wps

International Conference on
Water, Peace and Security 2025
Water as a Catalyst for Peace and Cooperation
27-28 October 2025, Nairobi, Kenya (Hybrid)

Conference Proceedings

Editors:

Yasir A. Mohamed, Jonatan Godinez Madrigal, Krishna Arun Patil

International Conference on

WATER, PEACE AND SECURITY 2025

Water as a Catalyst for Peace and Cooperation

27-28 October 2025, Nairobi, Kenya (Hybrid)

Conference Proceedings

Editors:

Yasir A. Mohamed, Jonatan Godinez M., Krishna A. Patil

Acronyms and Abbreviations

Acronym	Full Term
AMCOW	African Ministers' Council on Water
AU	African Union
ASALs	Arid and Semi-Arid Lands
CSO	Civil Society Organization
DRC	Democratic Republic of the Congo
EO	Earth Observation
GERD	Grand Ethiopian Renaissance Dam
HCSS	The Hague Centre for Strategic Studies
HIC	Humanitarian–Development–Peace Nexus
ICPAC	IGAD Climate Prediction and Applications Centre
ICJ	International Court of Justice
IGAD	Intergovernmental Authority on Development
IHE Delft	IHE Delft Institute for Water Education
IWRM	Integrated Water Resources Management
MENA	Middle East and North Africa
NGO	Non-Governmental Organization
OMVG	Gambia River Basin Development Authority
OMVS	Organisation pour la Mise en Valeur du fleuve Sénégal
REC	Regional Economic Community
RBO	River Basin Organization
SDG	Sustainable Development Goal
UN	United Nations
WPS	Water, Peace and Security
WRUA	Water Resource Users Association
WRI	World Resources Institute

Contents

Editorial Note

Water insecurity and its negative impacts on cooperation, stability, and peace constitute one of the most pressing global challenges of our time. Driven by water scarcity, pollution, mismanagement, and unequal distribution, water insecurity undermines livelihoods, exacerbates inequalities, and intensifies social and political tensions, thereby constraining pathways to sustainable development and peace. While the Water, Peace and Security (WPS) agenda has often focused on water security at systemic and strategic levels, the lived realities of communities—particularly the livelihoods of marginalized and vulnerable groups—have too often remained peripheral to dominant analytical and policy frameworks.

These dynamics are particularly acute in Africa, a continent endowed with vast rivers, lakes, aquifers, and ecosystems, yet disproportionately affected by climate variability, historical inequities, and structural exclusion in global water governance. For millions of people, water insecurity is not an abstract risk, but a daily condition shaping access to food, income, health, dignity, and safety. Other regions, including the Middle East and North Africa (MENA), face similarly severe constraints on water availability, with direct consequences for livelihoods, social cohesion, and political stability.

The International Conference on Water, Peace and Security 2025, held in Nairobi on 27–28 October 2025, marks a critical milestone: it is the first time a global WPS conference has taken place on the African continent. This was long overdue. Hosting the conference in Africa was not merely a matter of geography, but a deliberate political and epistemic choice—one that acknowledges that those whose lives and livelihoods are most affected by water insecurity must be central to how knowledge, policy, and practice are shaped.

The conference convened researchers, policymakers, practitioners, community representatives, and development partners from across the globe, with the majority of participants coming from African countries. Against a backdrop of increasing climate uncertainty, rising water demand, deteriorating water quality, ecosystem degradation and complex transboundary challenges, the conference provided a vital platform to connect scientific evidence with policy processes and peacebuilding practice. Importantly, it also sought to re-focus the WPS agenda, emphasizing more horizontal, inclusive, and people-centred modes of engagement that recognize local agency, customary practices, gendered experiences, youth leadership, and informal livelihood systems.

This volume brings together keynote speeches, extended abstracts, and short communications presented during the conference. The contributions are organized into four thematic clusters:

1. From water conflicts to peace and cooperation

2. Innovations for water and peace

3. Climate change and water security

4. Agency of marginalized groups in water, peace, and security

Across these themes, the conference foreground how water insecurity interacts with livelihoods, identity, power, and exclusion. Several chapters demonstrate how integrated analysis, inclusive governance, and transparent information-sharing can strengthen resilience and support conflict prevention, particularly when they are grounded in the everyday realities of farmers, pastoralists, fishers, urban informal workers, women, youth, and displaced communities. Others highlight the value of emerging technologies and modelling tools for early warning and decision-making, while cautioning that such tools must remain accountable to social realities and unequal capacities.

The diversity of regional experiences, spanning multiple African contexts as well as other parts of the world, underscores both the shared nature of water challenges and the necessity of cross-regional learning that is rooted in equity, reciprocity, and respect for local knowledge systems. Taken together, the contributions in this volume suggest a WPS agenda that recognizes political-economy, especially livelihoods, ecosystem services, and marginalization as main dimensions of peace and stability.

We thank all authors, reviewers, and participants for their contributions, and acknowledge the support of the organizing institutions and partners. The views expressed in the individual chapters remain those of the respective authors. We hope this volume serves not only as a scholarly reference, but also as a call to reorient water, peace, and security research and practice toward more just, inclusive, and transformative pathways, grounded in the lived experiences and aspirations of the people most affected by water insecurity, to reverse the vicious cycle of water insecurity into virtuous one of peace and cooperation.

Editors
Proceedings of the International Conference on Water, Peace and Security 2025

About the Conference

The International Conference on Water, Peace and Security 2025, held in Nairobi on 27–28 October 2025, brought together experts, policymakers, practitioners, researchers, civil society representatives, and development partners to explore the role of water as a catalyst for peace and cooperation. Organized under the theme "Water as a Catalyst for Peace and Cooperation," the conference aimed to advance scientific knowledge, foster policy dialogue, and strengthen collaboration on water-related conflict prevention and sustainable development.

The conference marked the last stage of the Water Peace and Security Phase 2, Programme (WPS), started in 2020 and completed until 2025. The WPS partnership is composed of six partners: IHE Delft, Deltares, The Hague Centre for Strategic Studies (HCSS), International Alert, Wetlands International and World Resources Institute (WRI). The WPS programme aims to prevent and reduce water-related conflict and turn the vicious cycle of water challenges and instability into a virtuous one of sustainable water management and peace.

The conference addressed the growing pressures on water systems from climate variability, population growth, and competing demands, which create both risks and opportunities for cooperation. The objectives were to:

- Present new scientific and policy evidence on water-related risks and cooperative mechanisms.
- Promote dialogue among stakeholders from diverse regions and sectors.
- Showcase innovations in data, modelling, governance, and diplomacy.
- Strengthen the science–policy interface to inform practical decision-making.
- Identify priorities for future research, capacity development, and collaboration.

The two-day programme (Annex A), combined plenaries, thematic sessions, and side events, including:

- Keynotes and plenary panels on global water trends, cooperation, and conflict prevention.
- Thematic sessions covering:
  - **From water-conflicts to peace and cooperation**: Case studies of successful prevention/mitigation/resolution of water-related conflicts, and pathways towards conflict sensitive and cooperative water management.
  - **Innovations for water and peace**: Exploring the role of data and models in promoting peaceful and cooperative water resource management.
  - **Climate Change and Water Security**: Addressing the intersection of climate change impacts (floods and droughts), and associated conflict risks, and mitigation experiences.
  - **Agency of marginalized groups in water, Peace and security**: Amplifying the role of underrepresented groups (women, youth, indigenous) in water governance and peacebuilding.
- Special sessions convened by different organizations, covering wide range of topics around the conference theme "water as a catalyst for peace and cooperation".
- High level sessions, where panellists debated the science-policy interlinkage on water-peace-security nexus, and what could future directions to transform vicious cycle of water security into a virtuous one of water peace and cooperation

The participants of the conference represented over 35 countries from all over the world, the majority is from Africa. Delegates included government officials, researchers, water managers, civil society and

community representatives, regional organizations, development partners, and youth, ensuring diverse perspectives and cross-regional learning.

The conference was organized by the Water, Peace and Security Partnership (WPS), ICPAC and the Finnish Water Way for Peace-Water Diplomacy Platform. It was primarily funded by the WPS programme (Ministry of Foreign Affairs of the Netherlands), with additional support from the Ministry of Foreign Affairs of Finland who sponsored the travel and accommodation costs of participants from Africa and low-income countries. An in-kind support was provided by the Inter-Governmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC).

Acknowledgements

Keynote and High-Level Sessions

The Keynote and High-Level Sessions chapter brings together the opening remarks and keynote addresses that framed the Water, Peace and Security (WPS) Conference. These contributions established the political, analytical, and normative foundations of the discussions that followed, positioning water not only as a development and environmental concern, but as a critical determinant of peace, security, and cooperation in fragile and climate-affected contexts.

Opening remarks from national, regional, and international leaders emphasized the growing recognition of water scarcity as a security risk and a peacebuilding opportunity. H.E. Jaco Beerends, Deputy Ambassador of the Kingdom of the Netherlands to Kenya, highlighted the Netherlands' long-standing support to the WPS initiative and its preventive, data-driven approach. Drawing on Kenya's arid and semi-arid regions, he stressed how climate change, water stress, and competition over resources increasingly act as triggers of local conflict, while also underscoring water's potential as an instrument of diplomacy when supported by early warning systems, inclusive governance, and regional cooperation.

This regional framing was reinforced by Ambassador Fred Gateretse–Ngoga of the African Union Commission, who situated water peace and security within Africa's broader peace and development agenda. He highlighted the strategic importance of the continent's shared river basins, noting that weak data sharing, fragmented governance, and climate extremes continue to heighten tensions. At the same time, he emphasized the African Union's efforts—through AMCOW, Regional Economic Communities, and River Basin Organizations—to strengthen transboundary cooperation, institutionalize water diplomacy, and advance the vision of water as a "bridge of peace."

Kenya's national perspective was articulated by Dr. Raymond Omollo, Principal Secretary for Interior, who grounded the discussion in concrete experiences of water-related tensions and violence within Kenya and across the region. He illustrated how disputes over water, fisheries, and grazing lands directly affect human security and social cohesion, particularly in arid, semi-arid, and transboundary areas. His remarks outlined Kenya's multi-agency approach linking water governance, climate adaptation, peacebuilding, and early warning systems, reinforcing the message that sustainable water security and durable peace are mutually dependent.

International perspectives were further enriched by H.E. Outi Holopainen of the Ministry of Foreign Affairs of Finland, who presented Finland's integrated vision for water, peace, and security. Her remarks highlighted transboundary cooperation, international water law, climate resilience, and inclusive water diplomacy—particularly the role of women and marginalized groups—while linking the conference themes to preparations for the 2026 UN Water Conference.

The keynote speeches deepened these discussions through analytical insight, political leadership, and lived experience. Dr. Madiodio Niasse of the Dakar Water Hub offered a continent-wide analysis of Africa's shared water challenges, drawing lessons from both conflict and cooperation and emphasizing benefit-sharing and jointly managed infrastructure as pathways to sustained peace. H.E. Nana Addo Dankwa Akufo-Addo, Former President of Ghana, delivered the inaugural address, framing water insecurity as one of Africa's defining challenges while calling for stronger political leadership, justice, and innovation to transform shared waters into foundations for cooperation.

Social and generational dimensions were highlighted through keynotes by Violet Matiru and Abdul Assiz Alusaini. Their contributions illustrated how water governance challenges manifest from the household to the transboundary level, and how water scarcity shapes livelihoods, migration, and insecurity—particularly for youth and marginalized communities.

Together, the keynote and high-level sessions set the tone for the conference by affirming water as both a source of risk and a powerful entry point for peacebuilding. They underscored the need for leadership, evidence-based policy, inclusivity, and cooperation to ensure that water becomes a foundation for stability rather than a driver of conflict.

Opening remarks: H.E. Jaco Beerends, Deputy Amb. of the Kingdom of the Netherlands to Kenya

Water as an Instrument of Peace in Kenya

Introduction
- Excellencies, distinguished ministers, esteemed former heads of state, thought leaders, partners and friends.
- A very warm welcome to this conference of the Water, Peace and Security initiative here in the heart of Nairobi. The energy and expertise gathered in this room is truly inspiring.
- The Netherlands is the foundational partner and funder of the Water, Peace and Security project.
- For centuries, our nation, has been defined by our relationship with water—not merely surviving alongside it, but harnessing it, managing it, and building resilience upon it.
- Today, we bring that lived experience and commitment to partnership to address a global challenge: preventing water scarcity from becoming a catalyst for conflict.

The Kenyan Context
- The focus of our discussion today is rooted in the realities of this region. In Kenya, we see the global water security crisis laid bare.
- In Kenya's vast Arid and Semi-Arid Lands water is a precondition for life, but the lack of it is increasingly driving conflict.
- Climate change is accelerating the cycles of drought and flood, forcing pastoralist communities to move further, faster, and into tighter proximity with settled farming communities. A dried-up riverbed, a fenced-off watering point, a shrinking lake—these are not just environmental losses; they are triggers for inter-communal violence.
- This is why we must change our perspective: Water scarcity is not just an environmental crisis; it is a profound threat to national and regional security.
- When competition over resources compromises livelihoods, it destabilizes communities, strains governing institutions, and ultimately, threatens the foundational work of peacebuilding. In these contexts, water management is less about managing water, then it is about managing people.

From Crisis to Cooperation
- The good news is that water is not destined to be a source of conflict. Historically, it has been a powerful instrument of diplomacy. The Water, Peace and Security initiative is built on this premise.
- The WPS project enables us to move from simply reacting to drought and conflict towards an approach centred around foresight and prevention. This approach is being deployed across complex global hotspots, including Ethiopia in the Horn of Africa, Iraq in the Middle East, Mali in the Sahel region, and, of course, here in Kenya. By combining satellite data with local knowledge, we are building an early warning system that maps where water stress and existing socio-political tensions intersect.
- This allows local authorities and mediators to target interventions before a dispute escalates into armed violence, and informs the form and content of the Dutch development portfolio in Kenya, demonstrating our belief in the preventative power of water diplomacy.
- The outputs of the WPS project in Kenya help to

- o Guide development partners and local authorities on where to invest in water infrastructure to relieve pressure points. Backed by evidence and data.
- o Strengthen transboundary cooperation: Kenya shares vital water sources, most notably the rivers that feed the Great Lakes and the Nile Basin. Our security and prosperity are intrinsically linked to the stability of our neighbours. The WPS model is designed to be regional, recognizing that water cooperation is the truest test of regional peace.

A Call to Action

- To our partners in Kenya, to the ministers and thought leaders present, I urge us all to seize this moment:
- First, we must **mainstream water security** into peace and security policies and interventions. It deserves to be a core component of our national security architecture and development agendas.
- Second, we must prioritize **data-driven diplomacy**. If we can't measure it, we can't manage it. And for us all to benefit, it is crucial to commit to sharing water management data across ministries and across borders, supported by some of the tools the WPS project provides.
- Third, we must invest in locally managed**, peace-positive water infrastructure**. This means projects that are jointly planned, jointly managed, and serve as shared resources that build interdependence, not isolation.
- The future of peace in this region may very well depend on how wisely we manage our water today. The Kingdom of the Netherlands is honoured to walk this path of partnership with you, investing in data, dialogue, and diplomacy, with a commitment to make water an instrument of peace across Kenya and East Africa.

Opening remarks: Ambassador Fred Gateretse – Ngoga, African Union Commission

Your Excellency Nana Addo Dankwa Akufo-Add, Former president of Ghana

Excellencies,

Distinguished Delegates, Ladies and Gentlemen,

Allow me to begin by expressing my sincere gratitude to the organizers of this important International Conference on Water Peace and Security for bringing together policymakers, researchers, and practitioners from across the world. I acknowledge your continued efforts in advancing the global discourse on water as a driver of peace, stability, and cooperation. Your work in promoting the concept of water peace and security is both timely and vital.

We meet at a moment of rapid change where the theme "Water as a Catalyst for Peace and Cooperation" could not be more relevant. Water is life, but in many parts of our world, and particularly in Africa, it has also become a source of growing concern, competition, and vulnerability.

Africa is a continent of vast rivers and lakes, yet it faces some of the most pressing water-related challenges. Uneven distribution, transboundary competition, and poor institutional coordination continue to undermine regional stability and development. The continent's 63 shared river basins such as the Nile, Niger, and Lake Chad are both opportunities for unity and potential flashpoints for tension. Weak data sharing, limited trust among riparian states, and fragmented governance frameworks exacerbate these challenges.

Moreover, population growth, urbanization, and agricultural expansion are placing immense pressure on limited water resources. Droughts and floods, intensified by climate change, are not only threatening livelihoods but also fuelling competition and displacement particularly between farmers, herders, and communities in arid and semi-arid regions.

In response, the African Union (AU) has been playing an active role in addressing water peace and security challenges across the continent. The AU has taken significant steps to integrate climate and natural resource risks into its peace and security analysis. Through its collaboration with AMCOW (African Ministers' Council on Water)**,** Regional Economic Communities (RECs)**,** and River Basin Organizations (RBOs)**,** the AU continues to promote dialogue, cooperation, and joint management of shared waters. It has also supported preventive diplomacy in situations where water-related tensions could escalate into broader conflicts.

The African Union (AU), through the African Ministers' Council on Water (AMCOW), recognizes water as central to peace, security, and development. In its recent Vision, AMCOW emphasizes that water is a strategic asset and a "bridge of peace," highlighting shared rivers as pathways to cooperation rather than conflict. The AU has developed key frameworks and initiatives that integrate water management into its broader peace and development agenda, promoting equitable access, sustainability, and collaboration among member states.

These initiatives aim to strengthen transboundary water governance, reduce tensions over shared resources, and enhance resilience against climate change. Through partnerships with regional and international institutions, the AU continues to advance the concept of "water for peace," fostering dialogue and cooperation that transform potential disputes into opportunities for regional integration, sustainable development, and long-term stability across Africa.

Looking ahead, Africa must advance the principle of **"African solutions to African problems"** by deepening institutional reforms and strengthening regional water diplomacy. This includes:

- Institutionalizing water diplomacy within the AU and RECs,
- Strengthening and replicating successful RBOs such as the OMVS and Niger Basin Authority**,**
- Mobilizing joint financing for cross-border, climate-resilient water projects, and
- Linking water cooperation with peace, energy, and food security agendas.

Above all, water should unite us, not divide us. The African Union calls upon all African nations and their partners to transform our shared waters into shared peace—through cooperation, transparency, and equitable benefit-sharing.

The way forward demands that we:

- Strengthen basin organizations and legal frameworks for fair and cooperative water use**,**
- Ensure inclusive governance**,** giving voice to local communities, women, and youth,
- Invest in joint data systems, monitoring, and early warning mechanisms to inform evidence-based decision-making.

Excellencies,

Water is not only a resource; it is a foundation for peace, prosperity, and human dignity. Let this conference serve as a platform to reaffirm our shared commitment to turning water from a potential source of conflict into a powerful instrument of cooperation and sustainable development.

Thank you.

Opening remarks: Principal Secretary for Interior, Dr. Raymond Omollo, Kenya

Good morning.

It is my distinct honour to welcome you all to Nairobi, for this critical International Conference on Water, Peace and Security.

We are gathered here because we recognize a fundamental truth: Water is not merely a resource, it is life itself. It is the foundation of our security, our stability, and our prosperity.

The theme of this conference "Water as a catalyst for peace and cooperation" is not abstract for us here in the Horn of Africa: It is our daily reality.

In Kenya, we have seen how competition and scarcity around water and water-related resources like fishing, grazing lands, and rivers can heighten tensions, fuel conflict, and threaten livelihoods.

These challenges are especially acute in our arid and semi-arid lands, and along transboundary regions, where fragile ecosystems demand careful management and cooperation.

The attack in Todonyang, Turkana North, on 22 February 2025, in which fishermen tragically lost their lives, is a reminder that disputes over access to lake waters and fisheries can easily escalate into violence.

Similar tensions have arisen in the Tana River and Ewaso Ng'iro basins where competition for irrigation water and grazing space has led to local conflicts.

These are not merely environmental challenges. They are matters of human security, and national cohesion.

They remind us that we need a coordinated, multi-agency approach: one that integrates water governance, natural resource management, peacebuilding, and cross-border collaboration.

Only then can access to water become a pathway to cooperation, not a trigger for conflict.

This is not unique to Kenya. Across our region, the story is the same.

- In the Karamoja Cluster, competition over cross-border water points fuels pastoral conflict.

- In South Sudan's floodplains, disputes overfishing zones and grazing lands destabilize peace efforts.

- And in the Lake Chad Basin, the depletion of shared waters has intensified livelihood competition and regional instability.

These experiences show that sustainable water management must be treated as a security and development priority: one that requires regional dialogue, coordinated action, and shared responsibility.

The Government Of Kenya's Strategic And Policy Framework

Our government's approach is multi-faceted and aligns closely with the themes of this conference.

1. Through the National Climate Change Security Response Programme, implemented by the Ministry of Interior and other agencies, we are addressing the root causes of environmental and resource-based conflicts.

This programme strengthens the link between climate adaptation, environmental governance, and community resilience. Across the country, administrative officers are facilitating community-led restoration projects, helping rehabilitate degraded ecosystems and protect our water sources.

Every first Friday of the month, Chiefs across the country lead communities in Chiefs Climate Action Day. Citizens come together to plant trees, restore landscapes, and promote stewardship of our shared environment.

2. Through the National Policy on Conflict Management and Peacebuilding and the National Climate Change Action Plan, we are embedding conflict-sensitive approaches into water management.

3. In basins such as Tana and Turkana, and in water tower ecosystems like Mau and Cherangany Hills, we actively plan to mitigate conflicts between upstream and downstream users, and between different sectors.

4. Together with county governments and non-state actors, we are enhancing community-based security and early warning systems. We integrate data on water availability, climate forecasts, and resource mapping to anticipate and de-escalate potential conflicts before they turn violent.

5. Domestically, we are strengthening cross-sectoral collaboration among ministries responsible for water, environment, and security. Regionally, we are active partners in transboundary water cooperation, such as the Lake Turkana Basin(Kenya-Ethiopia) and the Nile Basin Initiative.

These actions build resilience. They foster cooperation and turn scarcity into solidarity.

When communities unite to care for their environment, water becomes a catalyst for peace, collaboration, and shared prosperity.

Our guiding principle remains simple but profound: Shared waters must be bridges to peace, not barriers.

Despite our progress, we must be candid about the challenges we face:

- The gap between policy and local action.

- The data-to-action dilemma.

- Resource constraints that create competing priorities.

- And the complex dynamics of transboundary cooperation.

These are not excuses. They are realities that define our work. And they underscore why a conference like this, focused on partnership and innovation, is so important.

Kenya's experience shows one undeniable truth: Sustainable water security is impossible without peace, and durable peace cannot exist without water security.

The Government of Kenya stands ready to be a proactive and dependable partner in this global effort, to turn the tide from water conflict to water cooperation.

To our international partners, thank you for your collaboration.

To all experts and practitioners gathered here, your work is key.

Let us make these discussions count.

Let us ensure that every child, every farmer, every herder, every woman, across our continent and beyond, can look to water not as a source of fear, but as a foundation for peace and security.

I wish you fruitful deliberations.

Thank you.

Opening remarks: H.E. Outi Holopainen, USS Ministry of Foreign Affairs, Finland

Finland's Vision for Water, Peace and Security

Opening

Good morning, distinguished guests, colleagues, and friends.

It's a pleasure to welcome you to this important gathering. We are here because we share a belief: that water is not only essential for life—it is essential for peace. Finland is proud to be part of this dialogue, and I'm honoured to share our perspective on how water, peace, and security intersect—and how we can shape the path toward the 2026 UN Water Conference.

We are witnessing an era of profound global turbulence — an era in which wars and conflicts continue to inflict human suffering and destabilize countries and regions. These challenges are further aggravated by the far-reaching consequences of climate change and biodiversity loss, which together threaten the very foundations of peace, security and sustainable development. These issues are of outmost importance to Finland while we are honoured to serve as the largest and longest-standing supporter of the African Union's peace mediation efforts.

Section 1: Finnish Priorities

Finland's International Water Strategy, Finnish Water Way, guides our work until 2030. It is shared and agreed by five ministries. It is focused on three priorities:

1. **Water for Sustainable Development** – We promote integrated water resource management and circular economy solutions.
2. **Water for People** – We advocate for equitable access to safe drinking water and sanitation, especially in fragile contexts. We emphasize water supply and sanitation as human rights.
3. **Water for Peace** – We use water diplomacy to prevent and resolve conflicts, and to support peace processes globally.

We see water as a strategic tool for peacebuilding. Finland has been a strong supporter of the **UN 1992 Water Convention** and the **UN 1997 Watercourses Convention**, and we maintain **transboundary water cooperation agreements and commissions with all our neighbours**.

Finnish Water Diplomacy Platform brings together ministries, researchers, and civil society to support mediation and dialogue in water-related disputes. We've also developed a **Conflict Analysis Tool** to assess risks and opportunities in transboundary water contexts. This tool has now been used in several transboundary cases.

Section 2: Relevance to Conference Themes

The African Union's theme for 2026, "Assuring Sustainable Water Availability and Safe Sanitation Systems to Achieve the Goals of Agenda 2063," could not be more relevant. Water is life, but it is also a matter of peace and security. When managed equitably, it fosters cooperation, trust, and prosperity. When access is unequal or resources are strained, it can deepen tensions and instability.

The themes of this conference, [1. From water-conflicts to peace and cooperation; 2. Innovations for water and peace; 3. Climate change and water security; 4. Agency of marginalized groups in water, peace and security] resonate deeply with Finland's priorities.

- **Transboundary cooperation** is at the heart of our water diplomacy. We believe that shared waters should unite, not divide.
- **Finland's water diplomacy is rooted in inclusivity**—engaging youth, Indigenous Peoples, and the private sector—recognizing that sustainable peace demands broad participation. This principle also guided our joint support with the African Union for this conference, ensuring diverse voices are represented. **Inclusivity** is a key.
- **Climate resilience** is non-negotiable. We support water-smart infrastructure and nature-based solutions to reduce water-related risks. Climate change is seen not only as an environmental issue but also as a security concern that can exacerbate resource conflicts, disrupt infrastructure, and threaten food and water supply chains. Also, climate, equality and gender are closely related here; it is women, children and vulnerable groups that suffer most in both conflicts and natural disasters such as floods and droughts. To mitigate these risks, we promote climate adaptation measures, sustainable land use planning, and the protection of biodiversity.
- One more priority for Finland is **women, peace and security**. We are strongly supporting and participating to the work of **Women in Water Diplomacy network**. Inclusion on women is important as women are affected by armed conflicts, while remain a small minority in negotiators, witnesses, mediators, observers and signatories to peace accords.

These themes are not abstract—they are actionable. And they align with our commitment to SDG 6 and beyond.

Section 3: Water Conventions and Finland

For decades, Finland has invested in water innovation, built strong institutions, and fostered cooperation—laying the foundation for sustainable water management both at home and abroad.

Today, the world is home to over 310 major transboundary water bodies—yet most still lack formal agreements between neighbouring countries. This highlights the urgent need for structured and cooperative governance.

Finland is a proud supporter of the UN 1992 Helsinki Water Convention and the UN 1997 Watercourses Convention. Valuable experience on transboundary water cooperation worldwide has been consolidated under the institutional structure of the Water Convention. Together, these frameworks provide the legal backbone for peaceful, equitable, and sustainable transboundary water cooperation. Furthermore, our recent twinning with Namibia has provided great learnings to both Namibia and Finland on transboundary water cooperation and in implementing the Water Convention.

When paired with trust-building, these conventions pave the way not only for water security, but also for conflict prevention and regional stability.

While transboundary cooperation is essential and it has been at the core of Finnish expertise/approach, we must also address local challenges—such as water quality, availability, competing demands, and extreme weather events—because water, peace, and security begin at the community level.

Finland's experience shows what long-term commitment can achieve—but the scale of today's challenges demands global solidarity, shared responsibility, and inclusive action.

Section 4: Looking Ahead to 2026

As we look ahead to the **2026 UN Water Conference**, Finland's commitment is clear. We aim to:

- Elevate water on the global peace and security agenda,
- Contribute our tools, expertise, and political will to shape impactful outcomes, and
- Support a transparent, inclusive, and science-based process— under the leadership of the co-hosts, Senegal and the United Arab Emirates.

We aim to see new transboundary water agreements signed at the conference—turning political will into binding cooperation between riparian nations.

We also wish to see the creation of new joint bodies—whether for rivers, lakes, or aquifers. We are convinced that joint bodies will strengthen governance and ensure shared responsibility for water resources.

Furthermore, Finland sees that adopting basin-wide strategies, climate adaptation plans, and sectoral water use frameworks will help align national efforts with regional sustainability. The conference provides for sharing best practices.

Finally, we expect new transboundary water projects and investments to be announced at the conference—supported by both local and global funds, turning vision into action.

In line with our commitment to advancing water cooperation, Finland has expressed its interest in co-chairing Interactive Dialogue 4, 'Water for Cooperation,' at the 2026 UN Water Conference. We look forward to deepening collaboration on this vital topic with many of you in the years to come.

Closing

In closing, Finland stands ready to collaborate, mediate, and innovate. Let us join forces to transform water from a source of risk and vulnerability into a wellspring of resilience—and from a potential trigger of conflict into a powerful foundation for peace.

Thank you.

Keynote speech: Dr Madiodio Niasse, Dakar Water Hub, Senegal

Lessons learned from Africa's experiences dealing with conflict risks and opportunities for cooperation around shared water resources

Opening Remarks

Before I begin, I would like to thank the organizers for inviting the Dakar Water Hub to participate in this important meeting. I am grateful for the opportunity to be here.

As an African, I would also like to pay tribute to former President Nana Addo Dankwa Akufo-Addo of Ghana. He represents a powerful example for the continent: a democratically elected leader who exercised power democratically, handed over authority peacefully at the end of his mandate, and continues to live in his country as a respected citizen. This is not only a service to Ghana, but to Africa as a whole.

The Dakar Water Hub

Allow me to briefly introduce the Dakar Water Hub (DWH). It is an initiative of the Ministry of Water and Sanitation of Senegal, launched about five years ago as part of the preparation of the World Water Forum in Dakar, held in 2022. The objective of the DWH is to create a space for strategic reflection on future water challenges, not only for Senegal but for the African continent as a whole. The Hub is jointly implemented with key regional basin organizations, notably the Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS) and the Gambia River Basin Development Authority (OMVG). The work I present today is therefore a collective effort, drawing on extensive case studies and comparative analysis conducted under the Dakar Water Hub.

Structure of the Presentation

This keynote is organized around three main themes:

1. Key distinctive features of Africa that shape water governance challenges, particularly for shared watercourses

2. Lessons learned from disputes and conflict risks around transboundary waters

3. Lessons from cooperation, with a special focus on benefit-sharing arrangements, which I consider critically important, which is we though the topic deserves a dedicated section

The analysis is largely based on the Dakar Water Hub's recent (2022) publication on emerging water governance challenges in Africa, drawing on both conflict cases and best-practice examples across the continent, including a comparative perspective on the Nile and Niger basins.

1. Distinctive Features of Africa's Water Context

Africa faces a number of structural challenges related to water resources development and management. First, progress toward the Sustainable Development Goals (SDGs)—particularly access to safely managed drinking water—remains significantly slower in Africa than in other regions. The same applies to irrigation development and overall water infrastructure investment. Globally, there are approximately 60,000 large dams, yet only about 3% are located in Africa. Remarkably, the number of large dams on the entire continent is comparable to that of a single country such as South Korea. Similarly, Africa's installed hydropower capacity is extremely low relative to its needs and potential. Contrary to common perceptions, Africa is not a water-rich continent. It possesses only about 9% of

18

global renewable freshwater resources, making it one of the least endowed regions in the world, second only to Oceania. When considered on a per capita basis, water scarcity becomes even more evident.

Additional structural features further complicate water governance:

- A large number of states (54 countries) sharing limited water resources

- High levels of interdependence, with many countries relying on inflows from neighbours

- Strong spatial inequalities, where water-rich countries coexist with water-poor neighbours

- Limited hydrological knowledge, data availability, and institutional capacity

Rivers, Borders, and Transboundary Complexity

Africa has 67 shared water bodies across 48 countries (each of the continent's non-island countries share at least a transboundary river) . These take several forms:

- Successive transboundary rivers, crossing multiple countries from source to mouth

- Boundary rivers, forming borders between two states

- Mixed cases, where rivers are boundary rivers in some stretches and transboundary in others

- Shared lakes, where national boundaries cut across a single water body

These configurations make water management, conflict prevention, and cooperation particularly complex.

Because of above peculiarities, Africa cannot simply replicate governance models from other regions; it must develop solutions tailored to its unique geographical, political, and historical context.

2. Lessons from Disputes and Conflict Risks

Lesson 1: Many "water conflicts" are actually boundary disputes. A significant number of so-called water conflicts are, in reality, territorial disputes, often involving river channels or islands. A well-known example is the Senegal–Mauritania conflict of 1989, which began over the Dounde Khore island in the Senegal River. What started as a local clash between herders and farmers escalated into a major interstate crisis, involving mass deportations, severed diplomatic relations, and a real risk of war. Similar dynamics can be seen in the Namibia–Botswana dispute over the Kasikili island in a tributary of the Zambezi River. The case was submitted to the International Court of Justice (ICJ), which examined colonial treaties, navigable channels, and principles such as acquisitive prescription. The ICJ ultimately awarded the island to Botswana. Another example is the Benin–Niger dispute over Lété Island, dating back to the eve of independence in 1959 and resolved by the ICJ in 2005.

Lesson 2: Tensions often arise from fears of upstream water withdrawals. Many tensions emerge following allegations that upstream countries are abstracting or storing excessive amounts of water. In the Niger Basin, downstream Nigeria expressed concern that planned upstream dams could reduce flows. These tensions were addressed through dialogue within the Niger Basin Authority. The Nile Basin offers similar examples. During the construction of the Bujagali Dam in Uganda, extensive discussions took place regarding agreed release curves from Lake Victoria. Later, concerns about downstream impacts intensified with the construction of the Grand Ethiopian Renaissance Dam (GERD), particularly in Sudan and Egypt.

Lesson 3: Climate change is often underestimated as a driver of tensions. Countries frequently attribute reduced water availability to upstream infrastructure, while climate variability and climate change are often the dominant factors. Extreme events—such as floods and droughts—can amplify mistrust. In the Niger Basin, for example, Nigeria has defined a "red line" of a 10% reduction in inflows, beyond which national interests are considered threatened. In the Volta Basin, fears that upstream dams would reduce flows to Ghana's Akosombo Dam were later challenged by scientific studies showing that climate variability, rather than upstream storage, was the primary driver of reduced flows. Climate change can also alter river courses, affecting international borders. One example is the boundary river between Liberia and Côte d'Ivoire, where shifts in the channel have generated territorial claims. The Lake Chad Basin illustrates the most dramatic case: since the 1960s, Lake Chad has shrunk by about 90%. As fishing communities followed the receding shoreline, they crossed national boundaries, contributing to disputes between Nigeria and Cameroon, including cases brought before the ICJ.

3. Cooperation, Common Infrastructure, and Benefit Sharing

Despite these challenges, Africa also offers strong examples of cooperation.

Large dams on shared rivers—such as those on the Senegal River or the Kariba Dam between Zambia and Zimbabwe—have created durable cooperative mechanisms. Even during periods of political tension, countries have continued to cooperate in operating these jointly owned infrastructures because they have no viable alternative. In the Senegal River Basin, dams are co-owned by all riparian states, regardless of their physical location. This model of common infrastructure has proven effective in sustaining cooperation.

Benefit Sharing as a Strategic Approach

Benefit sharing shifts the focus from allocating water volumes to jointly generating and equitably distributing benefits—such as hydropower, irrigation, and navigation—derived from water development. This approach is particularly relevant in Africa, where individual countries often lack the financial capacity to develop large infrastructure alone. For example, if countries such as Mali, Mauritania, and Senegal were to invest individually in the development of what is known as the first-generation programme (two large dams, a power generation plant and high voltage electricity lines), costs could reach over 200% of GDP. Through joint investment, this burden was reduced to around 30% of GDP of the three countries. In the Senegal River Basin, both costs and benefits are shared according to agreed formulas, covering irrigation, energy, and navigation.

For benefit sharing to succeed, several conditions are essential:

1. Focus on benefits rather than water volumes

2. Strong legal and institutional frameworks

3. Shared, ideally commonly-owned, infrastructure

4. Evidence-based negotiations

5. Sustained political will

Despite its importance, benefit sharing remains weakly reflected in international water law. While mentioned in the World Commission on Dams (2000), it is largely absent from major frameworks such as the UN Watercourses Convention and the SADC Protocol.

Concluding Reflections

Africa faces a major water infrastructure investment gap, representing a missed opportunity for poverty reduction and climate resilience. Low investment levels are closely linked to the continent's high vulnerability to climate-related risks. Without corrective action, water-related conflicts are likely to intensify. At the same time, water offers significant opportunities for interstate cooperation, particularly through river basin organizations. There is an urgent need to invest in water development, management capacity, high-quality data, and African water diplomacy, with a stronger emphasis on cooperation for development, not only conflict prevention.

Closing the water infrastructure gap and using water as a driver for peace—both within and beyond the water sector—should be central priorities.

Thank you very much for your attention.

Inaugural Speech: H.E. Nana Akufo-Addo, Former President of the Republic of Ghana

Excellencies, Distinguished Delegates, Ladies and Gentlemen

Let me begin by thanking the Organizing Committee for the honour of inviting me to serve as Patron of this important International Conference on Water and Peace. It seems even former Presidents are no longer allowed to retire fully — perhaps the retirement age has quietly been extended — but for a cause as vital as this, I am glad to be called back to duty. It is a privilege to lend my support to a mission that lies much at the heart of Africa's peace, security, and sustainable development.

This conference could not be more timely. Across Africa, water has become one of the defining tests of our governance, our resilience and our shared humanity. When you open a tap, it feels like the simplest of acts. Yet behind that single drop of water lies a vast journey — of rivers, rains, and the delicate balance of nature. It is all too easy to take it for granted. But for millions of our people, that simple act is no longer guaranteed.

Beneath the surface, our most vital resource is under growing threat. Water insecurity — once a silent challenge — has become one of the greatest tests of our generation. Across our continent, the warning signs are unmistakable. Rivers that once bound communities now divide them. In the Sahel, shrinking lakes and drying pastures fuel tensions between farmers and herders. In the Horn of Africa, droughts grow longer, harsher and more frequent, uprooting families and extinguishing livelihoods. Even in our cities, tensions flare as demand for clean water outpaces supply.

Water scarcity is no longer a distant threat- it is a daily reality shaping the destiny of nations. It is a clear and present danger. It determines whether families can grow food, whether children can attend school, whether economies can thrive — and in too many cases, whether peace can hold.

From Cape Town's "Day Zero" to the dramatic shrinking of Lake Chad, we have witnessed how fragile our systems truly are. Climate change, population growth and weak governance have converged into a perfect storm- a storm that threatens livelihoods, ecosystems and human security alike.

But Africa holds powerful stories of hope. Along the Senegal River, four nations — Senegal, Mali, Mauritania, and Guinea — have chosen cooperation over conflict. Through the "Organisation Pour la Mise en Valeur du Fleuve Sénégal", they jointly manage the basin, sharing water and energy, turning potential disputes into opportunities of mutual benefit.

Around Lake Victoria, Kenya, Uganda and Tanzania are working through the Lake Victoria Basin Commission to restore ecosystems, improve water quality, and protect livelihoods. And in Rwanda, community-led watershed restoration is turning degraded hillsides into fertile fields. These examples remind us that when Africa works together, water ceases to divide — it connects, it heals, and it builds peace.

The situation I describe is not abstract to me. It is lived experience. The Bagre Dam between Burkina Faso and Ghana offers another clear lesson on the balance between shared resources and shared responsibility. Each year, its controlled spillage floods northern Ghana — disrupting livelihoods and damaging infrastructure. Yet within this shared challenge lies the unique opportunity to share data on the spillage, strengthen cooperation, promote dialogue and build resilience across our joint border. Again, for centuries, the peoples of Guinea, Mali, Niger, Benin and Nigeria have responsibly managed beneficially and peacefully the flow of the great river Niger which runs through their nations.

Across our continent, few examples capture both the promise and peril of shared waters as vividly as the Nile Basin. Stretching across eleven nations, the Nile sustains hundreds of millions of Africans — yet also tests the limits of regional solidarity. The construction of the Grand Ethiopian Renaissance Dam has brought long-standing sensitivities to the surface, which threaten a great escalation of tension and armed conflict between Ethiopia and Egypt. There is a need to choose dialogue over division and cooperation over confrontation.

These stories — from the Bagre Dam to the Nile Basin — remind us that Africa's water story is not just one of conflict or crisis. It can also be a story of resilience, innovation, and the enduring will to cooperate. Indeed, several initiatives have laid important groundwork for this cooperation. The African Water Investment Programme, the World Bank's Cooperation in International Waters in Africa and the Team Europe Initiative on Transboundary Water Management, have each played vital roles in strengthening partnerships, enhancing data sharing and promoting sustainable basin management.

The African Ministers' Council on Water (AMCOW) continues to provide political leadership and coordination at the continental level. These mechanisms have shown that collaboration is possible — but they also reveal a crucial gap: water cooperation must be firmly linked to peace and security. That is why we must now envision a new framework — an African Water Peace Initiative — to bring coherence and political momentum to our shared efforts. The Inga Dam site in the Democratic Republic of Congo, with a potential capacity of about 44,000 Megawatts, can become the world's largest hydropower facility and have the capacity to power the entire continent's development if the protracted discussions on how to finance its construction can finally be brought to a positive conclusion. Additionally, proper cooperation towards an amicable resolution on the Nile River dispute between Egypt and Ethiopia can reap immense benefits for the countries involved, especially now that the Grand Ethiopian Renaissance Dam, as the Ethiopians call it, has been completed.

Water, peace and security are not just mere concepts. They are actionable and can bring enormous benefits to Africans. It is time to invest deliberately in African capacity, research and innovation to manage sustainably our resources. And it is time to ensure that access to clean water and sanitation - a basic human right- is realised for every African.

But true water security requires justice — justice in access, in allocation, and in governance. Justice means fair distribution, transparent management and inclusive participation. It means ensuring that every community, across borders and generations, can access safe and sustainable water. For peace cannot flow where inequality runs deep.

Technology offers us new hope. With satellites, sensors and artificial intelligence, we can forecast droughts, monitor river flows and plan fair allocation of water. The tools exist- what we need now is the political will and the shared vision to use them for the common good.

So, as we gather here in Nairobi, let us make this moment count. Let us ensure that every drop of Africa's water becomes a drop of hope — for peace, for prosperity, for security and for the generations to come. My hope is that the next generation will inherit a continent not divided by scarcity, but united by shared stewardship. Let this conference be more than an event. Let it be a turning point. Let us leave here committed to policies that are just, partnerships that are genuine, and a future where every drop of water counts for peace and security for our people.

I thank you for your attention.

Keynote speech Violet Matiru, Millennium Community Development Initiatives CBO

Sources, Levels and Complexities in Water Governance: Cases from Kenya

Water is life! While other natural resources needed to sustain life have substitutes, water does not. Everybody needs water to survive, and so do plants and animals too. The importance of water, especially also because of its scarcity, results in water governance issues at the lowest level to the highest levels. Opportunities for using water to promote peace and social equity emerge when people are equipped to negotiate for their rights and also when they recognize the rights and needs of others.

More powerful individuals are able to appropriate water and water sources sometimes at the expense of the less powerful. At the household level, socio-economic status and gender roles can influence access to and control over water resources. For example, sometimes in livestock keeping communities, women's need for domestic water from a shared communal water source may be treated as secondary to livestock watering, which is often a male role. By understanding the various gender roles and their accompanying needs for water, communities, groups and individuals can negotiate for enhanced access and control over water.

At the community level, a common tension between communities living upstream of a water source and those living downstream. In one community in the Mt. Kenya region, conflicts between upstream communities that were over abstracting water for irrigation and pastoralist communities downstream that were suffering due to lack of water for their livestock resulted in a negotiated sharing of the shared river and the formation of one of the oldest and strongest Water Resource Users Associations (WRUA) in Kenya[1].

Disparities between water access in urban and rural areas is often as a result of greater investments in water supply for urban areas, due to the greater purchasing power of city dwellers. Governments tend to invest in urban water supply systems, sometimes at the expense of rural areas. Rural areas are less attractive for expensive water infrastructural projects, because they are less likely to be commercially viable due to the sparse populations and the lower purchasing power of rural communities. Unfortunately, sometimes government authorities deny water to rural communities as it is piped to cities that are able to pay for the critical resource. See for example the case of the Ruiru Dam in the upper Athi River basin, where the communities living around the dam are denied access to the water that is supplied to the residents of the city of Nairobi.[2]

Other conflicts are between entities supplying water for domestic use, versus water for agriculture. In the case of the Matimbei Water Project[3], a water company "grabbed" a community water project to supply households with drinking water, which fetches higher returns than supplying rural communities for agriculture. Ultimately, the community re-took their water project because they had developed it to provide them with water for irrigation.

At the sub-national level, administrative areas with more water resources need to negotiate with their neighbours with fewer natural sources of water. In Kenya, counties with abundant water sources sometimes feel short-changed because they supply water to their neighbours with fewer water sources but are not remunerated for protecting and conserving the water sources. Nairobi city county

---

[1] See the example of the Lower Rupingazi WRUA of page 37 of the IFAD (2019) Republic of Kenya: Country Strategy and Programme Evaluation

[2] https://youtu.be/KkQyOfGKGCE?si=ic3-cSYWWetja1ne

[3] https://youtu.be/-KS1HDwKAU4?si=Lx7-BKLz-lCx1KDp

gets more than 90% of its from Murang'a and Kiambu Counties and this is a source of contention because the other counties feel that they should be compensated for supplying this water, while Nairobi counties claims to "own" the respective dams that were constructed to provide water to the city.[1] Eldoret city in Uasin Gichu County gets most of its water from the Cherangani Hills in Elgeyo Marakwet county; Mombasa city county gets its water from Taita Taveta, Kwale, and Kilifi counties. These inter-county conflicts are also opportunities for negotiation and greater cooperation by the acknowledgement of how interdependent the various administrative units are.

At the international level, the conflicts that play out at the lower levels are then reflected in the ways countries and regions negotiated for shared transboundary water sources. A key example is the Nile River Basin, which has past and on-going inter-governmental processes and negotiations that are well documented.

Economic activities that use large volumes of water or that affect the water sources are another source of conflict. For example, commercial agriculture may result in powerful entities damming rivers, denying others access or over abstracting water to the detriment of subsistence farmers and domestic users. River sand mining, as practiced in areas surrounding urban centres often result in the over-harvesting of river sand, resulting in the reduced capability of the rivers to hold water during the rainy season for use during the dry seasons. Violent conflicts sometimes erupt when groups opposed to sand harvesting confront those who have contracts to supply sand for construction.

Salt extraction, as practiced in Kilifi county, that is done by making lagoons to trap ocean water and increase evaporation enabling the salt to be scoped out, sometimes results in the salty water intruding into freshwater wells used by communities. In 2005, the Kenya National Human Rights Commission instituted a comprehensive investigation of the salt mining in Kilifi county due to the widespread environmental and human rights issues, including the destruction of freshwater sources.

At a global level, there is a push by powerful entities to treat water, not as basic human right, but more as a commodity. The listing of water in the Australian Stock Exchange and its impacts on farmers is documented in the documentary titled "Blood Water: the war for Australia's water"[2]. The book titled "Blue Gold: The Battle Against Corporate Theft of the World's Water" by Maude Barlow and Tom Clarke exposes the enormity of the problem that results when access to water is no longer recognized as a fundamental human right that is not dependent on ability to pay.

The diverse sources of conflicts at the various levels provide opportunities for negotiations and the development of innovative and inclusive options to promote peace and security among individuals, nations, and among various water uses.

---

[1] https://www.citizen.digital/article/nairobi-owns-ndakaini-dam-says-sonko-as-he-dares-wa-iria-to-disconnect-citys-water-214010
[2] https://youtu.be/glgCA9WmqkI

Keynote speech Abdul Assiz Alusaini, V4T Gao, Mali Youth

Water Scarcity in Northern Mali,: A Youth Perspective[1]

Thank you for the opportunity to share my perspective today. I speak to you as a young researcher from Gao, in northern Mali, and also as someone whose daily life and future are directly shaped by water scarcity. My reflections are informed by applied research conducted in 2024 by the Voice for Thought Academy, in collaboration with IHE Delft and Algerian researchers, as well as by my own lived experience in the region.

Water scarcity in northern Mali is not a new phenomenon, but its intensity and consequences have deepened over time. Since the major droughts of the 1970s, rainfall has remained low, and since the early 2000s it has become increasingly variable and unpredictable. Today, rain falls within a very short season, and even when it does come, it is often erratic. River flooding, which is essential for agriculture, occurs briefly later in the year and is becoming less reliable. Wells dry up earlier than before, river levels are declining, and access to water has become more uncertain for both rural and urban communities.

These changes have profound implications for agriculture, which remains the backbone of livelihoods in the region. Most farmers can now cultivate only once per year, and yields are highly dependent on the timing and intensity of rainfall. During the long dry season, food shortages become more severe and prices increase significantly, placing heavy pressure on households. For many families, securing enough food has become a seasonal struggle closely tied to water availability.

For young people in particular, agriculture is no longer perceived as a viable or secure livelihood. The long dry season leaves few opportunities, and water scarcity limits the possibility of diversification. As a result, many young men migrate seasonally or for several years to southern Algeria, where they work on agricultural plantations. This migration is facilitated by shared linguistic and cultural ties, including the use of Tamasheq and Arabic. Migration has become a coping strategy rather than a choice, driven by the need to support families and to accumulate resources.

The income earned abroad is often sent back as remittances to cover basic household needs, finance marriage, or invest in agricultural equipment. Some return migrants bring with them valuable knowledge, particularly regarding groundwater use, irrigation techniques, and farming in arid environments. However, applying this knowledge in northern Mali is not straightforward. Access to capital, technology, and reliable water sources remains limited, and climatic uncertainty makes investment in agriculture highly risky. As a result, only a small number of returnees are able to successfully translate their experience into sustainable local livelihoods.

For those who do not migrate to Algeria, artisanal gold mining has emerged as an alternative livelihood, especially since the discovery of gold deposits near Gao in 2019. Rising gold prices have made mining more attractive than farming, even during the agricultural season. This shift reflects not only economic incentives but also the declining reliability of agriculture under water-scarce conditions. Unlike in southern Mali, gold mining in the north is not river-based, as surface water is largely absent. Water must be transported over long distances for basic consumption, underscoring the extent to which water scarcity shapes even non-agricultural activities.

Water scarcity is also deeply intertwined with insecurity and conflict. As grazing lands shrink and wells dry up, competition between herders has intensified. Conflicts between herders and farmers have also

---

[1] This keynote speech has been delivered as an interview by Laurens Nijzink, managing editor at voice4thought

26

become more frequent, particularly around access to water points and fertile land. In some cases, these disputes have escalated into violent confrontations resulting in loss of life. Water scarcity, in this sense, acts as a stress multiplier, exacerbating existing social and economic tensions.

In a context where livelihoods are disappearing and opportunities are limited, some young men are drawn into armed jihadist groups. This decision is rarely ideological at first; it is often driven by economic desperation, lack of alternatives, and the search for security or income. However, once recruited, individuals lose personal autonomy and face significant risks. Water scarcity does not directly cause conflict, but it contributes to the conditions in which insecurity can thrive.

The impacts of water scarcity are not evenly distributed. Young women face particularly constrained livelihood options, especially in contexts of insecurity where mobility is restricted. Activities such as gold mining are often inaccessible to women, and seasonal unemployment increases household vulnerability. At the same time, many people displaced by violence and insecurity have moved into urban centeres such as Gao. These towns lack adequate water infrastructure to absorb the growing population. Displaced families often rely on host communities for water, which undermines dignity and places additional strain on already scarce resources.

From a youth perspective, addressing water scarcity is central to building peace and stability in northern Mali. Water is not only a resource but a foundation for livelihoods, social cohesion, and hope for the future. Investments are urgently needed in wells, small-scale water storage, rainwater harvesting systems, and hydraulic infrastructure adapted to arid conditions. Particular attention should be given to water provision for internally displaced persons and to strengthening community-based water governance.

Inclusive and equitable access to water can help reduce tensions, support livelihoods, and create alternatives for young people. When water is available, agriculture becomes more viable, migration becomes a choice rather than a necessity, and the appeal of armed groups diminishes. Water can be a source of conflict, but it can also be a powerful entry point for cooperation and peacebuilding.

In conclusion, water scarcity in northern Mali is not only an environmental challenge. It is a structural issue that shapes migration, livelihoods, conflict, and insecurity, especially for young people. Addressing water access in a sustainable and inclusive manner is essential if we are to create meaningful opportunities for youth and build a more stable and peaceful future for the Sahel.

Extended Abstracts of thematic Sessions

Theme 1: From Water- conflicts to Peace and Cooperation

The sessions convened under the theme From Water Conflicts to Peace and Cooperation examined how water-related tensions—often intensified by climate change, development pressures, and social inequality—can be transformed into opportunities for dialogue, cooperation, and durable peace. Taken together, Sessions 1A, 2A, and 2B advanced a shared understanding that water insecurity is rarely driven by physical scarcity alone, but rather by governance fragmentation, power asymmetries, weak institutions, and the exclusion of affected communities from decision-making.

Session 1A set the foundation by presenting concrete examples of how cooperative governance arrangements can reduce tensions and generate shared benefits. Through cases such as the Rusumo Hydropower Project in the Nile Basin and the Tana River Basin Water Protocol, the session highlighted the role of diplomacy, treaties, river basin organizations, and binding legal frameworks in shifting water governance from reactive crisis response toward proactive cooperation. At the same time, it underscored persistent challenges, including limited political commitment, lack of trust among states and communities, insufficient participation of women, youth, and local actors, and operational challenges associated with large-scale infrastructure.

Building on this institutional perspective, Session 2A broadened the analytical lens through comparative experiences from Africa, Latin America, and fragile contexts. The session demonstrated how inclusive and adaptive governance—ranging from equitable partnerships and polycentric governance platforms to trust-based arrangements where state authority is contested—can reposition water from a trigger of conflict to a pillar of peace and sustainable development. Climate change, infrastructure development, and demographic pressures were identified as common conflict drivers, while environmental justice, transparency, and accountability emerged as essential conditions for cooperation.

Session 2B grounded these insights in localized and regional realities, emphasizing that governance failures are most acutely felt at the community level. Case studies from Ethiopia, Uganda, and the Democratic Republic of Congo illustrated how weak institutional coordination, data gaps, and social exclusion—particularly of women—exacerbate water-related conflict. The session highlighted the peacebuilding potential of bottom-up hydro-diplomacy, women's participation in water governance, and community-led cooperation initiatives, even in highly fragile contexts. Participants emphasized the need for strengthened local capacity, aquifer-scale groundwater management, trusted mediators, and institutionalized multi-stakeholder platforms to balance development objectives with environmental equity.

Together, these sessions articulated a coherent narrative: water becomes a bridge for peace when governance systems are inclusive, legally grounded, and responsive to local and transboundary realities. Cooperation is not an automatic outcome of shared scarcity, but the result of deliberate institutional design, sustained political commitment, and the meaningful redistribution of voice and power. This thematic track thus framed water not as an inevitable source of conflict, but as a strategic entry point for building trust, resilience, and lasting peace.

Session 1A

This session was facilitated by Karin Roelofs and featured case-based contributions from Abraha Adugna (Nile Basin Initiative Secretariat) on cooperative hydropower development in the Nile Basin, Caroline Ng'weno (Nature Kenya) on downstream water governance in the Tana River Basin, Dawit Zegeye Haile (African Union) on regional water diplomacy and continental cooperation frameworks, and Badradin Mohammed (University of Maryland, USA, online) on the role of civil society organizations in addressing domestic water-related conflicts

The session focused on presenting concrete examples of how water-related conflicts can be transformed into peace and cooperation, while also examining the political, institutional, and social challenges that continue to undermine such efforts. Across the cases, participants emphasized that moving from conflict to cooperation requires sustained diplomacy, innovative and adaptive governance arrangements, and inclusive dialogue processes that engage all relevant stakeholders.

Several case studies illustrated these dynamics. The Rusumo Hydropower Project in the Nile Basin was highlighted as an example of how jointly governed infrastructure, supported by binding institutional arrangements under the Nile Basin Initiative, can reduce tensions and generate shared benefits among riparian states. The Tana River Basin Water Protocol was presented as a sub-national example of proactive cooperation, demonstrating how legally informed and locally grounded frameworks can shift governance from reactive crisis management toward preventive and collaborative approaches.

Discussions underscored the importance of treaties, river basin organizations, and binding agreements as tools for cooperation. Members of river basin organizations were noted to experience lower levels of tension and higher levels of cooperation compared to contexts lacking such institutions. At the same time, participants identified persistent gaps that limit the effectiveness of cooperative frameworks.

Key challenges included insufficient political commitment, limited trust among communities, regions, and states, and, in some cases, open rivalry. The absence of binding agreements in several basins continues to leave cooperation vulnerable to political shifts. Participants also emphasized the lack of meaningful participation by affected communities, women, youth, and other vulnerable groups in decision-making processes. Operational and hydrological challenges related to large infrastructure projects further complicate cooperation when not addressed transparently and inclusively.

The session concluded that strengthening political commitment requires sustained awareness-raising and the demonstration of tangible shared benefits from cooperation. Legal frameworks for basin management should be made binding wherever possible, and inclusive participation of civil society, local communities, women, and youth was identified as essential for building trust, preventing conflict, and sustaining peace through water cooperation.

Water as a bridge for Peace Strengthening Cooperation and Stability in the Nile Basin- The Case of Rusumo Hydropower unlocking Energy potential of the Basin

Abraha Adugna[1]

[1]Nile Basin Initiative

Water insecurity, driven by climate change, rapid population growth, environmental degradation, and unsustainable resource management, has emerged as a significant source of tension in many transboundary river basins. The Nile Basin, shared by eleven riparian countries, exemplifies both the risks of competition over shared waters and the opportunities for cooperation that can transform water into a catalyst for peace, stability, and sustainable development. Within this context, the Rusumo Regional Hydropower Project (RRFP) stands out as a practical example of how cooperative water infrastructure, supported by inclusive institutions and shared benefits, can contribute to regional integration, energy security, and conflict prevention.

The Rusumo project is located on the Kagera River, the most remote headstream of the Nile and the largest tributary to Lake Victoria. The Kagera River Basin is shared by Burundi, Rwanda, Tanzania, and Uganda, with the Rusumo Falls situated at the border between Rwanda and Tanzania. Recognized for its hydropower potential as early as the 1970s, the site remained undeveloped for decades due to political instability, lack of consensus among riparian states, and the absence of a joint institutional framework. These barriers were eventually overcome through the facilitation of the Nile Basin Initiative (NBI), which provided a neutral platform for dialogue, coordination, and trust-building among the beneficiary countries.

The Regional Rusumo Falls Hydroelectric Project is a run-of-river scheme designed to minimize environmental and social impacts while maintaining the natural flow regime of the river. With an installed capacity of 80 MW, shared equally between Burundi, Rwanda, and Tanzania, the project generates approximately 500 GWh annually, supplying reliable and relatively low-cost renewable energy to energy-constrained economies. Improved access to electricity supports economic growth across multiple sectors, including agriculture, agro-processing, water supply, health, education, commerce, and tourism, while reducing dependence on imported fossil fuels and biomass. These energy benefits are complemented by regional transmission infrastructure that strengthens interconnections within the Great Lakes region, with future potential links to broader East and Southern African power pools.

Beyond its economic value, the Rusumo Hydropower Project represents a deliberate effort to frame water as a shared opportunity rather than a source of conflict. The project's governance model is rooted in benefit-sharing, joint ownership, and cooperative decision-making, supported by a series of formal agreements among Burundi, Rwanda, and Tanzania. These include a Joint Project Development Agreement and a Tripartite Agreement committing the three countries to jointly develop, finance, own, and operate the project. The Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU), under the NBI, played a central role in facilitating negotiations, building institutional capacity, and aligning water, energy, and environmental objectives across national boundaries.

Despite its strategic importance, the Rusumo Hydropower Project faces several operational and hydrological challenges that threaten its optimal performance and long-term sustainability. These challenges include high variability in river flows, increasing climate-related extremes such as droughts and floods, sedimentation, and the proliferation of aquatic weeds such as water hyacinth. Together,

these factors affect reservoir levels, turbine efficiency, and maintenance costs, leading to power production below designed capacity. Operational decision-making is further constrained by inconsistent hydrological and water quality data, limited real-time information from upstream catchments, and insufficient coordination among national monitoring systems.

In response to these challenges, the NBI and its partners have initiated a set of interventions aimed at strengthening hydrological and water quality monitoring, data management, and regional cooperation. Central to this effort is the establishment of a coordinated regional monitoring network across Burundi, Rwanda, and Tanzania, supported by upgraded hydrological stations, in-situ water quality sensors, and centralized data management platforms. These systems enable real-time data sharing, quality control, analysis, and reporting, supporting improved forecasting, dam operation, sediment management, and early warning for extreme events.

The development of a shared data management system, integrated with national databases and accessible through web-based and mobile interfaces, represents a critical step toward transparent and evidence-based transboundary water governance. Complementary capacity-building activities have strengthened the ability of national agencies and the Rusumo Power Company Limited (RPCL) to interpret and apply hydrological information for operational planning and risk management. These technical measures are reinforced by broader initiatives to address catchment-level drivers of degradation, including land-use change and erosion, through nature-based solutions and community-based restoration efforts.

Institutionally, the Rusumo case highlights the importance of sustained regional platforms for dialogue, coordination, and trust-building. The NBI's role as a convener and facilitator has been instrumental in aligning national interests, mobilizing development partners, and ensuring that water, energy, and environmental considerations are addressed in an integrated manner. By engaging governments, technical agencies, civil society, and local communities, the project contributes not only to infrastructure development but also to social cohesion and conflict prevention at multiple scales.

Overall, the Rusumo Regional Hydropower Project demonstrates how transboundary water infrastructure, when embedded within strong institutions and supported by shared data, inclusive governance, and benefit-sharing arrangements, can serve as a bridge for cooperation, peace, and resilience. While operational and climate-related challenges persist, ongoing investments in monitoring systems, data integration, and capacity development provide a pathway to adaptive management and long-term sustainability. The experience of Rusumo offers valuable lessons for other shared river basins in the Nile and beyond, illustrating how water can be transformed from a potential source of tension into a foundation for regional stability, sustainable development, and collective security within the water–energy–food–ecosystem nexus.

Addressing Downstream Water Injustice in the Tana River Basin, Kenya.

C. Ng'weno[1], M. Musyoki[1], R. Makhanu[1], A. Hazeez[2], L. Chinyavu[2], H. Mwanajuma[3], M. Babwoya[3], T. Komora[3], H. Kuso[3], A. Abbas[4], R. Moha[4], K. Swaleh[4], and A. Mbuthia[4]

[1]Nature Kenya, Nairobi, Kenya.
[2]Wetlands International Eastern Africa, Nairobi, Kenya.
[3]Tana River County, Tana River, Kenya.
[4]Lamu County, Lamu, Kenya

SUMMARY

The Tana Basin, covering 21% of the country and supporting over 7 million people, is a critical water resource increasingly defined by injustice. Downstream communities in Lamu and Tana River Counties face severe water insecurity due to upstream dams, pollution, deforestation, and large-scale agriculture. These activities reduce river flow, aggravate inland sea water intrusion, degrade water quality, and amplify climate-driven floods and droughts, leading to displacement, livelihood loss, and ecosystem collapse, including resource conflicts. In response, the two counties are steering the development of a water protocol aimed at binding all the nine counties within the basin, grounded in equity, accountability, and cooperation. This sub-national initiative proposes real-time data sharing from dam operators, enforces the "polluter pays" principle, and establishes compensation mechanisms for downstream damages. By institutionalizing inclusive governance, the proposed Tana River Water Protocol offers a replicable model for water-related peacebuilding, transforming conflict risks into pathways for sustainable development and resilience

INTRODUCTION

Water insecurity is a defining challenge of the 21st century. Climate change, population growth, and unsustainable resource management are intensifying competition for freshwater, triggering conflicts across regions (UN-Water, 2021). The Pacific Institute's Water Conflict Chronology documents over 280 water-related conflicts since 2020 alone, many linked to dam operations, pollution, and inequitable allocation (Pacific Institute, 2024). In Africa, where transboundary basins dominate, the stakes are especially high. Despite the potential for cooperation, unequal power dynamics often concentrate benefits upstream while externalizing costs downstream, fuelling resentment and instability.

The Tana River Basin, spanning 126,926 km² and supporting over 7 million people, exemplifies this global challenge. It provides 33.5% of Kenya's surface water and is central to hydropower, agriculture, and biodiversity (Kooij & Voermans, 2013; Lange et al., 2015). Yet, downstream communities in Lamu and Tana River Counties bear the brunt of upstream development: destructive floods, prolonged droughts, pollution, and ecosystem degradation. These impacts are not merely environmental; they threaten livelihoods, public health, and social cohesion.

Despite this, downstream voices are systematically excluded from basin-wide decision-making. In response, Lamu and Tana River Counties have co-developed the proposed Tana Basin Water Protocol, a joint governance framework that reclaims agency and advances water justice. This paper presents this initiative as a case study for Theme 1 of the conference: From water conflicts to peace and cooperation. It shows how a bottom-up and participatory approach can transform grievances into a structured pathway for peace.

METHODOLOGY

The draft Tana Basin Water Protocol was developed through a participatory action research process, co-led by Lamu and Tana River County governments with technical support from Nature Kenya and Wetlands International Eastern Africa. The approach centred on community-driven grievance mapping

through county-level workshops, focus group discussions, and stakeholder forums involving local leaders, water users, and technical officers.

Qualitative insights were integrated with scientific and institutional data from the Water Resources Authority (WRA), National Drought Management Authority (NDMA), Kenya Red Cross, and IGAD Climate Prediction and Applications Centre (ICPAC). Satellite data from Global Forest Watch (GFW, 2023) quantified deforestation, while water quality assessments drew on Njuguna et al. (2020). A legal review ensured alignment with national frameworks, including the Constitution of Kenya (Articles 43, 69, 190), the Environmental Management and Coordination Act (EMCA, 1999), and the Water Act (2016), and international instruments like the UN Watercourses Convention (1997). Judicial precedents such as R v. Upstream Developers (2018) and County A v. County B (2019) informed accountability and inter-county cooperation mechanisms.

Findings were consolidated into a joint position paper (Lamu & Tana River Counties, 2025), which outlines seven core downstream grievances and corresponding interventions (See supplementary material).

RESULTS & DISCUSSIONS

The joint position paper reveals a stark imbalance: upstream development yields economic benefits, while downstream counties face cascading crises. The table below summarizes key findings and proposed protocol interventions summarized below.

Upstream developments (dams, industrial pollution, large-scale agriculture, and deforestation), have severely compromised downstream water quantity, quality, and flow stability, triggering floods, droughts, ecosystem degradation, and socio-economic losses.

Key findings show that uncoordinated dam releases during the 2023 - 2024 El Niño floods displaced over 722 households and severed the Lamu - Minjila highway for two months, crippling transport and inflating food prices. During dry seasons, dam retention reduces river flow below 60 m³/s (the minimum ecological flow), leading to saltwater intrusion that threatens the Tana Delta's mangroves, valued at USD 2.5 million annually (Wetlands International, 2017). Water quality is further degraded by agricultural runoff and industrial effluents, with elevated levels of chlorides (5.81 mg/l wet season), manganese, and aluminium posing health risks (Njuguna et al., 2020; Chen, 2013). Meanwhile, deforestation in upstream catchments has led to a 19% loss of tree cover in Tana River County since 2001, exacerbating erosion and reducing catchment resilience (GFW, 2023).

These impacts are compounded by systemic exclusion: downstream communities have no formal role in basin-wide decisions despite bearing the greatest risks. This lack of representation undermines accountability and perpetuates water injustice.

The protocol institutionalizes three transformative mechanisms:

1. **Transparency:** Real-time flow data from dam operators enables early warnings and informed evacuations.
2. **Accountability:** The "polluter pays" principle ensures compensation for environmental harm (EMCA, 1999; R v. Upstream Developers, 2018).
3. **Inclusion:** Downstream communities are formally included in governance, with mandated consultation and reporting.

This initiative represents a powerful act of sub-national diplomacy, aligning with international principles of equitable utilization (UNWC, Art. 5) and prevention of significant harm (Art. 7). It offers a replicable model for shared basins where national coordination is weak.

CONCLUSIONS

The Tana River Protocol marks a paradigm shift, from reactive crisis management to proactive, cooperative governance. Championed by Lamu and Tana River Counties, it proves that sub-national entities can lead transformative water diplomacy by institutionalizing equity, accountability, and inclusion.

As climate change intensifies hydrological extremes, such locally grounded, legally informed frameworks are essential to prevent conflict and build resilience. The international community must support sub-national governance, invest in data equity, and uphold the water rights of downstream populations.

The Tana River Protocol is not just a local solution; it is a blueprint for global water justice, showing how shared basins can become catalysts for peace, not conflict.

ACKNOWLEDGMENTS

REFERENCES

1. L. Chen (2013) Salinization of rivers: Causes, impacts, and management. Water Research 47(5), 1521 - 1538.
2. Global Forest Watch (GFW) (2023) Tana River, Kenya: Deforestation rates & statistics. https://www.globalforestwatch.org
3. ICPAC (2023) Climate trends and variability in Kenya. IGAD Climate Prediction and Applications Centre.
4. S. Kooij, J. Voermans (2013) Water resources of Kenya. Water Research Institute.
5. M. Lange, C. Siderius, D. van Fader (2015) Groundwater availability in Kenya. Journal of African Hydrology 12(3), 201 - 215.
6. S.M. Njuguna, J. Nyunja, S.D. Mwangi, M.I. Mwanje (2020) Application of multivariate statistical analysis and water quality index in health risk assessment by domestic use of river water. Science of the Total Environment 720, 137532.
7. OCHA (2024) Kenya floods situation report, 10 May 2024. United Nations Office for the Coordination of Humanitarian Affairs.
8. W. Odhengo, P. Raburu, F. Masese (2014a) Environmental flow requirements for the Tana River Delta. Kenya Water Journal 8(2), 45–59.
9. UN (1997) Convention on the law of the non-navigational uses of international watercourses. United Nations.
10. Wetlands International (2017) The economics of ecosystem services of the Tana River Basin. Nairobi.
11. R v. Upstream Developers (2018) 1 KLR 123.
12. KNBS (2023) Population projections 2019–2035. Kenya National Bureau of Statistics.
13. Kenya Red Cross (2024) Lamu office flood response report, January 2024. Kenya Red Cross Society.
14. Environmental Management and Coordination Act (EMCA), 1999. Government of Kenya.
15. Constitution of Kenya (2010) Articles 43, 69, 190. Government of Kenya.
16. Water Act, 2016 & Water Resources Regulations, 2021. Government of Kenya.
17. Lamu & Tana River Counties (2025) Joint position paper on water-related concerns and grievances.

SUPPLEMENTARY MATERIAL

Table 1: Quantitative and Qualitative Impacts of Upstream Activities

Downstream Grievance	Data Point / Impact	Proposed Protocol Intervention
Destructive floods from uncoordinated dam releases	During the 2023 - 2024 El Niño floods displaced over 722 households and destroyed critical infrastructure	Real-time data sharing and early warning systems from dam operators. Climate-proof infrastructures.
Water pollution from industrial and agricultural waste	Agricultural runoff and industrial effluents have elevated levels of chlorides, manganese, and aluminium in river water, posing health risks. A median Chloride concentration: 5.81 mg/l (wet season), 5.19 mg/l (dry season)	Enforcement of the "polluter pays" principle and promotion of eco-friendly farming
Livelihood disruption	The Tana Delta's mangroves, valued at USD 2.5 million annually, are threatened by saltwater intrusion due to reduced freshwater inflow.	support livelihood diversification and resilience programmes; implement the Tana Delta Land Use Plan (2012)
Forest Degradation	Tana River County lost 11.3 kha of tree cover from 2001 – 2023; 3.56 Mt CO_2 emissions	Promote sustainable land use practices upstream, including agroforestry, riparian buffer zones, and climate-smart agriculture; enforce forest conservation policies in catchment areas
Reduced river flow and saltwater intrusion during dry seasons	Dam retention during dry seasons has lowered river discharge below 60 m³/s, the minimum ecological flow required to sustain the Tana Delta	Enforcement of a minimum ecological flow of ≥60 m³/s and promotion of water harvesting
Socio-economic losses	Critical infrastructure damaged; county budgets strained, i.e., Lamu - Minjila highway cut off for two months during floods	Establish a "flood mitigation fund" funded by upstream users
Lack of representation in basin-wide decisions	Downstream communities are excluded from decision-making on dam operations, water allocation, and development projects	Mandate for public participation and inclusion of downstream communities in governance
Resource conflicts	Regulation of water flows upstream leads to resource conflicts between farmers and pastoralists during dry seasons.	Implementation of the tana river county animal grazing act to mitigate the conflicts

The Nile River at a Crossroads: Addressing Threats and Harnessing Potential for Peace, Cooperation, and Sustainable Development

Dawit Zegeye Haile[1]

[1]African Union

SUMMARY

The Nile River stretches over 6,600 kilometres and supports more than 300 million people across 11 countries. It serves as a crucial resource but also creates growing geopolitical tension. While the river has great potential for regional connections, economic growth, and peace, it faces challenges from competing national interests, colonial-era agreements, and weak governance. The Grand Ethiopian Renaissance Dam (GERD) plays a key role in Ethiopia's development plans. It has increased disputes with Egypt and Sudan, yet it also offers chances for energy cooperation and integration if managed together. Climate change, population growth, and poor resource management make cooperation even more urgent.

This study looks at the political dynamics surrounding the Nile Basin and points out the limitations of the Nile Basin Initiative (NBI), which lacks a binding legal framework. Key findings reveal that without enforceable agreements across the basin, zero-sum politics and mistrust thrive. Still, common development goals, shared climate risks, and political will provide paths for collective action. The study suggests strengthening the NBI, establishing binding agreements, promoting joint infrastructure projects like GERD co-management, advancing regional energy sharing, and using climate diplomacy. There needs to be a shift toward trust, fairness, and shared benefits for a sustainable and peaceful future for the Nile.

INTRODUCTION

The Nile River stretches over 6,600 kilometres and crosses 11 African countries, making it the longest river in the world and one of the most sensitive waterways. It supports the livelihoods of more than 300 million people by providing water for agriculture, energy, and domestic use. However, it is also a site of intense political competition, as countries try to balance their own needs with those of others. Historical treaties created during colonial times favored certain countries along the river and left lasting grievances that continue to this day. This situation, along with population growth, environmental harm, and competing development plans, has made the Nile Basin a hotspot for both teamwork and conflict.

The building of the Grand Ethiopian Renaissance Dam (GERD) has intensified discussions about water rights and sovereignty in the region. For Ethiopia, the GERD is a major project aimed at boosting economic growth. For Egypt and Sudan, it raises worries about water security and effects downstream. These differing views reflect a larger conflict regarding the Nile: will it symbolize rivalry, or can it be used to foster peace and shared progress? This study investigates how threats to the Nile can be rethought as chances for inclusive cooperation and sustainable development, stressing the urgent need for strong governance and diplomacy.

METHODOLOGY

This study uses a qualitative and comparative approach, focusing on document analysis, case studies, and policy reviews to explore the complex hydro-political issues of the Nile Basin. Important documents examined include treaties from the colonial era, agreements from the Nile Basin Initiative (NBI), and records from negotiations on the GERD. Secondary information from peer-reviewed journals, institutional reports, and think-tank studies provided more context and depth. Case studies

of river management frameworks from other regions, such as the Mekong and Danube, were included to draw relevant lessons for the Nile.

Additionally, the methodology incorporates institutional theory and conflict transformation frameworks to evaluate how existing structures help or hinder cooperation. The research looks at the influence of political will, governance systems, and social and economic factors in shaping relationships across the basin. Mainly qualitative, the study also uses insights from hydrological and climate modelling studies to emphasize the environmental pressures that drive the need for cooperation. This approach ensures a well-rounded understanding of the relationship between politics, development, and the environment in the Nile Basin.

RESULTS & DISCUSSION

The findings show that the lack of a binding legal framework for the basin creates mistrust and encourages unilateral actions among countries. Egypt relies on historical treaties, whereas Ethiopia advocates for fair water use, and Sudan finds itself caught between changing alliances and concerns about water security. The GERD highlights both the dangers of acting alone and the benefits of shared infrastructure. If seen as a regional endeavour, the GERD could provide electricity across borders, encourage energy trade, and foster interdependence that stabilizes political relations. Still, negotiations are currently weak, hindered by competing views on sovereignty and survival.

Climate change and rapid population growth add urgency to this complex issue. Altered rainfall patterns, more frequent droughts, and rising water demand threaten to worsen existing vulnerabilities. Yet, these shared challenges also open doors for cooperation. Joint management strategies, basin-wide alerts, and integrated water-energy projects could turn the Nile from a battleground into a shared resource. The study highlights that while political divisions remain, there are emerging opportunities for inclusive discussions, climate diplomacy, and regional cooperation, provided there is political will and effort to build trust.

CONCLUSIONS

The Nile Basin faces a crucial moment. It could either plunge into rising tensions over resources or become a model of cooperative, sustainable water management. The study concludes that one-sided approaches to Nile management are not viable and may destabilize the region. A shift in perspective is necessary, focusing on trust, inclusion, and shared gains instead of historical grievances and short-term interests. Creating a binding agreement for the entire basin and strengthening the Nile Basin Initiative's role are vital steps in this process.

Moreover, viewing the GERD as a shared regional asset rather than a single-country project could lay the foundation for cooperative development. Addressing shared climate risks as a platform for joint action, promoting regional energy-sharing projects, and involving civil groups, youth, and local communities in decision-making are also essential. Ultimately, the future of the Nile will rely on whether the countries along it choose cooperation over rivalry. Through continuous diplomacy, innovative governance, and inclusive dialogue, the Nile can meet the needs of its people and become a global example of cooperation over transboundary water re-sources.

REFERENCES

Cascão, A. E., & Nicol, A. (2016). GERD: new norms of cooperation in the Nile Basin? Water International, 41(4), 550–573.

Nile Basin Initiative (NBI). (2020). State of the Nile River Basin 2020. Entebbe, Uganda.

Salman, S. M. A. (2013). The Nile Basin Cooperative Framework Agreement: A peacefully unfolding African spring? Water International, 38(1), 17–29.

Swain, A. (2011). Challenges for water sharing in the Nile Basin: Changing geo-politics and climate change. Hydrological Sciences Journal, 56(4), 687–702.

United Nations Economic Commission for Africa (UNECA). (2020). Transboundary Water Cooperation in Africa: Pathways to Sustainable Development. Addis Ababa.

Water conflict? Empirical analysis of environmental institutions and domestic water conflict

Badradin Mohammed[1]

[1]Department of Government & Politics, University of Maryland, College Park, MD, USA, bmohamm1@umd.edu

SUMMARY

Does water scarcity foster domestic conflict or cooperation? Under what conditions can countries reduce water-related conflict? Previous studies focused on interstate water conflict provided strong evidence that treaties and environmental institutions foster water cooperation. However, limited work has examined the role and effect of environmental institutions on domestic water conflict. Using the WARICC event data on domestic water-related incidences covering 35 countries across the Mediterranean, the Middle East, and the Sahel from 1997 to 2009 and the TFDD River Basin Organization (RBO) data, this paper investigates whether countries members of RBOs witness less tensions and/or more cooperation over water relative to those countries not members of RBOs. The findings provide strong evidence that RBO membership does reduce domestic water conflict.

INTRODUCTION

Climate change has significant global implication. One of the consequences of climate change is its impact on global water resource. Rising temperatures due to changes in the climate reduce water availability. Scarcity of water resource can trigger violent conflict (Homer-Dixon, 1994). Empirical research shows strong linked between scarcity of resource and conflict. Burke et al. (2009) for instance, find strong historical associations between rising temperatures and civil war incidence in Africa. Moreover, environmental stressors such as droughts and water shortage all contribute to conflict. Conflict over resource in particular water is likely to increase in the coming years. Recent projections from UN (2023) warn of a severe global water deficit, with 1.7 to 2.4 billion urban residents expected to face critical water shortages by 2050. Combined with population growth, these climatic changes are expected to intensify competition over water, increasing the potential for conflict.

Given climate change and its anticipated impact on worsening water resource, the role of institutions in mitigating conflict and fostering cooperation is important. Institutions play important role in promoting between states. Many studies have examined the effectiveness of institutions in managing interstate water disputes and facilitating cooperation across borders (Dinar et al., 2015; Mitchell and Zawari, 2015). Empirical research shows interstate water conflict have declined and cooperation have increased due to role of treaties and institutions (Caplan et al., 2023; Dinar et al., 2019). However, relatively few studies have focused on domestic water conflicts (Agrawal, 2001; Gizelis & Wooden, 2010). Specifically, our understanding of the role and effectiveness of institution on domestic water is very limited.

This article addresses this gap by analyzing effectiveness of institutions on domestic water conflict. Specifically, the paper examines River Basin Organizations (RBOs) — institutions established to manage water resource — role in domestic water. The paper investigates whether, and to what extent, RBO reduce conflict and promote domestic water cooperation. The paper draws on the Water-Related Intrastate Conflict and Cooperation (WARICC) dataset—covering 35 countries across the Mediterranean, Middle East, and Sahel from 1997 to 2009—and TFDD data on RBOs. The findings demonstrates that RBOs have positive effect on domestic water. The presence of RBO in country

reduce conflict and promote cooperation. Moreover, the results further show that RBOs continue to reduce conflict even in countries experiencing water scarcity[1].

METHODOLOGY

To examine the influence of RBOs on domestic water conflicts, I use the Water-Related Intrastate Conflict and Cooperation (WARICC) dataset (Bernauer et al., 2012). The WARICC dataset provides detailed domestic water-related conflict and cooperation events across 35 countries in the Mediterranean, the Middle East, and the Sahel, covering the period from 1997 to 2009. The data for the RBOs is derived from the TFDD database, which provide all international RBOs (TFDD). Using the RBOs data, I code all 35 riparian countries in the WARICC data and identified whether they are a member of an RBO. The unit of analysis is rbo-country-year.

The key variable in the WARICC data is the Water Events Scale (WES) which measures the intensity and impact of a domestic water-related events in an ordinal fashion. This scale consists of 11 points, ranging from -5 (most conflictive event) to +5 (most cooperative event). Events in the -5 category are the most conflictive in the dataset while +5 are cooperative. I aggregate the data to the country-year and created a combined measure of WES for the first empirical analysis. Combined measures of events are widely used in the hydro-politics literature (Dinar et al., 2019; Dinar et al., 2014) and others (Bernauer & Böhmelt, 2014). Using the WES scale, I create an outcome variable that contains the average score of all events included in the dataset for each country. The distribution of this new variable, Average WES value, is shown in Figure 1.

In the second set of empirical tests, I employ two binary variables to evaluate the hypothesis. The first is Conflict, is created using the WES scale, takes the value of 1 if the water event is conflictive and 0 otherwise. The second variable, Cooperation, takes the value of 1 if the event is cooperative and 0 otherwise.

Figure 1: Distribution of Average WES score
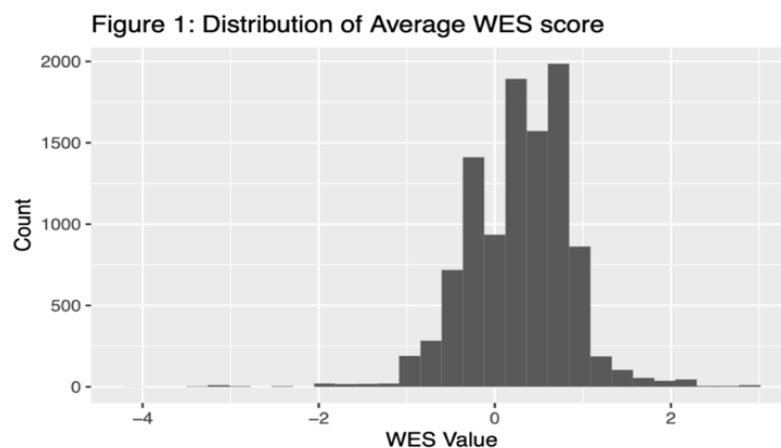
The primary independent variable, RBO Member, measures whether a country is a member of an RBO or not. The data for RBOs comes from the Transboundary Freshwater Diplomacy Database (TFDD).

I control for several factors that might influence intensity and impact of water conflict in countries. I control for water scarcity. I use internally renewable freshwater resources per capita (IRFWR). The data is sourced from the FAO database. I also control for regime type; I use the V-Dem's participatory democracy index to include measure for democracy. I account for the effects of economic development. Economically developed countries are likely to have more resources to respond to local

---

[1] A theoretical argument section of how RBOs reduce conflict can be founded in the full paper

water-related conflicts. To account for this, I include GDP Per Capita, the data is derived from the World Bank database. Moreover, scholars have suggested that higher population density is likely to increase conflict incidences. To account for this, I control for, Population Density. I use data from the World Bank to include population density.

RESULTS & DISCUSSION

The result from the OLS model are presented in table 2. In Table 2, model 1 shows the result for whether the presence of RBO shape domestic water conflicts. In this analyze I primarily shows how and the extent to which the presence of RBO in countries influence domestic water events. The dependent variable here is continuous with positive values indicating that water events are cooperative, and negative values indicate that events are conflictive. The baseline result in model 1 is positive and statistically significant (P<0.1), indicating that RBO positively influence domestic water events. Countries that are members of RBO have on average more cooperative than countries that are non-members

Table 2: Results from OLS regression: Average WES Score

	Model 1	Model 2	Model 3
(Intercept)	0.105***	−0.011	−1.319***
	(0.011)	(0.026)	(0.088)
RBO Member	0.236***	0.217***	0.175***
	(0.013)	(0.014)	(0.014)
Freshwater (Log)		0.019***	0.102***
		(0.004)	(0.004)
Population (Log)			0.091***
			(0.005)
Parti. democracy			−1.790***
			(0.065)
GDP Per Capita (Log)			0.041***
			(0.007)
Num.Obs.	10 395	9167	8993
R2	0.031	0.032	0.235
R2 Adj.	0.030	0.032	0.235

Table 3 evaluates the effectiveness of RBO using logistic regression model. I test RBO effectiveness using cooperative events only and conflictive events only. In table 2, Model 1 and 2 evaluates the RBOs with cooperative events only and 3 and model 4 are conflictive events only.

Table 3: Results from Logistic Regression

	Avg. cooperation	Avg. cooperation	Avg. conflict	Avg. conflict
(Intercept)	−0.864***	−0.991**	−1.205***	0.541
	(0.043)	(0.366)	(0.046)	(0.418)
RBO Member	0.343***	0.269***	−0.448***	−0.363***
	(0.049)	(0.056)	(0.056)	(0.064)
Population (Log)		0.039*		−0.151***
		(0.019)		(0.024)
GDP Per Capita (Log)		−0.121***		−0.042
		(0.030)		(0.035)
Freshwater (Log)		0.168***		−0.074***
		(0.018)		(0.020)
Parti. democracy		−2.265***		2.061***
		(0.275)		(0.299)
Num.Obs.	10 395	8993	10 395	8993

Session 2A

Session 2A examined pathways through which water-related conflicts can be transformed into peacebuilding and cooperation, drawing on comparative experiences from Africa, Latin America, and global governance debates. Facilitated by Dr. Karounga Keita, the session aimed to share knowledge across regions on how inclusive and adaptive water governance can move societies from unrest toward sustainable development.

Njoki Kangethe (IHE Delft Institute for Water Education, Netherlands) opened the session with *"Evaluation of Partnerships for Water and Development."* Her presentation analyzed the performance of water and development partnerships, emphasizing that their effectiveness depends on strong governance arrangements, clear roles and responsibilities, and adaptive mechanisms. She highlighted persistent operational challenges, including performance measurement, financial sustainability, and power asymmetries between global and local actors, arguing that addressing these issues is critical for scaling partnerships and improving their peace and development outcomes.

Humberto Tavera Quiroz (University of Córdoba, Colombia, online) presented *"Waters in Dispute: Governance, Conflict, and Resilience in the Inland Delta of La Mojana, Colombia."* He proposed four interlinked pillars for resilient water governance: environmental and territorial justice to ensure fair access and combat illegal mining; polycentric governance through multi-level decision-making platforms; nature-based solutions focused on ecological restoration; and transparency and accountability to promote social inclusion. His case illustrated how governance reform can reposition flood risk from a source of conflict to an opportunity for cooperation.

Oluwasegun Ogunsakin (Ekiti State University, Nigeria) followed with *"Herder–Farmer Conflict and the Need for a National Livestock Transformation Plan in Democratic Nigeria."* He examined how climate change, land-use pressures, governance failures, and demographic dynamics fuel farmer–herder violence. His analysis concluded that the full implementation of Nigeria's National Livestock Transformation Plan is essential to addressing the structural drivers of conflict and advancing peace and rural development.

The final contribution, *"Trust Governance – The 'No-State' Solution,"* was presented online by Sofia Maya Collin (Unbounded Law, USA). She proposed trust governance as an alternative model in contexts where state authority is contested or ineffective, arguing for governance arrangements that are self-effacing, culturally neutral, and respectful of diverse identities and belief systems, allowing shared water resources to become spaces of coexistence rather than control.

Across the session, participants agreed that water-related conflicts are driven by climate change and human pressures, including infrastructure development and governance failures. The session concluded that inclusive, equitable, and politically supported water governance can transform water from a trigger of conflict into a pillar of peace and sustainable development, reinforcing the Water, Peace and Security initiative as an emerging global reference.

Evaluation of Partnerships for Water and Development: A case Study of the WPS Partnership

Njoki Kangethe[1]

[1]IHE Delft Institute for Water Education, Delft, The Netherlands.

SUMMARY

Partnerships are increasingly promoted as critical mechanisms for addressing complex water and development challenges. However, their multi-stakeholder nature, characterized by diverse values, organizational cultures, and capacities, complicates the evaluation of their effectiveness. This study critically assesses the dynamics and performance of the Water, Peace and Security (WPS) Partnership, a consortium under the Water and Development Partnership Programme (WDPP). Guided by Brinkerhoff's five-dimensional framework; prerequisites and success factors, partnership practice, partner performance, efficiency, and partnership outcomes. This qualitative case study draws on semi-structured interviews with consortium members and an external evaluator, document analysis, and literature review. Findings highlight the importance of trust, organizational compatibility, and senior leadership support in fostering effective collaboration. However, the absence of standardized performance metrics, limited adaptive mechanisms, and financial and scalability constraints present significant operational challenges. These insights contribute to the broader discourse on partnership governance and effectiveness, offering practical implications for the design and management of equitable, results-oriented partnerships in the water and development sectors.

INTRODUCTION

Since the 2002 World Summit on Sustainable Development (WSSD), partnerships have emerged as a dominant mechanism for achieving sustainable development objectives. They are seen as critical enablers of Sustainable Development Goal (SDG) 6 on clean water and sanitation and SDG 17 on partnerships for the goals. By integrating diverse stakeholders, including research institutions, civil society, and policy actors, partnerships are expected to enhance innovation, knowledge exchange, and collective action. Despite their potential, partnerships often face governance and performance challenges, including conflicting organizational values, resource asymmetries, and the absence of clear mechanisms for accountability and adaptive learning. This research examines the **WPS Partnership**, which applies technological and participatory approaches to mitigate water-related security risks in regions such as Kenya, Ethiopia, Mali, and Iraq. The study interrogates how internal dynamics and external pressures influence the partnership's capacity to achieve its objectives and generate value for its members and stakeholders.

METHODOLOGY

This study adopted a qualitative case study design, which is well suited for examining complex and context-specific organizational dynamics. Data collection involved:

• **Semi-structured interviews** with eight participants from six partner organizations and one external evaluator;

• **Document analysis**, including the WPS proposal, annual technical reports, and donor appraisals; and

• **Desktop research** to situate findings within the broader literature on partnership governance and performance.

Data were analyzed using Brinkerhoff's five-dimensional framework to assess prerequisites and success factors, partnership practice, partner performance, efficiency, and partnership outcomes.

RESULTS & DISCUSSION

The findings highlight several key dynamics shaping the effectiveness of the WPS Partnership:

• **Prerequisites and Success Factors**: Preexisting trust, organizational compatibility, and active engagement from senior leadership emerged as foundational enablers of collaboration.

• **Partnership Practice**: Transparency and mutual respect were evident, but the absence of formalized engagement guidelines limited accountability and clarity in decision-making.

• **Partner Performance**: While partners generally expressed satisfaction with contributions and outcomes, evaluations were largely subjective, underscoring the need for standardized performance indicators.

• **Efficiency**: Persistent funding limitations and scalability challenges constrained operational efficiency. Adaptive fundraising and efforts to enhance the demand for WPS tools partially mitigated these constraints.

• **Outcomes**: The partnership delivered significant value-added benefits, including enhanced institutional visibility and technical capacity. However, value misalignments occasionally hindered strategic coherence and collective visioning.

The study shows that trust, organizational compatibility, and leadership support are crucial for strong partnership dynamics. These factors pro-moted collaboration, transparency, and mutual respect within the WPS Partnership, creating a foundation for progress toward shared goals. However, the absence of formal engagement guidelines and reliance on subjective performance assessments created gaps in accountability and role clarity. To address this, partnerships should establish clear governance frameworks and standardized evaluation tools, ensuring objective performance measurement and smoother coordination across diverse stakeholders.

Operational efficiency was hindered by resource limitations and scalability challenges. Although adaptive strategies, such as diversifying funding sources and tailoring WPS tools to stakeholder demand, partially mitigated these issues, they were insufficient for long-term sustainability. To strengthen efficiency, partnerships should adopt comprehensive financial planning that includes diversified revenue streams, capacity-building for fundraising, and scalable operational models. This would allow partnerships to expand their reach while maintaining quality and consistency in delivering results.

Despite these challenges, the WPS Partnership delivered significant value-added benefits to its members, including enhanced institutional visibility, technical expertise, and stronger networks for cross-sector collaboration. However, occasional value misalignments among partners disrupted collective strategy-building. Future partnerships could enhance alignment by integrating regular joint visioning exercises, adaptive learning mechanisms, and inclusive decision-making processes. These steps would help sustain cohesion, amplify collective impact, and ensure that diverse partner perspectives are reflected in strategic goals and activities.

CONCLUSIONS

This research demonstrates that the effectiveness of partnerships in the water and development sectors depends on robust governance structures, clear role delineation, and mechanisms for adaptive learning and accountability. While the WPS Partnership has generated notable value for its members and stakeholders, structural and operational challenges, particularly around performance measurement and financial sustainability, limit its efficiency and scalability. Addressing these gaps could enhance not only the performance of WPS but also inform the design of future partnerships aimed at tackling complex development challenges.

Future research could explore power dynamics and governance inequalities within such partnerships, as well as the influence of local-to-global linkages on partnership performance and outcomes, to deepen understanding of their role in achieving sustainable development.

REFERENCES

Babiak K, Thibault L (2009) Challenges in multiple cross-sector partnerships. Nonprofit and voluntary sector quarterly 38: 117-143

Brinkerhoff JM (2002) Assessing and improving partnership relationships and outcomes: a proposed framework. Evaluation and program planning 25: 215-231

Hermans LM, Cunningham SW (2018) Actor and strategy models: Practical applications and step-wise approaches John Wiley & Sons

Hivos (2015) Theory of Change In Practice

The Power of Partnerships: How to maximise the impact of re-search for development (2020) https://www.ids.ac.uk/publi-cations/the-power-of-partnerships-how-to-maximise-the im-pact-of-research-for-development/

Johnson H, Wilson G (2006) North–South/South–North partnerships: closing the 'mutuality gap'. Public Administration and Development: The International Journal of Management Re-search and Practice 26: 71-80

Waters in Dispute: Governance, Conflict, and Resilience in the Inland Delta of La Mojana, Colombia

H.C. Tavera[1], M. Rosso[1], H. Ávila[2]

[1] University of Córdoba, Department of environmental engineer, Montería, Colombia

[2] University of Noth, Department of civil engineer, Barranquilla, Colombia

SUMMARY

La Mojana, an inland delta of global importance in northern Colombia, is a strategic ecosystem for the country's water regulation. However, it suffers from a chronic socio-environmental crisis where recurrent floods are not natural disasters but the result of failed state governance, historical land conflicts, and altered hydrological dynamics. This report argues that the crisis in La Mojana is a "problem-territory" that exposes the gap between environmental policy and territorial reality. Through the framework of "stagnation", three interconnected conflicts are analyzed: the dispute over fertile lands created by sedimentation, mercury contamination from mining, and the collapse of fisheries. These conflicts, exacerbated by ineffective state interventions plagued by irregularities have generated a humanitarian catastrophe since 2021, affecting hundreds of thousands of people. The solution lies not in more engineering works, but in a paradigm shift towards environmental justice, participatory governance, and nature-based solutions

INTRODUCTION

Life in La Mojana has historically been a symbiotic adaptation to the pulses of water, shaping the "amphibious cultures" that inhabit a mixed environment of land and water. This local knowledge, which understands flooding as part of the productive cycle, has been ignored by a technocratic planning focused on dikes and containment. The productive heart of the region is the "playones," fertile lands "born of water" from sediment deposition, which support seasonal agriculture and livestock. This system, managed on a large scale in the pre-Hispanic Zenú era through a complex network of canals, is now the epicenter of violent conflicts. The balance between fishing, agriculture, and livestock has been broken by the alteration of water cycles and, fundamentally, by land concentration, which limits access to resources and pushes communities into a spiral of socio-ecological degradation.

The Politics of Stagnation: A Three-Axis Conflict

The concept of "stagnation" is key to understanding how the interruption of material flows (sediment, mercury, fish) generates conflict in a context of inequality.

1. **Sediment, Property, and Dispossession:** The sediment that creates the fertile playones, legally public goods, is illegally appropriated by large landowners who expand their properties with fences, dispossessing peasants of their main means of subsistence. They often manipulate the landscape with dikes to accelerate sedimentation and "fix" an inherently mobile land, de facto privatizing a common resource.
2. **Mercury, Mining, and Silent Violence:** Mercury from gold mining in the upper Cauca River basin flows to La Mojana, where it stagnates in sediments and bioaccumulates in the food chain, especially in fish. The consumption of contaminated fish has led to mercury levels in the population far above safe limits, causing severe neurological damage and malformations. This is a "slow violence" that attacks the public health and food security of a population that cannot stop consuming fish, their main source of protein.
3. **Fish, Nets, and Fishery Collapse:** Lack of access to land has forced communities into massive overexploitation of fishery resources as a last resort. The use of nets with meshes that are too small "stagnates" the fish, interrupting their reproductive cycles and causing the collapse of

46

key commercial species. This fishery collapse is a direct consequence of the agrarian crisis, closing a cycle of degradation where the dispossession of land leads to the destruction of the water resource.

The State's response has been a paradox of well-designed but poorly executed plans. CONPES documents have correctly diagnosed the need for comprehensive solutions, but their implementation has been deficient and disjointed. An audit by the Comptroller General (2019-2022) issued an "adverse opinion" on the management, finding low budget execution, unfinished works, contractual irregularities, and failures in supervision and delivery of humanitarian aid.

The case of the dike breach at "Cara de Gato" in 2021 is the symbol of this failure. The obsession with a "hard" engineering solution ignores that La Mojana is a floodplain that needs space for water. This reactive approach has triggered a devastating humanitarian crisis. Since 2021, floods have affected hundreds of thousands of people, destroyed thousands of homes, and wiped out over 82,000 hectares of crops. Food insecurity affects about 40% of the population, and nearly half lack access to safe drinking water, creating a public health crisis. All this occurs in a context of armed conflict that adds a layer of fear and vulnerability to the communities.

CONCLUSIONS:
Towards Resilient Water Governance

The crisis in La Mojana is not an engineering problem, but one of governance. The state strategy has failed because it does not address the structural causes of conflict and vulnerability. A path towards resilience requires a paradigm shift based on four pillars:

1. **Environmental and Territorial Justice:** Clarify the tenure of the "playones" to guarantee access for peasant communities and combat illegal mining in the upper basin to stop mercury pollution.
2. **Polycentric Water Governance:** Move beyond the centralized model and create multi-level decision-making platforms that include the "amphibious" knowledge of local communities.
3. **Nature-based Solutions (NbS):** Prioritize the ecological restoration of swamps and wetlands to recover the system's natural buffering capacity, instead of relying exclusively on dikes.
4. **Transparency and Accountability:** Implement robust mechanisms for social control and access to information, as stipulated in the Escazú Agreement, to break the cycle of inefficiency and rebuild trust.[4]

REFERENCES

Aguilera, M. (2004). La Mojana: Riqueza Natural y Potencial Económico. Centro de Estudios Económicos Regionales CEER.

Contraloría General de la República. (2023, junio). Actuación Especial de Fiscalización: Recursos para la emergencia por inundaciones en la subregión de La Mojana (Vigencias 2019-2022). CGR.)

ACAPS. (2024, 2 de agosto). Colombia: Flooding in La Mojana. ACAPS.

OCHA. (2023, 28 de agosto). Colombia: Inundación a gran escala en La Mojana - Reporte de situación SITREP No. 01 del 25 de agosto de 2023. ReliefWeb.

Fals Borda, O. (1979). Historia Doble de la Costa. Vol. 1 Mompox y Loba. Carlos Valencia Editores.

OCHA. (2023, 28 de agosto). Colombia: Inundación a gran escala en La Mojana - Reporte de situación SITREP No. 01 del 25 de agosto de 2023. ReliefWeb.

Valencia, G., & Ecuyer, B. (2023). La gestión comunitaria del agua en el posconflicto con las Farc-ep en Colombia. Lecturas de Economía, (99), **79**-110.

Herder-Farmer Conflict and the Need for National Livestock Transformation Plan (NLTP) in Democratic Nigeria

Oluwasegun Ogunsakin[1]

[1]Ekiti State University, Department of Peace and Security Studies, Ado-Ekiti, Nigeria

SUMMARY

This study examined the recurrent herder-farmer conflict and the need for a national livestock transformation plan in democratic Nigeria. The destructive nature of the herder-farmer conflict has been problematic to the country's food security, creating a depletion of the socio-economic development to provide a livelihood to millions of Nigerians. In 2019, the federal government engaged in a national livestock transformation plan to curb the menace of conflict between herder-farmer crises. Through the methodological approach, this research will use the qualitative process and collaborate with secondary data from journals, articles, government bulletins, newspapers, and internet sources to analyze the data. Unending with the initiative plans on curtailing the crisis among the herders–farmers, the research identified that the federal government of Nigeria's programme on livestock transformation is vital in achieving sustainable peace and food security. But unfortunately, the deprivation in supporting and fully implementing this important plan to tackle the herder-farmer crisis cannot be overemphasis. The research study concluded and recommended that federal, state governments, and stakeholders must embrace the country's livestock transformation plan. The government must understand that a round table between all actors and stakeholders must be implemented and monitored to achieve food security and sustainable peace in Nigeria.

Keywords: Herder-Farmer, Conflict, Security, Livestock, NLTP, Nigeria

INTRODUCTION

The relationship between farmers and herders is contradictory and complementary. Their complex relationship is always anchored between coexistence and partnership on the one hand and competition and conflict on the other. Unfortunately, the increasing pressure on shared natural resources – namely fresh water and land due to climate change – is further straining farmer-grazer relations (Ojemire, 2021).

In 2019, the former President of Nigeria, Muhammadu Buhari, attempted to establish Rural Gazing Area (RUGA). His proposal drew strong criticism (Nwabufo, 2019). On 17 May 2021, 17 governors of southern Nigeria issued the Asaba Statement to Resolve the Crisis (Idowu, 2021).

METHODOLOGY

The study adopted the qualitative content methodology. This involves the use of secondary sources from government reports, academic articles, online reports and news reports. All data are analysed via content analysis.

RESULTS & DISCUSSION

1. **Causes of herder-farmer crisis in democratic Nigeria**

The following are identified as some of the causes of the herders-farmers crisis in democratic Nigeria:

Climate Change: Climate is a critical factor in the activities of herders and farmers.

Land Dispute: The conflict between farmers and herders can be understood as a land access problem. As a result, migration routes are no longer available for herders, especially in the context of global warming (Ojigho, 2018).

Theft: Livestock theft causes significant economic losses for herders, prompting them to increase their herds to compensate for the loss. Therefore, they need to find more grazing land so their animals can reproduce more (Olaniyan & Yahaya, 2016).

Impunity and ineffective government: Nigeria's weak security mechanisms cannot prevent deadly attacks between conflict groups.

Armed groups and attacks: One of the reasons for the transformation and escalation of this conflict is the arming of non-state groups or individuals.

2. Implications of herder-farmer crisis in democratic Nigeria

It is important to note that these violent clashes directly impacted the lives and livelihoods of the participants and resulted in the displacement of the economically productive population of society.

3. National livestock transformation plans in democratic Nigeria

In 2019, former Vice President Yemi Osibanjo launched the National Livestock Transformation Plan (NLTP) to resolve this impasse (International Crisis Group, 2021). Under the plan, 100 billion naira (about US$238,095 million) was proposed for the project, with the Federal government contributing 80 percent of the grant. In contrast, the state will contribute land, project implementation structures, personnel, and 20 percent of project costs. The plan is prepared voluntarily for state governments (Premium Times Nigeria, 2019).

4. Challenges facing national livestock transformation plan (NLTP) in democratic Nigeria

With the various issues concerned with the challenges faced by the NLTP programme, the following problems were derived from the report of International Crisis Group 2021:

Lack of Political Will, Poor and Inconsistency in Government Policies: The plans have also been hampered by a lack of political will, diminishing public trust, and bureaucratic challenges.

Gaps in enthusiasm and communication: Ethnic groups in the southern and mid-belt states remain suspicious of the initiative, saying it favours Fulani herders over other ethnic and occupational groups.

Insufficient funds: Due to COVID-19 concerns, there is a potentially significant funding gap in the federal and state governments in implementing NLTP in Nigeria.

Misconception between RUGA Settlement and National Livestock Transformation Plan (NLTP): Support for the plan has been seriously hurt by a May 2019 plan to build a RUGA settlement for herders.

A growing sense of insecurity: In much of the north, insecurity limits access to land and pasture, impeding the movement of Department of Agriculture officials tasked with implementing the plan (Crisis Team Report, 2021).

Insufficient technical expertise: Lack of technical skills is another obstacle. Federal and state agriculture ministries need more staff and expertise to implement the plan.

Problem with the Land acquisition: Another challenge was land acquisition for the project site, which met with opposition from some, especially among farmers who feared displacement by herders and their livestock.

Sustainability problem: As well as immediate implementation challenges, there are long-term concerns about the plan's sustainability after elections and government changes.

5. RECOMMENDATIONS

1. The federal and state governments need to show more commitment and political leadership to gain support for the plan and push forward its implementation.
2. Federal and state governments must improve public communication and increase stakeholder participation.
3. The federal and state governments must also make conscious efforts to close the funding gap.
4. Foreign donors and international development agencies should provide Nigeria with financial and technical support to implement the plan.
5. The federal and state governments must also increase their capacity-building efforts to implement the plan.

The federal government must increase its efforts to curb growing insecurity in many states.

6. **CONCLUSION**

The crisis between farmers and herders in Nigeria provides an overview of the need for the Nigerian government and other stakeholders to see to the full implementation of policies on livestock transformation plans in the country.

REFERENCES

Idowu, R.S. (2021, May 12). FULL COMMUNIQUE: Southern Governors Call For National Dialogue, Ban Open Grazing. https://www.channelstv.com/2021/05/12/full-communique-southern-governors-call-for-national-dialogue-ban-open-grazing

International Crisis Group. (2021, May 4). Ending Nigeria's Herder-Farmer Crisis: The Livestock Reform Plan. https://www.crisisgroup.org/africa/west-africa/nigeria/302-ending-nigerias-herder-farmer-crisis-livestock-reform-plan

Olaniyan, A., & Yahaya, A. (2016). Cows, Bandits, and Violent Conflicts: Understanding Cattle Rustling in Northern Nigeria. Africa Spectrum, 93-105.

Ojemire B.D. (2021, November 15). Climate Change and Farmers-Herders Conflict in Nigeria. https://www.newsecuritybeat.org/2021/11/climate-change-farmers-herders-conflict-nigeria/

Ojigho, O. (2018, December 17). Nigeria: Government failures fuel escalating conflict between farmers and herders as death toll nears 4,000. https://www.amnesty.org/en/latest/press-release/2018/12/nigeria-government-failures-fuel-escalating-conflict-between-farmers-and-herders-as-death-toll-nears-4000/

Premium Times Nigeria. (2019, September 20). Nigeria to Spend N100 Billion on New Plan for Cattle, Other Animals. https://www.premiumtimesng.com/agriculture/agric-news/353290-nigeria-to-spend-n100-billion-on-new-plan-for-cattle-otheranimals.html

Trust Governance- The "No-State" Solution

Sofia Maya Collin[1]

[1]Unbounded Law, Carpinteria, USA

SUMMARY

The "No-State" Solution entitled Trust Governance, draws on the essential elements of the trust (which holds and administers an estate for the benefit of its beneficiaries), to construct a modified irrevocable trust to hold disputed lands or waters for the benefit of the people, which is administered by both the original parties to the conflict (those claiming sacred right, need, and/or connection with the land or water resource) as Grantors and "Interested" Trustees; "Independent" Trustees are selected by the Grantors to assist in the administration of the Trust Governance, offering stability, impartiality, and specialized knowledge for the benefit of the beneficiaries, the people.

INTRODUCTION

Certain lands and water bodies have been in dispute for decades, if not for centuries; parties that dispute control, ownership, or superior connection to land or water, have caused war, conflict, and devastation to peoples that have lived or relied upon them. The proposed solution to this problem is not to form new governmental ownership, or deem a particular party victorious or righteous in the conflict, and thus, yield to their statehood, control, and government regarding the land or water source but, I propose, the anthesis; the land or water could be placed in trust, and administered by the parties to the conflict, in addition to independent persons, for the benefit of the people.

METHODOLOGY

This paper proposes a new form of governance, which is theoretical. There have not yet been any implementations of this new governance structure; thus, there are no methodological measures to report, which can be set forth in this section.

RESULTS & DISCUSSION

This peace architecture emphasizes collaboration, harmony, profound respect, selfless service, and the upholding of stability, safety, self-determination, and equal rights for all people. It is a government for the people, for peace, and for celebrating our differences and the sacred facets of being that connect us to land, water, and to each other.

Trust Governance prioritizes: (1) Relationships and belonging over ownership or boundaries; (2) people over country; (3) law celebrating and supporting the common good over law focused on law-breaking and punishment; (4) recognition of the value, and harnessing of the power inherent, in unity over the degradation that separation based on difference can foster; (5) and ensures that law is empowered by consent, not by violence or threat thereof, and which (6) benefits all people not just a majority or a minority.

CONCLUSIONS

Ultimately, Trust Governance proposes a self-effacing, humble, alternative to national identity or national control of a resource such as water, that allows all parties to be valued, while maintaining governmental neutrality, so that people are not defined and bounded by governance, but free and empowered to identify and embrace their respective sacred belief(s) and culture(s) in harmony and peace together.

ACKNOWLEDGEMENTS

REFERENCES

Library Staff, United Nations. Who are the current members of the United Nations? The Dag Hammarskjöld Library. Last updated December 5, 2023. United Nations.

Accessed December 13, 2023. J.C. Radcliffe, D. Page (2020) Water reuse and recycling in Australia – history, current situation and future perspectives.

Water Cycle 1, 19-40. Robert H. Sitkoff & Jesse Dukeminier. Wills, Trusts, and Estates. 385, 887 (10th ed. 2017) *Further citations may be included at date of publication

Session 2B

Session 2B examined how water-related conflicts can be transformed into opportunities for peace and cooperation through inclusive governance, locally grounded interventions, and attention to power and gender dynamics. Moderated by Anisa Doty, the session brought together diverse regional case studies that illustrated how water insecurity is shaped less by physical scarcity than by governance fragmentation, data gaps, and social exclusion.

Sebsib Woldie (Wollo University, Ethiopia) presented the case of the Borkena River Basin in *"Local Water Governance and Human Security in Ethiopia's Borkena River Basin: Pathways to Peace and Cooperation."* He demonstrated that water insecurity in the basin is fundamentally a governance problem, characterized by weak coordination among institutions, a persistent gap between policy commitments and implementation, and conflicting objectives among state, private sector, and community actors. The presentation highlighted how inadequate data and limited contextual understanding undermine effective intervention design and exacerbate tensions.

Alex Ronald Mwangu (Kabale University, Uganda) contributed *"Women Participation in Water Management in the Karamoja Region, Uganda: Implications for Peace and Security."* His case study showed that women are among the most affected by water insecurity yet remain systematically excluded from decision-making due to entrenched cultural norms. Where women have been empowered to participate in water governance, outcomes included improved cooperation, reduced conflict, and more sustainable resource use, underscoring the link between gender inclusion and peacebuilding.

From the Democratic Republic of Congo, Papy Kasereka Kaombe (BENI Peace Forum) presented *"Localised Analysis of Conflicts in Beni,"* highlighting how water-related violence follows seasonal patterns and intersects with broader insecurity. He emphasized that community-led cooperation initiatives have demonstrated potential to mitigate tensions, even in highly fragile contexts, when local actors are supported and recognized.

Across the Horn of Africa, fragmentation of water management institutions emerged as a recurring challenge, compounded by limited enforcement capacity and competing sectoral priorities. Participants discussed the need for bottom-up hydro-diplomacy, strengthened local capacity, and institutionalized multi-stakeholder platforms to balance industrial development with environmental equity. Recommendations included managing groundwater at the aquifer scale, identifying trusted mediators or "water czars" in complex settings, and supporting women as advocates for peaceful co-utilization of water resources.

The session concluded by reaffirming that water can act as either a driver of conflict or a bridge for cooperation, depending on how governance systems recognize local realities, redistribute power, and enable inclusive, collaborative solutions.

Local Water Governance and Human Security in Ethiopia's Borkena River Basin: Pathways to Peace and Cooperation

Sebsib Hadis Woldie[1]

[1]Wollo University, Department of Peace and Development Studies, Dessie, Ethiopia

SUMMARY

Water governance plays a crucial role in fostering cooperation, peace, and sustainable development. This study examines the governance of the Borkena River in northeastern Ethiopia, a vital resource for domestic, agricultural, and industrial use, but increasingly threatened by unregulated extraction, pollution, and fragmented institutional oversight. Using a qualitative methodology that combined key informant interviews, focus group discussions, and document analysis, the study explores the trends of local water governance, identifies key actors contributing to both depletion and conservation, and analyses the resulting socio-economic, environmental, and human security challenges. Findings reveal the absence of clear institutional ownership, overlapping mandates, and weak accountability, which have turned the Borkena River into a site of pollution and potential conflict. Communities feel excluded from decision-making, exacerbating mistrust and reducing collective action. However, opportunities for peacebuilding exist through participatory governance mechanisms, improved institutional coordination, and community-led monitoring. The paper argues that strengthening local water governance is essential not only for ecological restoration and human security, but also for transforming water into a catalyst for cooperation and peace in Ethiopia.

INTRODUCTION

Water scarcity and mismanagement are increasingly linked to human insecurity and conflict. In Ethiopia, despite being considered the "water tower of Northeast Africa," weak governance has left many rivers, including the Borkena, vulnerable to degradation. The Borkena River, a tributary of the Awash, supports thousands of households, industries, and farmers. Yet, poor waste management, industrial pollution, and fragmented institutional structures have undermined its sustainability. This study situates the Borkena within the broader debate on water governance, peace, and cooperation, highlighting the local dynamics that determine whether rivers become drivers of conflict or platforms for peacebuilding.

METHODOLOGY

A qualitative exploratory design was adopted. Primary data were collected through key informant interviews, focus group discussions (FGDs), and field observations along the Borkena River from Kutaber to Kombolcha. Informants included local government officials, community leaders, industry representatives, and households. Secondary sources such as policy documents, reports, and academic literature were also reviewed. Data were analyzed thematically, focusing on governance structures, actor roles, and hu-man security outcomes.

RESULTS & DISCUSSION

The findings of this study show that the governance of the Borkena River represents a microcosm of broader water governance challenges in Ethiopia. The absence of a clear institutional mandate has left the river in a state of "ownerless" management, where multiple actors simultaneously use and pollute the resource without effective coordination or accountability. This results in what can be termed a tragedy of the commons, as the benefits of short-term exploitation outweigh the incentives for long-term sustainability.

Institutional Fragmentation and Weak Coordi-nation. Governmental institutions responsible for water management, such as the Ministry of Water and Energy, regional river basin authorities, and local municipal offices, operate in isolation with minimal horizontal and vertical coordination. While

policies exist at the national level to promote integrated water resource management (IWRM), these are rarely operationalized at the local scale. For instance, the Awash Basin Authority, under which the Borkena falls, has not delegated authority to local structures in Dessie or Kombolcha, leaving communities without a clear governance framework.

Environmental and Human Security Implications. Industrial pollution from textile, leather, and beverage factories, combined with untreated sewage from urban settlements, has severely degraded water quality. Field observations recorded the presence of chemical effluents with visible colouration and odour, while focus group participants reported increasing cases of skin diseases, gastrointestinal infections, and livestock loss linked to polluted water. These outcomes have direct implications for human security, as they undermine livelihoods, health, and social stability. In addition, sand extraction and deforestation along the riparian zones exacerbate flooding risks, particularly during the rainy season, leading to displacement and destruction of property in downstream areas.

Actors in Depletion versus Conservation. The study identified two opposing sets of actors:

- Depleting actors include industries, municipal administrations, and households engaging in unregulated waste disposal, as well as farmers cultivating eucalyptus in catchment areas.
- Conserving actors include local community associations, civic organizations, and faith-based groups engaged in sporadic clean-up campaigns and riverbank protection. However, their efforts remain fragmented and lack institutional backing.

Conflict Potential and Social Exclusion. A recurring theme in interviews was the sense of exclusion felt by local residents. Communities perceive that industrial and urban interests dominate river use, while their voices are marginalized in decision making. This exclusion fosters mistrust and, in some cases, sparks disputes between upstream and downstream users, as well as between rural households and urban industries. While these tensions have not escalated into violent conflict, they represent latent risks in a region already vulnerable to socio-political instability.

Opportunities for Peacebuilding. Despite these challenges, the study also uncovered opportunities for water to serve as a catalyst for cooperation. Multi-stakeholder platforms, if properly institutionalized, could foster dialogue between government, industries, and communities. Traditional mechanisms of collective action, such as community-based associations, could be revitalized to promote equitable water allocation and conservation. Furthermore, linking local governance reforms to Ethiopia's national river basin strategies offers a pathway to bridge the gap between policy and practice. International experience suggests that inclusive governance not only enhances ecological outcomes but also builds trust and reduces the risk of conflict.

Overall, the Borkena River illustrates the dual role of water as both a potential source of tension and a driver of peace. Addressing governance deficits through inclusive participation, accountability, and institutional strengthening is key to transforming this local river system into a platform for sustainable cooperation.

CONCLUSIONS

The case of the Borkena River underscores that water insecurity is fundamentally a governance problem. Addressing these challenges requires:

1. Establishing a dedicated multi-stakeholder river basin committee.
2. Building institutional capacity and ensuring accountability.
3. Promoting community-led monitoring and conservation initiatives.
4. Linking water governance to broader peace-building strategies. By doing so, local rivers such as the Borkena can shift from being sources of insecurity to catalysts for peace and sustainable cooperation.

REFERENCES

Adane, A. (2023). Water governance in Awash basin, Ethiopia: Achievements, Challenges, and Opportunities. Abyssinia Journal of Business and Social Sciences, 8(2), 13–22. https://doi.org/10.20372/ajbs.2023.8.2.882 (abjol.org.et)

Gedamu, G., Mitiku, K. W., Belay, M. A., Simegn, M. B., Cha-nie, S. D., Tilahun, W. M., Menber, Y., Wasihun, Y., Ge-breegziabher, Z. A., Andualem, Z., Alemu, A. T., & Geddif, A. (2025). Barriers to the sustainability of rural water schemes in Sub-Saharan African countries: a system-atic review. Journal of Water, Sanitation and Hygiene for Development, 15(5), 427–442. https://doi.org/10.2166/washdev.2025.101 (IWA Publish-ing)

De Stefano, L., et al. (2014). Water governance assessment framework. Ecology and Society, 19(4).

UN WWAP (2015). The United Nations World Water Develop-ment Report. UNESCO, Paris.

Water Czars and Groundwater Diplomacy: Skills, Scales and Sustainability

Shalet Ngoli Idawo[1]

[1]Ministry of Water, Sanitation and Irrigation, Nairobi, Kenya

SUMMARY

A culture of peace is desirable when sharing resources. This culture does not only include matters of lifeways, behaviourbehaviour, values, and patterns of belief, but importantly, consistency with institutional arrangements. Our diminishing water resources call for water preservation and accountability for every drop. Past research shows that water management and governance structures need strengthening, to address the pressures associated with imbalances in water supply and demand characterized by water conflicts in this 21st century. However, fragmentation in water governance and management stands in the way due to a lack of coordination between agencies across borders. The strong leadership of interdisciplinary and transdisciplinary water professionals has been suggested to address the problem of fragmentation. This study investigates water czars as interdisciplinary and transdisciplinary water professionals who enable governance through their skills by promoting coordination and collaboration. Research findings indicate that water czars often have the following characteristics: government experience, power, governance skills, diplomatic skills, technical skills, strong personality, visionary/innovative, and law training. The importance of this research is to promote sustainable peace in the management of shared groundwater resources by strengthening cooperation under the Integrated Water Resources Management Framework.

INTRODUCTION

Reflecting on UNESCO's mission, we find a need to cultivate a culture of peace, that includes not only lifeways, behaviour, values, and patterns of belief, but importantly co-occurrence with institutional arrangements (Fry & Miklikowska, 2012). Groundwater management practices are basically challenged by governance issues that not only require prioritization, but most importantly, standardization (Schipanski et al., 2023). In rethinking possibilities of dealing with political bottlenecks towards transboundary cooperation in the Horn of Africa region, suggestions for a trusted ruler and mediator "Water Czar" to shape the narrative of IWRM and politics in the implementation of cooperative solutions for the region were provided to the international community (Barnhoorn et al., 2020).

METHODOLOGY

(i) Analyze the skills of water czars, their geographic scales of service, and their contributions and/or contradictions to sustainability.

(ii) Explore ways in which the role of a water czar may need to be better defined for a groundwater czar to help address the problems that currently exist in groundwater governance and promote sustainability in groundwater resources.

RESULTS AND DISCUSSION

Studies from literature show that good water governance requires interdisciplinarity and transdisciplinarity in solving complex water problems. This entails a combination of technical skills, diplomatic skills, knowledge in water law, values and ethics (Islam & Smith, 2019; Max-Neef, 2005;

Wiley & Jarvis, 2022). Water czars have all these skills that enrich them for management, governance and leadership as presented in Figure 1 below.
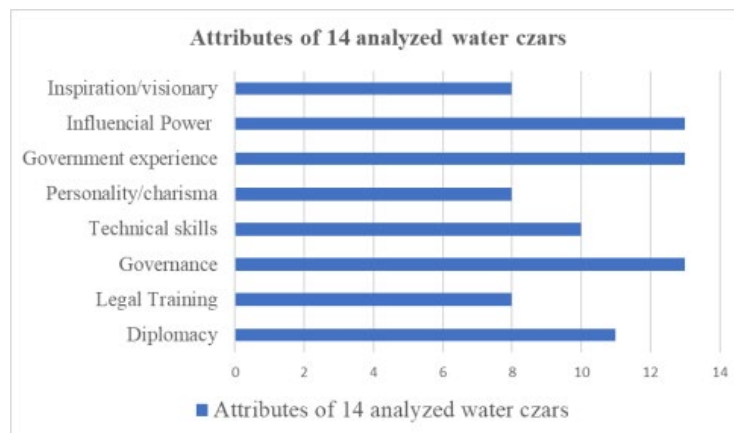
Figure 1: Attributes of Water Czars 2

Water czars work in various scales ranging from local to international contexts as determined by the need. These are state/national, basins, aquifers, lakes, transboundary, and the UN as shown in Figure 2 below.
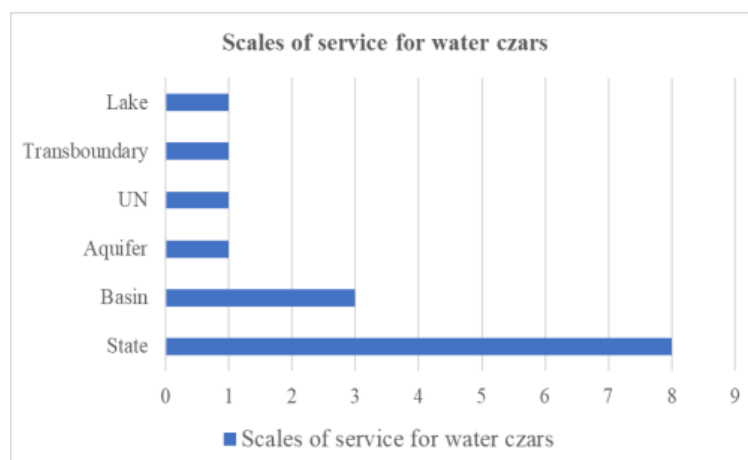
Figure 2: Scales of Service for Water Czars

Through their principles and pragmatism, water czars achieve actions and contribute to sustainability, as task-oriented and relationship-oriented leaders with situational control, by developing water management plans, overseeing the implementation and coordinating plans, projects, and policies.

Figure 3: Contributions of Water Czars to Sustainability

CONCLUSION

Water Czars as policy coordinators and pragmatic water professionals, can lead, guide and coordinate collaborations across boundaries by working with professionals of various disciplines. While surface water negotiations revolve around flows, groundwater negotiations revolve around the bulk stored in aquifers. Collaboration and cooperation in the management of groundwater requires the leadership of a mediator to avoid bias in decision-making that results from duelling experts.
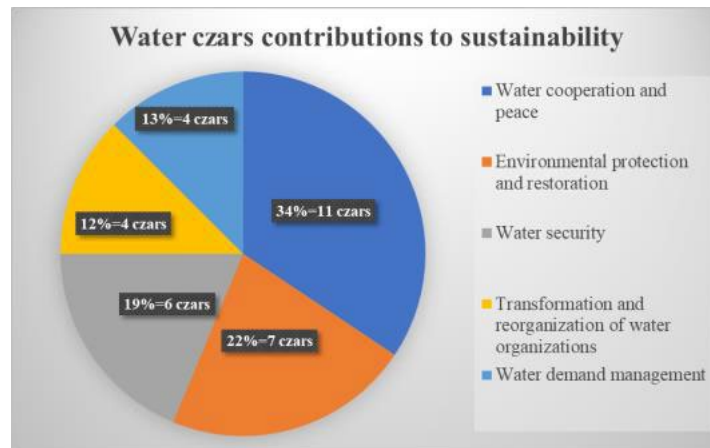
A "groundwater czar" is therefore a transdisciplinary and interdisciplinary groundwater professional capable of coordinating groundwater policies and spearheading groundwater problem-solving through public participation and boundary spanning. Therefore, every unit of water management as determined by the scales, from local to international levels, can have water czars and groundwater czars to promote coordination and collaboration in governance and management.

REFERENCES

Barnhoorn, A., Krampe, F., Van de Goor, L., Smith, E., & Smith, D. (2020). A new regional approach to water security and governance in the Horn of Africa. Africa Portal; Policy Commons. https://policycommons.net/artifacts/1443597/a-new-regional-approach-to-water-security-and-governance-in-the-horn-of-africa/

Fry, D. P., & Miklikowska, M. (2012). Culture of Peace. In P. T. Coleman (Ed.), Psychological Components of Sustainable Peace (pp. 227–243). Springer. https://doi.org/10.1007/978-1-4614-3555-6_12

Islam, S., & Smith, K. M. (2019). Interdisciplinary Collaboration for Water Diplomacy: A Principled and Pragmatic Approach. Routledge.

Max-Neef, M. A. (2005). Foundations of transdisciplinarity. Ecological Economics, 53(1), 5–16. https://doi.org/10.1016/j.ecolecon.2005.01.014

Schipanski, M. E., Sanderson, M. R., Méndez-Barrientos, L. E., Kremen, A., Gowda, P., Porter, D., Wagner, K., West, C., Rice, C. W., Marsalis, M., Guerrero, B., Haacker, E., Dobrowolski, J., Ray, C., & Auvermann, B. (2023). Moving from measurement to governance of shared groundwater resources. Nature Water, 1(1), Article 1. https://doi.org/10.1038/s44221-022-00008-x

Wiley, J., & Jarvis, T. (2022). Collective Aquifer Governance: Dispute Prevention for Groundwater and Aquifers through Unitization. Cambridge University Press. Women participation in water management in Karamoja region, Uganda: Implications on peace and security.

Women participation in water management in Karamoja region, Uganda: Implications on peace and security.

A.R. Mwangu[1]

[1]Kabale University, Department of Geography, Kabale, Uganda

SUMMARY

Women in Uganda carry the burden of providing water in rural households. In the semi-arid Karamoja in Northeastern Uganda, conflicts over water scarcity are common. This study examined the nature of water related conflict in Karamoja, how they affect women and the role women play in water management and conflict resolution. The study used questionnaire, Focus Group Discussion (FGD), Key informant interviews and observations at water collection points. Results reveal that conflicts are of three types: between livestock users, livestock and domestic users, and domestic users. Women experience physical fights at the water sources for access to water and at home due to delays in the long queues at water points; and sexual abuse in form of rape and defilement as they trek long distances in the isolated and bushy environments. Generally, women participation in water governance is limited because of the rigid cultural norms. Nonetheless, they help in mediating water related conflict involving domestic users and paying maintenance fees to keep the water flowing. The cultural norms that promote gender stereotypes and limit women's participation should be eliminated for women to play a more significant role in water management.

INTRODUCTION

Water insecurity is ranked among the top six global risks that impact society others being weapons of mass destruction, extreme weather events, food crisis, natural disasters and climate change (Santos et al, 2017). In Uganda, access to safe water is estimated at 68% with 37% of "unserved villages" in Karamoja (MWE, 2021). Water scarcity and inequalities in access, use and decision making is a recipe for violent conflicts that are common in Uganda and Karamoja pastoral region. These water conflicts largely affect women and girls who carry the burden of providing water at household level. Since the risks of accessing water are not evenly distributed, this study investigates how women involvement in water governance influence water security and peace in Karamoja.

METHODOLOGY

The study used a cross-sectional design, and mixed methods approach where qualitative and quantitative data was collected from a cross section of the community. A household questionnaire collected quantitative data from 418 respondents. Focus Group Discussions (FGD) including two for women only, two for men only to level the unequal power relations, and two combined FGDs for men and women to explore cross cutting issues were conducted per subcounty. Key informant interviews were also conducted with Districts and subcounty political and technical officers because of their responsibilities, experience and knowledge. Thematic analysis and descriptive statistics were used for data analysis.

RESULTS AND DISCUSSION

Results found that lack of community participation (89%) and low women participation (86%) were the drivers of water related conflicts in Karamoja (Figure1)

Figure 1. Drivers of water related conflicts in Karamoja
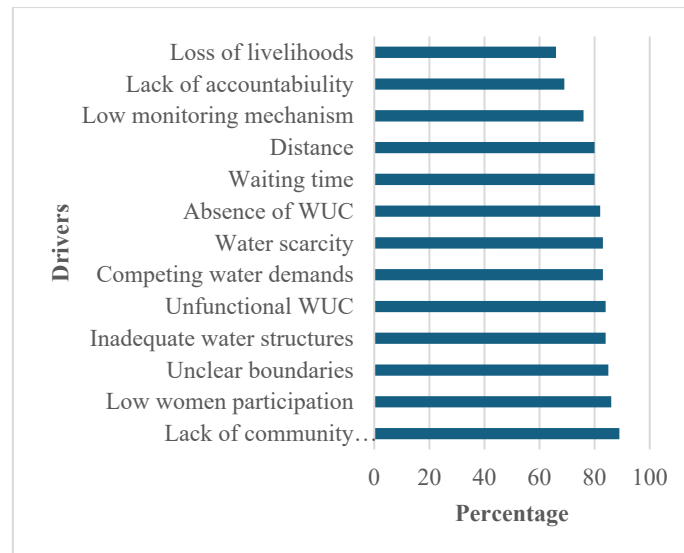
The results revealed that conflicts most occur at boreholes which is the main source of clean and safe water and sometimes at ploughed/rainfed wells during the wet seasons. Water conflicts witnessed in Karamoja are categorized into three; between livestock users, between livestock users and domestic users; and domestic users. Because of the gender roles, women are responsible for fetching water and are the main casualties in the conflicts involving domestic users that stem from access to water. The leading perpetrators of water conflict in Karamoja are the livestock owners who prioritize filling troughs for livestock at the boreholes against the domestic users. They disrupt the order for accessing water because they are going to travel long distances looking for pastures. Mutanda & Nhamo (2024) observed that conflicts between men and women are most dominant. Domestic users' conflicts are between women, are frequent and take the form of physical and emotional abuse. Women mediate the water related conflicts. Mushavi et al (2020) noted frequent occurrence of conflicts between women in the form of verbal and physical disputes.

Conflict between livestock users is intense and spill over to the entire communities, sometimes taking clan and ethnic dimensions and sometimes prolong over years when unresolved causing insecurity in the communities. Results indicate that the conflicts involving women and men as well as women only largely result from access to water and bias of the Water users Committees (WUC) that undermine the order of collecting water on the boreholes. Results indicate that conflict involving women are easily settled and the parties' reconciliation is more durable because of the women's specialized knowledge and experiences in water collection and management. Women have unique resource management and utilization skills at household level including rationing water in times of emergencies and planning to avoid water running out.

Results indicate that women spending over 2 hours in queues for water reduce the time for doing home chores resulting into physical violence and conflict at home. Men develop mistrust for their spouses and also accuse them of being lazy. The long distances to water sources through bushy and isolated environments result into sexual abuse of women and girls resulting into interclan conflicts. Abu et al (2019) noted that rape, murder and abduction of women collecting water at strange hours when circumventing long queues in the day. In addition, variation in prioritization water usage at household level between men, children and women has resulted into domestic violence and insecurity.

There is also conflict between men and women on participation in WUC with men opposing the idea of women ascending to leadership positions. Although the WUC guidelines require that at least 30 percent of positions should be occupied by women, their spouses restrict them from attending meetings. Women disclosed in FGDs that they are always silenced in meetings by men while some

61

women doubt the capabilities of each other in participating in the WUCs. This is in line Mutanda & Nhamo (2024) observation that women's quest to participate in WUCs ignited conflicts. Results indicate that payment of WUC for maintenance of water infrastructure are men's responsibility, but men neglect paying the fees insisting that providing water at home are women's cultural role. Consequently, women pay the fees and clean the water sources to ensure that water is flowing to curtail water insecurity and conflict. Crown et al. (2012) equally observed that paying such fees is men's responsibility in Kenya.

CONCLUSIONS

Women advocate for peaceful co-utilization of water resources in Karamoja through paying the maintenance fees and mediating conflicts between domestic users. However, their participation in water governance is limited tied down by the rigid culture norms that prejudice women. More sensitization targeting the unprogressive cultural norms should be conducted for women to play a more significant role in water management and contribute to achieving SDG 6.

ACKNOWLEDGEMENTS

REFERENCES

Abu, T. Z., Bisung, E., & Elliott, S. J. (2019). What if your husband doesn't feel the pressure? An exploration of women's involvement in wash decision making in Nyanchwa, Kenya. Int. J. Environ. Res. Publ. Health 16:101763. doi: 10.3390/ijerph16101763

Crow, B., Swallow, B., & Asamba, I. (2012). Community organised household water increases not only rural incomes, but also men's work. World Development 40 (3):528–41. doi: 10.1016/j.worlddev.2011.08.002

MWE(Ministry of Water and Environment). (2021).Karamoja Wash Strategic Investment Plan. MWE.

Mushavi, R. C., Burns, B. F. O., Kakuhikire, B., Owembabazi, M., Vorechovská, D., McDonough, A. Q., et al. (2020). "When you have no water, it means you have no peace": a mixed-methods, whole-population study of water insecurity and depression in rural Uganda. Soc. Sci. Med. 245:112561. doi: 10.1016/j.socscimed.2019.112561

Mutanda, G.W., & Nhamo, G. (2024). Gendered perspective on water security, rights and conflicts in sub-Saharan Africa: a systematic review. Front. Water 6:1399415. doi: 10.3389/frwa.2024.1399415

Santos, S. d., Adams, E., Neville, G., Wada, Y., de Sherbinin, A., Mullin Bernhardt, E., et al. (2017). Urban growth and water access in sub-Saharan Africa: progress, challenges, and emerging research directions. Sci. Tot. Environ. 2017, 497–508. doi: 10.1016/j.scitotenv.2017.06.157

Water, conflicts, and cooperation initiatives in Beni

Papy Kasereka[1]
[1]Beni Peace Forum, Beni, Democratic Republic of Congo

SUMMARY

In the Beni region, in the eastern Democratic Republic of Congo, conflicts over access to water are increasing, exacerbated by persistent insecurity, which results in massive displacements of civilian populations to areas considered relatively safe. These forced movements put increased pressure on local resources, making drinking water scarce and a source of tension between communities.

Faced with this situation, cooperation initiatives have emerged between host populations and displaced people, led by local organizations with the support of United Nations agencies. These efforts aim to promote dialogue, collaborative resource management, and social cohesion in a context marked by insecurity, precariousness, and mistrust.

This note provides a summary of the main issues related to water conflicts in the Beni region, as well as an overview of the cooperative dynamics implemented to address them.

INTRODUCTION

This study on conflicts related to drinking water in the Beni region is part of the project "Together for Peace in Beni: A Local Collaboration to Strengthen Conflict Prevention and Peacebuilding in Beni."

Since 2014, the eastern Democratic Republic of Congo—particularly Ituri, North Kivu, and South Kivu has been marked by a resurgence of armed violence, causing massive displacement to the outskirts of Beni. This demographic pressure exacerbates the scarcity of drinking water, especially during the dry season, and generates growing tensions between communities. Although the right to water is guaranteed by Article 48 of the Constitution, its implementation remains hampered by weak governance, low access rates, and persistent instability, despite considerable water potential.

WATER-RELATED VIOLENCE IN BENI

Attacks by armed groups have caused significant displacement of civilian populations, leading to a sharp increase in demand for drinking water in host areas around the city of Beni. In this context, access to water is becoming increasingly restricted, and drinking water is becoming scarce, transforming water supply points into flashpoints of tension. This pressure is exacerbating communal violence in Beni.

Crowds form daily around the few still functioning wells, where waits can last for hours. Some women sometimes wait more than seven hours before being able to fill their containers. This shortage exacerbates rivalry between different users, particularly herders, farmers, and displaced families fuelling a climate of competition and growing frustration.

INITIATIVES TO PREVENT CONFLICT AND PROMOTE COOPERATION

In the Beni region, several local initiatives have been implemented to prevent and manage conflicts related to access to water. These include the installation of new supply points and the creation of spaces for dialogue and consultation that promote regular exchanges between communities. These initiatives aim to anticipate, resolve, and transform tensions, while strengthening social cohesion, collaboration, and mutual trust between different groups.

METHODOLOGY

This study is based on a qualitative approach combining several complementary methods: the organization of participatory action research workshops, field surveys involving experts and conflict stakeholders (including interviews and direct observations), and in-depth documentary analysis.

RESULTS AND DISCUSSION

This study identified and analyzed the main conflicts affecting the Beni region. The expected results aimed to provide a thorough understanding of the factors and dynamics underlying tensions related to access to water. Our research findings thus helped shed light on the specific issues surrounding water conflicts and strengthen efforts to promote peace and security in the region.

CONCLUSION

The Beni region faces complex water-related challenges. However, community initiatives and collaborative solutions can mitigate tensions and promote sustainable and peaceful resource management.

ACKNOWLEDGMENTS

REFERENCES

Pacifique Makuta, All, Localized Conflict Analysis in Beni: Actors, Collective Identities, and Opportunities for Peace, available at: https://www.peacedirect.org/content/uploads/2025/01/PD-Localized-Conflicts-in-Beni-FR-v5.pdf

Jason STEARNS, NORTH KIVU. Historical Context of the Conflict in North Kivu Province, Eastern Democratic Republic of Congo, Rift Valley Institute, Nairobi, 2012, pp. 10 ff.

International Committee of the Red Cross: DR Congo: Water resources under pressure in Beni, available at: https://www.icrc.org/fr/document/rd-congo-des-ressources-en-eau-sous-pression-beni

International Alert, Beyond Stabilization: Understanding Conflict Dynamics in North and South Kivu in the Democratic Republic of Congo, Tufaidike Wote, February 2015, available at: https://www.international-alert.org/app/uploads/2021/08/DRC-Conflict-Dynamics Kivus-FR-2015.pdf.

Theme 2: Innovations for water and Peace

Session 3A

Session 3A showcased innovative approaches that link water management with peacebuilding by addressing water-related conflicts through governance reform, ethical frameworks, and the strategic use of data and technology. Moderated by Khalid Hassaballah, the session brought together diverse case studies demonstrating how water can act as both a driver of conflict and a catalyst for cooperation, depending on how it is governed.

Mohamed Daud (Somali Academy, Somalia) opened the session with "Water-Based Conflict in the Sool Region," presenting a granular analysis of intra-clan conflict dynamics linked to water scarcity. Focusing on specific water points such as Jidbaale and Dabardalool, he connected local disputes to broader structural drivers including climate change, illiteracy, and underdevelopment, illustrating how water scarcity directly triggers violence in fragile contexts.

Eric Suyru (Ethics & Policy Lab, Cameroon) followed with "Climate Change and Water Conflicts in the Lake Chad Basin: A Peace and Security Issue." He framed water scarcity as a threat multiplier that exacerbates existing insecurity, including violent extremism. His presentation emphasized the need for multi-stakeholder governance that integrates traditional community-based water management practices with formal institutional arrangements to enhance resilience and reduce conflict risks.

Momodou J.A. Senghore (NEWRM Centre, The Gambia) presented "Space4Water Country Case: The Use of Space-Based Technology to Address Water Challenges in The Gambia." He demonstrated how Earth observation tools such as Sentinel-1 and Sentinel-2 for surface water monitoring, and GRACE for groundwater assessment, are being applied to drought management, flood risk reduction, and transboundary water cooperation. The case illustrated how countries without national space agencies can still leverage space-based data for evidence-based decision-making.

Beatrice Dube (University of South Africa, online) concluded with "A Rawlsian Perspective on Water Governance Reform in South Africa." Drawing on Rawls' theory of justice, she critically examined South Africa's water allocation regime, particularly the protection of "Existing Lawful Uses." She argued that procedural reforms are insufficient without substantive redistribution, and that water governance arrangements are only just when they maximally benefit the least advantaged.

Across the session, participants identified structural legal barriers, fragmented data systems, and climate change as persistent challenges. Recommendations emphasized integrating technology with traditional knowledge, strengthening transboundary and local cooperation, prioritizing equitable access, and advancing redistributive, time-bound water policies. The session concluded by reaffirming that innovation in water governance must combine ethical clarity, technological tools, and inclusive institutions to transform water from a source of conflict into a foundation for peace.

Water-based Conflict in Sool Region: Case Studies Jidbale Water Well and Dabardalol Water Well in Hudun District

Mohamed Abdikadir Daud (Stanza) [1]
[1]Somali Academy, Somalia

SUMMARY

Traditional governance systems play a critical role in managing water resources in pastoral societies. This paper explores Somali customary laws governing water wells and examines their relevance for conflict prevention and peace-building in Sool Region, Somalia. Drawing on the Jidbale and Dabardalol conflicts, the study shows that customary rules offer structured mechanisms for water sharing, ownership determination, and dispute resolution. However, the weakening of these systems, combined with political interference and environmental stress, has reduced their effectiveness. Strengthening customary institutions alongside formal governance structures is essential for sustainable peace and water security.

INTRODUCTION

Somali pastoral communities have long relied on customary law (xeer) to regulate access to natural resources, including water wells. These systems historically ensured equitable sharing and conflict mitigation. In recent decades, environmental degradation, settlement expansion, and political instability have undermined these mechanisms. Understanding the role of customary water governance is therefore critical for addressing water-related conflicts and promoting peace in fragile pastoral settings.

METHODOLOGY

This study applies a qualitative analytical approach based on interviews with elders, sociologists, peace practitioners, and local community members. The analysis integrates primary field observations with secondary literature on Somali customary law, water governance, and conflict resolution.

RESULTS AND DISCUSSION

The research identifies detailed customary rules governing well ownership, renovation, territorial claims, and shared use. These rules emphasize justice, equity, and collective security. However, their application has been weakened by delayed compensation payments, erosion of trust, and external political interference. Peace initiatives led by elders, universities, and civil society have had partial success but lack institutional support and enforcement mechanisms.

CONCLUSION

Customary water governance remains a vital foundation for peacebuilding in pastoral Somalia. Revitalizing and integrating these systems with formal governance structures can reduce water-related conflicts and promote sustainable resource management. Strengthening local mediation, respecting customary law, and ensuring equitable access to water are key to achieving durable peace in Sool Region and similar pastoral contexts.

References

- Daud, M. (2025). Constructive Conflict Resolution. Nairobi: Avicenna Publishers.
- Elmi, J. (1989). Silsiladdii Guba [Guba poetical chain] [Cassette]. Fiiro Media. Available: https://www.youtube.com/watch?v=ewB9llTAx_A

- Food and Agriculture Organization. (2005). Somalia: Land and water resources. FAO Land and Water Division. Available: https://www.fao.org.

- Hoehne, M. V. (2015). Between Somaliland and Puntland: Marginalization, militarization and conflicting political visions. Rift Valley Institute.

- Institute for Peace and Conflict Studies. (2021). Baseline Survey on Community Conflicts in Eastern Regions of Somaliland. Institute for Peace and Conflict Studies.

- Ismail, A. (2021, November, 29). "Delay of the payment of blood money is a root cause of clan conflict in Sool Region because it leads to tribal revenges."

- Ismail, Y. (2025). The Customary Law of the Wells [Unpublished manuscript]. Gateway Secondary School.

- Ismail, Y. (2025, August, 4). "Seven men were killed at Jidbale and 21 men were killed at Dabardalol. The two clans didn't sign full peace agreement in Yagori because Somaliland meddled in their peace process forcefully."

- Loyan, M. (2025, August, 10). "The root cause of the conflict is Somaliland's attempt for mining gold and other minerals at Boocda under the cover of drilling water boreholes. The people of Hudun fought against that sheer theft."

- Menkhaus, K. (2003). State collapse in Somalia: Second thoughts. Review of African Political Economy, 30(97), 405–422. Available: https://doi.org/10.1080/03056244.2003.9659773

- Mukhtar, M. H. (2003). Historical dictionary of Somalia. Lanham, Maryland, and Oxford: Scarecrow Press, Inc.

Climate Change and Water Conflicts in the Lake Chad Basin: a Peace and Security Issue

Eric Suyru[1]

[1]Ethics & Policy Lab Cameron

Several Intergovernmental Panel on Climate Change (IPCC) reports indicate that the Lake Chad basin is today one of the areas most affected by climate change in Africa and in the world. Over the last six decades, the size of the Lake Chad has decreased by 90 per cent because of the overuse of water and the impact of climate change. The surface area of the lake has plummeted from 26,000 square kilometres in 1963 to less than 1,500 square kilometres today. Each year Lake Chad is seeing extreme water-related event including heatwaves and droughts that led to conflicts. The impacts of climate change in Lake Chad, which have been called an ecological disaster, have not only destroyed livelihoods and biodiversity but led to the exacerbation of preexisting water conflicts among riparian's communities and among States. In fact, Lake Chad is a transboundary river that serves as a natural border across Cameroon, Chad, Niger and Nigeria. The ecosystem services it provides make it an area of demographic polarization, with nearly 40 million people who depend directly on its water resources for their daily living. While there is a growing debate within the scientific community on the causes of the regression of the water resources, there is a dominant discourse consisting in pointing out that the disappearance of Lake Chad is a hydro political myth based on the assumption that the fish and water resources have not regressed for twenty years. On the contrary, as extended droughts are one of the evidence effects of climate change in Lake Chad, there is a competitive rush for natural resources from riparian's communities and States. In other words, climate change effects exacerbate water conflicts and are therefore a peace and security issue in this area. The objective of this work is to contribute to the analysis of the geopolitical studies of water resources in Africa. By focusing on Lake Chad Basin, the research aims at highlighting the central place that water occupies in maintaining regional peace and security. The work aims at showing how water scarcity is a threat multiplier of conflicts in the lake Chad region that involves multi-stakeholder governance.

Space4Water Country Case: The use of Space-based Technology to address water challenges in The Gambia

Momodou J.A. Senghore[1] , Nina Kickinger[2]

[1] National Early Warning and Response Mechanism Coordinating Centre (NCCRM) – Banjul, The Gambia
[2] United Nations Office for Outer Space Affairs (UNOOSA), Vienna, Austria

SUMMARY

This case study examines The Gambia's water resource management challenges and the role of space-based technologies in supporting sustainable governance. The Gambia, the smallest mainland African nation, relies heavily on the Gambia River for agriculture, fisheries, and transport. Despite abundant water resources, climate change, rapid urbanization, salinization, and over-abstraction intensify stress on surface and groundwater. Groundwater supplies about 90% of national needs, yet outdated infrastructure, limited sanitation, and weak data systems hinder management. Agriculture dominates water use, though irrigation remains small-scale. The country has adopted Integrated Water Resources Management (IWRM) principles through national policy and reform projects, while regional cooperation under the Gambia River Basin Development Organisation strengthens shared governance. Although The Gambia lacks a national space programme, Earth observation (EO) data from partners such as SERVIR-West Africa and AGRHYMET support climate monitoring, agricultural planning, disaster preparedness, and SDG reporting. Access to safe drinking water exceeds 85%, but sanitation coverage remains under 50%. Institutional coordination and capacity building remain essential. The case highlights both systemic vulnerabilities and the transformative potential of integrated governance, regional collaboration, and EO technologies to strengthen climate-resilient, equitable water management.

INTRODUCTION

Water security underpins The Gambia's economic development, food security, and public health. The Gambia River, its central hydrological feature, provides surface and groundwater resources critical to agriculture, fisheries, and domestic consumption. However, the country faces mounting water stress from climate variability, salinization, rapid urbanization, and over-abstraction. Freshwater availability and ecosystem stability are increasingly threatened, requiring integrated management approaches.

METHODOLOGY

This case study combines a desk review of national water policies, reform projects, and institutional frameworks with analysis of transboundary governance through the Gambia River Basin Development Organisation. It also evaluates secondary data on hydrology, climate change impacts, and Sustainable Development Goals (SDGs). Particular attention is given to the role of Earth observation (EO) data and partnerships with regional and international organizations in water governance.

RESULTS & DISCUSSION

Groundwater accounts for 90% of The Gambia's water use, but outdated infrastructure, limited sanitation coverage, and weak monitoring constrain sustainable management (Table 1).

Region	Abstraction		Recharge Mm³/year	Abstraction vs Recharge in %	Groundwater storage Mm³/year
	m³/day	Mm³/year			
West Coast	127,665	46.6	152	30.7	5,396
North Bank	11,862	4.3	118	3.6	9,103
Central River	13,486	4.9	135	3.6	9,729
Upper River	8,592	3.1	129	2.4	6,702
Total	168,107	61.4	608	10.1	36,000

Table1: Groundwater abstraction, recharge and storage, shallow sand aquifer.

Agriculture remains the largest consumer, with irrigation dominated by traditional practices. Hydropower potential is underutilized due to lack of infrastructure.

Policy responses include the National Water Policy, the IWRM Roadmap, and the National Water Sector Reform Project, which have advanced institutional restructuring and hydrological data modernization. Regional cooperation under OMVG supports shared water resource management, hydropower development, and ecosystem protection.

Despite lacking a national space programme, The Gambia leverages EO data for climate monitoring, agricultural planning, disaster preparedness, and SDG tracking. Partnerships with SERVIR-West Africa and AGRHYMET have expanded access to satellite data, though technical and institutional capacity gaps limit full integration.
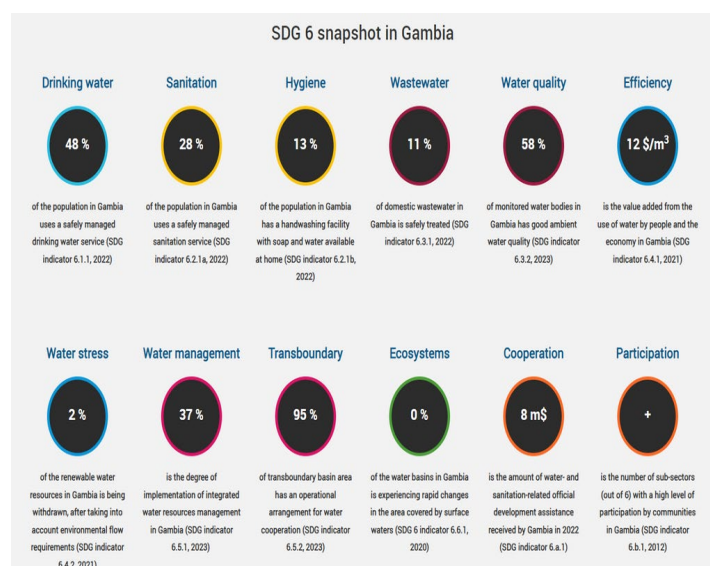
Figure 1: SDG 6 snapshot in The Gambia
Source: UN-Water SDG 6 Data Portal https://www.sdg6data.org/en

Progress toward SDG 6 is mixed: drinking water access exceeds 85%, but sanitation remains under 50% and wastewater treatment is minimal (Figure1). Strengthening institutional coordination, infrastructure investment, and data-driven decision-making remain critical.

CONCLUSIONS

The Gambia faces systemic water challenges driven by climate change, demographic pressures, and infrastructure deficits. Yet, integrated policy reforms, regional cooperation, and the application of EO data demonstrate strong potential for building water resilience. Investment in data systems, infrastructure, and institutional capacities is essential to advance equitable, climate-resilient water management and accelerate progress on SDG 6.

ACKNOWLEDGEMENTS

REFERENCES

AGRHYMET. Climate and Hydrological Monitoring Report. Niamey, 2022.

Gambia River Basin Development Organisation (OMVG). Strategic Plan 2020–2030. Dakar, 2020.

SERVIR-West Africa. Earth Observation Applications for Climate and Agriculture in West Africa, Niamey, 2021.

Government of The Gambia. National Water Policy. Banjul: Ministry of Fisheries and Water Resources, 2019.

United Nations. SDG 6 Progress Report: The Gambia. New York, 2023.

A Rawlsian perspective on water governance reform in South Africa

B. Dube[1]

[1]University of South Africa, Department of Development Studies, Pretoria, South Africa

SUMMARY

Despite significant reforms in South Africa since 1994, water allocation continues to reflect colonial and apartheid legacies, with recent research revealing that Black South Africans control merely 0.5% of water resources while white South Africans retain access to 98.6%. This paper examines how Rawls' theory of distributive justice, particularly the 'difference principle', can provide ethical guidelines for water allocation that prioritize the most disadvantaged. Drawing from interview data, systematic literature review, and press analysis of the National Water Amendment Bill of 2023, the article critiques prevailing governance approaches that entrench inequalities by privileging powerful stakeholders. The proposed amendments represent significant yet limited steps toward transformation as governance efforts remain largely symbolic. While acknowledging operational challenges, this analysis demonstrates the value of Rawls' difference principle in measuring redistributive outcomes' impact on the most marginalized, providing a moral position where institutions serve all citizens rather than preserving historical privileges.

INTRODUCTION

South African water governance continues to reflect deep-rooted historical inequities despite post-1994 legislative reforms (Dube, 2020; Hydrosoft Institute, 2021; Msibi & Dlamini, 2011), systematically denying meaningful resource access to Black communities, and perpetuating a legacy of exclusion (Kaziboni 2024; Tapela 2015). Access to water, previously tied to land through riparian water rights, was repealed by the National Water Act Number 36 of 1998; however, land ownership has largely remained in the hands of a few, with reports of 'dry' land within the country's land reform process where land is redistributed to beneficiaries while previous owners retain water rights (Dube 2020). Current efforts to reform water governance, specifically through proposed amendments to the National Water Act of 1998 (DWS, 2023a), have renewed debate among various stakeholders. While these amendments propose mechanisms intended to enhance equity, substantial debate remains regarding whether such changes will meaningfully benefit historically marginalized communities (see Ho, 2024) and how the currently privileged will be impacted (see AgriSA, 2024). Critical analysis reveals that despite transformative intentions, these amendments risk failing to dismantle entrenched privileges, particularly as they do not substantially alter existing water use rights or address structural constraints such as land-access disparities.

A significant knowledge gap thus emerges in existing water governance frameworks, particularly in defining clear ethical standards for allocating water resources equitably and justly. Current frameworks predominantly emphasize procedural equity and economic efficiency without adequately addressing substantive outcomes for disadvantaged groups (Tekwa & Dube, 2024). The question motivating this paper, therefore, is how water governance could be restructured in South Africa to genuinely prioritise disadvantaged populations, explicitly ensuring meaningful redistributive outcomes. This paper addresses this gap by theoretically applying John Rawls' distributive justice framework, particularly his 'difference principle', to South African water allocation practices.

METHODOLOGY

The paper builds on a qualitative study of water allocation reform that employed Rawls' theory of justice (Dube, 2020). It primarily uses a systematic review of literature, complemented by insights drawn from interviews conducted during the initial study. Additional online sources were purposively

identified through Google searches to capture timely reflections and public engagement with the National Water Amendment Bill. These included statements and journalistic articles issued by civil society organizations and media articles that reported on or analysed the bill's implications. Sources were drawn from well-recognized platforms such as Mail & Guardian, Engineering News, Creamer Media, and reputable academic institutions including the University of Johannesburg and the University of the Witwatersrand. These media perspectives were particularly useful in framing the public reception and debate surrounding the proposed reforms, offering important context for the paper's exploration of justice and redistribution. Through this approach, the article critically assesses the ethical implications of South Africa's water allocation policies, proposing practical avenues for genuine redistributive justice.

RESULTS & DISCUSSION

The amendments propose several transformative measures, including:

- Repealing the right to declare existing lawful uses (ELUs), thereby dismantling privileges entrenched by colonial and apartheid-era water rights;
- Allocating specific volumes of water in each water management area explicitly to historically disadvantaged individuals (HDIs);
- Implementing the 'use it or lose it' principle to reclaim underutilised water resources;
- Empowering the Minister to allocate and reallocate water resources across sectors, provinces, or catchments.

From a justice perspective, these amendments attempt to reconfigure the institutional arrangements that have maintained unequal water distribution since apartheid. Repealing the ELU provisions responds directly to concerns raised by the Hydrosoft Institute (2021), highlighting the necessity to eliminate or substantially revise legislation that perpetuates indefinite retention of water rights. At the same time, their practical impact remains questionable. The amount available for allocation is the miniscule 1.8% unallocated portion; small scale farmers are unable to claim the amounts set aside for them due to lack of infrastructure; civil society organizations are threatening legal action to seek compensation if the use it or lose it principle is applied.

Examining South Africa's water governance through Rawls' theory of justice provides a normative framework that goes beyond procedural reforms to evaluate whether institutional arrangements genuinely benefit the least advantaged members of society. Rawls' idea of justice concerns itself with how "major social institutions distribute fundamental rights and duties and determine the division of advantages from social cooperation". In South Africa's case, water governance institutions have distributed these advantages in ways that perpetuate historical patterns of privilege. Rawls' idea of the 'veil of ignorance' in the distribution of social goods provides a critical standard against which to evaluate real-world institutions, highlighting the unjustifiable nature of arrangements that perpetuate inequalities based on morally arbitrary factors such as race, class or gender. When evaluated through a Rawlsian lens, South Africa's current water allocation system, even with the proposed amendments, falls short of the standards of distributive justice. Repealing Existing Lawful Uses (ELUs) aligns with Rawls' notion of the 'original position', which demands that principles of justice be formulated without regard to inherited advantage, thereby dismantling entrenched privileges. Allocating specific water volumes for historically disadvantaged individuals also speaks directly to the difference principle, which requires that inequalities benefit the least advantaged. Yet, implementation remains constrained by dominant narratives that frame water reallocation as a threat to economic stability. Concerns over the potential impact on commercial agriculture reinforce the idea that only large-scale farming contributes meaningfully to the economy and food security, thereby marginalising smallholder farmers. These efficiency-based arguments protect those already privileged and systematically obstruct redistributive justice, ensuring that the least advantaged remain without access to productive water use.

The National Water Amendment Bill, while representing progress toward more just water governance, ultimately falls short of the transformative potential of Rawls' difference principle. A genuinely Rawlsian approach would require what Fraser (2020, p. 82) terms "transformative remedies", that is, "remedies aimed at correcting inequitable outcomes precisely by restructuring the underlying generative framework". For South African water governance, this means moving beyond existing water rights to implement comprehensive reform that genuinely centres the needs of historically disadvantaged communities.

CONCLUSIONS

This paper argues that despite significant post-1994 legal reforms, water allocation still reflects colonial and apartheid legacies instead of achieving genuine transformation. The persistence of historical water rights through mechanisms like ELUs fails the basic Rawlsian test of ensuring that institutional arrangements maximise benefits for the most disadvantaged. Rawlsian justice demands comprehensive reforms beyond procedural adjustments, ensuring meaningful redistributive outcomes. Current proposals do not fully satisfy the ethical obligation to improve conditions for historically disadvantaged populations.

ACKNOWLEDGEMENTS

REFERENCES

Dube, B. (2025). A Rawlsian perspective on water governance reform in South Africa. African Journal of Public Administration and Environmental Studies (AJOPAES), Vol. 4 (2), pp. 327-346

Theme 3: Climate change and water Security

The sessions under the *Climate Security* theme examined how climate change, water insecurity, and governance failures interact across scales to produce risks to stability, livelihoods, and peace. Rather than framing climate impacts as purely environmental or technical challenges, the sessions emphasized that climate security emerges at the intersection of hydrological change, political decision-making, and social inclusion. Across diverse geographic contexts—from East Africa to the Middle East—the sessions demonstrated that climate-related water stress becomes a security risk when governance systems fail to anticipate, mediate, or equitably manage its impacts.

One strand of the thematic discussion focused on the role of data, technology, and knowledge integration in climate-security decision-making. Participants highlighted how remote sensing, hydrological monitoring, conflict incident data, and geopolitical risk analysis can reveal patterns of vulnerability that remain invisible in reactive crisis-response approaches. Tools such as integrated dashboards, cartographic diagnostics, and multi-scalar risk assessments were presented not as ends in themselves, but as enabling infrastructures that support anticipatory action, dialogue, and accountability—provided they are embedded in legitimate governance processes.

A second strand emphasized community-centred and inclusive governance as a prerequisite for climate security. Case studies from pastoralist regions in Kenya, cross-border communities in Ethiopia and Uganda, and fragile contexts in Iraq and Syria illustrated how climate-induced water stress disproportionately affects marginalized groups while simultaneously creating opportunities for cooperation when local actors are empowered. Women, youth, and Indigenous communities were consistently identified not only as vulnerable populations, but as critical agents of mediation, innovation, and resilience when given meaningful roles in governance.

Across sessions, participants stressed that climate security risks manifest differently at basin, national, and local levels, yet are tightly interconnected. In transboundary basins, unilateral infrastructure development, weak cooperation frameworks, and fragmented institutions amplify downstream vulnerability. At local levels, declining water availability, ecosystem degradation, and governance exclusion translate climate stress into livelihood loss, public health risks, and social tensions. These dynamics underscore the need for multi-level approaches that link local realities with regional and transboundary governance.

Collectively, the Climate Security sessions advanced a shared conclusion: durable security cannot be achieved through top-down control or technical fixes alone. Instead, climate security requires governance systems that integrate scientific and local knowledge, address structural inequities, and enable cooperative action across borders and scales. By linking data-driven analysis with inclusive decision-making, the thematic track reframed water not as a trigger of instability, but as a strategic entry point for resilience, equity, and peace in a climate-stressed world.

Session 4A

This session examined how data-driven tools and inclusive governance can reposition water from a driver of insecurity to a catalyst for peace, equity, and climate resilience. Moderated by Dr. Modathir Zaroug, the session brought together technical experts and community-centred practitioners to demonstrate that climate security depends not only on improved data, but on governance systems that empower marginalized actors to shape decisions.

The first presentation, "Turkana Dashboard: Information Tool for Supporting Water, Peace and Security," was delivered by Andreja Jonoski and Krishna Patil (IHE Delft Institute for Water Education). The presenters demonstrated how the Turkana Dashboard integrates satellite-derived environmental indicators, water-point mapping, and conflict incident data into a single decision-support platform. By transforming fragmented reports into time-series datasets, the tool enables users to identify seasonal and spatial hotspots where water stress and violence intersect. The presentation emphasized the dashboard's value as a shared evidence base that supports dialogue, anticipatory action, and monitoring of interventions, rather than reactive crisis response.

The second case study, "Water as a Catalyst for Equity: Centering Marginalized Voices in Governance and Climate Resilience," was presented by Jatani Bonaya Godana (Engineer, Ethiopia). Drawing on experiences from Borana pastoralist communities in the Ethiopia–Kenya borderlands, the presentation highlighted community-led governance innovations that challenge top-down models of water management. Godana illustrated how women act as mediators at water points, how youth lead digital mapping and conflict early-warning initiatives, and how intergenerational councils deliberately blend Indigenous ecological knowledge with contemporary peacebuilding practices. Cross-border water-sharing agreements among the Borana, Gabra, and Garri communities were presented as concrete examples of water governance functioning as a mechanism for trust-building and conflict de-escalation.

A central theme across both presentations was the integration of diverse knowledge systems. Participants emphasized that technical tools such as remote sensing, hydrological modelling, and agent-based simulations—presented through the Turkana Dashboard—are most effective when interpreted and validated through local and Indigenous knowledge systems, as demonstrated in the Borana case. The session argued that neither scientific data nor ancestral wisdom alone is sufficient; durable climate-security outcomes emerge from their intentional combination.

The discussion also identified persistent challenges, including governance models that exclude local actors, difficulties in translating data into trusted community-owned action, and the tendency to frame marginalized groups as "vulnerable" rather than recognizing them as active architects of resilience. Additional concerns included satellite data limitations, historical grievances linked to displacement, and the complexity of scaling locally grounded governance models across different socio-political contexts.

The session concluded with a shared call to shift from top-down water security approaches toward community-led governance supported by enabling policy frameworks and long-term investment. By linking data, technology, and inclusive decision-making, the session demonstrated how climate security can be advanced where water governance centeres justice, equity, and shared authority.

Turkana dashboard: information tool for supporting water peace and security

A. Jonoski[1], I. Popescu[1], K. Patil[1]

[1]IHE Delft Institute for water education, Department of Hydroinformatics and Socio-Technical Innovation, Delft, the Netherlands

SUMMARY

Digital tools have potential for supporting prevention, management and resolution of water-related conflicts. To initiate closer collaboration and joint engagement of water management and peace maintaining organizations in the water-scarce and conflict-prone region of Turkana County, Kenya, the Kenya stream of the Water Peace and Security (WPS) project developed a digital dashboard using data and models from different sources. **Water points data available from the Turkana County Water Department were merged with conflict data collected by the County Peace Directorate, and from international databases (**e.g. from the Armed Conflict Location & Event Data - ACLED database). Together with locally collected data on water points, ecosystem services and conflicts, as well as remotely sensed data on natural resources availability, interactive maps and charts were set up, allowing for initial analysis of water-related conflict dynamics. The dashboard contains further results from a hydrological model used for simulating inflows into Lake Turkana, and from an agent-based model used for exploring emergence of conflicts from conditions regarding natural resources, water points and climate. Following workshops with local stakeholders, parts of the dashboard are aimed for further use by Turkana County Water Department in their collaboration with Peace Directorate for joint management of water-related conflicts.

INTRODUCTION

Water-related conflicts can be multi-facetted and convoluted, related to many other socio-economic issues of the involved communities and actors. Prevention and management of such complex conflicts can benefit from introduction of digital tools that can bring transparency and integration of information from different sources. The Kenya stream of the Water Peace and Security project, sourced and integrated data from several providers, including its own actions on the ground, to develop a water and conflict information dashboard for the Turkana county.

METHODOLOGY

 One key objective in the methodology for the dashboard development was to bring closer together the actors in Turkana county (with focus on Turkana North) that have traditionally dealt with water and peace as separate issues. Therefore the process of dashboard development was conceived as a means for achieving this objective. Data on existing water points in the county were first collected from the Turkana Water Department, and combined with conflict data available in the international ACLED database (Armed Conflicts Location and Event Data). Following engagements of the WPS team with the Peace Directorate of Turkana County, its members were motivated and trained to start collecting local conflict data in a similar manner to the collection of water points data, so that these data could also be combined with the water points data and the international conflict data. Finally, the WPS team collected separate data on ecosystems and conflicts around lake Turkana, especially regarding access to fishing grounds and other fisheries-related conflicts. All these data were then made searchable via the dashboard and categorized per type of conflict, type of water points or ecosystem service, as well as ward location. This became the main part of the dashboard with combined water- and conflict-related data, which different stakeholders   could explore and use for analysis of potential areas and reasons for water-related conflicts. The WPS team is currently exploring possibilities with the Turkana Water Department on possibilities for maintaining and expanding this part of the dashboard for future use.

The current dashboard also includes additional information, from additional data and modelling analyses carried out within the WPS project. One dashboard component contains data from analyses of Remotely Sensed (RS) data regarding meteorological inputs and natural resources status (precipitation, evapotranspiration, soil moisture, vegetation) for the period 2015-2022, and relates these to the already collected conflict data. This analysis enabled identification of conflict-prone hotspots in relation to depletion of natural resources. The next additional dashboard contains RS data on Lake Turkana water level variations, and some hydrological modelling results used to simulate them. A HEC-HMS model was set to simulate the inflows from the catchments of Omo, Turkwel and Kerio rivers, all discharging into Lake Turkana, of which Omo is by far the most significant. These simulated inflows were then used to capture the lake Turkana water level variations, using a lake water balance model. This component was developed for future analyzing the variations of both the water level and the shoreline of Lake Turkana, which are relevant for conflicts associated to flooding near the like and access to fishing grounds. The final dashboard component is presenting results from an Agent-Based Model (ABM) which has been set up (using Net Logo software) to simulate possible emergence of conflicts depending on environmental conditions and availability of water points in the region of Turkana North and close to the shores of Lake Turkana. The agents considered were in three categories (pastoralists, farmers and fishermen), who could enter in different conflict stage depending on combination of two parameters: Difficulty (lack of availability of needed resources) and Stress (competition with other agents for resources). These agents were placed and allowed to move within a virtual environment described by variables on land cover, vegetation, rivers, grazing land, villages and available water points. Simulations have been performed for different climatic conditions (Normal, Dry and Wet) and for different number of available water points.

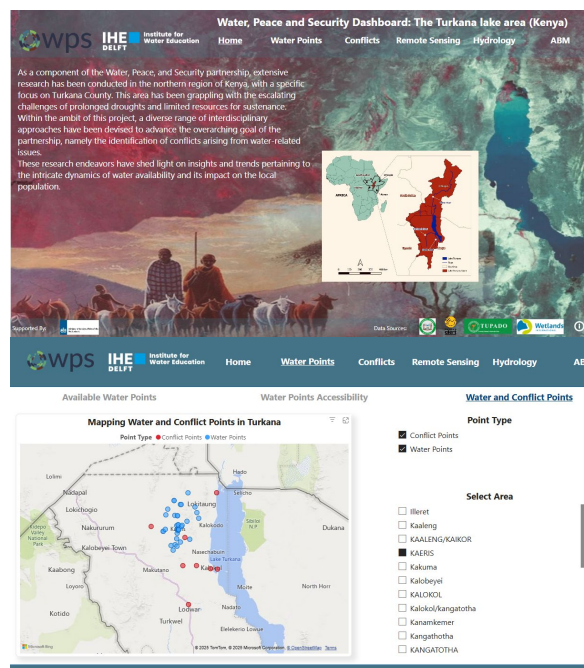Figure 1. Turkana dashboard: Top: Introductory screen; Bottom: Page with water points and conflicts data.

The Turkana dashboard has been set using PowerBI software of Microsoft. Each component contains three-four 'pages' where different results are presented. For each page there is also a help section, which provides further details about the results presented. A screenshot of the dashboard is presented in Figure 1.

Earlier versions were presented to Turkana stakeholders and discussed during two dedicated workshops organized in 2023 and 2024, which led to progressive inclusion of components.

RESULTS & DISCUSSION

The information available in the Turkana dashboard is not yet revealing any clear pattern of relations between conflict and water points. The nature of conflicts recorded is still very diverse and the water 'signal' is not always easy to be detected. The component with RS data on meteorological conditions and status of natural resources indicated that the conflict-prone hotspots are in fact those where resources are still available, implying that these are locations where people move to (especially pastoralists with their livestock), during critical periods of drought and overall lack of natural resources. The inflow results from the hydrological model have been well validated with GloFAS data (Global Flood Alert System of Copernicus EU), as observed inflows were unavailable, but the lake water levels were overestimated, probably because uncertainties with the lake bathymetry and the lake evaporation components. Finally, the obtained results from the ABM model are rather preliminary, as they are quite different compared to recorded conflicts, but the model forms a basis for further analysis of conflicts dependency on available water points and other environmental conditions. While all these tools remain for further development and support of different stakeholders (both international and local), the main achievement of this dashboard has been the establishment of closer collaboration between water-related and peace-related actors in Turkana County.

CONCLUSIONS

The Turkana dashboard developed within the WPS project stream in Kenya presents information obtained during different activities of the project over a period of three years. Data collection, modelling, combined with stakeholders' meetings and workshop resulted in its current form, which showcases the project work in Turkana. Most importantly, however, it established closer collaboration between different stakeholders in Turkana.

REFERENCES

A.P. Avrin, G. He, D.M. Kammen (2015) Assessing the impacts of nuclear desalination and geoengineering to address China's water shortages. Desalination 360(16), 1-7.

J.C. Radcliffe, D. Page (2020) Water reuse and recycling in Australia – history, current situation and future perspectives. Water Cycle 1, 19-40.

Q. Xu (2024) Chapter 5 – Quality-induced water scarcity and countermeasures. In: Water-Soil-Vegetation Nexus and Climate Change, Ed. X. Wang, ISBN 978-0-12-820106-0.

Water Governance and Conflict Prevention in Kenya's Border Regions: Insights from Research on the Ewaso Ng'iro Basin

Paul Maina[1]

[1]Institute for Water Governance and Peacebuilding, Nairobi, Kenya

SUMMARY

Water scarcity in Kenya's arid and semi-arid regions has long been a source of both local and cross-border tension, particularly among pastoralist communities dependent on shared resources. This paper investigates how inclusive and participatory water governance mechanisms in the Ewaso Ng'iro Basin contribute to conflict prevention and resilience. Drawing on qualitative and quantitative methods including community interviews, analysis of hydrological data, and conflict records from 2010–2023, the research establishes a correlation between structured governance institutions and reduced intercommunal tensions. As Wild (2023) states, areas with active Water Resource User Associations (WRUAs) reported 35% fewer violent incidents related to water disputes than those without. Gender inclusion, indigenous knowledge, and devolved governance further enhanced legitimacy and compliance with water allocation decisions. These findings underscore the role of water as a catalyst for peacebuilding when governance structures are inclusive and community led.

INTRODUCTION

Water governance in fragile border regions of Kenya is increasingly critical as climate change and population pressures exacerbate scarcity. The Ewaso Ng'iro Basin, a lifeline for pastoralist communities in northern Kenya, has historically been prone to conflicts linked to water access (Osman, 2024). However, evolving governance structures present opportunities for cooperation and resilience. This study seeks to examine how inclusive water governance practices reduce tensions and promote peace, contributing to broader debates on transboundary resource management and conflict prevention.

METHODOLOGY

The research adopted a mixed-methods approach between 2010 and 2024:

- Qualitative data: Semi-structured interviews with community leaders, WRUA representatives, women's groups, and local government officials.
- Quantitative data: Hydrological records, rainfall patterns, and incident reports on intercommunal conflicts.
- Comparative analysis: Statistical assessment of regions with active WRUAs against those without to identify trends in conflict incidence.
- Participatory approaches: Documentation of traditional water-sharing agreements and peace dialogues led by local elders and women's groups.

This methodology ensured triangulation between local experiences and empirical data, providing both depth and reliability.

RESULTS & DISCUSSION

The findings demonstrate that governance structures play a decisive role in shaping outcomes in water-stressed regions:

- Institutional impact: Areas with active WRUAs experienced a 35% reduction in violent water-related incidents. This suggests that structured participation reduces disputes by creating transparent allocation systems.

- Gender inclusion: Women-led peace dialogues proved vital in mediating tensions during drought periods, often bridging divides between clans.
- Indigenous knowledge: Traditional water-sharing customs reinforced community compliance and complemented formal governance structures.
- Devolution and legitimacy: The integration of local voices into county-level planning increased trust, legitimacy, and enforcement of allocation decisions.

Table 1. Comparative incidence of water-related conflicts in WRUA vs. non-WRUA areas (2010–2023).

Region Type	Recorded Water Conflicts	Violent Incidents Reduced	% Reduction
WRUA areas	65	—	—
Non-WRUA areas	100	35 fewer	35%

The analysis suggests that water, rather than being a source of conflict, can serve as a platform for peace when governance is participatory and inclusive.

CONCLUSIONS

This research highlights that strengthening water governance is essential for conflict prevention in Kenya's arid borderlands. Active WRUAs, gender-inclusive leadership, indigenous practices, and devolved governance contribute to peacebuilding and community resilience. Policy recommendations include expanding WRUA coverage, supporting women's involvement, and enhancing cross-county coordination in fragile regions such as Marsabit, Isiolo, and Wajir. The study ultimately underscores that inclusive water governance can transform scarcity from a driver of conflict into a catalyst for peace.

ACKNOWLEDGEMENTS

REFERENCES

Osman, Y. A. (2024). Understanding the multiple factors in'natural resource conflicts': a case study of local perspectives from Ewaso Ng'iro north river basin, Northern Kenya. https://summit.sfu.ca/_flysystem/fedora/2024-09/etd23082.pdf

Wild, J. (2023). The Transformation of Hydrosocial Relations. Development Geography. https://www.geographie.uni-bonn.de/de/forschung/arbeitsgruppen/ag-mueller-mahn/medien-ag-mueller-mahn/occasional-paper_no18_jwild_april_2023.pdf

Session 5A

This Session explored how climate change and water insecurity shape livelihoods, governance, and peace across local, national, and transboundary contexts. Drawing on case studies from Africa and the Middle East, the session demonstrated how climate-induced water stress functions as a risk multiplier, while also highlighting opportunities for cooperation and resilience through inclusive water governance.

Sammy Oleku (University of Nairobi / POWER, Kenya) opened the session with *"Assessing the Impacts of Climate Change on Water Resources and Pastoralists' Livelihoods in Kajiado West Sub-County, Kenya."* The study documented declining water availability, ecosystem degradation, and increased livestock losses linked to recurrent droughts. While the direct impact on livelihoods was statistically limited, the findings emphasized how water scarcity intensifies competition and threatens water peace and security in pastoral communities.

H. Mohammad (Blue Peace Middle East) and D. Salinas Palacios (Cassini Group) presented *"Geopolitical Risk Assessment of Water and Climate in the Tigris–Euphrates Basin."* Their multi-scalar analysis linked basin-level hydropolitical tensions and climate stress to national governance fragmentation and local vulnerabilities in Iraq and Syria, illustrating how water insecurity translates into public health risks, groundwater depletion, and localized conflict.

Mohamud Abdulle Hassan (Mogadishu University, Somalia) followed with *"Community-Based Water Governance for Conflict Prevention in Post-Conflict Regions."* His contribution highlighted climate change as a driver of water insecurity and socio-political risk, arguing that community-based governance, policy reform, and technological innovation are essential for equitable and conflict-sensitive water management.

The session concluded with Omondi W. (Sio–Malaba–Malakisi Young Water Diplomats), who presented *"Youth Inclusion in Multi-Level Transboundary Water Governance."* Focusing on the Kenya–Uganda border basin, the study showed how limited cooperation frameworks and youth exclusion exacerbate resource competition, and it called for bottom-up youth engagement as a pathway to peace and water security.

Overall, the session underscored the need for inclusive, conflict-sensitive, and multi-level water governance to transform climate-driven water stress from a source of instability into an opportunity for cooperation and peace.

Assessing the impacts of climate change on water resources and pastoralists' livelihoods in Kajiado West Sub-County, Kenya

Sammy Oleku[1, 2]
[1]University of Nairobi (UoN) Institute of Climate Change and Adaptation Department of Earth and Climate Sciences
[2]Organisation: Pastoralists Organisation for Water and Environmental Research (POWER)
City, Nairobi, Kiserian Kenya

SUMMARY

This study assesses how climate variability affects water resources and pastoralist livelihoods in Kajiado West, Kenya. Findings show that recurring droughts and changing rainfall and temperature patterns have reduced water availability, increased livestock deaths, and degraded ecosystems like wetlands. Climate change significantly impacts water resources but has an insignificant effect on livelihoods, indicating other influencing factors. Additionally, climate induced water scarcity can threaten water peace and security in pastoral communities by heightening tensions over limited resources, potentially leading to conflicts and social instability.

To mitigate these risks, effective resource management, community participation, and equitable distribution are essential. The study recommends government support through veterinary services, climate adaptation policies, and diversification of income sources to enhance resilience among pastoral communities. Implementing these strategies is vital for sustainable livelihoods, ecosystem health, and maintaining peace and security in the face of ongoing climate challenges.

INTRODUCTION

This study explores the impacts of climate variability and changes on water resources, pastoralist livelihoods, and water peace and security in Kajiado West Sub-County, Kenya. Given the region's dependence on livestock and natural water sources, climate-induced phenomena such as droughts and floods threaten ecological stability, community well-being,

and social harmony. The research aims to assess how changing rainfall and temperature patterns influence water availability, livelihood resilience, and peace in pastoral settings, which are increasingly vulnerable due to environmental degradation and climate variability.

METHODOLOGY

The study employed a mixed-methods approach combining primary and secondary data collection. Primary data were gathered through structured questionnaires administered to a sample of 30 respondents out of a total population of 95 key informants from the Kajiado County Government, Kenya Metrological Department (KMD), and National Drought Management Authority (NDMA), stratified across different management levels. Secondary data sources included online repositories, academic journals, and climate documentation focusing on regional climate trends, water resource dynamics, and peace and security issues.

Data analysis involved descriptive statistics and inferential tests—specifically T-tests and Fests using SPSS to examine relationships among climate variables, water resources, livelihoods, and security concerns. The analytical model used in the study is shown below.

$$Y = \beta 0 + \beta 1 X 1 + \varepsilon$$

Where,
Y= Water resources
X_1= Climate change

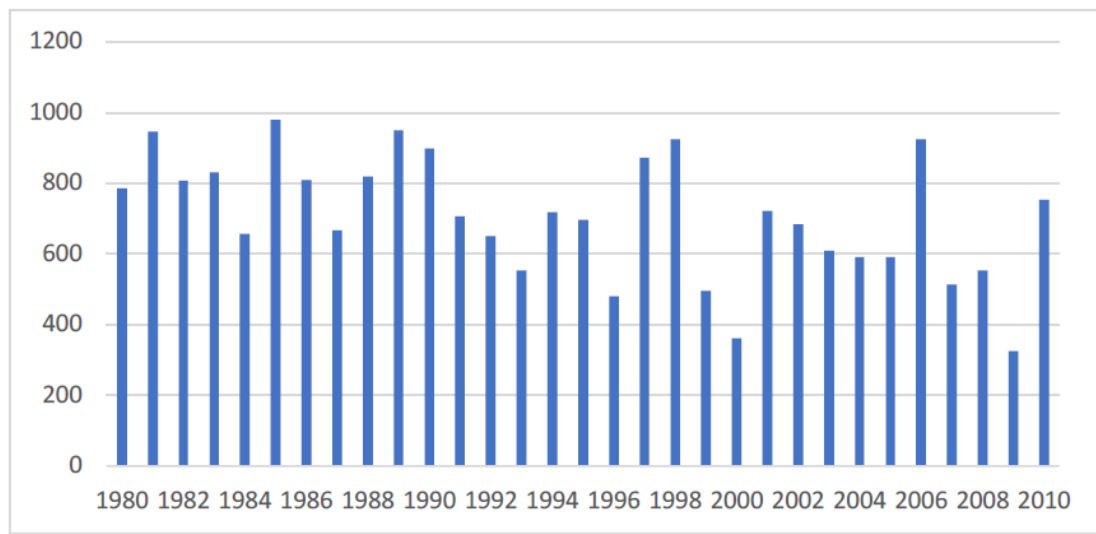β_0, β_1 = Regression coefficients
ε = Error term

Figure 1: Mean Yearly Rainfall in Kajiado (in mm) from 1980 to 2010

RESULTS AND DISCUSSION

Findings indicate a significant decline in water resources over time due to frequent droughts, resulting in reduced pasture, increased livestock mortality, and ecosystem degradation such as wetland diminution. Climate change has caused notable shifts in rainfall and temperature patterns, which can intensify competition over water and pasture, raising risks of conflict among pastoral communities. Statistical analysis confirms a significant positive relationship between climate change and water resource decline. While the relationship between climate change and livelihoods was positive but statistically insignificant, the potential for water scarcity to impact social peace underscores the importance of managing resource conflicts. These results highlight the urgent need for adaptive measures that also address water peace and security alongside environmental and socio-economic challenges.

CONCLUSION

The study concludes that climate change has adversely affected water availability, ecosystems, and peace in Kajiado West, threatening both livelihoods and social stability. To address these interconnected challenges, recommendations include government support via veterinary services, climate resilience policies, and income diversification. Promoting equitable water distribution, conflict resolution mechanisms, and community-based resource management are crucial for maintaining peace. Strengthening community capacity and implementing adaptive strategies can enhance resilience, ensure sustainable livelihoods, and preserve ecological and
social stability amid ongoing climate variability.

RECOMMENDATIONS
Government Initiatives

The government should enforce policies that mitigate climate impacts by promoting renewable energy and cleaner cooking methods, reducing carbon emissions. Investment in water infrastructure reservoirs, dams, irrigation will address scarcity and improve resilience against droughts. Enhancing early warning systems and communication networks will help communities prepare for extreme weather, reducing conflict potential over scarce resources. Supporting climate-smart agriculture

with drought-resistant crops and water-efficient practices will strengthen food security and reduce resource-based conflicts, promoting water peace and security.

Climate Experts and Scientists*

Climate experts should prioritize localized research on climate trends and their impacts on water and livelihoods, developing tailored adaptation strategies such as water harvesting and resilient livestock management. Promoting diversification of income and community training will reduce dependency on limited water resources and mitigate conflict risks. Scientific insights into resource management can facilitate peace-building by ensuring equitable access and sustainable use of water.

Scholars and Academics

Interdisciplinary research should examine how social factors like poverty, land tenure, and governance interact with climate vulnerabilities and water security. Incorporating indigenous knowledge rainwater harvesting, pastoral mobility can enhance adaptive strategies. Capacity building initiatives, workshops, and knowledge exchange will empower communities to adopt conflict-sensitive, sustainable resource management practices that uphold peace and resilience.

Community Engagement

Community-driven initiatives such as watershed restoration and soil conservation are vital for ecosystem stability and peace. Recognizing indigenous practices and promoting equitable resource sharing can reduce tensions. Encouraging herd restocking and livelihood diversification post-drought will mitigate resource competition. Active participation in planning and management fosters ownership, reduces conflicts, and strengthens social cohesion, ensuring long-term water peace and security in the face of climate challenges.

Geopolitical Risk Assessment of Water and Climate in the Tigris–Euphrates Basin: From Transboundary Tensions to Local Vulnerabilities in Iraq and Syria.

 H. Mohammad [1], D. Salinas Palacios [2]
[1] Blue Peace Middle East
[2] Cassini Group Spain – French Institute of Geopolitics

SUMMARY

The Tigris–Euphrates Basin is increasingly strained by climate stress, unilateral upstream interventions and fragmented governance. Downstream states—particularly Iraq and Syria—face chronic scarcity, intensifying drought risk and institutional fragility. Commissioned by Première Urgence Internationale (PUI), this study by Cassini Group and Blue Peace Middle East delivers a multiscale geopolitical risk assessment that links basin-level hydropolitical tensions to national governance gaps and local vulnerabilities. Using territorial diagnostics, advanced cartographic analysis, and stakeholder consultations, it links regional hydro-political tensions to national governance gaps and local vulnerabilities. At the regional level, diminished river flows and the absence of basin-wide cooperation exacerbate tensions. Nationally, Syria's conflict-driven infrastructure collapse and Iraq's federal–regional disputes impede coherent strategies. Locally, Deir ez-Zor faces persistent shortages, cholera outbreaks, and reliance on unsustainable coping methods, while the Kurdistan Region of Iraq suffers from groundwater depletion and localized water conflicts. The study highlights four strategic priorities: rehabilitating infrastructure, strengthening governance, modernizing agriculture, and enhancing transboundary cooperation. By integrating geopolitical reasoning with detailed territorial diagnostics, the research proposes a replicable framework for fragile contexts. It demonstrates how water scarcity, often a trigger of instability, can become a driver of resilience and regional cooperation.

INTRODUCTION

Water insecurity in the Tigris–Euphrates Basin has become one of the defining geopolitical and humanitarian challenges of the Middle East. The basin, shared by Türkiye, Iran, Iraq, and Syria, is increasingly shaped by climate stress, upstream unilateral developments, and fragmented governance structures. Downstream states, particularly Syria and Iraq, face acute vulnerabilities as both water supply and institutional resilience erode. This study, commissioned by Première Urgence Internationale (PUI), provides a multiscale geopolitical risk assessment that integrates regional, national, and local dynamics to guide humanitarian and development interventions.

METHODOLOGY

The assessment employs a multi-scalar design spanning basin-wide, national, and local levels (e.g., Deir ez-Zor; the Kurdistan Region of Iraq) to capture cross-scale feedback loops. It integrates territorial diagnostics with stakeholder consultations conducted through semi-structured interviews with institutional actors, technical experts, and affected communities. Geopolitical reasoning, actor mapping, and layered cartography are combined in a multidisciplinary framework that depicts the spatial configuration of interests, conflicts, and strategies, and highlights the co-location of risk, vulnerabilities, and governance gaps. This evidence is translated into decision-ready outputs: a risk matrix and prioritized entry points for donors to guide investment prioritization, policy sequencing, and risk reduction.

RESULTS & DISCUSSION

From a basin-wide perspective, upstream developments in Türkiye and Iran have significantly reduced downstream flows—with declines of up to 40% in Euphrates inflows in specific observation periods— intensifying hydropolitical tensions in the absence of effective basin-wide coordination. Existing bilateral arrangements remain partial and weakly enforced, leaving Syria and Iraq dependent on

unilateral upstream operations and exposed to heightened seasonal volatility. At the national level in Syria, fourteen years of conflict have severely degraded core water assets—approximately two-thirds of treatment plants and half of pumping stations are damaged or destroyed—while institutional fragmentation and reliance on ad-hoc arrangements further undermine service reliability and exacerbate water insecurity. Meanwhile, Iraq faces persistent federal–regional frictions—particularly between Baghdad and Erbil—that continue to impede a unified water strategy and weaken resilience to climate-related stress. At the local level, two hotspots illustrate how these pressures materialise. In Deir ez-Zor (Syria), chronic shortages, infrastructure disruption and recurrent cholera outbreaks reveal the acute intersection of public health and water insecurity; dependence on emergency coping mechanisms (trucked water, unregulated wells) has become operationally costly and environmentally unsustainable. In the Kurdistan Region (Iraq), sustained groundwater over-extraction and rising competition, compounded by the presence of displaced populations, have generated localised tensions and increased the risk of long-term aquifer depletion.

STRATEGIC PRIORITIES

Overall, the evidence shows that basin-level pressures interact with national governance constraints and, in defined hotspots, emerge as local service and public-health risks. Given the scale and heterogeneity of the Tigris–Euphrates, a phased, context-specific response is more realistic than one-size-fits-all: near term, stabilize critical assets and operations and maintenance (O&M) through targeted rehabilitation—restoring treatment plants, pumping stations and irrigation networks and, where feasible, deploying solar pumping and safe wastewater reuse; medium term, consolidate governance—clarify mandates, revitalize monitoring and enable water-user associations—while advancing an agricultural transition that modernizes irrigation, promotes drought-resilient crops and reduces reliance on flood irrigation; over time, foster regional cooperation via incremental data-sharing, seasonal coordination and other confidence-building measures. These priorities are indicative, not prescriptive, their feasibility hinges

CONCLUSIONS

The study underscores that water insecurity in the Tigris–Euphrates Basin is not only a technical problem but also a geopolitical and governance crisis. By combining cartographic diagnostics with geopolitical analysis, this research proposes a replicable methodology applicable beyond the Middle East. It demonstrates how linking technical assessments to governance and geopolitical realities can transform water scarcity from a driver of instability into an opportunity for cooperation. For donors and policymakers, the findings provide a roadmap to align humanitarian relief with long-term development, bridging immediate crisis response with climate adaptation and peacebuilding.

REFERENCES

Adamo, N., Al-Ansari, N., Sissakian, V., Knutsson, S., & Laue, J. (2022). Climate change: Consequences on Iraq's environment and sustainable water management. Journal of Earth Sciences and Geotechnical Engineering, 12(1), 111–146.

Al-Ansari, N. A. (2013). Management of water resources in Iraq: Perspectives and prognoses. Engineering, 5, 667–684.

Al-Ansari, N., Adamo, N., Sissakian, V., Knutsson, S., & Laue, J. (2014). Water resources of Iraq: Causes of water scarcity and suggested solutions. Journal of Natural Resources Development, 4(1), 1–20.

AQUASTAT (FAO). (2020, 2021). Water resources statistics: Iraq and Syria. Food and Agriculture Organization of the United Nations.

Daher, B. (2022). Water governance in fragile states: Challenges in Syria and Iraq. Water International, 47(3), 401–418.

Dockx, J. (2019). The impact of the GAP project on Iraq's water flows. Middle East Policy Journal, 26(2), 55–72.

Holleis, J. (2021). Climate change and water crises in the Middle East: Implications for security and migration. Konrad-Adenauer Stiftung Policy Paper.

Kelley, C. P., Mohtadi, S., Cane, M. A., Seager, R., & Kushnir, Y. (2015). Climate change in the Fertile Crescent and implications of the recent Syrian drought. Proceedings of the National Academy of Sciences, 112(11), 3241–3246.

Kibaroglu, A. (2019). Transboundary water governance in the Euphrates–Tigris basin. In Water Law and Cooperation in the Euphrates–Tigris Region (pp. 27–42). Brill.

Maggiolini, P. (2025). Weaponization of water in the Syrian conflict: Strategic implications. Journal of Peace and Conflict Studies, 31(1), 77–96.

Mohammad, H., & Salinas Palacios, D. (2025a). Bridging the Gaps: A Needs Assessment of Water Resources Management and Climate Resilience in Iraq. Blue Peace Middle East & Cassini Group, for Première Urgence Internationale (PUI).

Mohammad, H., & Salinas Palacios, D. (2025b). Bridging the Gaps: A Needs Assessment of Water Resources Management and Climate Resilience in Syria. Blue Peace Middle East & Cassini Group, for Première Urgence Internationale (PUI).

Mourad, K. A., & Berndtsson, R. (2012). Syrian water resources planning: A holistic approach. Water Resources Management, 26(14), 4281–4293.

Save the Tigris Campaign. (2023). Damming the rivers: Impacts on Iraq's water security. NGO policy report.

Schwartzstein, P. (2018). Iraq's dire water crisis: Water, protests, and state fragility. National Geographic / Wilson Center Report.

Selby, J., Dahi, O. S., Fröhlich, C., & Hulme, M. (2017). Climate change and the Syrian civil war revisited. Political Geography, 60, 232–244.

UNICEF. (2022a). Water under fire: Water, sanitation and hygiene in protracted crises. UNICEF MENA Regional Office.

UNICEF. (2022b). Syria water crisis after 10 years of war. UNICEF Humanitarian Report.

UN Iraq. (2024). Water scarcity, climate change and migration in Iraq. United Nations Country Team Iraq.

World Bank. (2018). Iraq reconstruction and investment: Damage and needs assessment. Washington, D.C.

World Bank. (2020). Water in the Middle East and North Africa: Climate challenges and solutions. Washington, D.C.

Community-Based Water Governance for Conflict Prevention in Post-Conflict Prevention in Post-Conflict Regions

Mohamud Abdulle Hassan[1]
[1]Mogadishu Univ, Somalia

SUMMARY

Climate change is intensifying water insecurity worldwide, threatening ecosystems, livelihoods, and human health. Rising global temperatures alter hydrological cycles, leading to more frequent droughts, floods, and unpredictable rainfall patterns. These shifts affect freshwater availability, reduce agricultural productivity, and exacerbate competition over limited resources. In water-stressed regions, climate change amplifies vulnerabilities by undermining both surface and groundwater supplies. Addressing these challenges requires integrated solutions that combine technological innovation, sustainable water management, and policy reform. This paper examines the link between climate change and water security, highlighting observed impacts, methodological approaches for assessment, and strategies for adaptation. By analyzing recent case studies and climate projections, it underscores the urgent need for resilience-building measures, such as water reuse, desalination, and nature-based solutions. The findings suggest that effective water governance and cross-sectoral cooperation are essential to mitigate risks and safeguard equitable access to water in a changing climate.

INTRODUCTION

Water security—the reliable availability of acceptable quality water for health, livelihoods, and production—is increasingly under threat due to climate change. The intensification of the hydrological cycle, coupled with population growth and urbanization, creates unprecedented challenges. Many regions already experience scarcity, and climate variability is expected to further reduce freshwater supplies while increasing demand. This paper investigates the relationship between climate change and water security, drawing on empirical evidence and climate modelling to frame the scale of the problem.

METHODOLOGY

The analysis applies a mixed-methods approach, combining climate data (temperature, precipitation, and hydrological records) with water demand models and case study reviews. Projections were based on IPCC scenarios, with emphasis on regional differences in Africa, Asia, and the Middle East. The methodology

incorporates both quantitative data—such as changes in average temperature and rainfall extremes—and qualitative assessments of adaptation measures. Equation 1 presents the simplified water balance model used in regional assessment:

$WSI = D S - L WSI = \frac{D}{S - L} WSI = S - L D$

where WSI is the Water Stress Index, D is demand, S is supply, and L is losses.

RESULTS & DISCUSSION

Findings confirm that climate change directly impacts water security in three main ways:

1. **Variability in Water Supply** – Droughts and floods are increasing in both frequency and intensity, undermining reliable access to freshwater. For example, data from Rotterdam the Hague Airport (Table 1) illustrate variability in daily conditions even within a single week.

Table 1. Weather conditions in Delft, July 2024.

Date	Min Temp (°C)	Max Temp (°C)	Wind (km/h)	Direction
01 Jul	12	20	20	E
02 Jul	11	17	20	E
03 Jul	9	18	20	E-NE
04 Jul	14	18	13	NE
05 Jul	14	18	15	NE
06 Jul	12	19	17	N-NE
07 Jul	12	18	4	E

2. **Agricultural and Food Security Impacts** – Crop yields decline under prolonged heatwaves and water shortages, threatening food systems.
3. **Socio-Political Risks** – Competition over scarce water fuels conflict, migration, and economic instability.

Adaptation strategies include advanced irrigation technologies, wastewater recycling, managed aquifer recharge, and international cooperation. Figure 1 highlights the annual temperature trend for Delft, showing increasing seasonal extremes.

CONCLUSIONS

Climate change poses a serious and growing threat to global water security. The evidence highlights the urgent need for adaptive water management strategies that combine technological, ecological, and governance approaches. Building resilience requires integrating climate projections into planning, investing in water-efficient technologies, and fostering regional cooperation. Without immediate action, climate-induced water scarcity could undermine sustainable development goals, intensify conflicts, and deepen social inequalities.

REFERENCES

Avrin, A.P., He, G., Kammen, D.M. (2015). Assessing the impacts of nuclear desalination and geoengineering to address China's water shortages. Desalination, 360(16), 1-7.

Radcliffe, J.C., Page, D. (2020). Water reuse and recycling in Australia – history, current situation and future perspectives. Water Cycle, 1, 19-40.

Xu, Q. (2024). Quality-induced water scarcity and countermeasures. In: Water-Soil-Vegetation Nexus and Climate Change. Ed. X. Wang. ISBN 978-0-12-820106-0.

Youth Inclusion in Multi-level Transboundary Water Governance: A Case of Sio-Malaba-Malakisi Basin.

Omondi, W[1]

[1] *Sio-Malaba-Malakisi Young Water Diplomats, Western Kenya & Eastern Uganda*

SUMMARY

Local youth in the Sio Malaba Malakisi (SMM) basins shared between Kenya and Uganda are facing transboundary water governance exclusion and climate related challenges linked to governance inefficiencies. The SMM basin has an IWRM legal framework with both customary and statutory laws. Even though both countries have adopted IWRM, they don't have a water cooperation framework to guide joint implementation of IWRM in the SMM basin. This has led to a water governance dilemma in the SMM basin contributing to the ever-increasing competition of dwindling water resources contributing to conflicts among ethnic groups. By adopting the bottom - up model of youth inclusion in transboundary water governance from grassroots to Multi - Level, local realities are bridged with regional decision making thus enabling youth empowerment not just as stakeholders but strategic partners for peace, resilience and water security in SMM transboundary basin.

INTRODUCTION

Transboundary waters account for approximately 60% of global river flow thus making them pivotal in socio-economic development in the world (Connor, 2015). Due to the high dependence of both upstream and downstream states on transboundary water resources, the governance of transboundary waters is often inherently contested and political (Duratovic, 2016; Zeitoun & Warner, 2006). Even though youths play a pivotal role in transboundary water governance, their voices have continuously been marginalized (Al-Zu'bi, Al Kreidy, Freihat, & Al Khafaji, 2025). This is evident in SMM basin which has continued to experience numerous land and water problems. In this paper, we argue that embedding youth through a bottom -up model of inclusion linking grassroots realities to multi-level governance offers a transformative pathway to strengthen peace, resilience and water security while positioning young people as strategic partners rather than passive stakeholders.

METHODOLOGY

The study employed a mixed-method approach. Secondary data was collected from literature reviews of peer-reviewed articles searched mainly from Google Scholar using four key words (Sio-Malaba-Malakisi basin; IWRM; Multi-level transboundary water governance; water cooperation). Primary data was collected from qualitative research conducted in August 2025 aimed at investigating Integrated Water Resource Management (IWRM) implementation in Multi-level Transboundary Water Governance in SMM basin. The data was collected through a Focus Group Discuss (FGD) that was held in Matayos Sub-county, Busia county-Kenya in the Sio-Siteko transboundary wetland. The FGD comprised of 12 participants drawn from local Water Resources Users Associations (WRUAS) and Community Based Organizations (CBOs) from both Kenya and Uganda.

RESULTS & DISCUSSION

Even though Kenya and Uganda have adopted IWRM approach, and have a SMM Basin Investment Framework (Owino, 2024), they don't have a water cooperation framework to guide joint implementation of IWRM in the SMM basin, leading to a water governance dilemma. According to (IUCN, 2020), SMM basin faces significant climate change challenges such as floods and prolonged droughts that contribute to the water stress further disrupting growing seasons and undermine agricultural economies and food security thus contributing to the growing tensions between ethnic groups such as the Sebel and the Luhya over land and water.

IWRM approach underscores participation, especially by youth in decision-making and decentralization of water management to the lowest level possible. Globally, there is low youth representation in transboundary water cooperation (United Nations, 2024). While youth have the potential in driving local transboundary water adaptations critical in curbing water related conflicts further promoting peaceful co-existence among transboundary ethic communities, in the SMM basin, youth marginalization is exacerbated and does not adhere to the Locally Led Water Adaptation Principles as illustrated by Bedelian et al...(2024).

According to responses by participants during FGD discussion, there are minimal community involvement in decision making on designing, planning, implementation and management of local transboundary water adaptation interventions. The respondents from the two countries argued that, youth are mostly left out in decision-making meetings and the few who manage to participate are merely used for tokenism, where they have a limited voice and little choice on what they can say. Furthermore, they are manipulated by the elders who use youths' ideas for their own benefit.

According to the respondents, youth also have limited opportunities for leadership positions in most of the water-related advisory boards and committees. Very little investments are made in youth capacity building on management, technical and economic aspects of water management in the SMM basin, which has perpetuated the stereotypes that youth have inadequate knowledge and capacity to meaningfully engage in transboundary water governance.

Nonetheless, other than noting that youths are the ones involved in activities that contribute to environmental degradation in the basin such as charcoal burning and sand harvesting, it was also noted that they are tech survey and this knowledge could help in water management in the basin. Respondents argued that meaningful involvement of youths in transboundary water governance is a great opportunity for driving innovation and technological advancements that have positive impact on sustainable water management for water cooperation and peaceful co-existence in the SMM basin.

CONCLUSION

To enhance meaningful youth inclusion in transboundary water governance and position them as change agents for peace and security, a bottom-up approach is essential. This should empower youth from the grassroots to multi-level platforms through culturally sensitive, youth-friendly initiatives that foster intergenerational dialogue. Flexible funding and support for art and media advocacy can further amplify youth voices, ensuring their active participation in policy and decision-making within the SMM Basin.

Theme 4: Agency of marginalized groups in water, peace and security

The sessions under the theme Marginalized Groups examined how exclusion, unequal power relations, and "invisible" forms of harm shape water-related insecurity, while also highlighting the leadership and agency of communities most affected by water stress. Across Session 5B and Session 6A, marginalization was treated not as a peripheral concern but as a central driver of conflict dynamics and a determining factor in whether water governance produces instability or cooperation. The thematic track emphasized that peacebuilding outcomes depend on whose knowledge counts, who participates in decision-making, and whether governance systems recognize informal contributions and lived experience alongside formal expertise.

Session 5B, included abstracts that foregrounded agency, showing how youth, women, and culturally rooted community practices can actively strengthen water peace and security when provided with enabling spaces and institutional recognition. Contributions highlighted youth-led water diplomacy and peace initiatives in Sudan through the Sudan Youth Parliament for Water, demonstrated how cultural health narratives and traditional practices shape community resilience and conflict resolution in Afro-Asian contexts, examined rural women's agency in donor-funded water projects in Laikipia North, Kenya, and analysed environmental stewardship in bottom-up flood adaptation initiatives across Tataouine (Tunisia), Nairobi (Kenya), and Kathmandu (Nepal). Across these cases, inclusion was framed as a practical governance strategy: participation and recognition were linked to improved conflict prevention, equitable water sharing, and stronger social cohesion, while barriers such as limited resources, institutional gaps, and entrenched norms were shown to constrain sustained engagement.

Session 6A, facilitated by Seleshi Yalew, expanded the theme by examining how conflict is often preceded by "hidden harms" such as structural inequality, slow environmental degradation, and everyday forms of water violence that accumulate over time. The session argued that visible violence is frequently the outcome of long-term neglect, reinforcing the need for proactive, prevention-oriented governance. It also repositioned media as an active governance actor, demonstrating how media framing can either reproduce exclusion or support more inclusive transboundary problem-solving. The session's analysis of media coverage in the Limpopo River Basin and a case from rural Nepal illustrated how reliance on official sources and poor access to diverse evidence contributes to an "invisibility gap," leaving marginalized voices absent from both policy responses and public narratives.

Together, the Marginalized Groups sessions advanced a shared conclusion: effective water–peace strategies must move beyond technical fixes to confront structural inequities, recognize marginalized actors as producers of solutions, and strengthen governance systems that enable participation, representation, and accountability. By combining attention to agency with analysis of hidden harms and narrative power, the thematic track reframed marginalization as both a root cause of water-related conflict and a critical entry point for sustainable peacebuilding.

Session 5B

This session brings together diverse yet complementary perspectives on how youth, marginalized groups, and community-based actors contribute to water governance, peacebuilding, and environmental justice in contexts marked by scarcity, climate stress, and conflict. Moving beyond state-centric and technocratic approaches, the papers highlight the transformative potential of grassroots engagement, cultural knowledge, and bottom-up stewardship in shaping more inclusive and resilient water–peace pathways.

The session opens with an in-depth examination of the Sudan Youth Parliament for Water (SYPW), illustrating how youth-led initiatives can meaningfully address water-related conflicts despite political instability, insecurity, and limited resources. Through capacity building, advocacy, dialogue, and informal water diplomacy, Sudanese youth emerge not as passive stakeholders but as active agents fostering cooperation, peace sustainability, and innovation in water governance.

Broadening the analytical lens, the session then explores the cultural and health dimensions of water peacebuilding in Afro-Asian contexts. By integrating medical anthropology and ethnographic insights, this contribution demonstrates how local health narratives, traditional healing practices, and socio-cultural beliefs shape community resilience and conflict resolution. Recognizing water as a social determinant of health, the study argues for culturally informed approaches that strengthen social cohesion and policy effectiveness.

The role of marginalized groups in water governance is further examined through a gendered lens in rural Kenya, where indigenous and rural women play a central—yet often overlooked—role in water management and conflict mitigation. Drawing on participatory and feminist governance frameworks, this paper shows how women's formal and informal agency contributes to equitable access, sustainability, and local peacebuilding, while also identifying persistent structural barriers to their full participation.

Finally, the session highlights community stewardship and negotiated ownership in flood-prone environments across Africa and Asia. Through comparative action research, this contribution demonstrates how bottom-up environmental stewardship enables communities to integrate flood adaptation, ecological care, and social needs, advancing environmental justice while strengthening local claims over natural resources.

Together, the papers in this session underscore a shared message: sustainable water peacebuilding depends not only on institutions and infrastructure, but on empowering youth, valuing cultural knowledge, and centring marginalized communities as co-creators of water governance and peace.

The Role of Youth in Water and Peace: The experience of the Sudan Youth Parliament for Water (SYPW).

Ali Mohamed A. Elhaj[1], Amna M.Elhassan Omer[2],
[1] Researcher, The Hydraulics Research Center (HRC-Sudan), Wed-Medani, Sudan
[2] PhD Student, University of New Hampshire, Durham, USA

 SUMMARY

Water has been identified as both a source of tension and a catalyst for cooperation. Water scarcity in Sudan closely relates to climate variability, fragile governance, and regional tensions. These complex factors often lead to frequent water-related disputes at both national and local levels. Nevertheless, over the past decades, there has been insufficient attention paid to addressing the spread of water-based conflicts. Hence, amid these challenges, a growing sense of responsibility among Sudanese youth—who are often marginalized—emerges to improve water management and peace sustainability. This paper aims to identify and analyze the role of the Sudan Youth Parliament for Water (SYPW) in promoting water and peace initiatives through youth-led programmes in Sudan. The study uses a mixed-methods approach, combining qualitative and quantitative data collection methods, such as KIIs, and FGDs, and document analysis. The analysis employs both descriptive and explanatory techniques, inspired by the Transboundary Waters Interaction Nexus (TWINS) and Multi-Criteria Analysis (MCA). Findings show that despite financial and administrative hardness, followed by political instability and security tensions. The SYPW has successfully involved over 700+ young professionals in various water and peace initiatives during 2017- 2023. These activities include organizing 84 water and peace-relevant events (training, peace talks, advocacy, water conflict booklet, etc.)

INTRODUCTION

The significance of youth involvement in water in the environmental sector has grown rapidly in recent years due to the nature of global challenges. According to the 2250 declaration of the United Nations Security Council Resolution on Youth has highlighted a shift in focus, emphasizing the critical role of young people in maintaining peace and security. Moreover, the world now has more young people than ever, making up 42% of the world population (WHO, 2023). Therefore, there is a need for engagement of young people in water action is a must, since more than 60 percent of the population in many developing countries is youth, and 85% of the world's youth live in developing countries, which are characterized by a context of increasing water scarcity and conflict tension.

Along with water, water is a key element to enduring peace, security, and stability in Sudan. Water and conflict are more likely to be driven by climate events in rural areas in Sudan. Thus, in order to address implications, "change-makers" need to be attracted to the water sector to ensure Sudan's water challenges are solved with the brightest and most committed minds. Recently, the Sudan Youth Parliament for Water (SYPW) emerged in this context as a grassroots platform that transforms young professionals to play a key role in the water, peace, and SDGs agenda.

The specific objectives of the SYPW is to develop, support, and promote the potential of young people to contribute to achieving this overall objective by leading youth-based successful interventions, and value knowledge about their role in solving water challenge, and create partnerships to enhance the efforts to achieve long-lasting, positive changes in attitudes and behaviour related to water and peace agenda (SYPW, Org profile 2019).

METHODOLOGY

The study used a mixed approach, which qualitative and quantitative methods, to address the role of SYPW in the water and peace agenda in Sudan. The data were obtained from several sources, including

key informant interviews (KIIs), focus group discussions (FGDs), and document analysis, as well as a comprehensive literature review.

Thereafter, in the analysis stage, the process involved descriptive and explanatory methods; the Water Conflict Database (WCD) analyzing was, inspired by the Transboundary Waters Interaction Nexus (TWINS) framework, whereas the outcomes of FGDs were processed via statistical illustration. On top of that, the MCA was carried to evaluate the SYPW activities in per chapter.

RESULTS & DISCUSSION

In 2022, the UNFPA-Sudan stated that approximately 38% of the Sudan population had access to piped water. In response, the Sudan Water Strategy (2021-2031) is designed to enhance water services for Sudanese people in rural and urban areas, including nomadic communities and their livestock, to improve access to an adequate, affordable, and safe water supply. In response to these issues, SYPW had conducted a crucial youth–based intervention in Sudan, see Figure 1.
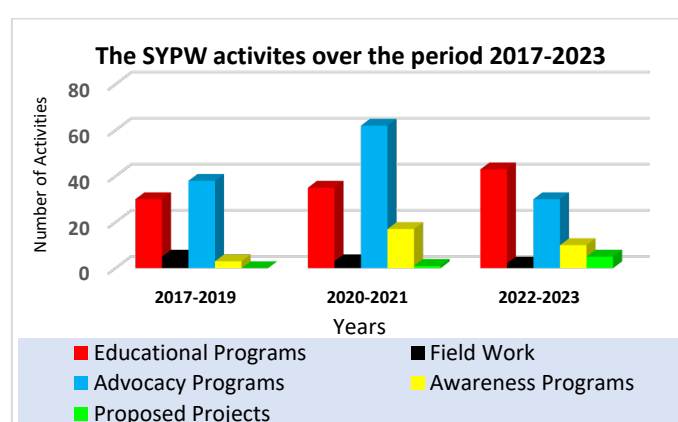

Figure 1. The SYPW activities (2017-2023)

Figure 1 displayed the number of SYPW activities from 2017 to 2023, divided into five categories. Overall, the whole span, SYPW implemented 284 activities, of which 30% support the water and peace agenda. Generally, the most active phase was 2020–2021 compared to (76) in (2017-2019), with 118 activities, due to political stability, partnerships, and sustainable support (with considerable online events during COVID 19 pandemic). Unlike, in (2022–2023), Sudan faced critical socio-economic, political, and security challenges, saw a gradual deterioration in activities to (90) due to sudden fall in 2023. Nonetheless, in 2023 after insecurity tension challenges in Khartoum SYPW had successfully organize and involved in numerous programmes in Wad-Medani City . Beyond that in December 2023 the outbreak of fighting reached Wed-Medani, consequently, led to mega members migration abroad due to the spread insecurity. Activities turned largely into online platforms up to present.

Table 1. The number of relevant water and peace actions.

Relevant water and peace actions	Amount
National WD training/workshop programmes	3
Water conflict and negotiation training.	5
Local Youth Dialogue (peace talk)	6
FGDs on water and peace (situation analyses)	18
Produce and publish a water conflict booklet	18

Participation in international events	21
Advocacy programs, MoIWR, UNICEF, others	13
Total	**84**

Table 1 lists the amount of interventions in water and peace sector. In detail, SYPW has implemented 3 national water diplomacy pro-grams, beside 5 negotiation trainings for young professionals, followed by facilitating 24 peace talks and discussions, and participating in 21 international relevant workshops and webinars.

Figure 2 demonstrates the results of the multi-criteria analysis for the evaluation of SYPW activities into six chapters. It is evident that the youth participation in various water diplomacy training programmes enhanced their skills in transboundary water diplomacy, made a total score just over 4.60 out of five followed by conflict and peace chapter with 3.8.
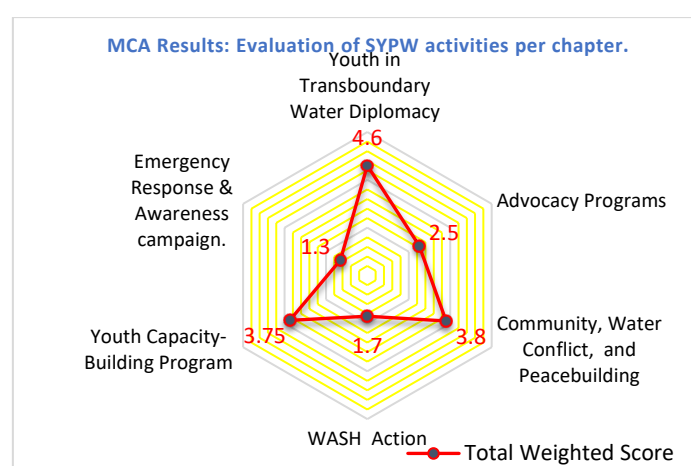

MCA Results: Evaluation of SYPW activities per chapter.

Youth in Transboundary Water Diplomacy — 4.6
Advocacy Programs — 2.5
Community, Water Conflict, and Peacebuilding — 3.8
WASH Action — 1.7
Youth Capacity-Building Program — 3.75
Emergency Response & Awareness campaign. — 1.3
— Total Weighted Score

Figure 2. MCA Results: Evaluation of SYPW chapters.

CONCLUSIONS

Since 2017, with mandate to reduce marginalization and elevate youth engagement in water resource and peace-building fields, SYPW has made a positive change in both young professionals and communities through a sound capacity-building programme, awareness events, advocacy, and non-technical interventions.

In conclusion, the youth-based initiatives – often face financial and administration challenges - are reflects global trends in informal water diplomacy, while also navigating the complicated political, environmental, and socioeconomic challenges toward enhance youth empowerment deescalating water-based conflicts and strengthening enduring peace in Sudan.

ACKNOWLEDGEMENTS

We are incredibly fortunate to have been surrounded by ambitioned and inspiring youth during our voluntary work experience at SYPW. In term of preparation this study, special thanks to our young people who involved at SYPW activities, moreover kind appreciations go to interviewees and resource persons.

Emmanuel Busera[1]
[1]Afro Asia Institute of Strategic, Department of Medical Anthropology

SUMMARY

This research investigates the role of cultural health practices in water peacebuilding within Afro-Asian regions facing water scarcity and conflict. By integrating ethnographic methods and health-centred frameworks, the study emphasizes how socio-cultural beliefs influence perceptions of water and community resilience. Through qualitative fieldwork, participatory mapping, and policy analysis, the findings demonstrate that understanding local health narratives and traditional healing practices enhances conflict resolution and promotes inclusive dialogue. Recognizing water as a social determinant of health fosters community-driven solutions aligned with local knowledge systems. The study advocates for an anthropologically informed approach to water peacebuilding, highlighting its potential to improve policy effectiveness and social cohesion. This perspective offers valuable insights for policymakers, practitioners, and scholars aiming to develop sustainable and culturally sensitive water management strategies that contribute to long-term peace and health equity.

INTRODUCTION

Water conflicts in Afro-Asian regions are rooted not only in resource scarcity but also in socio- cultural dynamics that shape community identities, health perceptions, and traditional practices. Conventional peacebuilding approaches often overlook these cultural dimensions, limiting their effectiveness. This study explores how integrating medical anthropology and water peacebuilding can create more inclusive and sustainable solutions by acknowledging local health beliefs and social practices.

METHODOLOGY

The research employs a mixed qualitative approach combining ethnographic fieldwork, participatory mapping, and policy analysis across selected Afro-Asian regions experiencing water stress. Data collection involved interviews with community members, traditional healers, and local leaders to understand health perceptions related to water. Participant observations and visual mapping techniques were used to document social and cultural practices influencing water use and conflict. Policy documents were analyzed to assess institutional approaches to water management and cultural inclusion.

RESULTS & DISCUSSION

Findings reveal that local health narratives and traditional healing practices significantly influence community responses to water issues. When peacebuilding initiatives incorporate these cultural elements, they foster greater community engagement and resilience. The integration of ethnographic insights into water governance promotes conflict mitigation through culturally sensitive dialogue and conflict resolution strategies. This approach underscores water's role as a social determinant of health, linking well-being with access and management of water resources. It demonstrates that culturally informed peacebuilding enhances social cohesion and sustainable resource use.

CONCLUSIONS

The study highlights the importance of adopting an anthropologically informed framework in water peacebuilding, emphasizing local health beliefs and social practices. Recognizing water as a vital social determinant of health enriches conflict resolution strategies and promotes community-led solutions. This holistic approach fosters sustainable water management and peace, contributing to health equity and social resilience in Afro-Asian regions. Future research should further explore the integration of cultural health paradigms into policy and practice for more effective water governance.

ACKNOWLEDGEMENTS

Centring marginalized groups in water governance

S.S. Lesarge[1], Dr C. Gikonyo[1]
[1] University of Nairobi, Faculty of Law, Nairobi, Kenya

SUMMARY

Africa reported the highest number of water-related conflicts and disputes in 2023 since 2019, according to the Pacific Institute's 2024 report. Water scarcity and climate change are increasingly recognized as drivers of conflict in arid and semi-arid areas in Kenya; yet, the important role of marginalized groups in fostering water peace and security in such communities is often overlooked.

In Laikipia North, Kenya, an area characterized by dry conditions and a heavy reliance on donor-funded water initiatives, access to clean and reliable water remains a pressing issue. The participation of rural women, who are also indigenous in this case, in planning, implementation, and governance still goes unrecognized despite their key roles in water management.

Rural women in Laikipia North are not only passive beneficiaries of water governance but also co-creators. Their lived experiences and contributions are key to the equity of donor-funded water projects, fostering social cohesion and local peacebuilding.

INTRODUCTION

In rural Africa, women and girls often undertake the challenging task of fetching water, but their access to and decision-making authority over water use remains limited. Conventional and modern water management excludes marginalized groups, particularly women, which exacerbates inequalities and hinders the development of long-term solutions. So, it's critical to understand and support the agency of these groups. Traditional water management and conflict resolution approaches often overlook or disempower marginalized groups, thereby exacerbating inequalities and hindering the development of sustainable solutions. Therefore, there is a critical need to understand and foster the agency of these groups. This abstract, thus, argues that recognizing the role of these marginalized groups, women in this case, in decision-making, planning, and implementation of water projects, policies, and laws will lead to sustainable water use and sharing, and will catalyze sustainable water management. The study examines the agency of rural women in donor-funded water projects in Laikipia North Sub-County, emphasizing their contributions, the barriers to their involvement, and the opportunities for engagement, while also highlighting the current effective strategies.

METHODOLOGY

The study employs a grounded qualitative approach, guided by concepts such as Arnstein's Ladder of Participation, Gaventa's Power Cube, and Gender and Development Theory. The data were collected through focus group discussions, key informant interviews, and field observations across selected water projects in Laikipia North subcounty.

RESULTS & DISCUSSION

The findings show that understanding the challenges women face and the important roles they have in managing water, along with using Indigenous knowledge, can help ensure fair access to water and lessen conflicts among herders and communities, especially during droughts. In Laikipia, during the dry season, women protect the remaining water resources that they and their children will use by using traditional methods that prevent others from using them and cause conflict. This links to the theme on agency of marginalized groups, where water catalyzes cooperation among men, women, and conflict transformation.

The research findings show that women indeed contribute formally through leadership in water resources users' association, representing their structures in water meetings in the county, and community water committees, and informally through logistics support, sharing indigenous knowledge, protection of water sources during scarcity mobilization and advocacy, conflict resolution, and ensuring homes have water.

Barriers such as limited education, financial constraints, institutional gaps, and cultural norms, however, continue to hinder women's full participation. Despite these barriers, though, women have shown agency through initiatives such as strategic mobilization, negotiated leadership, and community-driven innovations.

Some of the current strategies that are working include the establishment of water bylaws, contributions towards water repairs in case of breakdowns, joint community action, and leveraging Indigenous knowledge on water management by women

CONCLUSIONS

Water governance structures have incorporated the presence and contribution of women in their structures, conflict-solving, and daily water management activities. The agency of women and women's groups in water resources protection, allocation, distribution, and sharing has demonstrated more sustainability and conflict-free water governance, transforming potential areas of conflict into areas of understanding and cooperation. It's also important to

To strengthen their participation, the paper recommends strengthening gender quotas in water governance structures, adopting a dual recognition model of roles, implementing targeted capacity building, and designing inclusive projects. These recommendations contribute to broader conversations on policy reforms, environmental justice, and participatory development. More importantly, support grassroots-based structures, such as women's groups and children's organizations, and integrate rights-based approaches when dealing with these groups

REFERENCES

Mwangi, J, 'A Gender Assessment of Water Resource Management in Kisamis, Kajiado County'

Kipuri N, 'A Double Bind: The Exclusion of Pastoralist Women in the East and Horn of Africa' [2008] Report <https://minorityrights.org/resources/a-double-bind-the-e https://minorityrights.org/resources/a-double-bind-the-exclusion-of-pastoralist-women-in-the-east-and-horn-of-africa/> accessed 23 May 2024

'Empowering Rural Women in Water Resource Development' (FAORAF) <https://www.fao.org/africa/news-stories/news-detail/empowering-rural-women-in-water-resource-development/en> accessed 6 May 2025

Negotiated Ownership: Environmental Justice and Community Stewardship of Flood-Prone Rivers.

Vija Viese[1]

[1]Norwegian University of Science and Technology, Department of Architecture and Planning, Trondheim, Norway

SUMMARY

As climate change intensifies, flood risk management increasingly combines structural and non-structural strategies. Community resilience has emerged as a crucial complement, particularly in informal and under-resourced contexts in the Majority World. This research investigates the role of Environmental Stewardship in bottom-up flood adaptation initiatives across Tataouine (Tunisia), Nairobi (Kenya), and Kathmandu (Nepal). Using an action research framework, the study examines how residents enact Environmental Stewardship and how these actions allow them to claim ownership of local natural resources.

Comparative analysis highlights three key stewardship dynamics. First, Environmental Stewardship-guided practices demonstrate a multi-dimensional focus by integrating flood adaptation with ecological care, as well as income-generating activities, public space and amenities, and other needs of the community. Second, complex actor-networks facilitate collaboration and knowledge-sharing across scales, signalling the willingness to learn and better adapt to climate change while respecting the environment. Third, diverse motivations of the involved actors drive creativity, persistence, and community agency. These aspects of bottom-up stewardship action enable communities to negotiate ownership over natural resources while advancing Environmental Justice and strengthening informal urban design practice.

Keywords: Environmental Stewardship, Environmental Justice, Bottom-up, Flood Adaptation, Urban Design

INTRODUCTION

As climate change accelerates and natural disasters increase in frequency and intensity, flood risk management is shifting towards strategies that combine structural and non-structural measures (McClymont et al., 2019). Community resilience is now widely explored as a complementary approach (Koliou et al., 2020; Seebauer et al., 2019), especially in rapidly growing informal settlements of the Majority World, where top-down interventions often fail to deliver effective outcomes (Ziervogel et al., 2017).

This research investigates the intersection of Environmental Stewardship and Justice in bottom-up initiatives working with flood adaptation (flood BUIs) in under-resourced and informal communities. Initiatives in three cities were studied: Tataouine (Tunisia), Nairobi (Kenya), and Kathmandu (Nepal). Despite distinct political, ecological, and social contexts, all three settings share common challenges of climate vulnerability, rapid urbanization, and spatial marginalization.

The study explores different cases of flood BUIs, how they embody the organized practice of Environmental Stewardship, and how they can contribute to negotiated ownership of natural resources.

METHODOLOGY

The project employs an action research methodology, combining practice-based inquiry through community collaborations with theoretical reflection. It examines how residents engage in Environmental Stewardship through everyday practices such as riverbank cleanups, informal green space creation, tree planting, education events, and community-led infrastructure improvements.

Based on a grounded theory approach (Goulding, 1999), data is collected through semi-structured interviews, focus groups, and community workshops. Stepwise coding was applied to identify key strategies of flood BUIs, and the existing governance mechanisms over water resources, city spaces, and transformative activities are explored.

RESULTS & DISCUSSION

Comparative analysis across the three cities revealed how the operation of flood BUIs is intricately linked to the local political situation and history. The cases from rural Tataouine reveal a long tradition of communal action that has evolved in a unique legal ownership of water and the associated infrastructure. In Nairobi, formal and informal networks of diverse actors converge to negotiate the river regeneration process. Meanwhile, in Kathmandu, the civil society spearheads long-lasting bottom-up action in river conservation and climate adaptation.

While locally specific in expression, these practices consistently reflect aspirations for recognition, redistribution, and participation – the core principles of Environmental Justice.

Field observations present three key findings:

Multi-dimensional focus. Flood BUIs consistently integrate wider community priorities (e.g. local income generation, public space and amenities, urban services) linked with ecological considerations. The focus on multiple dimensions and the positive outlook towards environmental protection promotes the persistence of the initiatives, gathering more support and shifting between activities depending on periods.

Complex actor-networks. Initiatives involve intricate collaborations, reflecting both the complexity of adaptation tasks and the willingness to seek out complementary expertise even at the small scale of local community-led projects. This also reflects the respect for a larger social-ecological system rather than a technocratic flood protection approach of the initiatives.

Diverse motivations. Participants are driven by various motivations, demonstrating the diversity of invested actors, their differing agendas, and the range of possible interventions. While this can be an obstacle to smooth operation, it can also be a strength – in creative problem-solving, complementary approaches, potential funding sources, decision-making, or negotiating collaborations.

These dynamics reveal the value of Environmental Stewardship in strengthening flood BUIs and their capacity to negotiate ownership over natural resources. Concurrently, such strategies can further Environmental Justice by contributing to filling persisting gaps in understanding informal urban design practice (Dovey, 2020) and evolving into political claims and longer-term ecological governance, especially in informal or contested tenure settings.

CONCLUSIONS

This research focuses on flood BUIs in three cities to better understand the collective action that goes beyond flood protection and integrates notions of care for the environment, consistent with Environmental Stewardship approaches. The observed cases reveal the different means of negotiated ownership over the water resources, city spaces, and transformative activities that the initiatives develop over time. In addition, a potential for advancing Environmental Justice is addressed as linking community-led adaptation to stewardship provides a strategic entry point for interventions that are ecologically grounded and politically empowering.

Acknowledgements

References

Dovey, K., 2020. *Urban design as a contested field*. Journal of Urban Design, Volume 25, p. 14–16.

Goulding, C., 1999. *Grounded Theory: some reflections on paradigm, procedures and misconceptions.* University of Wolverhampton.

Koliou, M. et al. (2020). *State of the research in community resilience: progress and challenges.* Sustainable and Resilient Infrastructure, Volume 5, p. 131–151.

McClymont, K., Morrison, D., Beevers, L., & Carmen, E. (2019). *Flood resilience: a systematic review.* Journal of Environmental Planning and Management, 63.

Seebauer, S., Ortner, S., Babcicky, P. & Thaler, T., 2019. *Bottom-up citizen initiatives as emergent actors in flood risk management: Mapping roles, relations and limitations.* Journal of Flood Risk Management, Volume 12.

Ziervogel, G. et al. (2017). *Inserting rights and justice into urban resilience: a focus on everyday risk*. Environment and Urbanization, Volume 29, p. 123–138.

Session 6A

The session was facilitated by Seleshi Yalew (IHE Delft) and featured contributions from Jatani Bonaya Godana, Phares Ogola (Future Africa), Kizito Sikuka (Limpopo Watercourse Commission – LIMCOM), and Hannah Leigh (Water, Engineering and Development Centre – WEDC, University of Loughborough, online), who presented cases and reflections on marginalization, media, and hidden drivers of water-related conflict

The session aimed to reframe dominant approaches to water, peace, and security by highlighting two often-overlooked drivers of conflict: the role of the media as a governance actor, and the impact of "hidden harms" such as structural inequality and slow environmental degradation. Participants challenged conventional understandings of conflict, arguing that physical violence should be understood as a symptom of deeper and longer-term injustices rather than as the starting point of conflict.

Discussions emphasized the concept of "slow violence" and "structural violence," showing how long-standing inequities in water access, weak governance, and environmental degradation accumulate over time and eventually manifest as protests, unrest, or violence. A case from rural Nepal illustrated how persistent inequalities and governance failures related to water access generated frustration that escalated into open conflict only after years of neglect.

The session also reframed the role of the media, presenting it not as a passive communicator but as an active governance actor capable of shaping narratives, influencing policy agendas, and either mitigating or exacerbating conflict. An analysis of media coverage in the Limpopo River Basin, following an algae bloom affecting Mozambique, South Africa, and Zimbabwe, demonstrated how media framing differed across national contexts and relied heavily on official sources. This reliance limited the media's potential to promote inclusive, transboundary problem-solving and to amplify marginalized perspectives.

Participants identified a critical "invisibility gap," whereby marginalized voices and slow-onset harms remain absent from both policy responses and media narratives. Policymakers were described as being trapped in reactive cycles that respond to visible crises while ignoring underlying injustices. Journalists, meanwhile, face barriers to accessing technical data and diverse sources, reinforcing dependence on official narratives.

The session concluded by calling for proactive approaches that address root causes of water-related conflict, treat media as a legitimate governance partner, and support civil society and research efforts to document and map hidden harms as early-warning signals for conflict prevention.

Water as a Catalyst for Equity: Centering Marginalized Voices in Governance and Climate Resilience
Subtitle: Transformative Leadership from the Margins in Conflict Affected and Climate-Stressed Contexts

Jatani Bonaya Godana[1, 2, 3, 4]

[1]Daayyaa Generation Network (DGN), Addis Ababa, Ethiopia
[2]Dilla University, Dilla, Ethiopia
[3] AGH University of Science and Technology, Poland
[4]TUBAF, Frieberg, Germany

SUMMARY

In the face of intensifying water scarcity, climate change, and conflict, women, youth, and Indigenous communities long marginalized in governance are asserting transformative leadership rooted in justice and resilience. Global water frameworks often exclude these voices, yet Borana pastoralists and allied African movements are advancing innovations that merge ancestral knowledge with frontline activism. This research highlights Borana women's water-sharing rituals, youth-led digital mapping of vanishing springs, and intergenerational councils restoring ecological balance. Cross-border collaborations, such as Borana-Gabra- Garri agreements, illustrate water's role in diffusing conflict while promoting equity. By reframing water as a site of collective healing rather than a contested resource, the session calls for decolonized, justice-centred governance that centeres Indigenous stewardship, youth diplomacy, and feminist water economies.

INTRODUCTION

Water scarcity is escalating globally, particularly in Africa's drylands where climate stress converges with conflict. Historically, governance frameworks have marginalized Indigenous peoples, women, and youth, framing them as beneficiaries rather than decision makers. Yet, across the continent, these groups are challenging exclusionary paradigms by advancing alternative governance rooted in cultural heritage, resilience, and justice. This research examines how water, beyond its material value, becomes a political and cultural site for reimagining equity and peace.

METHODOLOGY

The study applies a qualitative, participatory approach, drawing from:

- Case studies of Borana pastoralist communities in southern Ethiopia.
- Field narratives on women-led water-sharing rituals and intergenerational ecological councils.
- Digital mapping initiatives spearheaded by youth documenting disappearing springs.
- Comparative analysis of cross-border water governance practices involving Borana, Gabra, and Garri pastoralists communities.

Data is triangulated from interviews, community dialogues, and literature on Indigenous governance, peacebuilding, and feminist political ecology.

Since the research method was case study, the researcher was used random sampling for the questionnaires and information-oriented sampling instead of random sampling for the interview data collection technique. All management members of PA were taken in the informants; all team leaders were considered in this study. Different authors use different formula to determine sample size of the study. The C.R Kothari and Yamane formula were well known in simple random sample sizing (C.R. Kothari, 2004) and Yamane (1967).

$$n' = \frac{Z^2 * p * q * N}{e^2(N-1) + Z^2 * p * q} \cdot \text{eqn}(1)$$

$$n = \frac{N}{1 + N * e2} \ldots \text{eqn } (2)$$

The C.R KOTHARI formula set the confidence level as 95% then the value of Z for this confidence level will be 1.96, acceptable error (e) as 3% and the sample proportion p is assumed as p = 0.5 to get the most conservative sample size. In this case 'n' would have the maximum and the sample had been yield at least the desired precision. This was the most conservative sample size for this research. This was taken based on personal judgment or the result of a pilot study but for this case it assumed based on personal judgment. Then the resulting q was q = 1-p. The total population of the study area has been known and N = 'X' number of people. For this research the Yamane formula was used. The formula set by Yamane (1967), was used by considering the level of acceptable margin of error 5%.

RESULTS & DISCUSSION

Findings demonstrate that marginalized groups are not passive recipients of water governance but active architects of resilience:

- **Women's Leadership:** Borana women mediate access through ritualized sharing practices that strengthen social cohesion.
- **Youth Innovation**: Digital tools map water points and provide early warning systems for scarcity-driven conflict.
- **Intergenerational Governance**: Councils mate change, and conflict. Drawing on Borana blend ancestral ecological wisdom with con- pastoralists' practices in southern Ethiopia, this study temporary peacebuilding. highlights women's ritualized water-sharing, youth
- **Cross-Border Collaboration:** Communal led digital mapping of disappearing springs, and in- agreements between Borana, Gabra, and Garri generational councils that blend ancestral communities illustrate water's potential to different knowledge with modern peacebuilding. Cross-border fuse conflict.

These practices subvert top-down governance and demonstrate water's potential not as a trig model, offering equitable, sustainable, and locally generated conflict but as a foundation for cooperation, legitimate alternatives. Yet, recognition and fund- justice, and resilience.

Table 1. Historical Displacement and Water-Related Conflict in the Pastoralist around Borana Region

Year/Period	Displacement (People)	Water/Pastoral Conflict	Key Challenges
1995–2018	≈748,499	Borana– Gedeo–Guji clashes, competition over water/land	Forced migration, intense resource competition
2021–2023	≈300,000	Borana– Garri–Gabra (Moyale) drought-driven conflicts	Livestock deaths, expansion of IDP camps, acute food insecurity
2023	≈372,000	Severe drought, Borana– Garri– Gabra displacement in Moyale	Catastrophic loss of water and pasture, malnutrition, humanitarian crisis

It is within this context of chronic and accelerating instability that the significance of the Borana-Gabra-Garri cross-border water collaboration must be understood. This traditional institution manages

shared resources across ethnic lines, representing a critical mechanism for de-escalating the very tensions documented in Figure 1 and Table 1. These practices demonstrate that water governance, when rooted in local knowledge and equity, becomes a powerful tool for peacebuilding and climate adaptation.
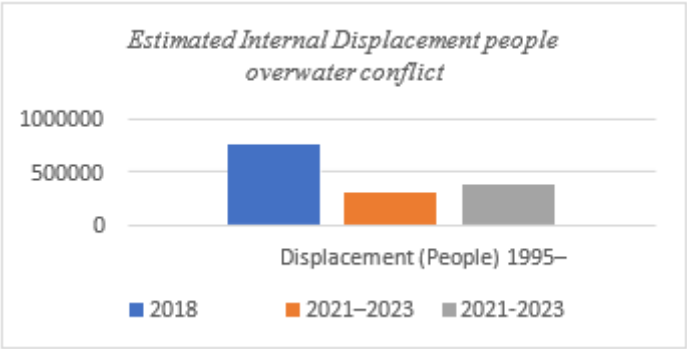

Figure 1. Monthly average temperatures for 2024 (measured at the Rotterdam the Hague Airport).

Women, youth, and Indigenous communities historically excluded from decision-making are emerging as key leaders in addressing water scarcity, climate change, and conflict. Drawing on Borana pastoralists' practices in southern Ethiopia, this study highlights women's ritualized water-sharing, youth-led digital mapping of disappearing springs, and intergenerational councils that blend ancestral knowledge with modern peacebuilding. Cross-border agreements between Borana, Gabra, and Garri communities demonstrate water's potential not as a trigger of conflict but as a foundation for cooperation, justice, and resilience.

CONCLUSIONS

Water governance in climate-stressed and conflict-affected contexts must be reimagined through justice entered, decolonized approaches. Marginalized leadership should be recognized as essential expertise, not symbolic participation. Supporting Indigenous stewardship, integrating youth diplomacy, and fostering feminist water economies are critical steps toward inclusive peace and climate resilience. Water, thus, can serve as a covenant for coexistence and a catalyst for equity in governance.

REFERENCES

Yamane, T. (1967). *Statistics: An Introductory Analysis* (2nd ed). Harper and Row.

Elevating Marginalized Voices: Reclaiming Agency in Water, Peace, and Security Governance

Phares Ogola[1]
[1]Future Africa International

SUMMARY

The twin realities of Turkana and the Lake Victoria Basin illustrate how the dimensions of Accessibility, Quality, and Inadequacy shape water justice in profoundly different yet interconnected ways. Climate change, rapid population growth, and mismanagement have transformed abundance into scarcity, fuelling disputes and, violent conflict and in some cases loss of lives.

In Turkana, accessibility is a daily struggle as families trek long distances for drinking and cooking water, sparking clashes over scarce wells and grazing lands.

On the hand In the Lake Victoria Basin, abundance coexists with inequity, where weak governance and privatization limit access for small-scale farmers and fisher folk.

Water quality further compounds these divides. Unsafe boreholes in Turkana threaten sanitation and spread disease, while industrial and agricultural pollution in Lake Victoria erodes fish stocks, undermines livelihoods, and jeopardizes public health.

Finally, inadequacy-the insufficiency of water to meet basic needs, sustain livelihoods, and preserve ecosystems-remains a shared challenge. Droughts devastate Turkana, while population pressure and overuse strain Lake Victoria's wetlands and rivers.

"*The lesson is clear: if governed inclusively, with equitable access, safe quality, and adequate supply, water can shift from being a source of division to a fountain of peace, resilience, and prosperity across communities.*"

INTRODUCTION

Water governance often excludes the very people most affected - women, youth, Indigenous groups, and displaced populations. Their lived realities and knowledge are central to resilience, yet too often silenced. This paper argues that peace and sustainability demand recognizing marginalized actors as equal stakeholders - active architects of diplomacy, governance, and conflict transformation.

Why Turkana & Lake Victoria Basin?

Two contrasting but interconnected water-stress environments studied:

(a)Turkana (Arid & Conflict-Prone)

- Extreme droughts and water insecurity.
- Competition over grazing lands and water points drives violent inter-communal and cross-border conflicts.
- Displacement and humanitarian crises linked to climate stress.

(b)Lake Victoria Basin (Freshwater & Densely Populated, Tran's boundary)

- Supports 40+ million people across Kenya, Uganda, and Tanzania.
- High population pressure, pollution, and resource competition.
- Disputes among fishing communities and rising governance challenges in shared waters.

METHODOLOGY

Using Participatory Action Research (PAR), Stakeholder Mapping, and Case Studies from Lake Victoria Basin and Turkana, captured grassroots innovations such as community-led water management and peace circles. A Comparative Thematic Analysis distilled lessons for governance reform. The Method applied, was participatory and multi-scalar research design to ensure both evidence generation and community empowerment.

Four complementary methods were used:

1. Participatory Action Research (PAR):

- Engaged women, youth, Indigenous peoples, and displaced groups not as passive respondents but as co-researchers.
- Documented lived experiences and community-led solutions to water scarcity and conflict.
- Enabled marginalized actors to shape the research agenda and outcomes.

2. Stakeholder Mapping:

- Identified power dynamics and decision-making structures across local, county, national, and Tran's boundary water institutions.
- Revealed enablers and barriers to inclusive governance.

3. Case Studies (Lake Victoria Basin & Turkana):

Examined grassroots innovations such as:

- Community-led water management systems.
- Peace circles and conflict mediation practices.
- Customary approaches to water sharing.

Allowed for context-specific insights into contrasting water-stress environments:

- Turkana (arid, conflict-prone).
- Lake Victoria Basin (freshwater, densely populated, Trans boundary).

4. Comparative Thematic Analysis:

- Integrated findings from both regions.
- Extracted common lessons and patterns for water governance reform, climate resilience, and peace-building applicable across Sub-Saharan Africa.

Methodological Formula:

Inclusive Governance = (PAR + Case Studies + Stakeholder Mapping + Thematic Analysis) × (Equity + Agency + Collaboration)

Research Methodology Flow: Future Africa International
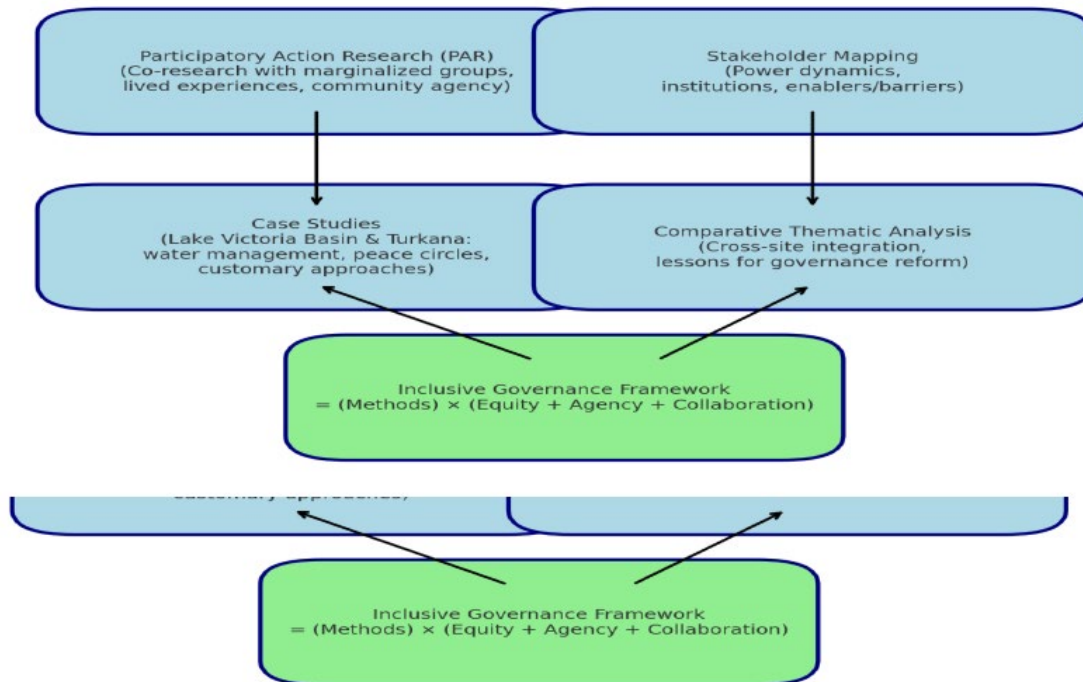
RESULTS & DISCUSSION

Findings show that when marginalized voices shape decisions, water governance is more just, resilient, and peaceful. Grassroots mechanisms build trust and ensure fairness. However, structural barriers-weak representation, exclusionary laws, limited access to peace platforms-continue to hinder agency.

Key Recommendations

- Invest in community leadership.
- Integrate indigenous knowledge into policy.
- Safeguard customary water rights.
- Expand early warning systems.
- Institutionalize multi-scalar governance.

CONCLUSION

Inclusion must move beyond rhetoric. True resilience emerges when marginalized groups are recognized not as passive beneficiaries, but as equal partners in shaping water, peace, and security future.

ACKNOWLEDGEMENT

The Overlooked Actor: Role of Media in Transboundary Water Governance

K.B. Sikuka[1]
[1]Limpopo Watercourse Commission (LIMCOM), Communication and Knowledge Management, Maputo, Mozambique

SUMMARY

Effective governance of transboundary water resources hinges on multiple factors, including robust institutional frameworks and active policy actors. While ongoing discourse rightly emphasizes institutional strengthening and stakeholder engagement, the role of media in advancing water governance remains critically underexplored. This oversight is significant as media can serve as a powerful force in society, either fostering constructive dialogue or fuelling tensions. This abstract highlight the strategic and dual role of media in transboundary water governance and explores how stakeholders could effectively harness media to foster peace and cooperation across shared waters.

INTRODUCTION

Among the widely cited definitions, media is characterized as a primary source of information that empowers individuals to make informed decisions (Fortunato, 2005). In the context of transboundary water governance, this suggests that media can serve as a catalyst for peace and cooperation if properly harnessed and engaged. For example, media can enhance stakeholder participation across shared waters by translating complex technical content into accessible narratives for broader public understanding. Equally, media can also fuel conflict by disseminating misinformation and amplifying self-serving narratives of riparian states (Klimes, 2019). This abstract highlight the strategic and dual role of media in transboundary water governance and explores how stakeholders could effectively harness media to foster peace and cooperation while mitigating its drawbacks.

METHODOLOGY

The subject under review is inherently multidimensional, encompassing political, ecological, and communicative domains. To capture its complexity and relevance, this study examines the interpretive role of media in shaping public discourse, stakeholder perceptions, and governance responses, using the recent algae bloom incident in the Limpopo River Basin (LRB) as a focal case. The study employed a qualitative content analysis of sixteen news articles published by mainstream media outlets across the four riparian countries of the LRB namely Botswana, Mozambique, South Africa and Zimbabwe. Notably, no article from Botswana reported on the bloom situation despite a rigorous search. Table 1 outlines the distribution of articles sourced from national newspapers in each country.

Table 1

No.	Media House	Country	Number of Articles
1	Mozambique Information Agency (AIM)	Mozambique	2
2	Mozambique News (MZNews)		1
3	Club of Mozambique		1
4	Sunday Times		1
5	The South African	South Africa	1
6	Limpopo Mirror		3
7	NewsDay		2
8	Daily News	Zimbabwe	2
9	The Chronicle		2
10	The Herald		1

The selected articles, published between 13 June 2025 (the date of the initial bloom report) and 26 August 2025, were analyzed to assess how media framed the incident, influenced stakeholder engagement, and contributed to policy transparency using the following four framing parameters:

• Tone of the article: Cooperation vs. Conflict.

•News Narrative: Nationalist vs. Regionalist.

•Sources Cited: Diversity and Representation.

•Media Understanding: Access to Information.

In addition to this, the study draws on academic literature and expert insights to contextualize the findings within the three core functions of media namely Gatekeeper; Agenda-setter; and Watchdog.

RESULTS & DISCUSSION

Findings show that media plays a dual role in transboundary water governance with distinct patterns in media framing, stakeholder representation and governance narratives. With respect to the tone of the coverage, about 90 percent of articles adopted a cooperative tone, emphasizing shared responsibility to address the situation. However, 10 percent framed the incident through a conflict-oriented lens, attributing blame to upstream actors and highlighting institutional failures. This tonal divergence underscores media's capacity to either reinforce basin-wide solidarity or amplify geopolitical tensions, depending on editorial stance and national interests.

Regarding news narrative, South African media outlets tended to present the issue through nationalist lens, focusing on the domestic impacts without any reference of the Limpopo River as being a shared resource. However, the nationalist sentiment is not in a negative sense but to cater for the local audience. In contrast, Mozambican and Zimbabwean media frequently adopted a regionalist perspective, referencing the river as a lifeline for millions in the four riparian states, including giving updates about what other riparian states are doing to monitor and address the situation. This observation is critical as it highlights the role of media in water diplomacy.

Pertaining to sources cited, most media reports heavily leaned on official government positions with limited inclusion of civil society and basin-level institutions, pointing to missed opportunities for inclusive storytelling and stakeholder visibility. This heavy reliance on official data may help to explain why communities who live within the shared watercourses, particularly women and the youth remain a marginalized group as their voices are silenced.

On journalistic understanding of the technical dimensions of the bloom, none of the articles provided scientifically grounded explanations nor had wide-ranging interviews with experts. This may reveal that media has limited access to decision-makers and data on transboundary water issues with some experts even shying away from the media for fear of being misrepresented and misquoted.

This interpretive insight and findings from the bloom case study affirms that media has a strategic role in advancing water governance across its three core functions of gatekeeping, agenda-setting and watchdog. As a Gatekeeper, media selectively filtered information, often privileging national narratives over basin-wide perspectives. Therefore, it is critical for technical experts in all Riparian states to jointly and actively engage and capacitate media to report objectively to avoid representing one-sided narratives, but forge a common narrative, which is geared toward cooperation rather than conflict.

Another major observation is that in countries where there are direct socio-economic impacts of the bloom, media actively played its role in Agenda-setting to influence policy urgency by deciding what issues society should discuss in the public sphere through repeated coverage of the situation. Consequently, it is important for decision-making and media to work together in influencing public dialogue on shared waters to promote peace and cooperation.

Lastly, media came short in its Watchdog role to hold institutions accountable mainly due to limited access to technical data and stakeholders. As such, it is critical for decision-makers to embrace media as an ally rather than a foe in advancing transboundary governance. This approach ensures that reporting on shared water resources becomes issue-driven rather than sporadic and reactive, thereby contributing to sustained peace and cooperative governance.

CONCLUSIONS

The findings underscore that media functions not merely as a messenger, but as a governance actor capable of shaping narratives, bridging knowledge gaps, and enhancing inclusivity in transboundary water management. When granted access and institutional support, media can foster transparency, amplify marginalized voices, and promote cooperative problem-solving. However, when constrained by nationalist framing or limited information flow, media may inadvertently reinforce fragmentation and mistrust among riparian states. Therefore, it is imperative for transboundary institutions and relevant stakeholders to embed media strategies within their stakeholder engagement frameworks, invest in media training and cultivate partnerships with journalists. Recognizing media as a legitimate governance actor can strengthen basin-wide cooperation, enhance public accountability, and support adaptive governance, ultimately contributing to peacebuilding and sustained collaboration across shared water basins.

REFERENCES

J. Fortunato, (2005) Making Media Content: The influence of constituency groups on Mass Media, Mahwah, NJ: Lawrence Erlbaum.

M. Klimes, (2019) Waves of fake news in transboundary waters: The need for communication resilience.

From Hidden Harms to Water Violence

H. Leigh[1], V. Chow[1], S. Goodall[1], P. Basnet[1]
[1] Loughborough University, Loughborough, United Kingdom

SUMMARY

This project explores how communities in Nepal navigate the intersection of water access, inequality, and violence. Although Nepal is often portrayed as water-rich, everyday access to potable water remains uneven, and frustrations around this can escalate into disputes. Instead of treating water violence as random or isolated, this research investigates how such incidents emerge from long-standing inequities and environmental pressures that leave some communities with few alternatives.

The study focuses on how people themselves interpret and respond to these challenges. Using narrative interviews and focus groups with both water users and officials, it examines how communities perceive governance failures, how tensions build, and why physical violence sometimes becomes the chosen form of response. The approach highlights the agency of those most affected, particularly marginalized groups in rural areas, whose perspectives can be absent from policy debates. By connecting lived experience with broader governance structures, the research looks to contribute to understanding violence not only as an outcome but also as a signal of deeper issues.

INTRODUCTION

Water is abundant in Nepal's highland–lowland hydrological system, yet many communities face water shortages due to governance failures and social inequities (Action contre la Faim, 2024; Dhungana, 2024). Although Nepal is cited as holding the world's third-largest freshwater reserve, only around 25 per cent of the population has access to fully functioning drinking water infrastructure (Action contre la Faim, 2024). This paradox highlights two hidden forms of violence: structural violence, entrenched inequalities that determine who has access to potable water (Bonino and Donini, 2009; Galtung, 1969) and slow violence, the gradual harms of environmental degradation, pollution, and neglect that can also limit safe access to water (Nixon, 2011). Both create pressures that can eventually erupt into physical violence.

This study uses slow and structural violence as a lens to examine how water violence in Nepal is shaped by long-term stresses rather than arising spontaneously. It centres the voices of water users, to explore how frustration builds and how communities respond. Particular attention is given to the agency of marginalized groups in rural areas, who can be excluded from decision-making. By reframing violence as both a response and a symptom, the study aims to inform more inclusive, violence-sensitive water governance.

METHODOLOGY

The research employs a qualitative case-study methodology in predominantly rural regions of Nepal, informed by a critical realist approach. Key steps include:

1. Dataset Review: Information from the Water Conflict Chronology (WCC) (Pacific Institute, 2023) and the Armed Conflict Location and Event Dataset (ACLED, 2025) provided the initial basis for identifying events of water violence in Nepal. These events were coded according to key themes (drinking water, irrigation, tariffs, etc.), helping identify potential locations to further explore slow and structural forms of water violence.
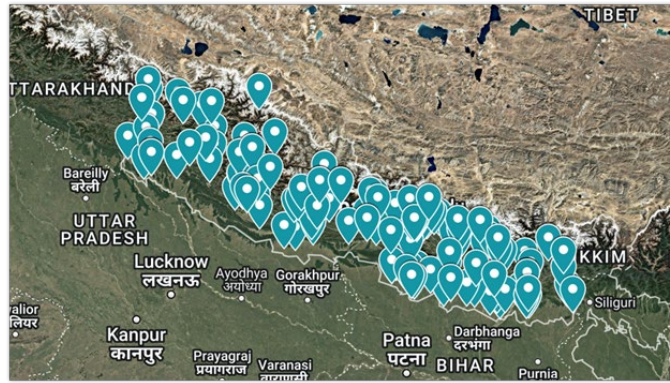
Figure 1. Map of Incidents of Water Violence in Nepal since 2010, plotted from ALCED (ACLED, 2025; Google Maps, 2025)

2. Scoping Visit: A preliminary scoping visit was carried out at a site with a recent incident of water violence. Early observations, in line with desk-based research, suggested that this event was not an isolated occurrence but rather a symptom of deeper challenges around communities' access to water. The visit also indicated that slow and structural forms of violence can indeed escalate into physical violence.

3. Data Collection: The main data collection component of this study is upcoming in Autumn 2025. Semi-structured interviews are planned with varied stakeholders, including water users, policy enforcers in local government, and central policymakers. Community-led focus groups will also capture collective perspectives on access and coping strategies. Local translators and trusted community contacts will ensure inclusivity and open dialogue.

4. Analytical Framework: Data analysis will follow a critical realist model, linking observable events (such as physical violence) with deeper generative mechanisms (social norms, institutional practices, power relations, etc.). Transcripts will be coded for perceived injustices and community responses, from negotiation and protest to physical violence.

RESULTS & DISCUSSION

Though formal fieldwork is forthcoming, preliminary insights already suggest patterns between slow and structural violence and physical violence. Water provision can vary greatly between areas, and areas that face water deprivation, are more likely to experience physical water violence (ACLED, 2025; Rotberg et al., 2007). Expected findings include such accounts where physical threats are not random but rooted in hierarchies and resource inequalities: communities first experience slow and/or structural violence, and then react to this with physical violence.

Importantly, this research will aim to highlight community agency. For instance, water users may band together to pay for repairs or to protest against processes they feel are unfair (ACLED, 2025). When tensions do erupt, they are neither spontaneous nor inexplicable, but the climax of pressures that communities have often tried, with varying success, to manage through other means.

CONCLUSIONS

This study seeks to reconceptualize 'water violence' by showing how physical confrontations emerge from structural and slow forms of violence. By documenting the lived experiences of rural and marginalized water users, it highlights how inequality, neglect, and weak governance gradually build pressure that can culminate in physical violence.

Preventing such violence requires addressing underlying injustices. Policies that only respond to physical incidents risk treating symptoms rather than causes. Involving marginalized groups, not only as beneficiaries but as active partners in water management, could help to address this. Forums that

amplify the voices of marginalized communities can help to surface grievances before they escalate, while fostering trust between communities and decision-makers.

Ultimately, recognising physical violence as a response to ongoing structural and slow violence shifts the focus from isolated events to systemic drivers. By highlighting the strength of community agency, this research looks to contribute to approaches that link water security, equity, and peacebuilding.

REFERENCES

ACLED (2025) 'ACLED Codebook, 2025', Armed Conflict Location & Event Data Project (ACLED) [Online]. Available at www.acleddata.com (Accessed 4 February 2025).

Action contre la Faim (2024) Nepal's water resources in the face of climate change, [Online]. Available at https://www.actioncontrelafaim.org/en/headline/nepals-water-resources-in-the-face-of-climate-change/ (Accessed 31 August 2025).

Bonino, F. and Donini, A. (2009) Aid and Violence: Development Policies and Conflict in Nepal - A Background Report, Medford [Online]. (Accessed 31 August 2025).

Dhungana, M. (2024) 'Villagers smell corruption in failed water project', Kathmandu Post, Kathmandu, 12th April [Online]. Available at https://kathmandupost.com/sudurpaschim-province/2024/04/12/villagers-smell-corruption-in-failed-water-project (Accessed 31 August 2025).

Galtung, J. (1969) 'Violence, Peace, and Peace Research', Journal of Peace Research, Sage Publications, Ltd., vol. 6, no. 3, pp. 167–191 [Online]. Available at http://www.jstor.org/stable/422690.

Google Maps (2025) All Incidents ACLED – Google My Maps [Online]. Available at https://www.google.com/maps/d/edit?mid=1qfOUBpXtD9aZuvtSrz5VDIsGOeZEcf8&ll=1.476546128 0070724%2C0&z=2 (Accessed 11 August 2025).

Nixon, R. (2011) Slow Violence and the Environmentalism of the Poor, Slow Violence and the Environmentalism of the Poor, Cambridge, Harvard University Press [Online]. DOI: 10.2307/J.CTT2JBSGW (Accessed 8 July 2024).

Pacific Institute (2023) Water Conflict Chronology [Online]. Available at https://www.worldwater.org/water-conflict/ (Accessed 3 May 2024).

Rotberg, F. J. Yates., Swain, Ashok. and Nepal Water Security Forum (2007 : Uppsala University) (2007) Natural resources security in South Asia : Nepal's water, Institute for Security and Development Policy.

Special sessions

The Special Sessions complemented the thematic tracks by offering focused, practice-oriented discussions convened by partner organizations and regional actors. Together, they expanded the Water, Peace and Security agenda by addressing: governance innovation, justice, technology and tools, financing, humanitarian–security linkages, and context-specific pathways to cooperation.

Water, Land and Climate Resilience in Indigenous Communities and Pathways for Peace, Equity, and Climate Justice was convened by Indigenous Peoples for Peace and Climate Justice and moderated by June Bartuin. Indigenous leaders, women's advocates, renewable energy practitioners, and legal experts explored how secure land tenure, customary governance, women's leadership, ethical business engagement, and community-owned renewable energy can transform water and land governance into foundations for peace and climate resilience. The session emphasized justice-centred governance and recognition of Indigenous peoples as rights-holders and solution leaders.

Water for Peace: Conflict-Sensitive Basin Management in Ethiopia's Omo-Gibe Basin, convened by the World Resources Institute and moderated by Zablon Adane, brought together researchers, basin authorities, and community representatives. The session examined how participatory modelling, scenario analysis, and justice-informed decision-making can help navigate trade-offs between hydropower, livelihoods, and ecosystems, highlighting the importance of inclusive processes in preventing conflict.

Tides of Peace: Unlocking the Potential of Lake Turkana for Climate Resilience and Stability convened by Daniel Kangogo (UN World Food Programme)showcased WPS programming in northern Kenya, with contributions from practitioners, community leaders, and policy experts. The session focused on linking indigenous governance systems, community-led water management, and data-driven tools with national institutions, reinforcing the message that water governance determines whether scarcity fuels conflict or cooperation.

From Scarcity to Stability: Climate-Smart Water Governance in Fragile Contexts – The Case of Somalia convened humanitarian, development, and governance actors working in highly fragile settings by Christophe Hodder (UN Climate Security and Environmental Advisor to Somalia). Discussions emphasized climate-smart approaches that integrate service delivery, conflict sensitivity, and institutional strengthening, demonstrating how water interventions can support stabilization when aligned with local realities and long-term governance pathways.

Turning the Tide: Building Peace through the WPS Approach in the Water-Stressed Lake Turkana Region was convened by the Water, Peace and Security (WPS) partnership and moderated by Daisy Kosgei (International Alert–Kenya), bringing together researchers and practitioners with case contributions from Mohamed Daud, Eric Suyru, Momodou J.A. Senghore, Beatrice Dube, and WPS technical experts. The session demonstrated how dialogue facilitation, ecosystem mapping, modelling, and data-driven tools can support peacebuilding in arid and semi-arid regions. Discussions emphasized that competition over water and grazing resources is shaped more by governance gaps, exclusion, and weak coordination than by physical scarcity alone. Participants highlighted the importance of linking community-led and indigenous governance systems with basin-level and national institutions, including through strengthened Water Resource Users Associations and the integration of community-generated data into formal planning. The session concluded that water becomes a bridge for peace when governance systems are inclusive, multi-level, and responsive to local realities, and a source of conflict when they are not.Rethinking River Basin Management for Holistic and Sustainable Development of the Nile River Basin, facilitated by the Nile Basin Initiative and moderated by Dr.

Abraha Adugna, examined the Nile River Basin Management Plan as a vehicle for cooperative governance. Participants from basin institutions and partner organizations highlighted data sharing, ecosystem protection, financing, and trust-building as prerequisites for translating basin-wide strategies into tangible peace and development outcomes.

Shared Waters, Shared Future: Securing Peace and Sustainable Livelihoods in the Tana River Basin, convened by Nature Kenya and moderated by Caroline Ng'weno, brought together county officials, legal experts, and community advocates. The session focused on inter-county cooperation, downstream impacts, and the development of a binding water protocol, underscoring the role of community-led advocacy and legal frameworks in preventing conflict.

Advancing Sustainable Water and Sanitation Solutions: Transitioning Services for Displaced Communities into Local Utility Frameworks convened humanitarian and WASH actors to address the transition from emergency service delivery to sustainable, utility-based models by Lavuun Verstraete (UNICEF ESAR). The session highlighted governance reform, financing, and institutional integration as key to reducing long-term vulnerability in displacement settings.

Securing Water, Sustaining Peace: Involving Defence and Security Actors in Addressing the Water Security Nexus convened by Jessica Hartog (International Alert) and Thijs van Aken (The Hague Centre for Strategic Studies – HCSS) explored the role of security institutions in water governance. Participants discussed coordination challenges, risks of securitization, and opportunities for constructive engagement that supports prevention, protection of critical infrastructure, and dialogue rather than militarized responses.

Exploring Financing Opportunities for Water, Peace and Security convened by Ingwell Kuil (Rebel Advisory East Africa) brought together development partners, financial institutions, and practitioners to examine how innovative financing, blended instruments, and public–private partnerships can support water resilience and peacebuilding. The session concluded that water should be framed not only as a humanitarian or environmental concern, but as a long-term investment in stability and prosperity.

Together, the Special Sessions reinforced the conference's core insight: transforming water from a source of tension into a catalyst for peace requires justice-centred governance, inclusive institutions, credible finance, and sustained collaboration across sectors and scales.

Water, Land and Climate Resilience in Indigenous Communities and Pathways for Peace, Equity, and Climate Justice

Moderator: June Bartuin (Indigenous Peoples for Peace and Climate Justice, Kenya)

This special session explored how water and land governance in Indigenous territories can serve as foundations for peace, equity, and climate resilience rather than sources of conflict. Framed through justice-based perspectives, the discussion emphasized Indigenous communities as rights-holders and leaders whose governance systems and stewardship practices offer viable pathways for sustainable and peaceful resource management.

Paul Chepsoi presented evidence from Indigenous land governance systems demonstrating how secure community land tenure enables long-term planning, watershed protection, and conflict avoidance. His contribution emphasized that customary governance arrangements rooted in collective responsibility have historically balanced water conservation and livelihoods more effectively than externally imposed models.

Naomi Kurgat focused on the gendered dimensions of water insecurity, illustrating how Indigenous women experience disproportionate impacts of water scarcity while simultaneously leading transformative solutions. Drawing on women-led initiatives—including rainwater harvesting systems, solar-powered water pumps, and cooperative irrigation schemes—she demonstrated how women's leadership strengthens trust, reduces conflict, and delivers more durable peace outcomes.

Jonah Cherutich highlighted community-owned renewable energy projects as an emerging pathway linking energy equity, water protection, and livelihood resilience. His presentation showed how locally led solar and wind initiatives reduce pressure on water resources, generate employment for youth, and reinforce community cohesion, outperforming centralized energy models in both acceptance and sustainability.

Paul Lekapana examined ethical business engagement in Indigenous territories, contrasting extractive development models with approaches grounded in free, prior, and informed consent (FPIC), transparent benefit-sharing, and community co-ownership. He argued that ethical business practices not only reduce conflict but also improve long-term economic performance and environmental outcomes.

Key challenges identified included insecure land tenure, marginalization of Indigenous knowledge in policy processes, structural barriers to women's participation, weak enforcement of FPIC, and limited access to climate finance for Indigenous organizations. Recommendations focused on legal recognition of customary land rights, integration of Indigenous knowledge into national and county planning, inclusive water infrastructure design for mobile and pastoralist populations, stronger regulation of private sector engagement, and dedicated climate finance windows accessible to Indigenous communities.

The session concluded that durable peace in Indigenous territories depends on justice-centred governance that recognizes land rights, elevates women's leadership, promotes ethical economic models, and integrates traditional knowledge with modern innovation.

Water for Peace: Conflict-Sensitive Basin Management in Ethiopia's Omo-Gibe Basin

Moderator: Zablon Adane (World Resources Institute)

This special session explored how conflict-sensitive, data-driven basin management can support cooperation and peace in Ethiopia's Omo-Gibe Basin, a system characterized by competing demands from hydropower, irrigation, flood-recession agriculture, pastoralist livelihoods, ecosystems, and downstream impacts on Lake Turkana. Zablon Adane opened the session by situating the basin within the Water, Peace and Security (WPS) framework, emphasizing the need to combine technical analysis with inclusive dialogue to address power asymmetries and mistrust.

Seleshi Yalew (IHE Delft) presented "Approaches to Mitigate Water-Related Conflicts through Optimization and Scenario Modelling in the Omo-Gibe Basin," outlining a co-modelling approach developed with government actors, communities, pastoralists, and technical experts. The approach integrated stakeholder dialogue into multi-objective optimization to examine trade-offs between hydropower generation, downstream water demand, irrigation, flooding, and ecological needs under different scenarios, while embedding justice principles—utilitarian, egalitarian, and sufficientarian—to address equity concerns.

The modelling showed that low downstream demand allows win–win outcomes between hydropower and irrigation, while higher demand produces sharp trade-offs. Equity constraints significantly reshaped optimal solutions, illustrating how purely technical optimization can exacerbate conflict. A central finding was the "flood paradox": contrary to widespread perceptions, Gibe III dampens peak flows, indicating that flooding is more strongly linked to release timing, catchment degradation, and climatic variability than to dam operations alone.

Teketel Tadesse (Ministry of Water and Energy, Ethiopia) followed with "Opportunities and Challenges for Inclusive Water Governance in the Omo-Gibe Basin," outlining the basin's institutional and governance context. He highlighted severe challenges, including weak IWRM capacity, fragmented coordination, climate vulnerability, and limited stakeholder participation. At the same time, he presented emerging opportunities through Ethiopia's National Integrated Water Resources Management Plan, the "one basin–one plan" principle, newly established basin councils chaired at the highest political level, and expanding multi-stakeholder platforms supported by WPS.

Daisy Kosgei (WPS Kenya) contributed "Conflict-Sensitive Water Planning and Inclusive Dialogue in the Omo-Gibe Basin," emphasizing the role of facilitated dialogue as a bridge between technical modelling and governance decision-making. She highlighted how the WPS process deliberately creates space for marginalized voices—including pastoralists, downstream communities, and Indigenous groups—to engage with modelling results, question assumptions, and articulate lived impacts. Through structured dialogue and the moderated Q&A, Kosgei surfaced critical issues related to equity, transboundary concerns with Kenya, livelihood disruption, sedimentation, and emerging conflicts between irrigation investors and local communities. Her contribution demonstrated that the legitimacy and peacebuilding value of modelling depend not only on technical rigor, but on inclusive processes that enable stakeholders to interpret, contest, and negotiate outcomes collectively.

The session concluded that while many hydrological and livelihood impacts remain unresolved—including climate change integration, sedimentation, transboundary coordination, and community impacts—the co-modelling and dialogue process itself represents a major peacebuilding outcome. By creating a trusted space where hydropower operators, government institutions, pastoralists, and

downstream communities can negotiate competing interests, the Omo-Gibe engagement offers transferable lessons for conflict-sensitive basin management well beyond Ethiopia.

Tides of Peace: Unlocking the Potential of Lake Turkana for Climate Resilience and Stability

Moderator: Daniel Kangogo (UN World Food Programme)

The session was moderated by Daniel Kangogo (World Food Programme) and featured opening contributions from Charles Condo on behalf of Betsy Njagi (State Department for Blue Economy and Fisheries), followed by presentations and panel contributions from Achiba Gargule (Tufts University / International Alert), Joycelyn Omondi (Moderator), Dr. John Erus (Deputy Governor, Turkana County), Daniela Nairita (Founder, Yasi Apocycle), Brizan Were (Value Villages Fish & Leather Ltd.), Claudia Ah Poe (World Food Programme), Emmy Auma Odero (International Alert – Horn of Africa), and Christian Beretta (UNESCO Regional Office for Eastern Africa).

Daniel Kangogo opened the session by framing Lake Turkana as a potential global model where climate resilience, water governance, food systems, and peacebuilding converge. He introduced a WFP-led, multi-partner programme co-created with the county governments of Turkana and Marsabit, UNESCO, International Alert, private-sector actors, and local communities. The programme adopts a systems approach structured around three pathways: fisheries-based economic development, complementary livelihoods and nutrition and water security, and resource knowledge management and stewardship.

Charles Condo, speaking on behalf of the State Department for Blue Economy and Fisheries, emphasized that the framing of "Tides of Peace" signals a deliberate shift from crisis narratives toward opportunity-driven solutions. He highlighted Lake Turkana's exposure to droughts, flooding, displacement, and social tensions, and called for integrated, conflict-sensitive, and locally led approaches that center women, youth, and marginalized groups while mobilizing public–private partnerships.

Achiba Gargule presented findings from International Alert's climate-security research, demonstrating how increasingly frequent droughts, lake-level rise, and livelihood transformations intensify food insecurity and conflict risks. His analysis showed that resource-based conflicts dominate the basin, governance fragility exacerbates tensions, and gender-based violence is rising as women's livelihoods shift toward natural-resource extraction. He emphasized evidence-based programming, gender integration, long-term livelihood strategies, and multi-actor partnerships.

The panel discussion highlighted locally driven solutions. Dr. John Erus outlined Turkana County's investments in infrastructure and cross-border cooperation, stressing community-led governance and regional agreements as foundations for peace. Daniela Nairita underscored barriers faced by youth and women entrepreneurs, particularly access to capital, markets, and networks. Claudia Ah Poe described the Fisher Service Center model, which supports fisherfolk through services, aggregation, and digital marketing, while addressing post-harvest losses through floating landing sites, cold storage, and processing technologies. Brizan Were presented the Lake Turkana Connect digital platform, designed to link fisherfolk to markets even for users with limited literacy. Emmy Auma Odero emphasized that peace-positive investment must prioritize people and relationships, not only infrastructure.

Christian Beretta concluded by outlining UNESCO's role in resource knowledge management, including water insecurity surveys, water quality monitoring, and fish productivity modelling, noting particularly high water and food insecurity among women and girls. The session collectively underscored that inclusive governance, local entrepreneurship, scientific evidence, and investment in social cohesion are essential to transforming Lake Turkana into a foundation for resilience and peace.

From Scarcity to Stability: Climate-Smart Water Governance in Fragile Contexts – The Case of Somalia

Moderator: Christophe Hodder (UN Climate Security and Environmental Advisor to Somalia)

The session was facilitated by Christophe Hodder (UN Climate Security and Environmental Advisor to Somalia) and brought together panellists from Somali government institutions, humanitarian and development partners, and local governance actors to examine water-related tensions, climate risks, and peacebuilding opportunities in Somalia

The discussion examined how water scarcity, climate change, and weak governance interact to shape insecurity and social cohesion in Somalia. Participants emphasized that Somali society is fundamentally shaped by water, with access to water and pasture influencing livelihoods, displacement patterns, and even military strategy. As climate change intensifies droughts and floods, these dynamics are expected to become more pronounced.

Representatives highlighted the work of the Somali Ministry of Energy and Water Resources (MoEWR) in developing a multi-partner water and sanitation strategy designed to provide short-, medium-, and long-term responses. This multi-pronged approach was presented as essential for steering Somalia's long-term development trajectory under increasing climate stress.

Panellists underscored the strength of community-led responses during environmental crises. Examples demonstrated how local solidarity and collaboration foster peace dividends, particularly in the absence of strong formal institutions. In Beledweyne, communities and the Somali diaspora mobilized more than USD 5 million in response to severe flooding, illustrating the capacity of informal systems to deliver rapid and cohesive disaster response.

The session highlighted Somalia's comparatively strong climate data and early warning capacity. The Somali Disaster Management Agency (SODMA) and MoEWR have developed early warning systems that use radio broadcasts and interactive voice recordings to reach rural and pastoralist communities, improving preparedness for climate shocks.

Several governance challenges were discussed. Over the past three decades, the absence of formal water governance has led to reliance on informal and clan-based systems. While these structures have filled critical gaps, participants noted shortcomings in regulation and equity. Efforts to include women and youth in water governance committees often remain project-based and collapse once external support ends. Panellists cautioned against importing governance models from other contexts, stressing Somalia's unique political and social landscape.

The session concluded with recommendations to strengthen peace dividends by building on existing local governance structures and integrating them upward into district, state, and national systems. Participants emphasized that sustainable, climate-smart water governance in Somalia must remain locally grounded while progressively institutionalizing inclusive participation, particularly for women and youth, to enhance long-term stability and social cohesion.

Turning the Tide: Building Peace through the WPS Approach in the Water-Stressed Lake Turkana Region

Moderator: Daisy Kosgei (International Alerts-Kenya)

This session showcased Water, Peace and Security (WPS) programming in Turkana and pilot work in Marsabit, highlighting how dialogue initiatives, ecosystem mapping, and data-driven tools can support peacebuilding in arid and semi-arid landscapes. The session brought together technical perspectives and local voices to examine how water governance can address scarcity, resource-based conflict, and long-standing policy gaps in fragile contexts

Discussions centred on resource ownership and water use in arid and semi-arid lands (ASALs), where competition over scarce water and grazing resources frequently fuels conflict. Panellists emphasized that effective responses require linking community-led initiatives with national and regional governance frameworks, ensuring that local realities inform higher-level planning and decision-making.

Drawing on more than 25 years of experience in the water sector, Hussein Wario highlighted that community-led water initiatives in Marsabit and Turkana are most effective when formally connected to basin-level and national institutions. He emphasized strengthening Water Resource Users Associations (WRUAs) as legitimate intermediaries between communities and basin authorities, integrating community-generated water data—such as abstraction levels, seasonal availability, and conflict incidents—into official information systems, and aligning customary by-laws with national water policies. According to Wario, visible incorporation of community inputs into formal planning processes enhances local ownership and accountability.

Lokorikeju Titus Ekiru underscored the continued relevance of indigenous governance systems in managing water-related conflict in Turkana. He described how elders' councils, clan-based negotiations, and seasonal water-use agreements regulate access to wells, rivers, and grazing corridors, particularly during drought periods. These mechanisms prioritize dialogue, compensation, and reconciliation, making them effective in preventing escalation and sustaining coexistence among pastoralist groups.

The session also addressed persistent challenges in translating policy into practice. Simon Thuo reflected on gaps arising from fragmented institutional mandates across water, climate, peace, and humanitarian sectors, limited recognition of pastoral mobility and informal governance systems, and weak coordination between national, regional, and local actors. Drawing on experience from Northern Kenya, Karamoja, South Sudan, and Somalia, he highlighted practical approaches that have proven effective in fragile settings, including jointly governed water infrastructure designed to encourage cooperation and the integration of natural resource restoration with water access to reduce pressure on scarce resources.

The session concluded with the shared message that "water can be a weapon or a bridge—it depends on how we govern it," reinforcing the central insight that peace in water-stressed regions depends on inclusive, multi-level governance that connects community practices with formal institutions

Rethinking River Basin Management for Holistic and Sustainable Development of the Nile River Basin

Moderator: Dr. Abraha Adugna (Nile Basin Initiative Secretariat)

The session was facilitated by Dr. Abraha Adugna (Nile Basin Initiative Secretariat), who introduced the Nile River Basin Management Plan (NRBMP) as a strategic framework for advancing cooperative water governance across the basin. Mr. Tom Waako (Programme Officer, Nile Basin Initiative Secretariat) presented the core elements of the NRBMP, focusing on its role in translating the Nile Basin Shared Vision into actionable, basin-wide implementation

The session examined how the NRBMP integrates the four dimensions of Integrated Water Resources Management—water, land, environment, and institutions—to respond to increasing pressures on the Nile's finite resources. Presentations emphasized the challenge of moving from planning to implementation, particularly the need to align basin-level objectives with national development plans. Participants stressed that national–basin integration is essential for ensuring coherence, ownership, and measurable impact.

Data, transparency, and technology were highlighted as critical enablers of cooperation. The discussion emphasized data sharing among riparian states as a foundation for trust-building, joint planning, and informed decision-making. Technology was presented as a means to address data gaps, harmonize monitoring systems, and support adaptive management under climate variability.

Ecosystem management and climate resilience formed another central theme. The NRBMP was discussed as a tool for safeguarding basin ecosystems while strengthening resilience to climate change through coordinated planning and ecosystem-based approaches. Financing and partnerships were identified as decisive for implementation, with emphasis on mobilizing regional infrastructure funds, co-investment mechanisms, and innovative financing instruments to support shared benefits across upstream and downstream countries.

Political will and trust-building emerged as persistent challenges. Participants reflected on the tension between national sovereignty and basin-wide sustainability, questioning how the Nile Basin Initiative can evolve to support more durable and enforceable cooperation while preserving voluntary engagement by member states. Confidence-building measures—including joint projects, transparent benefit-sharing, and continuous dialogue—were identified as essential mechanisms.

The session concluded with recommendations focusing on capacity building at national and sub-basin levels, mainstreaming NRBMP goals into national plans, and pursuing "no-regret" actions such as data harmonization, ecosystem protection, and institutional strengthening. Participants emphasized that cooperation in the Nile Basin is not optional but essential, and that inclusive implementation and local ownership are critical to translating the NRBMP from strategy into tangible outcomes for water security, livelihoods, and regional stability.

Shared Waters, Shared Future: Securing Peace and Sustainable Livelihoods in the Tana River Basin

Moderator: Caroline Ng'weno - Nature Kenya

The session featured contributions from Moses Juma (Tana Delta Conservation Network), Anthony Mbuthia (Deputy Director, Department of Environment and Climate Change, County Government of Lamu), and Timna Komora (Senior Counsel, County Government of Tana River), who presented perspectives from community advocacy, county governance, and legal frameworks related to shared water management in the Tana River Basin.

The session focused on progress toward inter-county collaboration between Tana River and Lamu counties in developing a joint water position and a draft inter-county water protocol. The discussion emphasized the urgent need for a binding governance instrument to address grievances, ensure equitable water access, and promote sustainable management of shared water resources across the nine counties of the basin.

Participants highlighted severe downstream impacts resulting from upstream water use and infrastructure operations. These included seawater intrusion in the delta, untimely and uncontrolled dam water releases causing displacement and damage, pollution from agricultural runoff, sedimentation, and escalating conflicts between farmers and pastoralists over scarce water resources. Downstream communities stressed that while seasonal flooding sustains the delta ecosystem, poorly timed releases undermine livelihoods and environmental integrity.

Community-led advocacy emerged as a central theme. Speakers described how local mobilization, including the use of radio and dialogue platforms, successfully halted the feasibility study for the High Grand Falls Dam, preventing further downstream harm. This advocacy was complemented by science-based planning tools such as the Tana Delta Land Use Plan and the Strategic Environmental Assessment, which recommend maintaining a minimum ecological flow of 60 cubic meters per second at Garissa to sustain the delta ecosystem.

The session also emphasized alignment with existing legal and policy frameworks, including the Constitution of Kenya, the Water Act 2016, the Environmental Management and Coordination Act, and the County Government Act. However, participants noted that current national legislation remains insufficient to address cross-county conflicts, often leaving downstream counties to bear the financial and operational burden of disaster response.

Recommendations centred on consolidating county position papers through the Council of Governors and convening a national meeting for all nine basin governors to endorse and sign a binding inter-county water protocol. Additional proposals included strengthening community participation, establishing joint monitoring and data-sharing platforms, enforcing ecological flow standards, and securing continued partner support for basin-wide restoration and implementation efforts.

Advancing Sustainable Water and Sanitation Solutions: Transitioning Services for Displaced Communities into Local Utility Frameworks

Moderator: Lavuun Verstraete (UNICEF ESAR)

The session was facilitated by Lavuun Verstraete (UNICEF Eastern and Southern Africa Region) and featured contributions from Glenn Costes (UNHCR) on peacebuilding through humanitarian–development–peace (HDP) nexus implementation, James Origa (World Bank) on financial sustainability and institutional reforms, Samuel Godfrey (UNICEF Sudan) on utility-led refugee-inclusive water provision, Mohamed Ahmed Bihi (Somali Regional Water Bureau, Ethiopia) on tariff realism and service costs, Shiela Karimi (KfW Kenya) on transition-period subsidies, and Jelmer van Veen (Embassy of the Kingdom of the Netherlands in Kenya) on the political and operational challenges of shifting to utility-led models.

The session examined how water and sanitation services in displaced and conflict-affected settings can transition from emergency humanitarian provision to sustainable, utility-managed systems. Participants emphasized that many existing water systems in refugee and host-community contexts are operated by NGOs, and that transferring responsibility to utilities requires significant institutional change, new governance arrangements, and community acceptance. Establishing memoranda of understanding, tariff regulation, and asset handover processes were identified as particularly complex steps.

Affordability and equity emerged as central concerns. Participants highlighted that immediate application of full cost-recovery tariffs is often unrealistic for refugees and host communities, and that poorly designed subsidy systems risk undermining both social cohesion and utility viability. The discussion stressed the need for phased transitions toward cost recovery, alongside carefully targeted subsidies and clear policy frameworks to balance fairness and financial sustainability.

Institutional capacity constraints were repeatedly noted. Utilities operating in fragile and displacement-affected contexts often face shortages of skilled staff, weak procurement and regulatory systems, and limited maintenance capacity. Participants warned that transitioning to permanent infrastructure without addressing water resource and catchment sustainability risks long-term system failure, particularly in drought-prone and transboundary settings.

Several case studies illustrated these challenges and opportunities. The RWASH programme in Ethiopia, Somalia, and Sudan demonstrated how climate-resilient infrastructure and utility handover can be supported through multi-donor partnerships. The Itang town project in Ethiopia showed how a utility-managed piped system can serve both refugees and host communities, reducing water costs and strengthening social cohesion. In Somalia, a managed aquifer recharge pilot in Dollow highlighted the importance of integrating water resource sustainability into WASH service planning.

The session concluded that successful transition to utility-managed WASH services depends on sustained government leadership, transitional financial support, inclusive community engagement, and long-term coordination between humanitarian and development actors to ensure resilience, equity, and continuity of services.

Securing Water, Sustaining Peace: Involving Defence and Security Actors in Addressing the Water Security Nexus

Moderator: Jessica Hartog (International Alert) and Thijs van Aken (The Hague Centre for Strategic Studies – HCSS)

The session featured contributions from Dr. Solomon Njenga (Mashariki Research and Policy Centre) on opportunities and challenges for engaging defence and security actors in water-related security risks, as well as a keynote contribution by Fred Kioko. Regional perspectives were further shared through a panel discussion involving Roselyne Omondi, Simon Thuo, Sanya Lengodo, and Thijs van Aken

The session examined the role of defence and security actors within the broader "4D" framework—Diplomacy, Development, Disaster relief, and Defence—in addressing water-related security challenges in fragile and conflict-affected contexts. Participants emphasized that water stress increasingly acts as both a threat multiplier and a potential entry point for peacebuilding, yet defence and security actors remain insufficiently integrated into long-term water governance and peacebuilding efforts.

Discussions highlighted that while defence and security actors are often mobilized during crises—such as floods, droughts, or water-induced instability—their engagement is typically reactive and short-term. Panellists noted that defence actors often lack the mandate, institutional capacity, and incentives to address water-related security risks proactively or to engage meaningfully with civilian governance actors over the longer term.

A key challenge identified was trust. Local communities may view defence and security actors with suspicion, particularly when they overlook local water governance arrangements, indigenous knowledge, and customary ownership systems. This disconnect can undermine legitimacy and hinder cooperation with development, humanitarian, and diplomatic actors. At the same time, military institutions often operate under rigid command structures that complicate collaboration with civilian agencies and local communities.

The session identified three main pathways forward. First, defence actors should deepen their understanding of local contexts by engaging with local security providers and water governance institutions to build trust and contextual awareness. Second, participants called for the establishment of joint civil–military frameworks that clearly define roles, mandates, and coordination mechanisms when water stresses escalate into security risks. Third, the session emphasized the need for regional approaches, recognizing that water-related security challenges frequently transcend national borders and require collective management beyond shared visions toward coordinated action.

Due to Chatham House rules, no direct quotations were shared. The session concluded without specific follow-up actions, but underscored the importance of continued dialogue to responsibly integrate defence and security actors into comprehensive, peace-oriented water governance approaches

Exploring Financing Opportunities for Water, Peace and Security

Moderator: Ingwell Kuil (Rebel Advisory East Africa)

This special session addressed one of the conference's cross-cutting challenges: how to mobilize private finance to strengthen water resilience as a foundation for climate security and peace. Framed explicitly around the question of bankability, the session argued that while water projects are widely recognized as public goods, their long-term sustainability increasingly depends on structuring them as investable propositions capable of attracting private capital alongside public and concessional finance.

Discussions emphasized that the principal constraint is not a lack of capital, but the absence of reliable long-term revenue streams that can underpin financially viable water projects. Participants highlighted the critical role of development partners, including the Embassy of the Kingdom of the Netherlands and the Swiss Agency for Development and Cooperation, across the entire project lifecycle—from early-stage project preparation and risk absorption to capacity building and implementation support. UNEP's coordinating role was also underscored, particularly in strengthening local government capacity to access international climate finance mechanisms such as the Green Climate Fund.

A series of case studies illustrated how financial innovation can be applied across contexts. Experiences from the Nile Basin Initiative demonstrated how systematic screening and cost–benefit analysis of regional infrastructure pipelines can help determine appropriate financing instruments. Post–Hurricane Sandy reconstruction along the Mill River in the United States was presented as an example of value-capture financing, where increased real estate value generated by resilience investments contributed to long-term funding solutions. Lessons from the Mississippi River Delta highlighted the importance of addressing equity concerns through community-centred project development facilities. In Kenya, the Naivasha Bulk Water Project was discussed as an emerging example of a privately initiated bulk water investment, while also illustrating the unresolved challenge of ensuring affordability through appropriate tariff and subsidy structures.

The session identified several persistent barriers to scaling finance for water resilience, including weak regulatory frameworks, limited public–private partnership capacity, fragmented governance, and the high-risk profiles associated with fragile and conflict-affected contexts such as Somaliland and Puntland. Participants stressed that blended finance instruments require a higher tolerance for failure and longer investment horizons than conventional infrastructure finance.

Recommendations focused on strengthening enabling environments through improved PPP legislation, exploring voluntary carbon and biodiversity credit markets, and designing financing mechanisms suitable for smaller, community-scale projects. Interactive polling during the session revealed strong participant support for public–private partnerships, guarantees, and risk-sharing instruments, as well as a demand for greater coordination among donor-funded resilience programmes to enable long-term impact. The session concluded with a shared message that water should be framed not only as a crisis response sector, but as a strategic investment in peace, prosperity, and resilience.

Synthesis and Policy Messages

Pathways for Strengthening Water, Peace and Security Linkages

This section synthesizes the main insights emerging from the first international conference on Water, Peace and Security (WPS), held in Africa. The synthesis draws on the thematic sessions, regional case studies, keynote discussions, and the closing reflections of Day 1 and Day 2. Rather than reiterating individual findings presented elsewhere in the proceedings, this synthesis distils the shared lessons, policy-relevant messages, and strategic pathways that cut across scales, regions, and disciplines. Importantly, the synthesis does not merely aggregate evidence, but attempt to advance a normative agenda on water, peace, cooperation and security, moving toward approaches grounded in livelihoods, equity, inclusivity and agency. Together, these insights advance a clearer understanding of how water-related risks have been addressed not only to prevent conflict, but to actively support peacebuilding, cooperation, and resilience in fragile and climate-affected contexts.

Water as a Risk Multiplier and a Peace Opportunity

A consistent message throughout the conference was that water scarcity, climate variability, ecosystem degradation and extreme events rarely constitute direct causes of conflict. Instead, they act as *risk or threat multipliers*, intensifying pre-existing vulnerabilities such as political marginalization, livelihood insecurity, weak institutions, and contested resource governance. This dynamic was evident across case studies from the Sahel, the Horn of Africa, the Great Lakes region, and the Middle East. The conference underscored that it is these underlying socio-economic and political conditions, rather than hydrological stress alone, that determine whether water becomes a source of tension or a driver of cooperation.

At the same time, the conference demonstrated that water is uniquely positioned as a *peace opportunity*. Because water is indispensable, shared, and embedded in everyday livelihoods, it often creates potential incentives for dialogue, even where political relations are strained or trust is limited. Across community, national, and transboundary contexts, cooperation around water has frequently emerged earlier than cooperation in other sectors. However, the conference cautioned that cooperation is not inherently peacebuilding: it contributes to peace when it improves livelihood security, addresses inequalities in access and control, and enhances the political inclusion of marginalized water users. The key policy implication is that water should be approached not only as a sector requiring protection from conflict, but as a strategic entry point for peacebuilding and cooperation.

From Technical Solutions to Governance Processes

Another central insight was that effective water-peace-security interventions are less about technical fixes and more about governance processes. While infrastructure, data systems, and models are essential, they only contribute to peace when embedded in inclusive, transparent, and conflict-sensitive decision-making structures. The conference reflected on the dominance of technocratic approaches within the water security field, noting that strong focus on technical solutions alone may sometimes overlook power relations and the contested nature of key decision.

The WPS approach, highlighted repeatedly across sessions, demonstrates the value of combining hydrological analysis with social science, political economy analysis, and sustained stakeholder engagement. Rather than prescribing solutions, WPS-supported processes enable actors to jointly define problems, inventorise competing interests, and negotiate trade-offs. Evidence from cases such

as the wetlands of the Inner Niger Delta, Lake Turkana, Ethiopia's lowland river basins, and southern Iraq showed that such processes can reduce tensions, shift institutional behaviour, and open pathways toward cooperation.

The policy message is: investments in water infrastructure or data systems should be matched with long-term investments in institutions. Dialogue platforms and facilitation capacities enable diverse actors – especially those traditionally excluded - to co-develop social and technical solutions that improve their livelihoods and enhance mutual cooperation.

Trust Is Built Through Practice, Not Declarations

Throughout the conference, trust emerged as a decisive yet fragile factor in water-related peacebuilding. The conference reinforced that trust is rarely established through formal agreements or political statements alone. Instead, it is built incrementally through *visible, everyday practices at all scales,* demonstrating fairness, justice, predictability, and accountability. Such practices matter because they directly affect how communities experience governance, not merely how it is articulated.

Examples included negotiated dam operation rules, transparent water allocation during droughts, rotational grazing agreements, marked routes for livestock river crossing, pollution control, and shared monitoring systems. Such practices could shape perceptions of legitimacy and inclusion more powerfully than paper commitments. For policymakers and practitioners, this underscores the importance of supporting small, tangible improvements that matter directly to communities, while recognizing their cumulative political significance. Trust cannot be sustained where grievances related to exclusion, dispossession, or livelihood loss remain unaddressed, highlighting the intrinsic link between trust-building and distributive justice.

The Role of Inclusive and Community-Rooted Institutions

The conference repeatedly highlighted that durable water-peace-security outcomes depend on institutions that are rooted at the community level yet connected to higher governance scales. Water user associations, elders' councils, basin committees, and cross-border dialogue platforms were shown to play a critical role in preventing escalation and resolving disputes early. These institutions often operate closest to lived realities, making them essential sites for linking water governance with peacebuilding and relevant issues of the society.

However, many studies also cautioned that such institutions are frequently under-resourced, weakly mandated, or undermined by elite capture and power asymmetries. Inclusion of women, youth, pastoralists, small-scale farmers, fishermen, and displaced populations remains uneven, despite their central role in water use and management. The conference highlighted that inclusion extends beyond technical considerations and is a political process that can challenge established interests. Strengthening local institutions therefore requires more than formal recognition; it requires political backing, financial sustainability, accountability and justice mechanisms, and meaningful participation by both communities and state actors.

Science, Data, and Innovation as Enablers, Not Neutral Tools

The growing importance of science, data, and innovation, including Earth observation, hydrological modelling, early warning systems, and digital platforms, in addressing water-related risks was a recuring theme. These tools can help shift discussions from contested narratives to shared understandings of risks, trade-offs, and future scenarios.

Yet a critical insight from the conference was that technical tools are not inherently neutral. Their contribution to peace depends on how they are developed, communicated, and governed. When models are opaque, imposed, or disconnected from local realities, they can reinforce mistrust. When co-produced with users, transparent in assumptions, and combined with local knowledge, they can enable dialogue, preparedness, and cooperation. Policy frameworks should therefore, prioritize co-produced knowledge, epistemic justice, open data sharing, and capacity building alongside technological innovation.

Groundwater, Climate Change, and Overlooked Dimensions

Several studies drew attention to dimensions of the water-peace-security nexus that remain under-addressed in policy and practice. Groundwater and shared aquifers, often invisible and poorly governed, are becoming increasingly central to resilience in arid and semi-arid, regions yet are rarely integrated into peace and security frameworks. Similarly, climate change was shown to be systematically underestimated as a driver of changing hydrological baselines, shifting river courses, affecting wetlands, and altered risk perceptions, particularly in transboundary settings.

The conference highlighted gender, youth, and displacement as critical lenses for understanding water-related conflict and cooperation. These dimensions tend to be overlooked because they are poorly captured by dominant water security metrics and formal governance structures. Addressing these gaps is not only a matter of equity and justice, but also of effectiveness and sustainability.

From Crisis Response to Conflict Prevention

A strong policy message emerging from the synthesis is the need to move from reactive crisis management toward anticipatory and preventive approaches. Participants called for water to be more systematically integrated into national, regional, and international peace and security architectures. This includes linking water monitoring to early warning systems, strengthening preventive diplomacy around shared waters, and ensuring rapid response mechanisms during acute water-related crises.

Prevention requires institutions to act on early signals, invest in long-term relationships, and address structural drivers of vulnerability, including livelihood insecurity and fragile governance, before crises escalate. The WPS experience illustrates that prevention is possible when institutions are willing to act on early signals, engage stakeholders proactively, and invest in long-term relationships rather than short-term projects.

Strategic Policy Messages

Based on the synthesis of the conference discussions, the following policy messages emerge:

- Recognize water as both a security risk and a peace asset, and integrate it explicitly into justice, peacebuilding, climate adaptation, and development strategies.

- Acknowledge livelihoods as a key driver for water insecurity in fragile contexts, and embrace interventions to improve material security, dignity, and adaptive capacity for water-dependent communities.

- Invest in governance processes, not only infrastructure, ensuring that technical interventions are embedded in inclusive and conflict-sensitive institutions.

- Move beyond narrowly technical definitions of water security, by considering: power, access, and distribution. Sustainable peace and stability cannot be achieved through technical risk management alone.

- Prioritize prevention over response, strengthening early warning, dialogue, and reconciliation mechanisms around water-related risks.

- Support local and horizontally networked WPS knowledge co-production, moving toward reciprocal and context-sensitive collaboration with the Global North.

- Support inclusive, community-rooted institutions, with sustained resources and political backing.

- Address overlooked dimensions, including groundwater governance, ecosystem services, climate uncertainty, gender, youth, and displacement.

- Commit to long-term engagement, recognizing that water, peace and security outcomes require patience, trust-building, and continuity.

Concluding Reflection

Water is not only a resource; it is a foundation for peace, prosperity, and human dignity. The WPS Conference reaffirmed that water-related conflict is not inevitable. While the challenges are complex and deeply contextual, the conference provided compelling evidence that inclusive governance, credible knowledge, and sustained commitment can transform water from a source of tension into a foundation for cooperation, resilience, and peace. Strengthening water-peace linkages is ultimately not only a technical or institutional task, but a collective responsibility, requiring care for water resources, for people, and for shared futures across borders and generations.

Annexes

Annex A: Conference Committees

A1: Scientific Committee

1. Pieter van der Zaag – IHE Delft (chair)
2. Tom Middendorp – HCSS
3. Mark Zeitoun – Geneva Water Hub
4. Bart van den Hurk – Deltares/Vrije Universiteit Amsterdam
5. Susanne Schmeier – IHE Delft
6. Frederic Gateretse-Ngoga – African Union
7. Anders Jägerskog – World Bank
8. Prisca Kamungi – United Nations

A2: Organizing Committee

1. Krishna Patil – IHE Delft (chair)
2. Nicola Chadwick – IHE Delft
3. Ahmed Sulaiman – ICPAC
4. Sundus Al-Ogaidi – IHE Delft
5. Daisy Cheruto Kosgei - International Alert
6. Edmond Kuto - Wetlands International
7. Marleen van der Kooij – IHE Delft
8. Louisa Chinyavu – Wetlands International

A3: Programme Committee

1. Yasir Mohamed – IHE Delft (chair)
2. Irina Patrahau – HCSS
3. Svenja Wolter – International Alert
4. Audrey Legat – Deltares
5. Julie Mulonga – Wetlands International
6. Samantha Kuzma – WRI
7. Aku Suoknuuti - Finnish Water Way for Peace
8. Sundus Al-Ogaidi – IHE Delft
9. Krishna Patil – IHE Delft
10. Marleen van der Kooij – IHE Delft

A4: Review Committee

1. Andreja Jonoski – IHE Delft
2. Audrey Legat – Deltares

3. Daisy Cheruto Kosgei – International Alert
4. Irina Patrahau – HCSS
5. Jonatan Godinez Madrigal – IHE Delft
6. Karounga Keita – Wetlands International
7. Louisa Chinyavu – Wetlands International
8. Samantha Kuzma – WRI
9. Svenja Wolter – International Alert
10. Thijs van Aken – HCSS
11. Yasir Mohamed – IHE Delft
12. Zablon Adane – WRI

Annex B: Conference programme

International Conference on Water, Peace and Security

Water as a Catalyst for Peace and Cooperation

Ole Sereni - Airport Hotel, Nairobi, 27-28 October 2025

DAY 1 – 27 October 2025

Room A (Hybrid) Technical Support: Krishna Patil	Room B (in-person) Technical Support: Lekene Shukare	Room C (in-person) Technical Support: Jonatan Godinez Madrigal

08:30 - 09:00	**Registration & Welcome Coffee**
09:00 - 09:30	Opening Session A Day 1 - Moderator Emmy Euma Odero - International Alert
	Opening remarks 1: H.E. Jaco Beerends, Netherlands embassy in Nairobi, Kenya
	Opening remarks 2: Ambassador Fred Gateretse – Ngoga, African Union Commission
	Opening remarks 3: Principal Secretary Korir Julius, Ministry of Water and Irrigation, Kenya
	Opening remarks 4: H.E. Outi Holopainen, Ministry of Foreign Affairs, Finland
09:30 - 09:50	Keynote speech: Dr Madiodio Niasse, Dakar Water Hub, Senegal
09:50 - 10:10	Inauguration Speech: Former president of Ghana, H.E. Nana Addo Dankwa Akufo-Addo
10:30 - 11:00	**Coffee Break**

	Session 1A		Special Session 1B		Special Session 1C	
	Theme 1 From water-conflicts to peace and cooperation **Moderator Karin Roelofs (WPS Advisory Team, Netherlands)**		Water, Land and Climate Resilience in Indigenous Communities and Pathways for Peace, Equity, and Climate Justice **Moderator, opening remarks & overview - June Bartuin, Indigenous Peoples' for Peace and Climate Justice, Kenya**		Water for Peace: Conflict-Sensitive Basin Management in Ethiopia's OmoGibe **Moderator and introduction - Zablon Adane – WRI,**	
11:00 - 12:30	Opening Remarks Theme 1: Karin Roelofs		Opening remarks & overview	June Bartuin	Introduction to the session by Zablon Adane	
	Water as a Bridge for Peace: Strengthening Cooperation and Stability in the Nile Basin – The Case of Rusumo Hydropower	Abraha Adugna (NBI SEC, Uganda)	Case study presentations based on themes	Naomi Kurgat Paul Chepsoi Lekapan Paul Jonah Cherutich	Approaches to mitigate water-related conflicts through optimization and scenario modelling in the Omo-Gibe Basin	Seleshi Yalew
	Addressing Downstream Water Issues in the Tana River Basin, Kenya	Caroline Ng'weno (Nature Kenya)	Expert panel dialogue		Explore opportunities and challenges for inclusive water governance in the Omo-Gibe Basin	Teketel Tadesse
	The Nile River at a Crossroads: Addressing Threats and Harnessing Potential for Peace, Cooperation, and Sustainable Development	Dawit Zegeye Haile (African Union)	Interactive mapping workshop		Conflict-Sensitive Water Planning and Inclusive Dialogue in the Omo-Gibe Basin	Daisy Kosgei
	Water conflict? Empirical analysis of ENGO effectiveness in addressing domestic water-related conflict	Badradin Mohammed (Univ Maryland, USA) **(Online)**				
	Q&A		Q&A		Q&A	
12:30 - 13:30	**Lunch Break**					

Time	Session 2A		Session 2B		Special Session 2C	
	Session 2A **Theme 1:** From water-conflicts to peace and cooperation **Moderator Karounga Kieta -Wetlands International Sahel**		**Session 2B** **Theme 1:** From water conflicts to peace and cooperation **Moderator Anisa Doty - Finnish Water Way for Peace - Water Diplomacy Platform**		**Special Session 2C** Tides of Peace: Unlocking the Potential of Lake Turkana for Climate Resilience and Stability **Moderator Daniel Kangogo - UN World Food Programme (WFP)**	
13:30 - 15:00	Evaluation of Partnerships for Water and Development: A Case Study of the WPS Partnership	Margaret Kangethe (IHE Alumnus)	Local Water Governance and Human Security in Ethiopia's Borkena River Basin: Pathways to Peace and Cooperation	Sebsib Woldie (Wollo Univ, Ethiopia)	Opening Remarks	Betty Ka (WFP) PS Betsy Njagi (Blue Economies and Fisheries)
	Beyond Control: A Socio-ecological Protocol to Transform Flood Risk into a Catalyst for Peace and Cooperation in Fluvial Deltas	Humberto Tavera Quiroz (Univ Córdoba, Colombia) (Online)	Water Czars and Groundwater Diplomacy: Skills, Scales and Sustainability	Shalet Idawo (Min. Water & Irrigation, Kenya)	Turbulent waters, Troubled shores: The Twin Threats of Climate Change and Conflict on Vulnerable Communities around Lake Turkana, Kenya	Achiba Gargule
	Herder-farmer crisis and the need for national livestock transformation plan in democratic Nigeria	Oluwasegun Ogunsakin (Ekiti State Univ, Nigeria)	Women participation in water management in the Karamoja region, Uganda: Implications on peace and security	Alex Ronald Mwangu (Kabale Univ, Uganda)	Building shared knowledge on Water and Ecosystem Resources for promoting stability for communities in Lake Turkana, Kenya	Christian Berretta
	Trust Governance– The "No-State" Solution	Sofia Maya Collin (Unb. ed Law), USA (Online)	Localised analysis of conflicts in Beni	Papy Kasereka Kaombe (BENI Peace Forum, DRC)	Panel discussion	John Erus, Emmy Auma, Daniela Nairita, Caludia Ah Poe, and Brizan Were
	Q&A		Q&A		Closing Reflections and Way Forward	Jelmer van Veen
15:00 - 15:30	**Coffee Break**					

15:30 - 17:00	**Session 3A** **Theme 2:** Innovations for Water and Peace **Moderator Khalid Hassaballah** (International Center for Biosaline Agriculture ICBA, UAE)		**Special Session 3B** From Scarcity to Stability: Climate-Smart Water Governance in Fragile Contexts – The Case of Somalia **Moderator Christophe Hodder – UN Climate Security and Environmental Advisor to Somalia**		**Special Session 3C** Turning the Tide: Building Peace through the WPS Approach in the Water-Stressed Lake Turkana Region **Moderator Daisy Kosgei WPS Kenya**	
	Opening Remarks Theme 2	Khalid Hassaballah	Opening Remarks	Ahmed Kurweyne	Welcome and Introduction	Augustine Lokwang
	Water-based Conflict in Sool Region	Mohamed Daud Somali Academy, Somalia	Framing the scene	Christophe Hodder	Understanding water-related conflicts, Ecosystems mapping, Modelling and Data Analysis for Informed Decisions	Daisy Kosgei, Luiosa Chinyavy, Edmond Kuto, Krishna Patil
	Climate Change and water conflicts in the Lake Chad basin: a Peace and Security issue	Eric Suyru (Ethics & Policy Lab Cameron,)	Panel discussion	Paolo Paron Badra Yusuf Albert Reichert Ahmed Kurweyne	Local Perspectives: How Water is Contributing to Peace	Titus Ekiru Hussein Wario Simon Thuo Sella King'oro (tbc) Augustine Lokwang
	Space4Water Country Case: The use of Space-based Technology to address water challenges in The Gambia	Momodou J.A. Senghore (NEWRM Centre, Gambia)				
	A Rawlsian perspective on water governance reform in South Africa	Beatrice Dube (UNISA, SA) (online)				
	Q&A		Wrap up and closure		Q&A, Reflections, and closing	

17:00 - 17:30	<u>**Room A:**</u> **Closing Session A, day 1: Moderator Zablon Adane (WRI)**
	WPS integrated approach: from water-related conflicts to peace and cooperation (Yasir Mohamed, IHE Delft)
	Harvesting of day 1 (Jonatan Godinez Madrigal, IHE Delft)
17:30-19:30	**Networking Snacks and Drinks**

DAY 2 – 28 October 2025

Room A (Hybrid) Technical Support: Krishna Patil	Room B (in-person) Technical Support: Lekene Shukare	Room C (in-person) Technical Support: Jonatan Godinez Madrigal

08:30 - 09:00	**Registration & Welcome Coffee**				
09:00 - 09:20	Opening Session A, day 2 - Moderator Dr. Modathir Zaroug (ICPAC, Kenya)				
	Keynote speech: Ms Violet Matiru (CBO, Kenya)				
09:30 - 10:30	**Session 4A:** **Theme 3:** Climate security **Moderator Dr. Modathir Zaroug (ICPAC)**		**Special Session 4B** Rethinking River Basin Management for Holistic and Sustainable Development of the Nile **Moderator Nile Basin Initiative**		**Special Session 4C** Shared Waters, Shared Future: Securing Peace and Sustainable Livelihoods in the Tana River Basin **Moderator Nature Kenya**
	Opening Remarks Theme 3	Madiodio Niasse (DWH, Senegal)	Opening Remarks & Introduction	Dr Abraha Adugna, NBI-SEC	Opening Framing	
	Turkana dashboard: information tool for supporting water peace and security	Andreja Jonoski/ Krishna Patil (IHE Delft) (online)	Rethinking River Basin Management for Holistic and Sustainable Development of the Nile	Mr. Tom Waako, Program Officer, NBI-SEC	Community Voice (Lived Experience from the Tana Delta)	Community leader from the Tana Delta
	Water Governanace and Conflict Prevention in Kenya's Border Regions: Insights from	Paul Maina (Eunaul Ent, Kenya)	Panel Discussion: Reflections from experts on aligning		Panel Insights	County Government (Tana

6

	Research on the Ewaso Ng'iro Basin		climate security, cooperative governance, and sustainable development in the Nile Basin Wrap-up: Key messages and way forward	Simon Thuo, TWM; Thomas Jang, South Sudan; Ms Gladys Wekesa, Kenya		River or Lamu), Downstream Water User Representative, WI, Nature Kenya, Upstream County Representative
	(De)constructing meanings and pathways of water and peace	Laura Turley (Online) (Geneva Water Hub)			Interactive Roundtable & Auidence Dialogue	
	Q&A		Wrap-up: Key messages and way forward		Wrap-up with concrete next steps	
10:30 - 11:00	**Coffee Break**					
11:00 - 12:30	**Session 5A** **Theme 3** Climate Security **Moderator Audrey Legat - Deltares**		**Session 5B** **Theme 4:** Marginalized groups **Moderator Laurens Nijzink (Voice4Thought)**		**Special Session 5C** Advancing Sustainable Water and Sanitation Solutions: Transitioning Services for Displaced Communities into Local Utility Frameworks. **Moderator Lavuun Verstraete – Programme Manager, UNICEF Eastern and Southern Africa Region**	
	Assessing the Impact of Climate Change on Water Resources and Pastoralists Livelihoods in Kajiado West SubCountry, Kenya	Sammy Oleku (POWER, Kenya)	Opening Remarks Theme 4	Laurens Nijzink	Introduction to the session	Lavuun Verstraete
	Geopolitical Risks of Water Resources and Climate Change in the Tigris–Euphrates Basin: From Transboundary Conflicts	Darío Salinas Hiba Moh. (Blue Peace Middle East) (Online)	Empowering Youth in Water and Peace in Sudan: Lessons Learned from the Sudan Youth	Ali Elhaj (Water Gov & Diplomacy, Sudan)	Peacebuilding through HDP - nexus implementation	Glenn Costes - UNHCR

to Local Vulnerabilities in Iraq and Syria		Parliament for Water (SYPW)			
Community-Based Water Governance for Conflict Prevention in Post-Conflict Regions	Mohamud Abdulle Hassan (Mogadishu Univ, Somalia)	Empowering Marginalized Groups: Agency and Resilience in Water, Peace, and Security	Emmanuel Busera (Afro-Asia Inst, Kenya)	Lessons from the field on financial sustainability and institutional reforms	James Origa – World Bank
Youth Inclusion in Multi-level Transboundary Water Governance: A Case of Sio-Malaba-Malakisi Basin	Wesley Omondi (SMM Young Water Diplomats, Kenya)	Centering marginalized groups in water governance for sustainable peace	Lesarge Sheillah Simpanoi (Univ Nairobi Law, Kenya)	Transitioning to utility-led refugee-inclusive water provision	Samuel Godfrey – UNICEF Sudan
		Negotiated Ownership: Environmental Justice and Community Stewardship of Flood-Prone Rivers	Vija Viese (NTNU, Latvia)	Panel discussion	Sheillah Karimi, KfW Kenya Mohamed Ahmed Bihi, Somali Regional Water Bureau, Ethiopia Jelmer van Veen, (Embassy of Kingdom of the Netherlands in Kenya) James Origa
Q&A		Q&A		Q&A	
12:30 - 13:30	**Lunch Break**				

	Session 6A		Special Session 6B		Special Session 6C	
	Theme 4: Marginalized groups **Moderator Seleshi Yalew - IHE Delft**		Securing Water, Sustaining Peace: Involving Defence and Security Actors in Addressing the Water Security Nexus – HCSS and IA **Moderator Jessica Hartog – IA and Thijs van Aken - HCSS**		Exploring Financing Opportunities for water, peace and security **Moderator Ingwell Kuil – Rebel Advisory East Africa**	
13:30 - 15:00	Water as a Catalyst for Equity: Centering Marginalized Voices in Governance and Climate Resilience Subtitle: Transformative Leadership from the Margins in Conflict-Affected and Climate-Stressed Contexts	Jatani Bonaya Godana (Engr, Ethiopia)	Introduction to the session		Setting the scene	Ingwell Kuil
			Opportunities and challenges for engaging defence and security actors in addressing water-related security challenges	Dr. Solomon Njenga(Mashariki Research and Policy Centre)	Keynote speech	Fred Kioko
	Elevating Marginalized Voices: Reclaiming Agency in Water, Peace, and Security Governance	Phares Ogola (Future Africa, Kenya)			Panel discussion	Fred Kioko Viola Kilel Tulla Zeituna, Roba Christophe Matthew Hodder
	The Overlooked Actor: Role of the Media in Transboundary Water Governance	Kizito Sikuka (LIMCOM, Zimbabwe)	Panel discussion: Regional perspectives on engaging the 4th D in fragile contexts: Roselyne Omondi, Simon Thuo, Sanya Lengodo , Thijs van Aken	Jessica Hartog		
	From the Ground Up: Unearthing Everyday Water Violence and the Agency of Marginalised Communities in Nepal	Hannah Leigh **(Online)** **(WEDC, UK)**			Q&A with audience	
	Q&A		Q&A and closing		Wrap-up and closure using Mentimeter	
15:00 - 15:30	**Coffee Break**					

15:30 - 17:00	**Closing Session day 2: High-Level Panel on Water and Peace - Moderator Pieter van der Zaag (WPS/IHE, Delft)**
	Keynote speech: Abdoul Aziz Alhousseini (Voice4Thought, Mali Youth)
	Panel discussion: WPS; Water, Peace and Security Partnership; Fred Gateretse – Ngoga, African Union; Violet Matiru (CBO, Kenya); Anisa Doty, Finnish Water Way for Peace - Water Diplomacy Platform, Finland; Jelmer van Veen, Netherlands Embassy Nairobi; Voice4Thought, Mali
	Closing remarks by Yasir Mohamed
17:00 - 19:00	**Networking Snacks and Drinks**

Annex C: PPT presentations

C1: Lessons learned from Africa's experiences dealing with conflict risks and opportunities for cooperation around shared water resources

1.2. IN A WATER POOR CONTINENT ....

Share of World RWR (%)
(AQUASTAT)

RWR per capita (m3)
(AQUASTAT & World Pop Review)
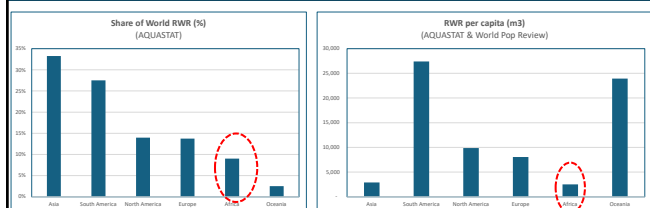
KEY ADDITIONAL DRIVERS FOR INTENSIFIED COMPETITION FOR WATER AMONG AFRICAN STATES :
- **Constellation of economically weak states**, therefore unable to individually mobilize the financing required for major and structural water investments ➔ There is need for interstate cooperation.
- Key factors accentuating competition for water among African States:
  - High degree of water interdependency between states:
  - Very unequal distribution of water resources between countries and regions
  - Limited knowledge of available water resources and poor quality of water-related information

7

1.3. WHERE THE SHAPE OF RIVERS AND BOUNDARIES ENABLE OF CONSTRAIN INTER-STATE COOPERATION

Distribution of Africa's 67 shared rivers & lakes among States (54 States) is a legacy of colonization :
- Rivers as routes of penetration and colonial conquest → **Successive or transboundary rivers**
- Rivers as inter-state boundaries (Berlin Conference) → **Boundary rivers**
- Rivers that are partly transboundary and partly boundary → **Mixed rivers**
- Lake surrounded by countries, each covering a portion of the water body—→ **Shared lakes**

Transboundary river

Boundary river

Mixed river

Shared Lake
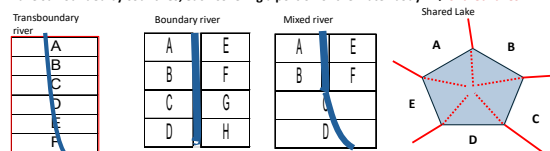
With its many distinctive water-related features, **Africa must devise its own way of addressing the challenges in faces**, building from lessons learned from its own water risk management experiences
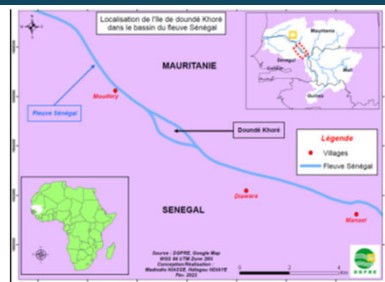
8

---

2. LESSONS LEARNED FROM DISPUTES ET CONFLICTS RISKS AROUND SHARED WATERS IN AFRICA

9

LESSON 1. Many of the inter-state disputes referred to as "water conflicts" relate in fact to _contested boundaries_ in or along the channel of the shared watercourses (1/2).

Mauritania & Senegal – on the Dounde Khore Island (1989)
- Incent **between Senegalese farmers and Mauritanian herders** led one of the most serious water-related crises in Africa.
- The two countries have been **on the brink of an open war**
- Breaking of diplomatic ties for many months
- Diplomatic initiatives at many levels ➔ progressive decrease of tension

10

LESSON 1. Many of the inter-state disputes referred to as "water conflicts" relate in fact to _contested boundaries_ in or along the channel of the shared watercourses (2/2).

Botswana vs Namibia – on the Kasikili Island (1992)
- Disagreement in 1992
- ICJ in 1996
- Elements taken into account:
  - Colonial treaties
  - Main channel
  - Navigable channel
 - Acquisitive prescription
- Decision: Island to Botswana
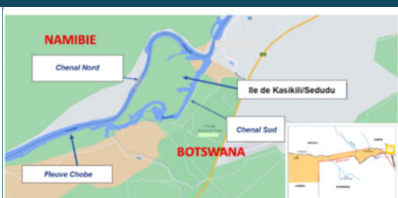
Benin vs Niger – on the Lete Island (1989)
- Disagreement dates back to eve of independence (1959)
- 2001: case submitted to ICJ
- ICJ Decision in 2005 (borders inherited from colonial period; main channel; etc.)

11

LESSON 2. Many tensions appear following _allegations of withdrawal or extraction of large quantities of water carried out by one of the riparian countries_ (mostly upstream) and adversely affecting downstream river discharges (1/2).

Niger River: For Nigeria (downstream countries), the cascade of new dams planned in upstream countries (Kandadji in Niger, Taoussa in Mali and Fomi in Guinea) is perceived as likely to cause a sharp decrease in the flows entering the country with adverse consequences on the country's hydroelectric and hydro-agricultural investments.
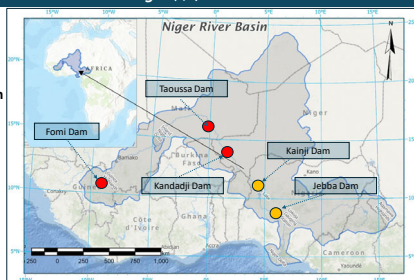

Source: Afolabi, 2025

12

LESSON 2. *Many tensions appear <u>following allegations of withdrawal or extraction of large quantities of water carried out by one of the riparian countries</u> (mostly upstream) and adversely affecting downstream river discharges (2/2).*

<u>Nile River.</u> On the occasion of the **Bujagali dam** construction project (Uganda) [2007-2012] and the debates on the **"Agreed Curve"** (river flow from the Victoria Lake); and more recently

<u>GERD</u> – Grand Ethiopian Renaissance Dam (source:
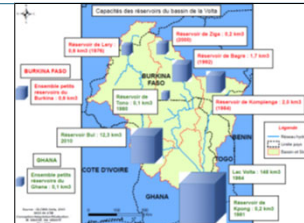

Bassin du fleuve Nil
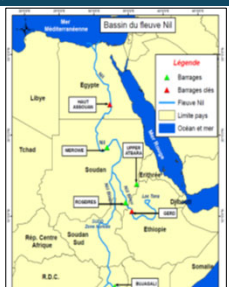
13

LESSON 3. *Neglecting or even ignoring <u>the role of climate variability and change</u> on the availability of water resources is often a source of misunderstanding and tension between countries sharing the same river basin (1/2).*

3.1. Climate impacts on river flows (annual and seasonal river discharge) and extreme climate events (especially floods and severe droughts) are potential causes of interstate tension, in basins where there are water control infrastructures (dams for example).

- **Nile Basin:** Suspicions of the downstream countries of the Nile basin on the upstream.
- **Niger river:** Nigeria threatening upstream countries -- the mysterious 10% redline
- **Lake Volta:** Allegations of reduced inflows to Lake Volta caused by BF dams : overlooked role of Climate change and variability


14

LESSON 3. *Neglecting or even ignoring the <u>role of climate variability and change</u> on the availability of water resources is often a source of misunderstanding and tension between countries sharing the same river basin (2/2).*

3.2. Climate change can also cause the displacement of the riverbed and the uncovering of previously hidden islands → territorial disputes:

- **Disputes on the location of the border after the main channel of the river** (Nuon or Cestos) which used to serve as border migrated toward the Ivorian territory
- **Disputes over ownership of the uncovered islands** (ex. Garak island between Cameroon and Nigeria) in the Lake area
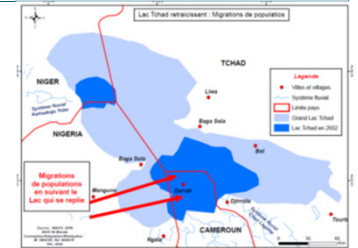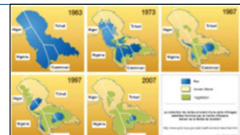
15

---

3. LESSONS LEARNED FROM GOOD AND PROMISING EXAMPLES OF COOPERATION AROUND SHARED WATERS

16

LESSON 4. *Despite being prone to water disputes and open water-conflicts, <u>boundary rivers, offer significant opportunities for innovative and substantive inter-state cooperation over shared waters.(1/1).*

- **Diama dams (on the border between Senegal and Mauritania)**
- **Kariba dam between Zambia and Zimbabwe**
- **They both create strong alliances between the concerned countries**
- **Planned dams on boundary river reaches :**
  - **Senegal River: Gourbassi dam** between Mali and Senegal on the Falémé (a tributary of River Senegal)
  - **Niger river basin: Dyondyonga dam Project** on the Mékrou (tributary of the Niger River, between Niger and Benin) – for the moment stalled

Source: <u>New Civil Engineer</u>

Diama Dam

KARIBA DAM LOCATION
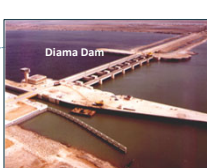
17

LESSON 5. *<u>Trans-boundary rivers</u> are exposed to frequent disputes and conflicts, arising from the **difficulty of reconciling the interests** which diverge from upstream to downstream, from source to mouth 1/1).*

- **Nile basin: Recurrent water-related tensions** (see earlier)

- **Niger River Basin:** "Friendly" interstate relations prevail as long as there no major water development planned / implemented

- Sometimes, stretching over hundred or even thousands of kilometers, **TRANS-boundary rivers connect countries and peoples who often know little about one another**, come from very different cultures, and may have little or no tradition of cooperation

- **The concept of "Common Projects"** is key means of promoting **inter-state cooperation** in shared waters, especially in transboundary rivers

18

Slide 19:

LESSON 6. Common projects offer opportunities for fruitful inter-states cooperation both in boundary and transboundary basins. *(1/1)*.

a. Concept of "common infrastructure project":
- A common infrastructure project as a "*project that is a "common and indivisible property of the Member States*" (OMVS Convention on the legal status of common infrast projects -- 1978)
- "*The co-owner States have an individual right to an indivisible share and a collective right of use, enjoyment and administration of the common infrastructure*" (idem).
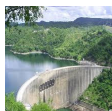
b. Examples of common projects: (1) OMVS's Diama/ Manantali dams (1986-1988); Felou (2013) and Gouina (2022) dams ; 1500-km long high voltage electricity line ; (2) Kariba Dam (1959) jointly owned by Zambia and Zimbabwe (CAPCO – ZRA)

c. Impacts of common projects on conflicts prevention, mitigation and resolution:
- The existence of Diama and Manantali as a **key deterrent to the risk of open conflict;**
- **Kariba continued to function during the peak of the** conflict (close to war) between Rhodesia and Zambia (via CAPCO)

Manantali Dam, located in Mali and co-owned by OMVS member-states

The bi-national Kariba Dam (ZRA) – Zambezi River
Source: WB doc

19

Slide 20:

4. LESSONS LEARNED FROM BENEFIT SHARING ARRANGEMENTS FOR WATER DEVELOPMENT, PEACE AND SECURITY

20

Slide 21:

LESSON 7. Benefit-sharing as powerful technical and diplomatic instrument for preventing conflicts and overcoming the constraints of financing large water infrastructure projects. *(1/4)*.

4.1. What is Benefit-sharing?
Refers to : *Arrangements through which the countries that share a river basin cooperate to generate and equitably distribute the benefits—not just the water—arising from its joint management, development, and protection. It typically involves arrangements for sharing the costs of the project*

4.2. What did OMVS achieve through benefit sharing arrangements ?
The benefit-sharing arrangement has helped OMVS to mobilise the financial resources needed to build many major infrastructure projects – performance which makes it unique compared to other African RBOs

Diama Dam (1986) | Manantali Dam (1988) | Felou Dam (2013) | Gouina Dam (2022) | Electricity grid (2001-20)

21

Slide 22:

LESSON 7. Benefit-sharing as powerful technical and diplomatic instrument for preventing conflicts and overcoming the constraints of financing large water infrastructure projects. *(1/4)*.

4.3. Sharing the burden of large water infrastructure projects (Ex OMVS Prog 1-2)

Burden of OMVS Prog 1 & 2 in the 1980s – 1990s (Prog cost as % of GDP)

	Burden of OMVS Phase 1 Prog on GDP (%)	Buren of Phase 1&2 on GDP(%)
Mali	52%	91%
Maur	143%	247%
Sen	33%	56%
Total (3 countries together)	18%	30%

Programme cost for phase 1: **600 M USD**
Programme cost for Phase 2: **450 M USD**
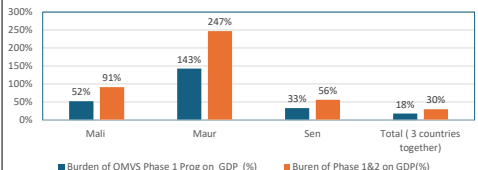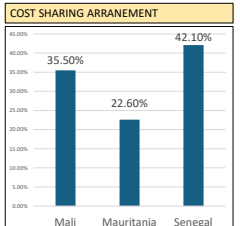Total 1 & 2 Progs: **1,050 M USD**

22

Slide 23:

LESSON 7. Benefit-sharing as powerful technical and diplomatic instrument for preventing conflicts and overcoming the constraints of financing large water infrastructure projects. *(2/4)*.

4.4. How was BS applied in the context of OMVS ? Example of the 1st generation projects

COST SHARING ARRANEMENT

Mali	Mauritania	Senegal
35.50%	22.60%	42.10%

BENEFIT SHARING ARRANEMENT (Irrigation, Energie, Navigation)

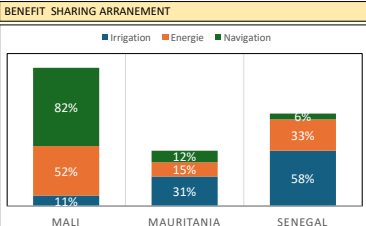|	MALI	MAURITANIA	SENEGAL
Navigation	82%	12%	6%
Energie	52%	15%	33%
Irrigation	11%	31%	58%

23

Slide 24:

LESSON 7. Benefit-sharing as powerful technical and diplomatic instrument for preventing conflicts and overcoming the constraints of financing large water infrastructure projects. *(3/4)*.

4.5. Conditions for success of benefit-sharing arrangement
- **Focus on benefits** that can be generated through the management of the water resources, **not allocating and sharing the water itself**
- **Setting in place right legal and organizational instruments:**
  - 1978: Convention on the legal status of common infrastructure projects: **«** *Investment costs and operating expenses are distributed between the co-owner States on the basis of the profits that each co-owner State derives from the operation of the common infrastructure project* **»** *(Art. 12)*
  - 1982: Agreement relating to the methods of financing joint work: Defines modalities (formulas) for sharing COSTS and BENEFITS of the common infrastructure project(s)
  - Permanent Commission for Water (CPE) – role strengthened by the 2002 Senegal river Water Charter: CPE is responsible for defining the principles and procedures for water allocation
- Works best if applied to **common infrastructure projects**
- **Science/evidence-based negotiations** of terms of BS arrangements
- **Political will** by highest authorities in concerned States

24

LESSON 7. Benefit-sharing as powerful technical and diplomatic instrument for preventing conflicts and overcoming the constraints of financing large water infrastructure projects. *(4/4).*

4.6. Benefit-sharing in existing global normative frameworks related to water:
- **WCD (World Commission on Dams): WCD (2000):**
  - "*Instead of viewing water as a finite good to be distributed, riparian states should instead adopt an approach that equitably distributes not the water, but the benefits that can be derived from it.*" (**SP7**)
- **ECOWAS Directive on Water Infrastructure Development in West Africa (2017):**
  - **Article 10.** *States [shall] put in place mechanisms for the equitable sharing of costs and benefits with a view of ensuring the development of the basin economic potential in a non-conflictual climate.*
- **SADC Revised Protocol on shared watercourses (2000):** Silent on cost and benefit sharing
- The issue of benefit sharing is, however, not explicitly covered in the **Watercourses Convention** (UN 1997) nor in **the Water Convention (1992)**

25

CONCLUSIONS AND IMPLICATIONS

26

CONCLUSIONS AND IMPLICATIONS (1/2)

❖ **Africa faces a glaring investment gap in the water resources development: Dams, Irrigation, hydropower, etc.**
❖ **Low level of investment in water means missed opportunity in efforts to combat poverty, food and water insecurity**
❖ **It also translates into high level of vulnerability to climate-related risks.**
❖ **Water-conflicts risks, which are high today, are predicted to multiply in Africa, as the continent grows economically, invests in water infrastructure**
❖ **Water offers also significant opportunities for inter-state communities**
  - Invest in RBOs: to be strengthened where they exist; and to be established where they can be viable
  - Invest in water development and management capacity and in quality water-related knowledge
  - **Build capacity in Africa-centered water diplomacy**, with focus on:
    - conflicts prevention and resolution
    - cooperation for water development
    - closing the water investment gap;
    - using water to promote peace beyond the water sector

27

CONCLUSIONS AND IMPLICATIONS (2/2)

THE PILLARS OF AN RELEVANT APPROACH TO HYYDRO-DIPLOMACY

Increased pressure on water – Higher risks of conflicts	*Hydro-diplomacy focused on prevention, mitigation and resolutions of water-related conflicts*
Vulnerability aggravated by the low level of water resource development	*Hydro-diplomacy focusing on cooperation for the development of Africa's water resources*
Increase in number of zones of tension, conflicts and instability	*Using water as instrument or entry-point for peace and stability beyond the water sector*

28

THANK YOU !

29

C2: Sources, Levels and Complexities in Water Governance: Cases from Kenya

Water, Peace and Security Conference: Levels and Complexities in Water Governance

MCDI

by
Violet Matiru
Millennium Community Development Initiatives CBO
www.mcdikenya.org
https://www.youtube.com/user/mcdikenya

1

SOURCES AND LEVELS OF WATER CONFLICT: ALSO OPPORTUNITIES FOR PEACE BUILDING

LEVELS OF WATER CONFLICTS
- Individual level
- Household level e.g. "Rich/Poor" Households
- Community level – ethnicity/socio-economic/
- Urban/Rural – "Cities are Parasites"
- Basin-level – Upstream-Downstream
- Administrative levels
   -Sub-national (county, province, region)
   - National
   - Regional
   - International

2

Sources of Conflicts

- **Individual/household Level**
  - Access to water points
  - Gender dimensions (men/women; young/elderly)
  - Livelihoods (farmers/pastoralists; subsistence/commercial)
  - Socio-economic status (rich/poor; politically connected…)

- **Local Community level**
  - Ability to abstract
  - Level of organization eg. Water Resource Users Associations
  - Knowledge of water rights

- Sub-National (County, Region, Province) and Rural/Urban
  - Existing policy and legal framework
  - Systemic Inequities
  - Sense of entitlement

3

Sources of Conflicts

- National and Regional
  - Economic development
  - National ambitions
  - Ability to control water flow e.g. Upstream vs Downstream
  - Colonial History & sense of entitlement

- International
  - Political ideology
  - Economic ambitions
  - Dependency on water resource(s)
  - Colonial mentality
  - Capitalism
  - Equity considerations
  - Control of the narrative
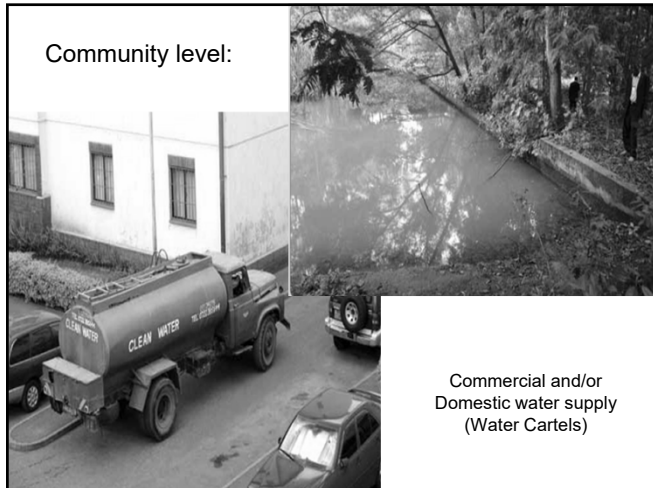
4
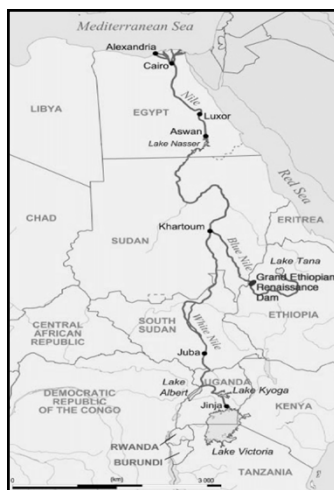
Examples: River Nile

Shared Regional Waters

- 11 riparian countries
-1929 Ango-Egyptian Treaty: Egypt granted dominant share of Nile water
-2015 – Cooperative Framework Agreement
- Nile Basin Initiative

5
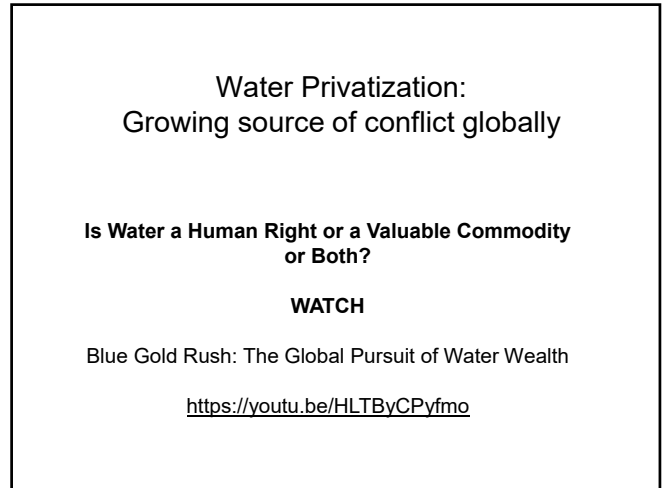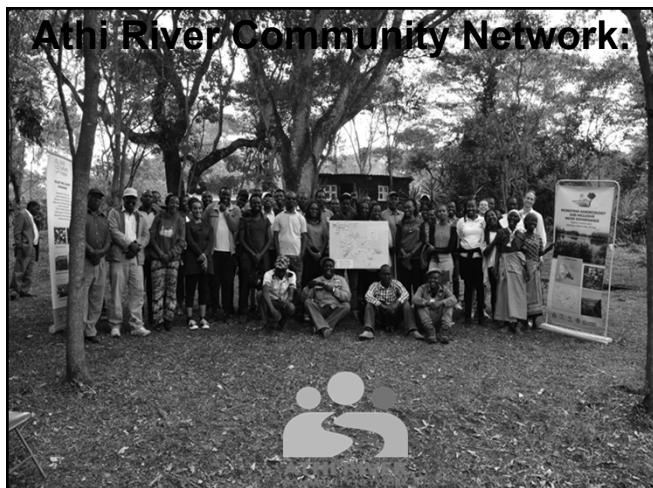

Examples: Household Level

6

Community level:

Commercial and/or
Domestic water supply
(Water Cartels)

7

Impacts of sand harvesting on water security

Newcastle University

Defining sustainable sand mining rates through the lens of freshwater availability in Ephemeral River Systems (ERS) in Arid and Semi-Arid Lands: A case study of Makueni County, Kenya by Halinishi Yusuf

8

9

Water Privatization:
Growing source of conflict globally

Is Water a Human Right or a Valuable Commodity or Both?

WATCH

Blue Gold Rush: The Global Pursuit of Water Wealth

https://youtu.be/HLTByCPyfmo

10

Athi River Community Network:

11

Example-Sub-National: Ruiru Dam in Kiambu County but owned by Nairobi County
https://youtu.be/KkQyOfGKGCE?si=SXya2eiOnjpUm7RQ

12