

STATE OF THE EWASO NYIRO RIVER

Environmental Crisis, Climate Injustice and the Future of Kenya's Drylands

A Feature Paper for the World Environment Day 2026, Produced by The ASAL Research & Resilience Programme (ASREP)



Executive Summary

From the lush slopes of Kenya's Central highlands, from Lake Olbosat where it springs out from, The Ewaso Nyiro River (meaning river of muddy water in the Maa language), is not only a river, but a lifeline for Northern Kenya's Ecosystems, economies and communities traversing 1716km depended upon by 3.6 Million people, into Lorian Swamp, River Juba and the Indian Ocean. The wider ²Ewaso Nyiro North Basin borders Ethiopia in the north, Somalia in the east, Rift Valley Basin in the west and Tana Basin in the south.

The Basin covers an area of about 210 000 km² which is approximately 36% of the total area of Kenya. Major urban areas within the basin include Laikipia, Isiolo, Marsabit, Nyandarua, Samburu, Moyale, Mandera and Wajir counties. As climate change accelerates, the river has become a powerful symbol of both vulnerability and resilience. This feature paper, explores emerging climate risks, the lived experiences of local communities and practical pathways towards climate injustice and sustainable water governance.

¹ River Stories: Ewaso Nyiro: <https://www.wwfkenya.org/2235430/River-Stories-Ewaso-Nyiro>

² Ewaso Ng'iro North Basin Area: <https://wra.go.ke/ewaso-ngiro-north-basin-area/>

The Environmental Crisis Reality

Ewaso Nyiro: A Lifeline Under Pressure

Kenya's ASALs cover approximately 89% of the country's land mass, and are home to millions of people whose livelihoods are heavily reliant upon climate-sensitive natural resources. Climate variability, recurrent droughts, ecosystem degradation, invasive species and water stress continue to undermine resilience across these regions.

While the river indispensably supports pastoralism, agriculture, wildlife, tourism, domestic water supply and local economies, across one of Africa's most vulnerable landscapes, the following evidence-based environmental crisis-scale experiences are emerging: -

1. More frequent & prolonged droughts
Previously, extended ³hydrological droughts, in cycles of 8 – 10 years. Between 2013 & 2023, this cycle has been reported within 3 – 5 years.
2. Unpredictable Rainfall seasons
Precipitation is the key driver of terrestrial water balance and is the primary input to hydrological models, that seek to quantify the availability of water resources. ⁴More erratic rainfall patterns have resulted in declining streamflow in parts of upper Ewaso Nyiro, despite East African trends showing increased rainfall.
3. Shrinking River flows during dry periods
Research finding indicate that cumulative water discharge between 1969 and 2010, has undergone a major decline from 964 Million cubic meters to 572 Million cubic meters, a solid ⁵40% shrink in river flows, in 4 decades.
4. Increasing flooding cycles & Displacements
High impact downstream surges have increasingly inundated villages in Archers Post, and Merti over the last 5 years. In 2021, Iresaboru, a 40-year old village of 300 households along the river, was significantly submerged after severe flooding, and entirely displaced southwards.
5. Wild Fires & Livelihoods Loss
Approx. ⁷190,000 acres of grazing land spanning the Lorian Swamp in Sericho Isiolo County and across the river in Basa, were razed down, leading to death of livestock (due to hunger / famine), leaving people vulnerable to livelihoods lost, diseases and riparian species ecological value.
6. Rising Resource-based conflicts
Severe upstream over-abstraction of commercial farming, recurrent droughts, unregulated sand harvesting & change of livestock routes due to land tenure changes, have yielded violence among pastoralists, around the Ewaso Nyiro river.

The Climate Injustice Crisis

From Climate Crisis to Climate Injustice Crisis

According to WorldOMeter, Kenya's Greenhouse gas emissions, stands at 1.75 tonnes per person, standing at 0.19% of the global share, as at 2024. Pastoralist communities along the Ewaso Nyiro, contribute even less GHG emissions, yet experience disproportionate impacts from drought, floods, inadequate water, insecurity and livelihoods loss.

Scientific evidence, shows that the Ewaso Nyiro basin, is experiencing increasing hydro-climatic variability, in all aforementioned forms, threatening the long-term resilience of local communities across Laikipia, Samburu, Isiolo, Marsabit & Wajir counties. The scale of climate inaction, further acutely exacerbates the magnitude of climate injustice to a crisis level.

Recommendations

Five Proposed Immediate Interventions

1. Protect and Restore Ewaso Nyiro Catchments and Riparian Ecosystems, through tree growing, natural regeneration, sustainable land management / sand harvesting practices and control of invasive species *prosopis juliflora* – for stronger resilience & flows.
2. Increase Climate Adaptation financing in ASAL counties – supporting climate smart livelihoods, water infrastructure, drought response & early warning systems, to reduce vulnerability.
3. Institutionalize Indigenous knowledge, as a strategic climate adaptation framework, where science, culture & policy can meet to co-create sustainable climate solutions, for local ownership & early action.
4. Strengthen landscape-wide NRM Governance & Inter-ethnic Peacebuilding Initiatives. This reduces resource conflicts, reduces loss of lives and boosts rangelands & water management.
5. Establish a recurring 'State of Ewaso Nyiro' Monitoring and Reporting mechanism. Annual assessments for river flows, rainfall patterns, ecosystem health & resilience indicators, for evidence-based policy making & effective climate adaptation.

³Drought Impacts on Community Livelihoods in Upper Ewaso Ng'iro North Basin, Kenya:

https://www.researchgate.net/publication/376626895_Drought_Impacts_on_Community_Livelihoods_in_the_Upper_Ewaso_Ng'iro_Basin_Kenya

⁴Human Influence on Water availability variations in the Upper Ewaso Ng'iro river basin, Kenya: https://research.vu.nl/en/publications/human-influence-on-water-availability-variations-in-the-upper-ewaso?utm_source=chatgpt.com

⁵Influence of Water Resource Use Patterns on The Lorian Swamp Ecosystem: <https://erepository.uonbi.ac.ke/server/api/core/bitstreams/5259609d-7a50-44ae-af28-f6b2cad9e4b5/content>

⁶Iresaboru Displaced by Ewaso Floods: Kenya Red Cross Society <https://www.facebook.com/RedCrossKE/posts/this-is-iresaboru-ward-in-isiolo-county-after-ewaso-nyiro-river-broke-its-banks-12722138567845433/>

⁷Ken: Fire - 01–2025–Isiolo County Wildfire; <https://go.ifrc.org/field-reports/17452>



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