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POLICY BRIEF

FLOODING AND CLIMATE SHOCKS: THEIR EFFECT ON LOCAL ECONOMIES IN THE LAKE CHAD BASIN



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Communities around the Lake Chad Basin (LCB) rely on three major economic activities: farming, fishing, and livestock herding. The floods that began in August 2024 damaged and destroyed hundreds of thousands of hectares of farmland, killed thousands of livestock, and rendered fishing unsafe for fishermen. This climate shock caused families dependent on these activities to lose their primary sources of income. Worse still, these economic activities also serve as the main source of daily food consumption, putting communities at an even higher risk of food insecurity.

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INTRODUCTION

The September floods in the LCB disrupted the lives of millions. Extreme precipitation events since August 2024 have impacted over 4.4 million people in West and Central Africa. According to United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), the countries most affected include Chad, with 1.5 million people impacted, Nigeria, with over 1.1 million, Niger, with 710,767, and Cameroon, with 409,710.^{1,2} In Chad alone, as of October 1, the floods affected 119 out of 125 departments, impacting 342,471 households and 1,941,869 individuals. The disaster killed 576 people, destroyed 217,779 houses, inundated 432,203 hectares of farmland, and swept away 72,170 livestock.³ In Cameroon's Far North region, landslides and flash floods destroyed 40,000 homes, 198 schools, and 1,100 livestock, killed 11 people, and displaced 180,000 others.⁴

As both floods and droughts become increasingly frequent, the destruction of farmland poses severe threats to local economies, livelihoods, and food security. The floods are a stark reminder of the vulnerability of the LCB region—its economies and populations—to climate change-related shocks.⁵ This policy brief, part of a series analyzing the floods, examines the impact of climate stress on local economies in the LCB.

LOST TO THE WATER

The immediate effects are already devastating, as millions of people have lost their properties, homes, land, livestock, and livelihoods to the power of the water. According to UNOCHA, across West and Central Africa, 354,000 hectares of agricultural land have been affected, rendering at least 380,000 hectares unsuitable for farming and livestock production, thus heightening the risk of food insecurity.⁶

In recognition of the economic devastation caused by floods that submerged half of Maiduguri, Nigeria, Borno State Governor Babagana Umara Zulum requested an additional US\$36 million from the State House of Assembly, supplementing the initial US\$215 million total budget. The funds aim to support the reconstruction of damaged infrastructure, emergency relief and humanitarian aid, assistance to farmers, economic recovery, and environmental management.⁷

Key livelihood activities in the region—farming, livestock herding, and fishing—have been severely impacted by the flooding. A second-order effect has been the displacement of people working in primary economic sectors, particularly farmers and herders, who are forced to move with their assets in search of less affected land or to abandon their livelihoods entirely.

1. OCHA, "West and Central Africa: Flooding Situation Overview - as of 22 September 2024," <https://www.unocha.org/publications/report/chad/west-and-central-africa-flooding-situation-overview-22-september-2024>

2. Reliefweb, "UNICEF Cameroon Floods Flash Update No.5 (Far North)," 24 October 2024, <https://reliefweb.int/report/cameroon/unicef-cameroon-floods-flash-update-no-5-far-north-24-october-2024>

3. OCHA, TCHAD: Situation des inondations au 1 octobre 2024, October 1, 2024.

4. Shanna Hanbury, "Heavy rains in Lake Chad Basin leave hundreds dead across countries," 20 September 2024, <https://news.mongabay.com/short-article/heavy-rains-in-lake-chad-basin-leave-hundreds-dead-across-countries/>.

5. AllAfrica, "West Africa: Severe Floods Hitting Most Vulnerable in Sahel and Lake Chad Region," 16 September 2024, <https://allafrica.com/stories/202409160124.html>.

6. Relief Web, "Severe floods hitting most vulnerable in Sahel and Lake Chad region," September 16, 2024, <https://reliefweb.int/report/nigeria/severe-floods-hitting-most-vulnerable-sahel-and-lake-chad-region>.

7. Michael Olugbode, "Maiduguri Flood: Borno Governor Zulum Presents N61 billion Supplementary Budget for Reconstruction, October 5, 2024," <https://www.arise.tv/maiduguri-flood-borno-governor-zulum-presents-n61-billion-supplementary-budget-for-reconstruction/>.

According to local reports from Cameroon, the floods have disrupted economic activities in numerous ways.⁸ Many fields and grazing areas are no longer viable, and harvested goods and livestock were swept away. A resident from northern Cameroon shared:

*"...yes, many fields have been destroyed and some pasture areas are no longer viable, and several livestock have been swept away by the floods. Commercial spaces such as small markets are flooded and therefore not open in some localities. In districts with large cross-border markets, storage warehouses are also flooded, including the goods."*⁹

Another affected farmer highlighted the economic toll:

*"...yes, some fields have been destroyed in some localities and this has negatively impacted the economy of the area since the populations of these localities benefit from agricultural products as a source of wealth."*¹⁰

In Chad, the situation is similarly catastrophic:

*"The floods have had severe impacts on the economy in the affected villages across multiple provinces. The floods have led to the submersion of many fields, making them impossible to cultivate while also destroying seasonal crops. Some of these essential food crops are millet and corn, which are crucial for local food security. Pastoralists have also lost a significant portion of their livestock, and as pastures have been flooded animals have been exposed to harsh living conditions."*¹¹

Fishing practices are also facing significant challenges, particularly regarding access to fishing areas. One fisherman explained:

*"Fishing may experience fluctuations. On the one hand, a temporary increase in fish resources may be observed after these floods. On the other hand, access to fishing areas is compromised by flooded waters, making the activity difficult for fishermen."*¹²

While fishing can sometimes become more profitable during flood periods due to an increase in fish resources, it also carries higher risks, including drowning and accidents caused by hippopotamuses that have invaded riverbanks and lake shores.

The scarcity of land exacerbates tensions within communities, as floods reduce the availability of arable land and pastures. Farmers struggle to cultivate their crops, while herders are forced to move their livestock to less affected areas, increasing competition for limited resources.

Flooded commercial spaces, such as small markets, are another consequence, making it difficult for people in some localities to buy and sell goods. Travel is severely disrupted due to damaged infrastructure, including roads, bridges, and dikes, which require costly repairs and lead to prolonged downtime.

Additionally, the motorcycle taxi sector—critical in many African cities, towns, and villages—has been disrupted. Traders are struggling to sell their products because markets are inaccessible, while consumers face challenges in reaching these markets.¹³

8. Interviews with affected community members in northern Cameroon, October 2024.

9. Ibid.

10. Interview with affected community members in Diffa region, Niger, October 2024.

11. Interview with affected community members in Lac Province, Chad, October 2024.

12. Ibid.

13. Interviews with affected community members in northern Cameroon, October 2024.

THE CLIMATE-ECONOMY NEXUS: IMPACT ON FARMLAND

Floods have undeniable short- and medium-term negative effects on local economies, but how do they connect to the broader climate crisis? The Intergovernmental Panel on Climate Change (IPCC) warns of significant impacts from rising global temperatures and rainfall variability on agriculture in West Africa. Climate models project an increase in mean annual temperatures across the LCB of between 3 °C and 6 °C by the end of the century, with particularly sharp spikes during the spring and fall.

Rising temperatures will intensify evapotranspiration—the combined evaporation of water from soil and vegetation—reducing available water supplies by up to 10 % until 2099.¹⁴ These higher temperatures, coupled with erratic and decreasing precipitation, are expected to exacerbate water stress, especially during the dry season.¹⁵

This climate pressure is likely to drive a gradual southward shift of ecosystems within the LCB. As ecosystems migrate, human communities dependent on these resources will be forced to follow. These displacements will increase movement from the north to the south, causing larger-scale shifts and fragmentation in the ecosystems of more humid regions.¹⁶

Excess evapotranspiration degrades soil structure and gradually destroys soil biology. Without living organic matter, soil becomes dust—a compacted, dry structure increasingly incapable of absorbing and retaining water during rainfall. Droughts and floods are two sides of the same coin, both reflecting poor soil health. The effects of extreme weather events (droughts and torrential rains alike) are magnified by soil degradation, primarily driven by the mismanagement of agricultural land.

Intensive farming practices, mechanization, tilling, and monoculture cropping deplete the soil, leaving vast areas vulnerable to wind and water erosion. This accelerates desertification and places growing pressure on already shrinking cultivable land. Consequently, the combined forces of the climate crisis and unsustainable human activities are severely undermining rainfed agriculture models in the LCB.

The dual threat is clear: insufficient rainfall leads to crop failures, while heavy rains erode farmland.¹⁷ This situation is particularly critical in a region where subsistence farming accounts for approximately 42.7% of total employment, and livestock serves as both a cornerstone of the economy and both a symbol of cultural and financial capital. The high dependence on agriculture leaves the West Africa-Sahel region acutely vulnerable to the impacts of climate change.¹⁸

Lake Chad provides food and water for approximately 50 million people and supports

14. Africa Supreregional: Adaptation to Climate Change in the Lake Chad Basin. CLIMATE CHANGE STUDY. GIZ, 2015. <https://www.giz.de/en/downloads/giz2015-en-climate-change-study-africa-supreregional.pdf>.

15. Kheira Tarif, Climate Change and Violent Conflict in West Africa: Assessing the Evidence, SIPRI, Stockholm, February, 2022, <https://doi.org/10.55163/VHIY5372>.

16. Africa Supreregional: Adaptation to Climate Change in the Lake Chad Basin. CLIMATE CHANGE STUDY. GIZ, 2015. <https://www.giz.de/en/downloads/giz2015-en-climate-change-study-africa-supreregional.pdf>.

17. Africa Supreregional: Adaptation to Climate Change in the Lake Chad Basin. CLIMATE CHANGE STUDY. GIZ, 2015. <https://www.giz.de/en/downloads/giz2015-en-climate-change-study-africa-supreregional.pdf>.

18. Kheira Tarif, Climate Change and Violent Conflict in West Africa: Assessing the Evidence, SIPRI, Stockholm, February, 2022, <https://doi.org/10.55163/VHIY5372>.

biodiverse ecosystems.¹⁹ The United Nations Environment Program (UNEP) attributes half of the lake's shrinking to climate variability, making it a global symbol of the climate crisis. However, other studies suggest that, despite dramatic shrinkage in the 1980s and ongoing high volatility, the lake is not, in fact, shrinking. Groundwater supplies, which account for 70% of the lake's water storage, have been increasing through its two main tributaries. Combined with its tropical water source, this allows the lake's surface water to recover seasonally.²⁰

The other half of the debated shrinkage, however, stems from rising demand for irrigation along the lake's tributaries, driven by growing population pressures. Population growth and the expansion of commercial agriculture exacerbate environmental degradation.²¹ This highlights the reciprocal relationship between climate change and economies dependent on subsistence agriculture—each influencing and intensifying the impact of the other.

VULNERABILITY AND RESILIENCE

Communities' vulnerability and resilience to climate and ecological change is also determined by social factors, as some segments of the population are more exposed to economic consequences than others. The climate crisis highlights existing gender disparities in education, mobility, and access to land, assets, and financial resources, further exacerbating livelihood insecurity for women. As domestic workloads increase—such as longer and more challenging efforts to collect water and firewood—the sustainability and productivity of traditionally women-led activities decline. A stark example is that women comprise 43% of the agricultural workforce but own no more than 8% of agricultural land.²² Societal challenges stemming from inequalities reduce community resilience.

Nevertheless, local communities around Lake Chad have developed embedded coping strategies for climate adaptation. The lake's fluctuating levels, including its expansion in 1999 and subsequent changes, have long created uncertainty for lakeshore populations. However, these environmental changes have also fostered adaptive livelihood strategies, such as diversifying income sources through fishing, farming, trade, and other activities.

Seasonal [mobility](#),²³ aligned with weather patterns and long-term settlement practices, further supports economic activities tailored to the shifting environmental context.²⁴ Ultimately, vulnerability—or resilience—depends on the adaptive capacity of communities, as well as factors like wealth distribution, social inequality, and the effectiveness of governance.²⁵

19. Pham-Duc, B., Sylvestre, F., Papa, F. et al. The Lake Chad hydrology under current climate change. *Sci Rep* 10, 5498 (2020). <https://doi.org/10.1038/s41598-020-62417-w>.

20. Pham-Duc, B., Sylvestre, F., Papa, F. et al. The Lake Chad hydrology under current climate change. *Sci Rep* 10, 5498 (2020). <https://doi.org/10.1038/s41598-020-62417-w>.

21. Africa Supraregional: Adaptation to Climate Change in the Lake Chad Basin. CLIMATE CHANGE STUDY. GIZ, 2015. <https://www.giz.de/en/downloads/giz2015-en-climate-change-study-africa-supraregional.pdf>.

22. Kheira Tarif, *Climate Change and Violent Conflict in West Africa: Assessing the Evidence*, SIPRI, Stockholm, February, 2022, <https://doi.org/10.55163/VHIY5372>.

23. Rida Lyammouri and Boglarka Bozsogi, "Floods in the Lake Chad Basin: The Climate-Displacement Nexus," 20 November 2024, <https://www.policycenter.ma/publications/floods-lake-chad-basin-climate-displacement-nexus>

24. EVANS, MARTIN, and YASIR MOHIELDEEN. "Environmental Change and Livelihood Strategies: The Case of Lake Chad." *Geography* 87, no. 1 (2002): 3–13. <http://www.jstor.org/stable/40573633>.

25. DELGADO, CAROLINE, KRISTINA TSCHUNKERT, and DAN SMITH. "FOOD INSECURITY IN AFRICA: DRIVERS AND SOLUTIONS." Stockholm International Peace Research Institute, 2023. <http://www.jstor.org/stable/resrep47283>.

POLICY RECOMMENDATIONS

Millions of people in and around the LCB rely on farming, livestock herding, fishing, and trade for their livelihoods. These activities are under constant threat from climate shocks, leaving local communities vulnerable not only to loss of income but also to food insecurity.

- **Protection Strategies:** The livelihoods tied to farming, livestock herding, and fishing are increasingly precarious during climate shocks. Local communities rely heavily on traditional practices and strategies to cope. National and international partners must collaborate to develop both short- and long-term measures to mitigate the impacts of regular flooding. For instance, safety measures and early warning systems could be implemented to help livestock herders protect their animals from drowning. Similarly, predictable flood patterns and early forecasts should be communicated to farmers, enabling them to plan and avoid investing in crops at high risk of destruction.
- **Prevention Strategies:** Implementing agricultural practices that prioritize soil health and increase soil organic matter helps create more resilient landscapes that absorb water faster and retain it longer, thus serving as micro-scale flood and drought prevention mechanisms. Farming also needs to prioritize efficient and regenerative water management to keep and purify water on the farmland. Moving away from industrial, mechanized agriculture will be key in climate adaptation and mitigation.
- **Displacement and Migration:** National and international actors should prioritize investing in local economies to diversify markets at the community level. The local workforce needs job opportunities beyond farming, herding, and fishing. Providing alternative employment will encourage residents to stay in their communities during climate shocks, reducing displacement and migration to urban centers or other countries.
- **Coping Strategies:** Local populations, including women, have developed coping strategies over centuries to withstand climate shocks. Rather than creating new mechanisms, these existing strategies should be adapted to address contemporary challenges. For example, local communities already use cereal banks for storage during crises, and this practice could be expanded to include other floodproof protection of agricultural products, helping to prevent food shortages. Prioritizing gender equity in agriculture and food systems and in economies at large is indispensable to creating resilient communities.
- **Market Infrastructure:** Market infrastructure should be designed to withstand climate shocks. Daily and weekly markets are not only economic hubs but also vital spaces for social cohesion. Communities from different regions—and sometimes different countries—rely on these markets for interaction and cultural exchange. When markets are destroyed by flooding, these opportunities for interaction are lost, weakening the social fabric and reducing cross-community ties.

CONCLUSION

The flooding that began in August and continued through October caused significant damage to the local economy. The communities most affected rely heavily on farming, livestock herding, and fishing. Farmers lost their crops, herders saw a reduction in their livestock, and fishing became dangerous. Trade, another key economic activity, was disrupted by the destruction of infrastructure, restricted access, and the lack of basic foods and goods reaching markets. These conditions not only strained the local economy but also put hundreds of thousands of people at risk of food insecurity.

Climate shocks seem to have severe consequences for communities reliant on domestic production. While local populations have developed resilience and coping strategies to address climate shocks, the frequency of these events is overwhelming these strategies. Local communities now depend on the support of national and international actors to adapt these strategies to the challenges posed by climate change.

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