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Chad: The Severe Implications of Climate Change and What We Can Do in the Face of It

Introduction

In the 2024 Greenhouse Gas report, the U.S was one of the world's highest emitters of greenhouse gases (EDGAR, 2025). Now in 2026, the impacts of climate change have become more present in the everyday lives of Americans. Unpredictable weather events, scorching summers, and natural disasters have taken the U.S. by storm this year. However, despite the increasing role climate change has played in the U.S, many countries around the world have faced the brunt of the effects for years, despite their relatively low emissions in comparison to the U.S.

Chad is one example of a country where its inhabitants' livelihoods has been disrupted by the impacts of climate change. Located in Central Northern Africa in the Sahel band, Chad is home to 21 million people, 200 ethnic groups, and around 110 languages. Being home to 21 million poeple and growing, Chad faces many food insecurities. While Chad's state of food insecurity has improved over the years, in 2025 it was still classified as severe by the Global Food Security Index (n.d). Furthermore, there is a severe case of water scarcity, especially with the desertification of Lake Chad, lack of infrastructure, and mismanagement of water. In fact, Chad faces some of the worst water scarcity of any country. Only 46% of Chad's population can access basic water services, and even less, at 6.34%, have access to safely managed water (Concern USA, 2022). To further strain the problem, the population of Chad is not only increasing due to its birth rate but is also rising with the increase of refugees and people who have been displaced due to violence in the area. As of 2020, Chad was one of the top hosts of displaced people in the Sahel region, housing about 1 million forcibly displaced people (Musa et al., 2022), and these were the numbers before the conflict in Sudan began in 2023. As Chad faces all these problems, it becomes clear that action is necessary to address it's insecurities.

The Lake Chad Region: Lac Providence and the Problem

While Chad grapples with the role that conflict, increases in population, and especially climate change, has on its food security, one region is especially vulnerable to climate change's effects: the Sahel region, including the Lac providence (Musa et al., 2022). There, the lake supported

lifestyles such as fishing, farming, and livestock herding for both sedentary and nomadic persons. Farmers typically grow maize, potatoes, and millets among other crops. The major ethic groups residing within the region are the Kotok, Guran, and Wasai, and common languages spoken are Shuwa or Chadian Arabic, French, and Hausa. Many of the households attend mosques, which serve as a central unity for the people in the region (springer source). However, as Lake Chad continues to face desertification and rainfall becomes more erratic, the lifestyles the lake previously supported are now unreliable, especially for fishers. Additionally, due to conflict, populations that rely on fishing increase and regulations surrounding fishing have created barriers to fishing waters. Musa et al., report in 2020 that, due to displacement, climate variability, and conflict, fishing production saw a 60% decline (2022). Other agricultural practices outside of fishing have also been severely interrupted by climate and conflict. For example, farmers in areas by Lake Chad cannot grow tall cereals like maize and millets due to prohibitions from fears of Boko-Haram members using the tall cereals to hide. The use of fertilizers has also been restricted in this area due to the fear of them being replaced by explosives (Musa et al., 2022). Furthermore, due to the variability of climate, torrent rainfalls can result in flooding and washing away crops (Musa et al., 2022). In the 2020 floods, 20 provinces in Chad were flooded, and 11,380 hectares of sown fields were destroyed (Musa et al., 2022); recent results occurred after the 2022 floods as well (IRFC source). For communities like Lac Providence that already face so much food insecurity, they are increasingly vulnerable to these disasters, which worsen food insecurity (source).

Previous Solutions

While Lac Providence has faced many troubles, action is being taken. In 1964, the governments of countries bordering Lake Chad, such as Nigeria, Niger, Chad, and Cameroon, came together and created the Lake Chad Basin Commission (LCBC). The commission's purpose was to address the issues of the desertification of the lake through education and promotion of good agricultural practices. The commission has helped create small gains in agriculture due to its promotion of good fishing proactive, rural water supply, communication, and production of livestock, among other things (Okeke-Ogbuafor et al., 2023). Furthermore, within Chad’s border, the government has worked with organizations like the World Bank to fight food insecurity. One example is the creation of the Lake Chad Region Recovery and Development Project (PROLAC), which ran until 2025. PROLAC worked to reduce poverty and improve agricultural yields through e-vouchers (Group, 2025), and local capacity building, and reduce poverty (Okeke-Ogbuafor et al., 2023). While the government has moved to increase knowledge about good fishing and farming methods and techniques, the underlying problem of not having enough food supply for the population in the Lac region remains. This issue is only further exaggerated by the activities of Boko Haram and other conflicts in countries such as Sudan, which have led to an increase in refugees and displaced people seeking safety from the conflicts, and also a food source, which

for some has become fishing (Okeke-Ogbuafor et al., 2023; UN News, 2023). Additionally, criticisms of the Lake Chad basin Commission remain, especially as member governments have not done their role to support the initiatives financially or even have used the water for their own irrigation purposes (Okeke-Ogbuafor et al., 2023).

Cultural Mindsets

In a study conducted by Okeke-Ogbuafor et al., in the Nigerian side of Lake Chad, they found that about 45% of fishers were resigned to only praying to improve the situation (2023). From this studies interviewee also presented other problems facing the fishers in the Lake Chad region. Overfishing of unmatured fish also played a role in the lack of fishing, along with government bans on fishing, which take away the livelihoods from many (2023). In Chad, fishers like Adam also have faced the same problem of losing access to fishing and having to find other methods to survive, such as raising goats (Habib, 2026). Furthermore, respondents said sorting out armed groups like Boko Haram along with stricter management on overfishing is important for better results for fisheries in the future (Okeke-Ogbuafor et al., 2023). Lastly, respondents feel the Lake Chad Basin Commissions has grown larger and therefore has not checked in on the fishers as often and now has lost touch with the people it was originally created to serve.

Recommendation

The waters of Lake Chad have played a large role in Chad's agriculture for many years, and now with the disruption in the people's ability to access it, there must be new ways for people in the Lac providence to have access to water. Therefore, my recommendation is for the government of Chad and other third-parties such as the World Bank, to construct artificial ponds which can be utilized for fishing within the Lac providence.

While artificial fishing ponds can be considered unethical due to the raising of fish primarily as a food source, fishing is already common within this region, as farmers know how to fish as well and would remove the hurdle of educating people on how to use new technology (source). Especially as former attempts to integrate new methods to combat the effects of climate change in this area, like Acacia albidia trees in the past, have failed in regions like Chad due to lack of implementation (Norton, 1984).

Unlike with the "western" irrigation techniques, fishing is a form of way of life that is already a norm to many Chadians and the refugees and displaced people within its borders. Having a familiar technique being used for food production allows people to access food similarly to their ancestors, which is important to some farmers within Chad (Zongo et al., 2022).

With fishing farms, the government will not need to worry about reeducating fishers or farmers to abandon former practices (Norton, 1984), but instead have more space and ability to do things they have always done. Furthermore, working within and with traditional and religious

values can help new methods and techniques be integrated into the culture (Nachibi, et al., 2023). When farmers are more likely to adopt techniques, it is vital to also have their say and allow them to test out the solution and spread it by word of mouth. So, including farmers, fishers, and other residents of Lac, especially women, who bear the brunt of climate change's impact (Musa et al., 2022).), would allow the government and developers to choose the right areas within the region to construct a pond that would be utilized by those most in need. This data collection can be done by adopting parts of the K-WEFs model development stages (Purwanto, et al., 2020). It would begin with conducting interviews to understand problems facing the people in this region when it comes to fishing, then bring in experts for consultation and opinions about where to construct the ponds based on areas predicted to face the brunt of flooding, droughts, and inability to access Lake Chad's water due to conflict.

Lastly, the places where government officials and third-party organizations can receive interview participants and bring in stakeholders from Lac's agricultural sector would be the mosques. Since these spaces act as one of the only unifying locations, especially with tensions over scarce resources growing, bringing in religious leaders to help facilitate the conversation could not only increase the number of stakeholders, but also bring in a religious and traditional tie to further help implementation (Nachibi, 2023). Lastly, to avoid the overfishing and mismanagement facing the waters of Chad, the government should dedicate a department, like what LCBC began, to continue supplementing the education of smart fishing and avoidance of fishing small fish.

Limitations and Conclusion

Building artificial fishing ponds does not rid Chad of the various stressors on its agricultural sector. The ponds will not get rid of Boko Haram or the genocide in Sudan, and therefore not stop the influx of displaced people and refugees. The ponds will also not stop the effects climate change will continue to have upon Chad's agriculture due to unpredictable rainfall or flooding. Musa et al., (2022) argue that Chad should partner with other neighboring countries to fight insurgency groups like Boko Haram; however, even if implemented the people in the Lac providence will still face food strain, which may worsen due to the conflict. So as the government and other agencies explore different ways to solve the conflicts occurring, the ponds will provide an especially vulnerable region facing conflict and climate impacts with alternative sources of food production and remove the strain of supporting about 5 million people (source) off of Lake Chad. Aquatic animals such as fish specifically are also very nutrient-filled foods and contain omega 3, Vitamin D, calcium, and a higher quantity of protein in comparison to livestock that live on land (Khalili Tilami & Sampels, 2017).

As the ponds are constructed in one province of Chad, the government can dedicate a specialized team to serve this specific area. While these ponds provide alternative food sources

to the people of the Lac providence, the government can partner with other countries and fight of the insurgency to bring some more stability back into the region.

Conclusion

Chad serves as a reminder of the severe impact's climate change alongside conflict and instability can play on a country's food security. It presents an increasingly complex problem with many strainers exaggerating food insecurity. While there are efforts being made to improve the country's climate and lack of access to quality resources, there is still room for improvement. As the country’s temperature is expected to continue increasing, rainfalls expected to decrease in the Sahel, and the refugee and native Chad population is expected to continue growing, Chad’s issues are not going away. Therefore, continuing discussions, increasing research efforts, and implementing a variety of solutions are vital to helping combat the impacts of climate change on Chad, and countries like it.

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