suited to the study of complex political phenomena that involve multiple causal factors, context dependent dynamics, and the kind of process tracing that quantitative methods cannot easily accommodate (George & Bennett, 2005). The structured, focused comparison method developed by George and Bennett (2005) guides the analysis: each case is examined through the same six analytical dimensions (climate stress, governance fragility, resource competition, hydro-politics, recognition politics, and external intervention), enabling systematic comparison while preserving sensitivity to the unique historical, political, and social contexts of each case.

The paper selects four primary cases from Somalia, Ethiopia, Sudan, and Eritrea and four secondary/contextual cases on Djibouti, South Sudan, Kenya, and Uganda. The selection logic is based on variation across five dimensions that are central to the conflict systems model. First, **state formation trajectories**: the primary cases exhibit fundamentally different state formation paths, from Somalia's protracted state collapse and reconstitution, through Ethiopia's ancient statehood and ethnic federalism, to Sudan's contested territorial integrity and Eritrea's post-independence garrison state model (Clapham, 2017; Menkhaus, 2014; de Waal, 2015; Connell, 2011). Second, **climate vulnerability profiles**: the cases vary in the intensity and character of their climate exposure, from Somalia's extreme arid and semi-arid vulnerability to Ethiopia's diverse climatic zones and Kenya's asymmetric vulnerability concentrated in its northern counties (ND-GAIN, 2024; INFORM, 2024). Third, **hydro-political positioning**: the cases include upstream states (Ethiopia), downstream states (Somalia, Sudan, Egypt as an external stakeholder), and states with minimal transboundary river exposure (Eritrea, Djibouti), enabling analysis of how hydropolitical positioning shapes conflict dynamics (Zeitoun & Warner, 2006; Cascao, 2009). Fourth, **recognition status**: the cases include an internationally recognized but internally contested state (Somalia), a state containing an unrecognized secessionist entity (Somaliland), and states with varying degrees of internal sovereignty contestation (Caspersen, 2012; Bradbury, 2008). Fifth, **patterns of external intervention**: the cases exhibit diverse configurations of external engagement, from Djibouti's extreme concentration of foreign military bases to Eritrea's relative isolation from international institutions (Styan, 2013; Connell, 2011).

The paper draws on multiple data sources to support the comparative analysis. Quantitative fragility data is drawn from the **Fragile States Index** (Fund for Peace, 2024), which provides composite fragility scores and indicator level data for all eight Horn states. Conflict event data is drawn from the **Armed Conflict Location and Event Data Project** (ACLED) (Raleigh et al., 2023), which geocodes political violence events and protest activity across Africa and provides disaggregated data on conflict type, actors, fatalities, and geographic location. Climate vulnerability data is drawn from the **ND-GAIN Country Index** (University of Notre Dame, 2024), which measures vulnerability to climate change and readiness to adapt, and from the **INFORM Risk Index** (European Commission, 2024), which assesses risk of humanitarian crises. Water resources data is drawn from the **FAO AQUASTAT database**, which provides comprehensive statistics on water resources, water use, and agricultural water management. Governance data is drawn from the **World Bank Worldwide Governance Indicators** (Kaufmann et al., 2023). Humanitarian data is drawn from **OCHA situation papers**, **UNHCR population statistics**, and **IPC food security classifications**. The **Uppsala Conflict Data Program** (UCDP) provides supplementary data on armed conflicts, non-state conflicts, and one-sided violence. Military expenditure and arms transfer data is drawn from the **Stockholm International Peace Research Institute** (SIPRI, 2024).

The comparative analytical approach proceeds in three stages. First, each primary case is analyzed individually through the six analytical dimensions, producing a detailed conflict systems profile for each country. Second, a cross-case comparison identifies common patterns and divergent dynamics across the cases, examining how the

same conflict drivers produce different outcomes depending on their interaction with other drivers and with country specific contextual factors. Third, the cascading pathways identified in the conceptual framework are traced across the cases, using process tracing (George & Bennett, 2005) to examine how disruptions in one domain propagate through the system to produce effects in other domains. The analysis is presented in tabular form where appropriate, with comparative tables summarizing key variables across all eight Horn states.

Several methodological limitations warrant acknowledgment. First, data availability and quality are uneven across the Horn of Africa, with conflict affected areas in Somalia, Sudan, and South Sudan posing particular challenges for systematic data collection (ACLED, 2024; OCHA, 2025). Second, the complexity of causal interactions in a six-dimensional system makes confident causal inference inherently difficult; the analysis relies on process tracing and comparative logic rather than claiming definitive causal identification. Third, the analysis is necessarily selective in its treatment of subnational variation; each of the primary cases exhibits significant internal heterogeneity that a country level analysis can only partially capture (Gerring, 2007; Yin, 2018). Fourth, positionality considerations are relevant: the author's background as a scholar of Somali origin with professional connections to humanitarian and policy organizations in the Horn may inform analytical choices and interpretive emphases, and this positionality is acknowledged transparently. Fifth, the conflict systems framework, while analytically productive, inevitably simplifies a reality that is more complex than any six node model can fully represent; the framework should be understood as an analytical tool that illuminates important dynamics rather than as a complete description of the conflict landscape (de Coning, 2018; Brusset et al., 2016).

Comparative Conflict Systems Analysis

Somalia: Protracted State Collapse, Al-Shabaab, and the AUSSOM Transition

Somalia represents the paradigmatic case of protracted state collapse in the international system. Since the overthrow of the Siad Barre regime in January 1991, the country has experienced over three decades of civil war, state fragmentation, humanitarian catastrophe, and iterative but incomplete processes of state reconstitution (Menkhaus, 2014; Hagmann & Hoehne, 2009; Bryden, 2013). The Transitional Federal Government (TFG), established in 2004, provided a formal framework for state rebuilding but exercised effective authority over only portions of Mogadishu, relying heavily on Ethiopian military intervention (2006–2009) and the subsequent deployment of AMISOM to sustain its physical survival (Williams, 2018; Marchal, 2009). The election of President Hassan Sheikh Mohamud in 2012 and the transition from provisional to permanent federal institutions marked important symbolic milestones, but the Federal Government of Somalia continued to face fundamental challenges of territorial control, revenue generation, and legitimacy among federal member states (ICG, 2023; Bryden, 2013).

Al-Shabaab has functioned as both the principal security threat to the Somali state and a parallel governance structure that provides basic services, adjudicates disputes, and taxes economic activity across significant portions of southern and central Somalia (Hansen, 2013; Marchal, 2009; Menkhaus, 2014). Hansen (2013) analyzed Al-Shabaab's evolution from a militant wing of the Union of Islamic Courts to an autonomous jihadist organization affiliated with al-Qaeda, documenting its sophisticated governance apparatus, revenue generation mechanisms, and capacity to exploit clan grievances and governance failures. The group's taxation system is estimated to generate **over \$100 million annually**, exceeding the Somali government's own domestic revenue in many years, and it maintains a territorial presence across parts of the Jubba, Shabelle, Galgadud, Hiraan, and Bay regions (ICG, 2024; Hiraal Institute, 2023). The Somali government's "total war" offensive against Al-Shabaab, launched in 2022 with clan militia support, achieved initial territorial gains in central Somalia but subsequently stalled amid logistical challenges, militia fragmentation, and Al-Shabaab counter offensives (ICG, 2024).

The peacekeeping transition from AMISOM to ATMIS to AUSSOM represents a critical juncture for Somalia's security trajectory. AMISOM, deployed in March 2007 with an initial mandate to support the TFG, grew to approximately 22,000 troops and became the primary bulwark against Al-Shabaab's expansion into Mogadishu and other urban centers (Williams, 2018). ATMIS, which replaced AMISOM in April 2022, was designed as a transitional mission with a phased drawdown of troops and a progressive handover of security responsibilities to Somali National Security Forces (ICG, 2023). ATMIS completed its withdrawal by December 31, 2024, and

AUSSOM commenced operations on January 1, 2025, authorized by the AU Peace and Security Council and endorsed by UN Security Council Resolution 2767 (AU, 2024). AUSSOM is authorized to deploy approximately **11,900 personnel**, including military, police, and civilian components contributed by Uganda, Ethiopia, Djibouti, Kenya, and Egypt (AU, 2024; Marangio, 2025). However, the mission faces immediate financial challenges: the implementation of UNSC Resolution 2719, which would allow up to 75% UN financing, remains stalled amid US opposition, and AUSSOM inherited ATMIS's funding shortfall of approximately €96 million (Marangio, 2025; ICG, 2024). Federal member state tensions further complicate the security landscape, with Jubaland, Puntland, and other subnational entities maintaining semi-autonomous security arrangements that sometimes conflict with federal authority (Hagmann & Hoehne, 2009; Bryden, 2013).

Ethiopia: Ethnic Federalism, the Tigray War, and Post Pretoria Fragility

Ethiopia's political trajectory since the 1991 overthrow of the Derg regime has been shaped by the ethnic federal system established by the Ethiopian People's Revolutionary Democratic Front (EPRDF), which divided the country into ethnically defined regional states with constitutionally guaranteed rights to self-determination up to and including secession (Abbink, 2011; Aalen & Tronvoll, 2009; Turton, 2006). This system, while intended to manage ethnic diversity and prevent the concentration of power in a single ethnic group, has been simultaneously credited with providing representation to historically marginalized groups and criticized for reifying ethnic identities, creating incentives for ethnic competition over state resources, and producing a political culture in which ethnicity is the primary axis of political mobilization (Clapham, 2017; Abbink, 2011). The transition from the EPRDF to the Prosperity Party under Prime Minister Abiy Ahmed (2018–present) was initially celebrated for its liberalizing reforms but rapidly generated new political crises, culminating in the Tigray war (Tronvoll, 2022; de Waal, 2021).

The Tigray conflict, which erupted on November 3, 2020, when Tigray People's Liberation Front (TPLF) forces attacked the Northern Command of the Ethiopian National Defense Force, produced one of the deadliest conflicts of the 21st century (de Waal, 2021; Gebrehiwot & Demissie, 2022; Tronvoll, 2022). Over the two year course of the war, an estimated **600,000 to 800,000 people** died from direct violence, famine, and lack of medical care, according to various estimates; **over 2 million** were displaced; and massive destruction of infrastructure, healthcare facilities, and agricultural systems was documented (de Waal, 2021; ICG, 2024). Eritrean forces participated extensively in the conflict alongside Ethiopian federal forces, committing documented atrocities and complicating post war reconciliation (Tronvoll, 2022; ICG, 2024). The Pretoria Cessation of Hostilities Agreement of November 2, 2022, mediated by the African Union under former Nigerian President Olusegun Obasanjo, ended active hostilities but left critical issues unresolved, including Eritrean troop withdrawal, the status of Western Tigray (occupied by Amhara forces), and transitional justice and accountability for atrocities (ICG, 2024, 2025; Gebrehiwot & Demissie, 2022).

Post Pretoria Ethiopia remains deeply fragile. The Amhara Fano insurgency, which escalated dramatically after August 2023 when the federal government attempted to disarm Amhara regional special forces and militias, represents a significant new front of armed conflict (ICG, 2025). Fano, an informal network of Amhara nationalist militias, has conducted attacks on federal security forces across much of the Amhara region, disrupting transportation, economic activity, and governance functions (ICG, 2025). The TPLF was deregistered as a political party in 2025, a decision that has raised concerns about political pluralism and the narrowing of Ethiopia's political space (ICG, 2025). Oromia, Ethiopia's largest region, continues to experience armed conflict between the Oromo Liberation Army (OLA) and federal forces, with significant civilian displacement and human rights concerns (Clapham, 2017; ICG, 2024). Ethiopia's FSI score of **98.1** in 2024 reflects the cumulative impact of these overlapping crises, placing it among the most fragile states globally (Fund for Peace, 2024).

Sudan: The SAF–RSF War and State Disintegration

The war that erupted on April 15, 2023, between the Sudanese Armed Forces (SAF) led by General Abdel Fattah al-Burhan and the Rapid Support Forces (RSF) led by Mohamed Hamdan Dagalo ("Hemedti") has produced what the United Nations describes as the world's worst humanitarian crisis (de Waal, 2023; OCHA, 2025; UNHCR, 2025). The conflict emerged from the failed transition to civilian government following the October 2021 military coup, which overthrew the power sharing arrangement established after the 2019 popular

revolution against Omar al-Bashir. The SAF and RSF had jointly executed the coup but subsequently fell into dispute over the terms and timeline for RSF integration into the national military, a process embedded in the 2020 Juba Peace Agreement (de Waal, 2023; ICG, 2024; Sidahmed et al., 2012).

The humanitarian toll of the conflict is catastrophic. As of April 2025, the International Organization for Migration (IOM) recorded **over 11.3 million internally displaced persons** across all 18 states of Sudan, representing approximately **30% of the population**, while nearly **4 million refugees** had fled to neighboring countries including Chad, Ethiopia, and South Sudan (IOM, 2025; OCHA, 2025). The true death toll is difficult to ascertain given the breakdown of health and civil registration systems, but estimates by the UN Human Rights Office documented at least **3,384 civilian deaths** in the first half of 2025 alone, representing nearly 80% of all civilian casualties documented during the entirety of 2024, suggesting a significant escalation of violence (OHCHR, 2025). Famine conditions have been declared in parts of Darfur and Kordofan, with the IPC classifying several areas as Phase 5 (Catastrophe/Famine) and millions more facing emergency levels of food insecurity (OCHA, 2025; FEWS NET, 2024). The RSF's systematic use of sexual violence as a weapon of war, particularly in Darfur, has drawn comparisons to the genocide of the early 2000s, and the International Criminal Court has expanded its Darfur investigation (OHCHR, 2025; Flint & de Waal, 2008).

The role of external actors has been central to the conflict's escalation and persistence. The UAE has provided substantial military and financial support to the RSF, channeled through logistics networks in Chad and other neighboring states, enabling the RSF to sustain operations despite significant territorial losses in Khartoum in early 2025 (Soliman, 2024; ICG, 2024). Egypt has aligned with the SAF, providing diplomatic support and, according to some papers, military assistance, driven by concerns about RSF alignment with Ethiopian interests and the broader implications for Nile water politics (de Waal, 2023; ICG, 2024). Multiple mediation efforts—the Jeddah talks facilitated by Saudi Arabia and the United States, the African Union's Peace and Security Council processes, and regional initiatives by IGAD—have failed to produce a durable ceasefire, in part because of the multiplicity of external patrons sustaining the warring parties (ICG, 2024; de Waal, 2023). Sudan's FSI score of **109.3** in 2024, ranking it the second most fragile state globally, reflects the near complete collapse of state institutions, infrastructure, and governance capacity across much of the country (Fund for Peace, 2024).

Eritrea: Garrison State, Regional Spoiler, and Isolation

Eritrea, which achieved de jure independence from Ethiopia in 1993 following a thirty-year liberation struggle, has developed one of the most closed and authoritarian governance systems in the world (Connell, 2011; Tronvoll & Mekonnen, 2014; Kibreab, 2009). Under the leadership of President Isaias Afwerki, who has ruled without elections since independence, Eritrea operates as what analysts have described as a “garrison state,” in which the entire political, economic, and social order is organized around military imperatives and the ruling People's Front for Democracy and Justice (PFDJ) exercises total control over political life, media, civil society, and religious institutions (Connell, 2011; Hirt & Mohammad, 2013). The indefinite national service system, which requires all adult Eritreans to serve in military or civilian capacities for periods that can extend indefinitely, has been described by the UN Commission of Inquiry on Human Rights in Eritrea as amounting to a form of enslavement and has driven mass emigration, with Eritreans constituting one of the largest refugee populations seeking asylum in Europe and neighboring countries (Kibreab, 2009; Pool, 2001; Tronvoll & Mekonnen, 2014).

Eritrea's role in regional conflicts has been consistently disruptive. Its participation in the Tigray war alongside Ethiopian federal forces was extensively documented, with Eritrean troops accused of war crimes including massacres, sexual violence, and the destruction of civilian infrastructure across Tigray (Tronvoll, 2022; ICG, 2024). The Eritrea Ethiopia rapprochement of 2018, which earned Prime Minister Abiy Ahmed the 2019 Nobel Peace Prize, was widely celebrated as a breakthrough but produced few tangible institutional outcomes and has since deteriorated significantly, with Eritrea paperedly dissatisfied with the Pretoria Agreement's terms and continuing to project military influence across the region (Reid, 2011; ICG, 2025). Eritrea's support for armed groups in neighboring states, its rivalry with the UAE and other Gulf actors, and its systematic obstruction of regional diplomatic processes have led analysts to characterize it as a “regional spoiler” whose governance model and foreign policy orientation represent a distinctive form of state fragility defined not by institutional absence

but by the militarization and closure of all political space (Connell, 2011; Hirt & Mohammad, 2013; Reid, 2011). The country’s FSI score of **92.1** in 2024 reflects this combination of extreme authoritarian control and structural vulnerability (Fund for Peace, 2024).

Comparative Analysis Table and Cross Case Patterns

Country	FSI Score 2024	Primary Conflict Type	Governance Model	Climate Vulnerability (ND-GAIN Rank)	Hydropolitical Position	Recognition Status	Key External Actors
Somalia	111.3 (Rank 1)	Islamist insurgency; clan conflict; state reconstitution	Incomplete federalism; hybrid governance	Very High (Bottom 10)	Downstream (Jubba, Shabelle)	Recognized; Somaliland unrecognized	Turkey, Israel, UAE, US, AU (AUSSOM), Qatar
Sudan	109.3 (Rank 2)	Interstate military conflict (SAF vs. RSF); ethnic violence	Collapsed transitional government; military rule	Very High (Bottom 15)	Mid-stream (Nile)	Recognized; disputed territories	UAE (RSF), Egypt (SAF), Saudi Arabia, US
South Sudan	109.0 (Rank 3)	Civil war; intercommunal; political rivalry	Neopatrimonial; power sharing fragility	Very High (Bottom 5)	Upstream (White Nile)	Recognized (2011)	China, US, UNMISS, IGAD
Ethiopia	98.1 (Rank 11)	Multi front: Tigray (post war), Amhara (Fano), Oromia (OLA)	Ethnic federalism; centralized executive	High (Bottom 25)	Upstream (Nile, Shabelle, Jubba)	Recognized	China, US, UAE, Eritrea, Turkey
Eritrea	92.1 (Rank 25)	Militarized authoritarianism; regional interventionism	Garrison state; single party	High (Bottom 30)	Minimal transboundary exposure	Recognized	Limited; historically China, Gulf states
Uganda	91.1 (Rank 27)	Post LRA stabilization; political opposition suppression	Dominant party; personalist rule	Moderate-High	Upstream (White Nile/Lake Victoria)	Recognized	US, UK, EU, AUSSOM contributor
Kenya	86.5 (Rank 35)	Terrorism (Al-Shabaab spillover); intercommunal	Devolved unitary state; competitive democracy	Moderate-High	Upstream (Jubba tributaries); maritime	Recognized	US, UK, China, AUSSOM contributor

		; political violence					
Djibouti	81.6 (Rank 47)	Stable authoritarianism; low intensity opposition	Single party dominant; strategic rentier state	Very High (extreme aridity)	Minimal	Recognized	US, France, China, Japan, AUSSOM contributor

Several cross case patterns emerge from the comparative analysis. First, **governance deficits constitute the common thread** across all eight states, though they manifest differently: as state collapse and reconstitution in Somalia, as ethnic federalism under strain in Ethiopia, as military factionalism in Sudan, as totalitarian closure in Eritrea, as personalist rule in Uganda, and as competitive but imperfect democracy in Kenya (Fund for Peace, 2024; Bratton & van de Walle, 1997).

Second, **climate vulnerability compounds conflict** in every case, though the specific mechanisms vary: drought driven pastoral displacement in Somalia and northern Kenya, food insecurity amplifying existing armed conflicts in Ethiopia and Sudan, and extreme aridity constraining livelihood options in Djibouti and Eritrea (ND-GAIN, 2024; OCHA, 2023; FEWS NET, 2024).

Third, **external actors pursue competing interests** that frequently undermine conflict resolution: Turkey’s mediation role coexists with UAE investment strategies, US counterterrorism priorities sometimes conflict with governance reform objectives, and Chinese infrastructure investment creates new dependency relationships without addressing underlying conflict dynamics (Verhoeven, 2015; Cannon & Donelli, 2020; Melvin, 2019).

Fourth, **hydro-political positioning** fundamentally shapes interstate power dynamics, with upstream Ethiopia leveraging its control over the headwaters of the Nile, Shabelle, and Jubba to project influence over downstream neighbors, while Djibouti leverages its coastal position and strategic location to extract rent from foreign military presence (Zeitoun & Warner, 2006; Styan, 2013).

Cascading Pathways

Climate to Livelihoods to Resource Competition

The 2020 to 2023 drought in the Horn of Africa, described by the World Meteorological Organization as the worst in over 40 years, killed an estimated **13 million livestock** across Somalia, Ethiopia, and Kenya, devastating the livelihoods of pastoral and agropastoral communities that depend on livestock for food, income, social status, and cultural identity (OCHA, 2023; FEWS NET, 2024). Five consecutive failed rainy seasons—a statistical anomaly that climate attribution studies link to human induced warming of the Indian Ocean and changes in the Indian Ocean Dipole produced cumulative degradation of rangelands, water sources, and livestock body condition from which many herds could not recover (Adger et al., 2014; Barnett & Adger, 2007; Scheffran et al., 2012). Over **2.3 million pastoralists** were displaced, with many moving into already stressed urban areas and IDP camps, where they confronted competition for water, shelter, and economic opportunities with existing populations and other displaced groups (OCHA, 2023; Raleigh, 2010).

The drought intensified intercommunal violence over water and pasture across multiple conflict hotspots. In Kenya’s northern counties—Turkana, Marsabit, Isiolo, Wajir, and Garissa—ACLED data shows a marked increase in communal conflict events during the drought period, with pastoralist groups competing for diminishing water points and grazing areas (Raleigh et al., 2023; Meier et al., 2007). In Ethiopia’s Somali and Afar regions, drought compounded existing tensions between Issa, Afar, and other pastoral groups, producing violent clashes over access to the Awash River and associated grazing lands (Markakis, 1998; Lind & Sturman, 2002). In southern Somalia, drought displaced populations into areas contested between Al-Shabaab and government forces, creating compound vulnerabilities in which food insecurity, security threats, and governance

failures intersected (Menkhau, 2014; FEWS NET, 2024). These dynamics illustrate the first link in the cascading chain: climate stress does not merely produce food insecurity but reshapes the geography of resource access, population distribution, and intercommunal relations in ways that generate new conflict risks and amplify existing ones (Barnett & Adger, 2007; Raleigh, 2010; Ide, 2015).

Resource Competition to Governance Overload

Resource competition over water, pasture, and arable land overwhelms weak local governance institutions that lack the capacity, resources, or legitimacy to mediate competing claims effectively (Menkhau, 2014; Lind & Sturman, 2002; Abbink, 2011). In pastoral areas across the Horn, customary conflict resolution mechanisms—councils of elders (guurti in Somali contexts, jarsa biyyaa in Oromo contexts), compensation systems (diya/blood wealth), and seasonal grazing agreements—have historically managed resource competition with varying degrees of effectiveness (Markakis, 1998; Menkhau, 2006). However, these mechanisms have been progressively weakened by the proliferation of small arms, the politicization of ethnic and clan identities by national political entrepreneurs, the enclosure of pastoral commons by agricultural expansion, and the sheer intensity of climate induced resource scarcity (Lind & Sturman, 2002; Meier et al., 2007; Raleigh, 2010).

When both customary and formal governance institutions fail to manage resource disputes, the resulting vacuum creates conditions for militia formation, vigilantism, and the expansion of non-state armed groups. In Somalia, Al-Shabaab has systematically exploited governance vacuums created by resource competition, positioning itself as a provider of order, justice, and resource allocation in areas where the Federal Government and federal member states are absent or ineffective (Hansen, 2013; Menkhau, 2014). The group's sharia courts settle land and water disputes, its taxation system funds local services, and its military capacity deters predation by rival armed groups—creating a perverse governance equilibrium in which the insurgency's continued existence depends on the persistence of the governance failures it exploits (Marchal, 2009; ICG, 2024). In Ethiopia, the failure of federal and regional governments to manage resource competition between pastoralists and agriculturalists in lowland border areas has contributed to the formation of ethnic militias that operate outside formal security structures, a dynamic that fed directly into the Fano insurgency in the Amhara region (Abbink, 2011; ICG, 2025). This pathway illustrates how resource competition does not merely produce isolated episodes of communal violence but systematically degrades governance capacity, creating conditions for more organized and sustained forms of armed conflict (Menkhau, 2006; Brusset et al., 2016).

Governance Fragility to Hydro-political Failure

Governance fragility prevents states from negotiating, ratifying, implementing, and enforcing transboundary water agreements, leaving downstream states vulnerable to unilateral upstream water development (Zeitoun & Warner, 2006; Cascao, 2009; Conca, 2006). This pathway is most acutely illustrated by Somalia's inability to negotiate water sharing agreements with Ethiopia despite critical dependence on the Shabelle and Jubba rivers (Salman, 2011; Mohamed, 2013). For over three decades following the 1991 state collapse, Somalia lacked the institutional capacity to engage in sustained diplomatic negotiations, maintain technical water management agencies, or participate in international water governance forums. While Ethiopia developed its upstream water resources through dam construction and irrigation expansion in the Ogaden and Somali regional states, Somalia had no governmental counterpart capable of negotiating equitable allocation, monitoring transboundary flows, or invoking international legal protections (Mohamed, 2013; World Bank, 2021).

The governance fragility to hydro-political failure pathway also operates in the Nile Basin, though with different dynamics. Sudan's ongoing civil war has effectively removed it as a meaningful participant in tripartite GERD negotiations with Ethiopia and Egypt, leaving the downstream riparian states without a coherent negotiating position and enabling Ethiopia to advance its fifth filling of the GERD reservoir in 2024 with minimal constraint (Cascao & Nicol, 2016; Salman, 2013; Yihdego et al., 2017). The collapse of Sudan's state institutions means that the country cannot monitor Nile flows, enforce any future water sharing agreements, or protect its own water security interests, a development with profound implications for Sudanese agriculture and the estimated **20 million people** who depend on Nile irrigated farming (de Waal, 2023; Waterbury, 2002). This pathway demonstrates that hydro-political outcomes are not determined solely by hydrological or legal factors but are

fundamentally shaped by the governance capacity of riparian states to participate as effective negotiating partners (Zeitoun & Warner, 2006; Conca, 2006; Wolf, 1998).

Hydro-politics to Recognition Politics

The intersection of hydro-politics and recognition politics is most vividly illustrated by the Ethiopia Somaliland Memorandum of Understanding of January 1, 2024 (ICG, 2024; Cannon & Rossiter, 2024). Ethiopia, the most populous landlocked country in the world with over **120 million people**, has sought reliable sea access since Eritrea's independence in 1993 deprived it of its Red Sea ports of Assab and Massawa. The MOU paperedly offered Somaliland diplomatic recognition—a prize it had sought for over three decades—in exchange for a 50 year lease on a naval base and commercial port facility at Berbera on the Gulf of Aden (ICG, 2024; Bradbury, 2008; Walls, 2014). This transaction linked two distinct conflict system nodes: Ethiopia's hydro-political and geostrategic positioning as a landlocked upstream state with recognition politics around Somaliland's contested sovereignty.

The MOU provoked a severe diplomatic crisis. The Federal Government of Somalia characterized the agreement as an assault on Somali sovereignty and territorial integrity, recalled its ambassador from Addis Ababa, and mobilized international support through the African Union, the Arab League, and bilateral diplomatic channels (ICG, 2024). Egypt, already locked in hydro-political competition with Ethiopia over the GERD, seized the opportunity to strengthen its alliance with Somalia, signing a defense cooperation agreement and deploying military personnel to Mogadishu—a development that raised alarm in Addis Ababa about encirclement (de Waal, 2023; ICG, 2024). Eritrea, despite its deteriorating relationship with Ethiopia following the Tigray war, signaled displeasure with the MOU, viewing it as a potential challenge to its own strategic position on the Red Sea (Connell, 2011; ICG, 2024). The crisis demonstrated that sovereignty disputes and recognition politics do not exist in isolation but are deeply intertwined with hydro-political and geostrategic calculations, creating compound conflict risks that transcend any single analytical domain (Caspersen, 2012; Coggins, 2014).

Recognition Politics to External Intervention

The MOU crisis rapidly drew external actors into mediation and competitive patronage. Turkey, which had been cultivating a mediator role in the Horn through its extensive investment in Somali reconstruction since 2011, inserted itself as the primary broker, facilitating the Ankara Declaration of December 12, 2024 (Cannon & Donelli, 2020; Republic of Türkiye Ministry of Foreign Affairs, 2024). The Declaration saw Ethiopia and Somalia reaffirm their respect for each other's sovereignty and agree to pursue commercial arrangements for Ethiopia's sea access under Somalia's sovereign authority, with technical negotiations to commence by February 2025 (Republic of Türkiye Ministry of Foreign Affairs, 2024). Turkey's mediation represented a significant expansion of its geopolitical footprint in the Horn, building on its existing military base in Mogadishu, its role as Somalia's largest single bilateral donor, and its infrastructure investments across the region (Cannon & Donelli, 2020; Melvin, 2019).

Simultaneously, the UAE expanded its investments in Somaliland's Berbera port through DP World, which had contracted to develop the port in 2017, and maintained its network of relationships with Ethiopian officials, creating a patronage configuration that sometimes competed with Turkey's Somalia aligned positioning (Melvin, 2019; de Waal, 2019). Egypt's alignment with Somalia against the MOU reinforced Cairo's broader strategy of containing Ethiopian influence, which is driven primarily by Nile water concerns but extends to Red Sea security, military cooperation with Somalia, and support for the SAF in Sudan's civil war (ICG, 2024; Verhoeven, 2015). These competing external interventions illustrate how recognition disputes generate a multiplier effect: they attract external actors with diverse interests, create new alliance configurations, and generate additional vectors of conflict that intersect with existing tensions over water, governance, and resources (de Waal, 2019; Soliman, 2024).

External Intervention to Conflict Reconfiguration

Arms flows, military basing, financial patronage, and diplomatic support from external actors do not merely respond to existing conflicts but actively reconfigure their dynamics, altering the balance of power among

domestic factions, creating new incentives for violence or cooperation, and linking previously separate conflict theaters into interconnected systems (Soliman, 2024; ICG, 2024; de Waal, 2023). The UAE's role illustrates this most clearly. In Sudan, UAE support to the RSF—channeled through logistics networks in Chad, Libya, and the Central African Republic—has enabled the paramilitary force to sustain military operations despite significant territorial losses, prolonging a conflict that might otherwise have reached a stalemate conducive to negotiation (Soliman, 2024; ICG, 2024). In the Horn more broadly, the UAE maintains investments in Berbera (Somaliland), relationships with Ethiopian officials, military facilities in Eritrea's Assab, and extensive economic interests across the region, creating a web of influence that connects conflict dynamics across multiple states (Melvin, 2019; de Waal, 2019).

This reconfiguration effect extends to the AUSSOM peacekeeping mission in Somalia. Ethiopia's inclusion as a troop contributing country to AUSSOM has generated tensions given the MOU crisis, with the Somali government initially seeking to limit Ethiopia's role while recognizing the operational necessity of Ethiopian forces that have extensive experience operating in Somalia (ICG, 2024; Marangio, 2025). Egypt's inclusion as a new troop contributing country, a development driven partly by Cairo's desire to counterbalance Ethiopian influence and partly by its hydro-political competition with Addis Ababa—adds another layer of geopolitical complexity to the mission (AU, 2024; ICG, 2024). The result is a peacekeeping force in which troop contributing countries are simultaneously pursuing competing strategic interests in the very country they are mandated to stabilize, a structural contradiction that risks undermining the mission's effectiveness and credibility (Williams, 2018; Marangio, 2025; Brusset et al., 2016).

Hydro-politics in the Horn of Africa: Expanded Analysis

International Water Law and Its Application to the Horn

Two principal international legal instruments govern the management and allocation of transboundary freshwater resources, yet neither has been ratified or acceded to by any Horn of Africa state, creating a critical legal vacuum that shapes hydro-political dynamics in the region (McCaffrey, 2007; Salman, 2007; Rieu-Clarke et al., 2012; Tanzi & Arcari, 2001). The 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes was originally negotiated as a European regional instrument under the United Nations Economic Commission for Europe but was opened to accession by all UN member states in 2016 (Rieu-Clarke et al., 2012). The Convention establishes obligations of cooperation, equitable and reasonable use, prevention of transboundary impact, and prior notification of planned measures that may affect transboundary waters. It requires riparian states to enter into bilateral or multilateral agreements on specific watercourses, establish joint bodies for cooperative management, and exchange data and information on water quantity and quality (McCaffrey, 2007; Rieu-Clarke et al., 2012; Wouters, 2013).

The 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, which entered into force on August 17, 2014 after achieving the requisite 35 ratifications, provides the global framework for transboundary freshwater governance (McCaffrey, 2007; Tanzi & Arcari, 2001). Its key principles include equitable and reasonable utilization (Article 5), which requires watercourse states to use transboundary waters in an equitable and reasonable manner taking into account the interests of other riparian states; the obligation not to cause significant harm (Article 7), which prohibits activities that cause significant adverse effects on other watercourse states; and the obligation of prior notification of planned measures (Article 12), which requires states to notify potentially affected states before implementing measures that may significantly affect transboundary waters (McCaffrey, 2007; Salman, 2007; McIntyre, 2007). A fundamental tension exists between the principle of equitable and reasonable utilization (which permits use that may cause some harm, provided it is equitable) and the obligation not to cause significant harm (which appears to prohibit harm regardless of equity), a tension that has been central to the GERD dispute (Salman, 2013; Dellapenna & Gupta, 2009).

The absence of Horn of Africa state accession to either convention means that transboundary water disputes in the region lack binding international legal frameworks. Ethiopia, as the dominant upstream state controlling the headwaters of the Nile, Shabelle, and Jubba river systems, has consistently invoked the principle of absolute territorial sovereignty—the Harmon Doctrine—which asserts that a state has unrestricted rights to exploit water

resources within its territory regardless of downstream impacts (Salman, 2007; McCaffrey, 2007; Wouters, 2013). Somalia and Egypt, as downstream states dependent on rivers originating outside their borders, have invoked the principle of limited territorial sovereignty and the prior appropriation doctrine, which prioritize the rights of historical users and restrict upstream development that diminishes downstream flows (Salman, 2007; Tanzi & Arcari, 2001). The tension between these doctrines, combined with the absence of binding legal frameworks and the vast power asymmetry between upstream Ethiopia and downstream Somalia, creates a hydro-political environment in which might effectively determine right and legal protections remain aspirational rather than operational (Zeitoun & Warner, 2006; Cascao, 2009).

The Nile Basin: GERD and Regional Power Dynamics

The Grand Ethiopian Renaissance Dam has become the defining issue in contemporary Nile hydropolitics and one of the most consequential infrastructure projects in Africa (Cascao & Nicol, 2016; Salman, 2013; Yihdego et al., 2017; Waterbury, 2002). Construction began in 2011 on the Blue Nile approximately 14 kilometers from the Sudanese border. The dam's reservoir has a capacity of approximately **74 billion cubic meters**, and its installed hydroelectric capacity is approximately **5,150 MW**, making it the largest hydroelectric plant in Africa (Yihdego et al., 2017; Cascao & Nicol, 2016). Ethiopia completed the final filling of the reservoir in September 2024, and by March 2025, six of thirteen turbines were operational; the project was fully inaugurated on September 9, 2025, with regional leaders including Kenya's President William Ruto and Somalia's President Hassan Sheikh Mohamud in attendance (FPRI, 2025).

The GERD fundamentally challenges the colonial era Nile water allocation framework. The 1929 Nile Waters Agreement between Egypt and Anglo Egyptian Sudan allocated the vast majority of Nile waters to Egypt and granted Cairo veto power over upstream development projects. The 1959 bilateral agreement between Egypt and Sudan divided the Nile's average annual flow of **84 billion cubic meters** between them (**55.5 billion** to Egypt, **18.5 billion** to Sudan), with no allocation to upper riparian states including Ethiopia, which contributes approximately **86% of the Nile's total flow** through the Blue Nile, Atbara, and Sobat tributaries (Waterbury, 2002; Swain, 1997; Tvedt, 2004). Ethiopia and other upper riparian states have rejected these agreements as colonial relics that were concluded without their consent. The 2010 Cooperative Framework Agreement (CFA), signed by Ethiopia, Uganda, Kenya, Tanzania, Rwanda, and Burundi, sought to replace the 1929 and 1959 agreements with a new framework based on equitable utilization, but Egypt and Sudan refused to sign, leading to a fundamental impasse in Nile governance (Cascao & Nicol, 2016; Salman, 2013; Gebreluel, 2014).

Tripartite negotiations among Ethiopia, Egypt, and Sudan over the GERD's filling and operation have repeatedly failed to produce a binding agreement. The 2015 Declaration of Principles, signed in Khartoum, established framework principles including equitable and reasonable utilization and the obligation not to cause significant harm, but it did not contain operational rules for filling schedules, drought management protocols, or data sharing mechanisms (Yihdego et al., 2017; Salman, 2013). Subsequent negotiations under African Union auspices, US mediation (2019–2020), and bilateral channels have produced no durable outcome. Ethiopia's unilateral completion of the dam's filling in 2024 effectively established a *fait accompli*, shifting the negotiations from whether the dam would be filled to how it would be operated—a significant reduction in Egypt's leverage (FPRI, 2025; Cascao & Nicol, 2016). The international legal framework has proven inadequate: as noted by analysts, the GERD dispute exposes “normative coexistence without institutional integration,” in which multiple legal regimes compete rather than converge, and no binding mechanism exists to resolve persistent disagreement (Makled, 2026; McCaffrey, 2007).

Somalia's Dependence on the Shabelle and Jubba Rivers

Somalia's critical dependence on the Shabelle and Jubba rivers constitutes one of the most acute and least examined water security vulnerabilities in the Horn of Africa (Mohamed, 2013; Salman, 2011; World Bank, 2021). The Shabelle River, approximately **1,130 km** within Somali territory, originates in the Ethiopian highlands and flows through the Somali regional state (Ogaden) of Ethiopia before entering Somalia near Beledweyne, passing through the critical agricultural zones of Hiraan, Middle Shabelle, and Lower Shabelle—the country's breadbasket, before terminating in swampland near Jilib without reaching the Indian Ocean in most years (Mohamed, 2013; FAO, 2023). The Jubba River, approximately **1,004 km** in length, also originates in

Ethiopia and enters Somalia through the Gedo region, flowing through Middle Juba and Lower Juba before reaching the sea at Kismayo (Mohamed, 2013; Salman, 2011). Together, these two rivers support an estimated **80% of Somalia's irrigated agriculture**, making them indispensable for food security, livelihoods, and economic development (World Bank, 2021; FAO, 2023).

Seasonal flow patterns are highly variable and increasingly precarious. The Shabelle's flow has been declining over recent decades due to a combination of upstream water extraction in Ethiopia, climate change induced rainfall variability, and land use changes (Mohamed, 2013; World Bank, 2021). In dry years, the river fails to reach even the agricultural areas of Lower Shabelle, with catastrophic consequences for farming communities. Ethiopia's upstream development—including dam construction and irrigation expansion in the Ogaden region and the Somali regional state—has reduced downstream flows without any formal notification to or consultation with Somalia, in contrast to the obligations that would apply under international water law had either state ratified the relevant conventions (Salman, 2011; Mohamed, 2013; FAO, 2023). Climate change projections indicate that rainfall variability will increase further, with more intense floods alternating with more severe droughts, exacerbating Somalia's water vulnerability and the country's exposure to extreme hydrological events (Adger et al., 2014; FEWS NET, 2024; World Bank, 2021).

The World Bank's 2021 Somalia Water Security Assessment documented the severity of the country's water crisis, highlighting that only **52% of the population** had access to basic water services and that water scarcity was a binding constraint on agricultural productivity, public health, and economic development (World Bank, 2021). The RESTORE (Resilience and Recovery of Water Resources in Somalia) project, supported by the World Bank and other donors, has sought to improve water resource management, data collection, and institutional capacity, but progress has been constrained by insecurity, institutional weakness, and the absence of transboundary cooperation frameworks (World Bank, 2021; FAO, 2023; SWALIM, 2023).

The Absence of Ethiopia–Somalia Water Agreements

The most striking feature of the Ethiopia Somalia hydro-political relationship is the **complete absence of any bilateral treaty, joint commission, or formal institutional mechanism** for managing shared water resources (Salman, 2011; Mohamed, 2013; Zeitoun & Warner, 2006). This institutional vacuum is virtually unique among major transboundary river basins globally and stands in stark contrast to the elaborate institutional architectures that govern water cooperation in comparable basins. The Nile Basin Initiative (NBI), despite its limitations, provides a multilateral forum for dialogue and technical cooperation among Nile riparian states (Cascao & Nicol, 2016; Waterbury, 2002). The Mekong River Commission facilitates data sharing, impact assessment, and dispute resolution among the lower Mekong riparian states (Conca, 2006). The International Joint Commission manages water disputes between the United States and Canada with binding dispute resolution authority (Wolf, 1998). No comparable mechanism exists for the Shabelle and Jubba river systems.

Multiple barriers have prevented the establishment of cooperative arrangements. Somalia's decades of state collapse effectively removed it as a sovereign partner capable of negotiating and implementing international agreements (Menkhaus, 2014; Salman, 2011). Even as the Federal Government of Somalia has gradually reconstituted state institutions since 2012, its limited territorial control, revenue base, and technical capacity have constrained its ability to engage in the sustained diplomatic and technical processes that transboundary water cooperation requires (Mohamed, 2013; World Bank, 2021). Ethiopia, for its part, has little incentive to negotiate constraints on its upstream water development, particularly given the asymmetry of power and the absence of international pressure for bilateral cooperation (Zeitoun & Warner, 2006; Cascao, 2009). The absence of either state's ratification of the 1997 UN Watercourses Convention means that Ethiopia is under no binding legal obligation to notify Somalia of planned water development projects, share hydrological data, or refrain from causing significant downstream harm (McCaffrey, 2007; Salman, 2007). This institutional vacuum effectively allows Ethiopia to develop upstream water resources unilaterally, with potentially devastating consequences for Somali agriculture, food security, and human welfare—a situation that represents one of the most extreme cases of hydro-political power asymmetry in the contemporary international system (Zeitoun & Warner, 2006; Salman, 2011; Conca, 2006).

The Baardhere Dam Dispute

The Baardhere (also spelled Bardhere) Dam project represents a historically significant but unrealized attempt to develop Somalia's water resources on the Jubba River (Salman, 2011; Mohamed, 2013). The project, planned as a multipurpose dam in the Gedo region of southwestern Somalia, was designed to provide hydropower generation (estimated capacity of **106 MW**), flood control for downstream agricultural areas, and irrigation for an estimated **175,000 hectares** of farmland along the Jubba valley (Mohamed, 2013; Salman, 2011). Feasibility studies were initiated in the 1960s and 1970s, funded by various international donors including the World Bank, Italy, and other development agencies, and the project advanced through multiple stages of engineering design and financial planning (Salman, 2011).

Ethiopia objected to the Baardhere Dam project, asserting that the dam's construction and operation could affect upstream water use in Ethiopian territory—a position that, ironically, inverted the typical upstream downstream dynamic by challenging a downstream state's right to regulate flow within its own territory (Salman, 2011; Mohamed, 2013). Ethiopia's objection was grounded in the concern that the dam's reservoir would create a backwater effect that could extend upstream into Ethiopian territory, potentially affecting Ethiopian development plans in the border area. This dispute highlighted the tensions between the principles of absolute territorial sovereignty and equitable utilization that continue to characterize transboundary water governance in the Horn (McCaffrey, 2007; Zeitoun & Warner, 2006).

Somalia's state collapse in 1991 terminated the Baardhere Dam project permanently. The Gedo region where the dam was to be constructed has since been contested among clan militias, Al-Shabaab, and Ethiopian military forces operating in southern Somalia, making any resumption of construction impossible (Menkhaus, 2014; ICG, 2024). The Baardhere Dam remains a potent symbol of Somalia's unrealized development potential and the consequences of hydro-political power asymmetry. Had the dam been completed, it would have provided Somalia with significant hydroelectric capacity, improved flood management, and expanded irrigated agriculture at a time when the country was still a functioning state—potentially altering the trajectory of Somalia's subsequent political and economic history (Salman, 2011; Mohamed, 2013). The fact that it was not completed, and that the conditions for its construction are now even more remote than they were in the 1980s, illustrates the path dependent character of hydro-political outcomes: institutional failures and missed opportunities compound over time, progressively narrowing the space for cooperative solutions.

The Somalia–Kenya Maritime Boundary Ruling (ICJ, 2021)

The International Court of Justice's judgment of October 12, 2021 in the *Maritime Delimitation in the Indian Ocean* case (Somalia v. Kenya) addressed a significant maritime boundary dispute with implications for hydrocarbon resources, fishing rights, and the broader architecture of international law compliance in the Horn of Africa (ICJ, 2021; Mwagiru, 2021; Okonkwo, 2017; Klein, 2011). The core dispute concerned the methodology for delimiting the maritime boundary in the Indian Ocean between the two states. Somalia argued for an equidistance line extending the general direction of the land boundary seaward, which would allocate a wedge-shaped area of ocean to Somalia. Kenya argued for a line following the parallel of latitude from the terminus of the land boundary, which would give Kenya a significantly larger exclusive economic zone (Elmi & Affi, 2022; ICJ, 2021; Klein, 2011).

The ICJ ruled largely in Somalia's favor, drawing an adjusted equidistance line that awarded Somalia a significant maritime area of approximately **100,000 square kilometers** rich in potential hydrocarbon resources and productive fishing grounds (ICJ, 2021; Mwagiru, 2021). The Court rejected Kenya's parallel of latitude argument, finding no basis in international law for such a boundary, and applied the equidistance/relevant circumstances methodology consistent with its established jurisprudence in maritime delimitation cases (ICJ, 2021; Klein, 2011). Kenya refused to accept the ruling, having boycotted the oral proceedings phase after unsuccessfully challenging the Court's jurisdiction. Nairobi characterized the judgment as “not binding” and indicated it would not comply, a position that placed Kenya in tension with the fundamental principle of ICJ jurisdiction under Article 94 of the UN Charter (ICJ, 2021; Okonkwo, 2017).

The implications of the ruling extend beyond the bilateral dispute. First, the disputed maritime blocks are thought to contain significant hydrocarbon deposits, and the ruling's reallocation of these blocks has implications for energy development, revenue sharing, and the geopolitics of oil and gas exploration in the western Indian Ocean (Elmi & Affi, 2022; Klein, 2011). Second, Kenya's refusal to comply with the ruling raises questions about the credibility of international adjudication in the Horn of Africa and the willingness of regional states to accept binding dispute resolution—questions directly relevant to prospects for hydro-political cooperation (Mwagiru, 2021; Okonkwo, 2017). Third, the dispute illustrates the broader theme of resource competition and sovereignty claims that characterizes the Horn's conflict system: maritime resources, like freshwater resources, generate interstate competition that interacts with governance fragility, external intervention, and recognition politics in complex and often destabilizing ways (Elmi & Affi, 2022; ICG, 2024).

Horn of Africa Fragility Index: A Composite Framework

This section introduces an original composite fragility index tailored to the Horn of Africa, comprising six dimensions that correspond directly to the conflict system model developed in Section 3 (Fund for Peace, 2024; INFORM, 2024; ND-GAIN, 2024; ACLED, 2024; SIPRI, 2024). Unlike the Fragile States Index, which employs universal indicators applied across all countries, this index incorporates dimensions specific to the Horn's conflict dynamics, including hydropolitical risk and recognition/sovereignty contestation, which are not captured by generic fragility measures. Each dimension is scored on a 1 to 10 scale (10 = most fragile/at risk), and scores are aggregated into a composite score with a maximum of 60.

Dimension 1: Governance Legitimacy. Indicators: electoral process quality (drawn from V-Dem and Freedom House data), rule of law (World Bank Worldwide Governance Indicators), public services delivery (FSI public services indicator), and corruption perception (Transparency International CPI). This dimension captures the degree to which state institutions command legitimacy and provides basic governance functions.

Dimension 2: Climate and Environmental Vulnerability. Indicators: ND-GAIN vulnerability score, drought frequency (number of significant drought events in the past decade), deforestation rate, and water stress (ratio of water withdrawal to available renewable supply, from FAO AQUASTAT). This dimension captures exposure to climate and environmental pressures that can trigger or amplify conflict.

Dimension 3: Resource Competition Intensity. Indicators: pastoral and communal conflict events per year (from ACLED data), food insecurity prevalence (IPC Phase 3+ population as percentage of total), and arable land per capita. This dimension captures the intensity of competition over natural resources that drives intercommunal violence and governance overload.

Dimension 4: Hydro-political Risk. Indicators: transboundary water dependence ratio (percentage of renewable water resources originating outside borders, from FAO AQUASTAT), existence of bilateral or multilateral water agreements, number of upstream dam projects affecting the country, and water cooperation/dispute events (from the Oregon State University Transboundary Freshwater Dispute Database). This dimension captures vulnerability to transboundary water disputes and unilateral upstream water development.

Dimension 5: Recognition and Sovereignty Contestation. Indicators: percentage of national territory under non state armed group control (from ACLED territorial control estimates), number of active secessionist or autonomy claims, and international recognition status. This dimension captures challenges to state sovereignty from secessionist movements, territorial disputes, and contested statehood.

Dimension 6: External Intervention Exposure. Indicators: number of foreign military installations, arms import volume (from SIPRI arms transfer data), external debt to GDP ratio, and foreign aid dependence (ODA as percentage of GNI). This dimension captures the degree to which external actors shape domestic conflict dynamics through military, economic, and diplomatic intervention.

Country	Governance Legitimacy	Climate & Environment	Resource Competition	Hydropolitical Risk	Recognition & Sovereignty	External Intervention	Composite Score (/60)
Somalia	8	9	9	9	8	9	52
Sudan	7	8	8	6	7	8	44
South Sudan	8	9	9	5	6	7	44
Ethiopia	6	7	7	4	6	7	37
Eritrea	9	6	5	3	5	4	32
Djibouti	5	7	4	3	3	9	31
Uganda	5	6	6	4	4	5	30
Kenya	4	6	6	3	3	5	27

Source: Author’s composite index based on data from Fund for Peace (2024), ND-GAIN (2024), INFORM (2024), ACLED (2024), SIPRI (2024), FAO AQUASTAT, World Bank WGI, and IPC.

Several observations emerge from the index. Somalia scores highest on the composite measure (**52/60**), reflecting its extreme vulnerability across all six dimensions: governance institutions remain incomplete and contested, climate vulnerability is among the highest globally, resource competition drives persistent intercommunal violence, hydro-political dependence on externally sourced rivers creates acute water insecurity, sovereignty is contested by both Al-Shabaab and Somaliland, and external intervention is extensive and multifaceted. Sudan and South Sudan tie at **44/60**, though with different profiles: Sudan scores higher on hydro-political risk and external intervention due to the GERD dispute and the SAF RSF war’s international dimensions, while South Sudan scores higher on climate vulnerability and resource competition. Ethiopia scores **37/60**, reflecting its governance challenges and multi front conflicts, but its upstream hydro-political position gives it a lower hydro-political risk score than downstream neighbors. Eritrea’s score of **32/60** is notable for its extreme governance legitimacy deficit (score of 9, reflecting total authoritarian closure) combined with relatively lower scores on climate, resource competition, and external intervention dimensions. Kenya scores lowest at **27/60**, reflecting its relatively stronger governance institutions and competitive democratic system, though its scores on climate and resource competition dimensions highlight significant subnational vulnerabilities.

Methodological limitations of the index warrant acknowledgment. The scoring relies on a combination of published quantitative indicators and expert judgment, introducing subjectivity into the assessment. The equal weighting of dimensions is a simplifying assumption; in reality, some dimensions may be more consequential than others in specific country contexts. The 1 to 10 scale compresses significant variation within each dimension. Data availability is uneven, with conflict-affected states presenting particular measurement challenges. The index should be understood as an analytical and comparative tool rather than a precise measurement instrument, intended to facilitate structured comparison and to highlight how different configurations of fragility produce distinct conflict risk profiles across the Horn (Fund for Peace, 2024; INFORM, 2024; de Coning, 2018).

POLICY RECOMMENDATIONS

Governance and State Building

Effective governance reform in the Horn requires approaches that move beyond Western institutional blueprints and engage with the hybrid political orders that characterize the region (Boege et al., 2009; Menkhaus, 2006). **Inclusive political settlements** that incorporate clan, ethnic, and regional representation are essential for building governance legitimacy; Somalia's evolving federal model, while imperfect, provides a framework that can be strengthened through genuine power sharing and revenue allocation mechanisms between the Federal Government and federal member states (Hagmann & Hoehne, 2009; Bryden, 2013). **Decentralization with accountability frameworks** should be pursued across the region, drawing on Kenya's devolution experience while addressing its challenges of elite capture and capacity constraints at the county level (Abbink, 2011; Aalen & Tronvoll, 2009). **Security sector reform** must be tied to concrete AUSSOM transition benchmarks, with clear timelines for the development of Somali National Security Forces capacity and transparent mechanisms for monitoring progress (Williams, 2018; ICG, 2024; Marangio, 2025). **Hybrid governance mechanisms** that integrate customary institutions (such as clan elder councils and customary law systems) with formal state structures should be supported, recognizing that governance effectiveness in the Horn often depends on the complementarity between formal and informal institutions rather than the replacement of one by the other (Menkhaus, 2006; Boege et al., 2009).

Climate Adaptation and Resilience

Climate adaptation in the Horn of Africa must be integrated with conflict prevention and peacebuilding strategies (Barnett & Adger, 2007; Ide, 2015; Scheffran et al., 2012). **Anticipatory action frameworks** should be expanded, building on the models developed by OCHA and the World Food Programme that release humanitarian funding based on climate forecasts before crises materialize, rather than after damage has been done (OCHA, 2023; FEWS NET, 2024). **Climate adaptive pastoral development** programming should invest in rangeland management, water point rehabilitation, veterinary services, and livestock insurance mechanisms that reduce pastoral vulnerability to drought cycles without attempting to sedentarize mobile pastoral populations (Markakis, 1998; Lind & Sturman, 2002; Raleigh, 2010). **Regional climate risk insurance mechanisms**, modeled on the African Risk Capacity initiative, should be expanded to cover drought, flood, and livestock losses across the Horn, providing rapid financial responses that reduce displacement and resource competition (Adger et al., 2014; Scheffran et al., 2012). **Climate security analysis** should be integrated into peacekeeping mandates, with AUSSOM and UNMISS incorporating climate risk assessments into their operational planning and early warning systems (de Coning, 2018; Brusset et al., 2016).

Transboundary Water Governance

The hydro-political dimension of fragility in the Horn requires urgent institutional innovation (Zeitoun & Warner, 2006; Cascao, 2009; McCaffrey, 2007). The establishment of a **Jubba Shabelle River Basin Commission**, modeled on the Mekong River Commission or the Senegal River Basin Development Organization (OMVS), should be pursued as a priority, with international mediation support to facilitate negotiations between Ethiopia and Somalia (Salman, 2011; Mohamed, 2013; Conca, 2006; Wolf, 1998). The Commission should be mandated to: (a) collect and share hydrological data on river flows, water quality, and upstream development projects; (b) develop agreed principles for equitable and reasonable utilization of the Shabelle and Jubba rivers; (c) establish mechanisms for prior notification of planned measures affecting transboundary flows; and (d) provide dispute resolution mechanisms for addressing water related grievances. Horn of Africa states should be **encouraged to accede to the 1997 UN Watercourses Convention**, which would bring their transboundary water interactions under a binding international legal framework and establish norms for equitable use, harm prevention, and prior notification (McCaffrey, 2007; Rieu-Clarke et al., 2012; Salman, 2007). **Bilateral Ethiopia Somalia water sharing agreements** should be pursued through international mediation, with the World Bank, IGAD, and the UN serving as potential facilitators and guarantors (World Bank, 2021; Salman, 2011). **Joint hydrological data collection and monitoring systems** should be funded as

confidence building measures, enabling both countries to base negotiations on shared scientific understanding rather than disputed claims (Mohamed, 2013; FAO, 2023).

Recognition and Sovereignty

Recognition and sovereignty disputes require diplomatic approaches that balance competing legitimate interests (Caspersen, 2012; Bradbury, 2008; Coggins, 2014). The **Ankara Declaration process** should be supported and strengthened, with international encouragement for the technical negotiations on Ethiopia's sea access under Somalia's sovereign authority that the Declaration envisaged (Republic of Türkiye Ministry of Foreign Affairs, 2024; ICG, 2024). **Graduated sovereignty arrangements** that acknowledge Somaliland's governance achievements—including its electoral processes, institutional stability, and security provision, without necessarily granting full international recognition should be explored, drawing on models such as enhanced observer status, functional sovereignty in specific domains, or asymmetric federalism arrangements (Bradbury, 2008; Walls, 2014; Phillips, 2013; Renders, 2012). **Territorial disputes** should be addressed through regional mechanisms—IGAD, the African Union's Peace and Security Council, and the ICJ—rather than through unilateral actions such as the Ethiopia Somaliland MOU that risk destabilizing the broader regional order (ICG, 2024; Cannon & Rossiter, 2024).

External Intervention and Geopolitics

The proliferation of external actors pursuing competing interests in the Horn demands new frameworks for managing geopolitical competition (Verhoeven, 2015; de Waal, 2019; Melvin, 2019). A **regional code of conduct for external military engagement** should be developed through IGAD, establishing principles governing foreign military bases, arms transfers, and security cooperation agreements in the Horn (Styan, 2013; Cabestan, 2020). **IGAD's mediation and conflict prevention capacity** should be significantly strengthened, with dedicated funding, professional staffing, and institutional authority to serve as the primary regional mechanism for conflict management (ICG, 2024; de Waal, 2019). **International engagement should be harmonized** through coordinated diplomatic platforms that reduce the ability of warring parties to play external patrons against one another, as has occurred in Sudan's civil war and Somalia's complex political landscape (Soliman, 2024; ICG, 2024). **Arms flows** to the Horn should be subject to enhanced monitoring and enforcement, including through strengthened UN arms embargo regimes and the application of targeted sanctions on actors that violate existing restrictions (SIPRI, 2024; Melvin, 2019).

Research and Knowledge Gaps

Significant knowledge gaps constrain effective policy formulation for the Horn (de Coning, 2018; Brusset et al., 2016). **Longitudinal conflict systems research** using the framework developed in this paper should be funded, enabling researchers to track how cascading pathways evolve over time and how interventions in one domain affect dynamics in others. **Data collection in conflict affected areas** must be prioritized to address the analytical blind spots created by insecurity, institutional collapse, and restricted access, with particular attention to hydrological data in the Shabelle and Jubba basins, food security data in Al-Shabaab controlled areas, and human rights documentation in Sudan's war zones (OCHA, 2025; ACLED, 2024; Mohamed, 2013). **Dynamic modeling tools** that capture feedback loops and cascading pathways should be developed, potentially leveraging agent-based modeling and system dynamics approaches to simulate how policy interventions might propagate through the conflict system (Jervis, 1997; de Coning, 2018; Bousquet & Curtis, 2011).

CONCLUSION

This paper has demonstrated that the Horn of Africa's conflicts are not isolated phenomena amenable to individual analysis and targeted intervention but interconnected systems driven by cascading interactions among climate stress, governance fragility, resource competition, hydro-politics, recognition politics, and external intervention (Brusset et al., 2016; de Coning, 2018; Jervis, 1997). The integrated conflict systems framework developed here maps how disruptions in one domain propagate through the system to amplify fragility in others: climate induced drought degrades livelihoods and intensifies resource competition, which overwhelms weak governance institutions, which prevents effective transboundary water cooperation, which intersects with

recognition disputes and sovereignty claims, which attracts external intervention, which reconfigures the balance of power among domestic factions and creates new vectors of conflict. These cascading pathways are not linear but circular and self-reinforcing, producing feedback loops that make the Horn of Africa's fragility deeply persistent and resistant to piecemeal intervention (Barnett & Adger, 2007; Zeitoun & Warner, 2006; Menkhaus, 2014).

The hydro-political dimension of fragility deserves particular emphasis as a critically underexamined driver of conflict risk. Somalia's extreme vulnerability as a downstream state dependent on two rivers originating in Ethiopian territory, combined with the complete absence of bilateral water agreements, the non-ratification of international water conventions, and the historical failure of the Baardhere Dam project, constitutes one of the most acute cases of hydro-political power asymmetry in the international system (Salman, 2011; Mohamed, 2013; Zeitoun & Warner, 2006). As climate change increases rainfall variability and Ethiopia continues to develop upstream water resources without formal notification or consultation, Somalia's water security will deteriorate further, with cascading consequences for food security, livelihoods, displacement, and political stability (World Bank, 2021; FAO, 2023; Adger et al., 2014). The GERD dispute in the Nile Basin, while better studied, illustrates the same structural dynamics: the absence of binding legal frameworks, the failure of tripartite negotiations, and the resort to unilateral action by the upstream hegemon (Cascao & Nicol, 2016; Salman, 2013; Yihdego et al., 2017). The comparative analysis of Somalia, Ethiopia, Sudan, and Eritrea has revealed that while each country's conflict trajectory is shaped by unique historical, political, and social factors, common patterns emerge across the cases: governance deficits are universal, climate vulnerability compounds every conflict, hydro-political positioning shapes interstate power dynamics, and external actors pursue competing interests that frequently undermine conflict resolution. The original Horn of Africa Fragility Index introduced in this paper provides an analytical tool for comparing these dynamics systematically, highlighting how different configurations of fragility across six dimensions produce distinct conflict risk profiles (Fund for Peace, 2024; INFORM, 2024; ACLED, 2024).

Effective policy must address the conflict system as a whole rather than individual conflict drivers in isolation. The cascading character of fragility in the Horn means that interventions focused solely on one dimension—governance reform without climate adaptation, peacekeeping without hydro-political cooperation, mediation without addressing arms flows—risk being overwhelmed by dynamics from unaddressed domains. A paradigm shift from linear conflict analysis to systems thinking is required in both academic research and policy practice (de Coning, 2018; Brusset et al., 2016; Bousquet & Curtis, 2011). This shift demands new institutional capacities: regional organizations like IGAD need the analytical tools to map systemic interactions; international donors need programming frameworks that integrate across thematic silos; and academic researchers need longitudinal methodologies that track how cascading pathways evolve over time. The stakes are immense: with **400 million people** living in the Horn and the region's conflicts producing humanitarian costs measured in millions of displaced persons and hundreds of thousands of deaths, the urgency of moving from fragmented analysis to integrated understanding cannot be overstated.

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