







Somalia's Drought–Disease Spiral: Climate Shocks as an Emerging Public Health Security Threat

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Abstract: This narrative commentary examines Somalia's drought–disease spiral using selected published literature, humanitarian reports, surveillance updates, and climate-health evidence. It focuses on how recurrent droughts, floods, food insecurity, displacement, malnutrition, and fragile health-system capacity interact to increase the risk of climate-sensitive infectious diseases. Somalia is among the countries most vulnerable to climate variability, and repeated environmental shocks have intensified humanitarian needs while placing additional pressure on an already fragile health system. Recent climate-related crises have contributed to severe food insecurity, large-scale internal displacement, limited access to safe water and sanitation, and recurrent outbreaks of infectious diseases, including cholera, acute watery diarrhea, measles, and diphtheria. Malnutrition, particularly among children and displaced populations, further increases vulnerability to infection and worsens health outcomes. This commentary argues that climate-related health threats in Somalia should be understood not only as humanitarian emergencies but also as public health security and risk-management challenges. The drought–disease spiral reflects the convergence of environmental hazards, weak WASH conditions, overcrowded internally displaced persons settlements, undernutrition, and limited surveillance and response capacity. Breaking this cycle requires a shift from repeated emergency response toward anticipatory prevention and resilience-building. Priority actions include strengthening climate-informed disease surveillance, integrating climate and health early warning systems, expanding WASH services in internally displaced persons settlements and other vulnerable communities, investing in climate-resilient health facilities, improving nutrition-sensitive outbreak preparedness, and strengthening multisectoral coordination across health, WASH, nutrition, climate, livestock, and humanitarian sectors. These actions are essential to reduce preventable disease, protect vulnerable populations, and strengthen health-system resilience in Somalia.

Keywords: climate change, drought, infectious diseases, public health risk, displacement, Somalia

Introduction

Climate change is increasingly recognized as one of the most significant global public health challenges of the twenty-first century. Rising temperatures, extreme weather events, and shifting rainfall patterns are already altering the epidemiology of infectious diseases and exacerbating food insecurity, displacement, and humanitarian crises.¹

Climate-related hazards such as droughts, floods, and heatwaves can disrupt water supply, sanitation infrastructure, and food production systems, increasing population vulnerability to malnutrition and infectious diseases.²

Somalia exemplifies this vulnerability. The country is among the most climate-vulnerable nations globally, with recurrent droughts and environmental shocks disproportionately affecting poor households and undermining resilience.³

Decades of political instability, limited infrastructure, and repeated environmental shocks have created conditions in which climate hazards rapidly translate into public health emergencies.⁴

Across much of Somalia, eastern Kenya, and southern Ethiopia, the October–December 2025 rainy season largely failed, marking the second or third consecutive poor rainy seasons.⁵ While these rainfall deficits affected the wider Horn of Africa, this commentary focuses specifically on Somalia, where recurrent climate shocks interact with displacement, food insecurity, weak WASH infrastructure, and fragile health-system capacity.

These drought conditions devastated pastoralist and agricultural livelihoods, resulting in widespread livestock losses and reduced crop production. Food insecurity and water scarcity subsequently triggered large-scale population displacement across Somalia.⁶

Understanding the interaction between climate shocks and disease risk is therefore critical for developing effective public health risk management strategies.

Approach

This is a narrative commentary based on selected peer-reviewed literature, humanitarian situation reports, surveillance updates, and institutional documents relevant to climate-related health risks in Somalia. Sources were selected to support discussion of drought, floods, food insecurity, displacement, malnutrition, infectious disease outbreaks, health-system fragility, and policy implications. This commentary does not present primary data or statistical analysis. Evidence-based statements are supported by published or institutional sources, while interpretative arguments are presented as policy and risk-management reflections.

Burden and Extent of the Problem

Somalia's climate-health crisis should be understood as recurrent rather than episodic. In recent years, the country has experienced repeated droughts, flooding episodes, displacement, food insecurity, malnutrition, and outbreaks of climate-sensitive infectious diseases.^{7–9} The 2025 Somalia Humanitarian Needs and Response Plan reported that millions of people required humanitarian assistance, with displacement linked to climatic shocks and conflict, while UNICEF's 2025 end-year situation report described Somalia's humanitarian situation as driven by compounding shocks including drought, floods, disease burden, food insecurity, and malnutrition.^{7,9} Recent World Health Organization and Integrated Food Security Phase Classification updates further show that by early 2026, 6.5 million people were estimated to be facing high levels of acute food insecurity, while approximately 1.84 million children aged 6–59 months were projected to suffer acute malnutrition.^{8,10} These repeated shocks demonstrate that drought- and flood-related disease risks are not isolated events, but part of a recurring pattern affecting vulnerable populations across Somalia.^{7,11} Internally displaced persons, children, pastoralist and agro-pastoral communities, and populations with limited access to safe water, sanitation, nutrition services, and healthcare are particularly vulnerable to the health impacts of these recurrent climate shocks.^{8,9,11}

WHO has also emphasized that conflict, climate shocks, displacement, malnutrition, and recurrent cholera, measles, and diphtheria outbreaks continue to drive Somalia's protracted health emergency.¹¹

Climate-related livelihood losses and environmental shocks have contributed to widespread internal displacement across Somalia. More than 3.26 million people were internally displaced across the country as of September 2024.¹² Subsequent humanitarian reports indicate that displacement remained a major concern in 2025 and 2026, with an estimated 3.5 million people displaced in 2025, most living in overcrowded IDP settlements with limited access to basic services.⁸ UNHCR also recorded 510,788 internal displacements in the first quarter of 2026, more than 400,000 higher than in the same period in 2025.¹³ These trends suggest that displacement is a recurrent and continuing driver of vulnerability, as overcrowded settlements, poor shelter conditions, limited WASH services, and constrained access to healthcare increase the risk of infectious disease transmission.^{8,9,13}

Recurrent outbreaks of cholera and acute watery diarrhea have been reported across Somalia in recent years, particularly in areas experiencing severe water shortages. For instance, humanitarian partners have reported thousands of cholera cases across multiple regions in Somalia during recent outbreaks.¹⁴

Recent reports also indicate a broader resurgence of communicable diseases. Cases of measles, diphtheria, cholera, and respiratory infections doubled from about 22,600 to more than 46,000 within three months in 2025, with children under five accounting for nearly 60% of reported cases.¹⁵

Malnutrition further compounds the drought–disease spiral. A recent meta-analysis found that childhood malnutrition significantly increases the risk of morbidity and mortality from infectious diseases, including acute respiratory infections and diarrheal illnesses.¹⁶

The convergence of drought, flooding, displacement, malnutrition, and infectious disease outbreaks illustrates the emergence of a drought–disease spiral, in which recurrent environmental shocks continually reinforce public health risks.

Drivers of Climate-Sensitive Disease Transmission in Somalia

Climate-sensitive disease transmission in Somalia is shaped by interacting environmental, social, nutritional, and health-system vulnerabilities. Drought reduces water availability and hygiene capacity, while floods can contaminate water sources and damage sanitation infrastructure. Displacement then concentrates vulnerable populations in overcrowded settlements, where limited WASH services, poor shelter conditions, low vaccination coverage, malnutrition, and delayed access to care create conditions that facilitate infectious disease transmission.^{8,9,17,18}

Water Scarcity and Poor Sanitation

Droughts reduce access to safe drinking water and force communities to rely on unsafe water sources, while floods can contaminate water supplies, damage sanitation systems, and increase exposure to waterborne pathogens.^{9,17,19}

Displacement and Overcrowding

Climate-related displacement significantly amplifies disease transmission risks. Internally displaced populations frequently reside in overcrowded settlements lacking adequate health services, vaccination coverage, and sanitation infrastructure.¹²

In such settings, high population density, inadequate shelter, limited water points, shared sanitation facilities, and delayed access to healthcare can accelerate transmission of diarrheal, respiratory, and vaccine-preventable diseases, particularly among malnourished children and other vulnerable displaced populations.^{8,20,21}

Malnutrition and Immune Vulnerability

Food insecurity resulting from drought leads to increased rates of malnutrition, particularly among children. Malnutrition weakens immune defenses and increases the severity and mortality risk of common infectious diseases.²²

Fragile Health Systems

Somalia's health system remains fragmented and under-resourced, with uneven access to essential health services, limited laboratory and diagnostic capacity, shortages of trained health workers, and constrained surveillance coverage in several areas. These weaknesses reduce the capacity to detect outbreaks early, investigate alerts, confirm diagnoses, deploy medical supplies and trained personnel, and respond rapidly in populations affected by drought, floods, displacement, and malnutrition.^{8,11,17}

Why Climate-Related Health Risks in Somalia Matter Beyond Its Borders

Although the immediate consequences of climate-related disease outbreaks are concentrated within Somalia, their implications can extend beyond national borders. A recent study examining cross-border population movements in East Africa found that frequent movement of people across borders poses risks for the spread of infectious diseases and requires coordinated surveillance and response systems.²³

A recent review highlights that in a highly interconnected world, infectious diseases can spread quickly across borders, making international cooperation and coordinated surveillance essential for effective outbreak control.²⁴

Key Challenges to Addressing Climate-Driven Health Risks

Several structural challenges limit Somalia's ability to effectively address climate-related health threats.

First, climate adaptation strategies and health policies are often developed separately. Recent research shows that health system adaptation to climate change is often hindered by fragmented policies and inadequate coordination, which limits the integration of climate considerations into health planning and implementation.²⁵

Second, surveillance systems for climate-sensitive diseases remain limited. In many low-income and fragile settings, early warning systems integrating climate information with disease surveillance are not yet fully operational, constraining timely detection and response to climate-related health risks.¹

Third, chronic underfunding of the health sector constrains preparedness and response capacity. Recent research on fragile and conflict-affected settings shows that health systems often depend heavily on short-term donor-driven assistance, which can undermine long-term institutional resilience and sustainability when funding fluctuates or declines.²⁶

Finally, ongoing insecurity and governance challenges continue to disrupt health service delivery in several parts of the country, complicating efforts to implement nationwide climate-health interventions.

Priority Actions for a Climate-Resilient Health Response

Despite these challenges, Somalia can reduce the health impacts of climate shocks through coordinated and feasible interventions.

Strengthening climate-resilient health systems should be a national priority. Health facilities must be designed to withstand environmental shocks while maintaining essential service delivery during crises.

Investment in integrated surveillance systems linking climate data, disease monitoring, and early warning mechanisms is essential to detect outbreaks before they escalate into major public health emergencies.

Expanding water, sanitation, and hygiene (WASH) infrastructure in vulnerable communities and displacement settlements is critical for preventing waterborne disease outbreaks.

Finally, climate adaptation strategies should adopt a One Health approach, recognizing the interconnected relationships between human health, environmental systems, and livestock production systems in Somalia's largely pastoral economy.

Policy and Risk-Management Implications

The drought–disease spiral in Somalia has direct implications for risk management and healthcare policy. Climate-related health threats should be incorporated into national health planning, emergency preparedness, disease surveillance, WASH programming, nutrition response, and disaster risk management. A risk-management approach requires identifying vulnerable populations before crises escalate, integrating climate and disease early warning systems, pre-positioning supplies in high-risk areas, strengthening facility preparedness, and coordinating health, WASH, nutrition, climate, livestock, and humanitarian actors. This framing shifts the response from repeated emergency reaction toward anticipatory prevention and resilience-building.

A Call to Action

The convergence of recurrent droughts, floods, food insecurity, displacement, malnutrition, and infectious disease outbreaks in Somalia represents an emerging public health security threat that requires urgent and coordinated action.

Somali policymakers should prioritize climate-health resilience within national health strategies and disaster risk management frameworks. International partners must support investments in surveillance systems, climate-resilient infrastructure, and community-based adaptation programs.

Without decisive action, climate change will likely continue to amplify disease risks and humanitarian crises in Somalia, threatening both national stability and regional health security.

Conclusion

Somalia's recurrent droughts, floods, food insecurity, displacement, malnutrition, and infectious disease outbreaks represent a growing climate-related public health risk. The interaction between environmental shocks, weak WASH infrastructure, overcrowded displacement settlements, undernutrition, and fragile health-system capacity creates a persistent drought–disease spiral that threatens both public health and health-system resilience.

Addressing this challenge requires more than emergency response. Somalia needs climate-informed disease surveillance, stronger early warning systems, climate-resilient health facilities, expanded WASH services in vulnerable

communities and IDP settlements, integrated nutrition and outbreak response, and sustained multisectoral coordination. Recognizing climate-related health threats as a core risk-management and healthcare policy priority is essential to reducing preventable illness, protecting vulnerable populations, and strengthening national and regional health security.

Data Sharing Statement

No datasets were generated or analyzed in this study.

Ethics Approval

This article is a commentary based on publicly available data and published literature; therefore, ethical approval was not required.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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