



## Drought, Flood and Agricultural Impacts on Famine in Northern Cameroon

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### *Abstract*

Northern Cameroon has been crossed for many decades by various ecological phenomena, including drought. This problem which has appeared in the world since the area of scientific and technical progress will spread to Africa (and in particular to Cameroon), climate warming and flood being the constant consequence of human action on the environment. These ecological phenomena (including drought) are responsible for social problems such as famine in the northern region of country as a priority. This study therefore proposes in historical logic, how the drought has impacted on the proliferation of famine on northern Cameroon, thus reducing this region to the rank of priority food (RPF).

*Keywords:* climate warming, drought, ecological, food, famine.

### 1. Introduction

To speak of the chain of natural disasters as an alibi for the intervention of international NGOs in favor of the protection of the environment in Cameroon amounts to showing the various ecological phenomena that have marked the history of Cameroon. As a result, we can talk about pollution, floods, drought, the outbreak of bush fires, etc. Many ecological phenomena hit Cameroon at the end of the 20<sup>th</sup> century. Most of these disasters testify to a precarious situation in which the State of Cameroon is plunged. At first, we have the rise of the drought in the northern region of Cameroon (Adamaoua, North and Far North), the floods in the plains of the North (Garoua) and Douala which have for example intrigued national and international actors. among which the INGOs and on the other hand, the natural environment under the influence of bush fires, the anarchic deposits of household waste etc. which also impact on people and their livelihoods.

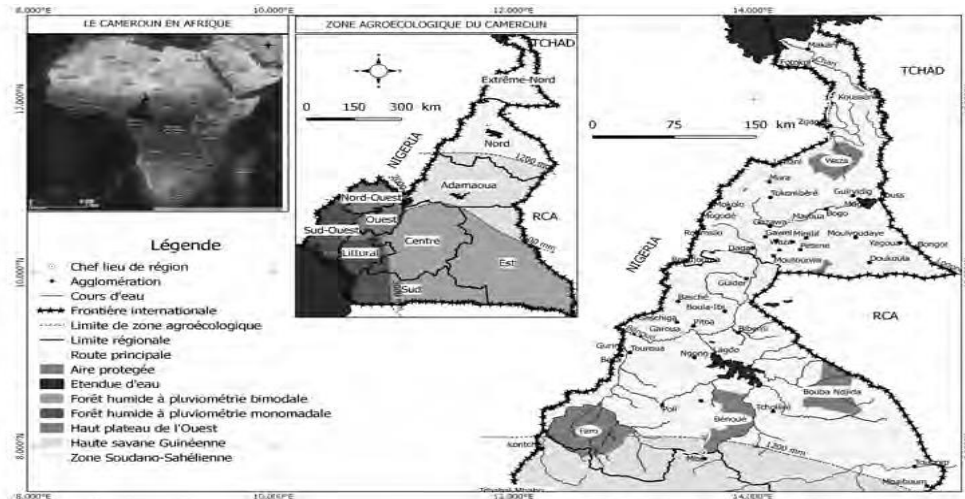


Figure 1. Location of a priority feeding zone in northern Cameroon

## 2. Methodology

Presentation of the study area Cameroon is a Central African country with an area of around 475,442 km<sup>2</sup>, Cameroon and “divided into 466,464 km<sup>2</sup> of dry land and 8,538 km<sup>2</sup> of water contained in mouths, creeks, rivers and lakes” and bordering to the north with Lake Chad and Chad. The northern part of Cameroon comprises three (03) regions, namely Adamaoua, the North and the Far North, regions in which the rate of undernourishment is quite high and agricultural and pastoral activities diversified. This agriculture, which is partly the basis of the economy of the region, necessarily influences the natural environment of the area.

### 2.1 Presentation of the area of the study

Cameroon is a Central African country with an area of around 475,442 km<sup>2</sup>, Cameroon and “divided into 466,464 km<sup>2</sup> of dry land and 8,538 km<sup>2</sup> of water contained in mouths, creeks, rivers and lakes” and bordering to the north with Lake Chad and Chad. The northern part of Cameroon comprises three (03) regions, namely Adamaoua, the North and the Far North, regions in which the rate of undernourishment is quite high and agricultural and pastoral activities diversified. This agriculture, which is partly the basis of the economy of the region, necessarily influences the natural environment of the area.

### 2.2 Data collection methods

To carry out this work, we will consult archives of various kinds including written, iconographic of the Ministry of Wildlife and Forests, Wildlife and the Environment in Cameroon; we will also go through the research and the interview of ecological and environmental leaders in Cameroon, without forgetting the environmental agents and the Cameroonian public opinion on environmental issues and specifically that of the State, the future and the protection of forests in Cameroon.

Since written sources alone are not enough to write history, we will conduct field trips using all sorts of sources of information available to us in order to reveal the underlying historical truth. our subject; because as Lucien Febvre so aptly puts it: “History is made with written documents when there are some, but it can be made, it must be made without written documents

when there are none. With all that the ingenuity of the historian can allow him to use to make his honey, in default of the usual flowers” (Febvre, 1953, cited in Ruano-Borbala, 1999: 386).

We carried out a meticulous investigation and by collecting information from various sources, including oral ones, which are seen as the living museum of all the socio-cultural productions capitalized by peoples without scriptures (Gormo, 2004: 17), written, iconographic, etc., which will lead us to specific information whose analysis and interpretation would be likely to produce concrete results. Claiming to be historical, our research will focus on the consultation of written, oral, iconographic and multimedia sources. In this regard, we have consulted various schools of thought. With regard to the iconographic sources, they are mainly made up of photos, results of our various field trips, as well as maps, plans and other image sources that would allow us to better understand the context in which our research takes place.

A systemic approach to the management of natural resources and the problem of hunger is also envisaged. After collecting this data, it will go through a rigorous selection process. We will analyze, sift through the selection, the data collected in the field. The confrontation of the data collected will allow us to produce a work as close as possible to historical truth, and rich. This work will allow us to bring out the data necessary for the elaboration of our thesis. Writing a complete history can only be done with written sources; thus, we include in our working methodology oral interviews (individual and group) to allow us to have a broader idea of the phenomenon studied. The diversification of sources will allow us to better understand the question of our research. The development of this document required the mobilization of quantitative and qualitative analysis methods.

### 3. Results

#### 3.1 *The rise of drought and climatic decline in the far north of Cameroon*

The problem of drought is acute in Cameroon in general and in its northern part in particular. It constitutes a brake on agricultural production and pastoral resources. The UN specifies in this regard that “climate change alters weather patterns, which have a wide and profound impact on the environment; economy and society, threatening people’s livelihoods, health, water and food and energy security” (UN, 2019: 6). The decadence of the climate is more and more pressing and visible on the elements of nature such as water which “constitutes a vital agricultural and pastoral resource” (Aboubakar, 2016: 9). This is to show the importance of water in human subsistence activities; an element that is shrinking more and more under the effect of the drought. This is the case, for example, of the Logone region in the far north of the country. The geographical characteristics of the region, namely the climate and rainfall, reveal some details on the matter. The climate in the Logone valley is Sudanian in the south (duckbill) and Sudano-Sahelian further north in the town of Kousseri and its surroundings. The seasons that prevail there are unequally distributed over the year, with a very long dry season and a very short rainy season, as was the case with the great drought of 1990 which shook the perimeter of Lake Chad in general and northern Cameroon. especially. The IPCC report (2014) on climate change estimates that between 1900 and 2005, rainfall decreased sharply in the Sahel region of Cameroon.

Table 1. Evolution of the aridity index in northern Cameroon from 2005 to 2012.

Years	2005	2006	2007	2008	2009	2010	2011	2012	<b>Total</b>
Aridity index (%)	11	15	12.8	11.9	10.8	12	10.2	13.3	<b>97.2</b>

Sources: Rapport GIEC, Indice d’aridité dans le Nord du Cameroun (1960-2014).

The variation in aridity thus obtained and represented in the graphic above confirms the studies of Christian Seignobos (Seignobos & Iyébi-Mandjek, 2000). The finding is therefore

increasingly critical given that the aridity rate, initially at 11% in 2005, will rise to 13.3% in 2012. That is an increase of 2.3%. The region’s aridity peaks are shown in the bar chart below:

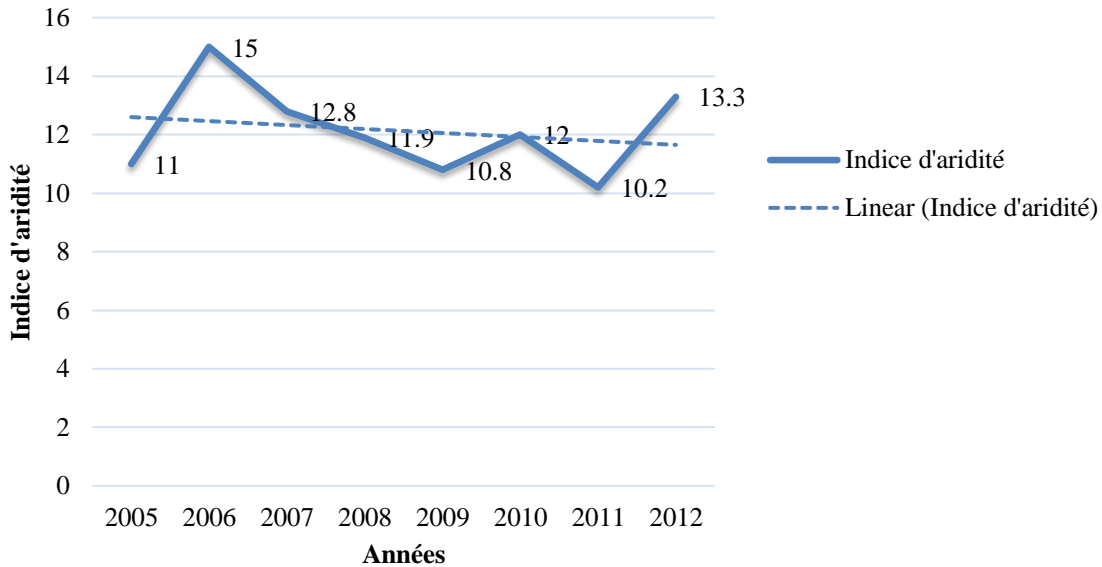


Diagram produced by the author using data collected in the field; April 2021 :26.

Figure 2. Variations in the Soil Aridity Index in northern Cameroon

The late rains and the drought recorded in northern Cameroon have had significant consequences on the state of the natural environment in the region. The drought which took on a new dimension at the end of the 1970s-1980s (Kitoto, 2016: 150) and at the very beginning of the 1990s had consequences for food security in the Sudano-Sahelian zone, consequences which gave rise to several projects to revitalize collective storage (DPGT, CDD, PAR-GTZ, SAILD), placing the action of stakeholders within the framework of a “Sectoral Innovation System (SSI)” (Malerba, 2005). This drying up of Lake Chad has caused a massive displacement of local populations since this body of water represented the base of the economy in the surrounding area. The climate is hardening, water is becoming scarcer, the rainy seasons are short and late but their impacts are devastating (as was the case with the waves of “drought of the years 1990-1991”) (Rognon, 1991: 199 -210) on the way of life and on the food of the populations. In Cameroon, environmental disturbances such as drought have impacted societies, but there are also ecological crises linked to flooding.

### 3.2 Floods and global warming in North Cameroon as a brake on agricultural production in Cameroon

The problem of floods has become a major issue in the ecological history of Cameroon with the cyclical outbreak of related disasters: this is the case of the waves of floods that occurred in Garoua in the “yarés”. In Cameroon, the floods that have marked history are recorded mainly in coastal and northern cities. As a result, we have noticed that flood-related disasters have raged all over the country and given its arid geographical nature, these phenomena have quickly attracted the attention of international NGOs who find themselves obliged to some extent to intervene in the disaster areas.

The Logone region in particular has an exceptional level of ecological vulnerability. For Ahidjo Paul, “Sub-Saharan Africa as one of the most vulnerable parts of the world to climate change, like northern Cameroon. The vulnerability of geographical North Cameroon to flooding

seems to be accepted, at least if we stick to the history retracing the wet periods which are part of the long term” (Paul Ahidjo, 2019: 1). The region has been hit since the 1990s (for the most recent) by a succession of violent floods. Ahidjo Paul goes on to say that:

Cameroon is marked by repeated floods in 1990, (...) the North of Cameroon as a geographical entity had been hit by serious floods resulting from the torrential rains which caused the overflow of the waters of the Bénoué river and the Logone river, the most important hydrographic networks around which all the activities of the populations of this part of Cameroon are drawn, particularly sensitive to global climate change (Ahidjo, 2019: 1; Republic of Cameroon, 2009: 20).

In addition, “The succession of floods in 2010, 2011, 2012, 2013 and 2014 caused a haemorrhage of migrants in the localities of Lagdo, Maga, Yagoua, Gobo and Kousseri. The issue of their resettlement is a concern for public authorities and civil society organizations” (Ahidjo, 2019: 2). Ecological vulnerability in northern Cameroon poses another problem, namely the rise of hunger. This glaring situation justifies even more forcefully the multiple interventions undertaken by the International NGOs. The intervention of international NGOs is all the more necessary as the question of ecological refugees is essential. Paul Ahidjo points out that the issue of ecological disasters has challenged international actors since the end of the 1970s. This flooding problem in northern Cameroon will certainly have ecological impacts, but will also cause considerable food crises. “Abundant water is detrimental to agricultural activities while causing agricultural disasters and famines” (Ahidjo, 2019: 2); that is to say that the successive waves of floods in the North Cameroon region are responsible not only for the destruction of fields and crops, but also have destroyed many food reserves as was the case in Mini Martap, Lagdo, Yaogoua, etc. In the city of Garoua in particular, we were able to remember that from the 1990s, “the most serious effects of climate change will undoubtedly be those linked to human migration, because millions of people will be displaced” (IPCC Report, 1990). These people are forced to move not only for security reasons, but also because of the lack of food which pushes them to move to more promising areas. In a few decades, the frequency of floods has increased despite the installation of water management devices, as was the case in Maga, Lagdo, etc. The floods are so devastating that the INGOs propose to intervene. The recurrence of ecological disasters in the northern part of the country and in particular the floods that are triggered during rainy periods, will push international NGOs to deploy on Cameroonian soil. However, floods are not the only ecological phenomena which arise acutely, thus pushing international NGOs to intervene in Cameroon. We have noted that bush fires are environmental disasters which also challenge INGOs. These International NGOs show the parallel that exists between the floods and the rise of famine.

#### 4. Discussions

This article has proposed to return to the implications of agriculture in the occurrence of ecological crises in Cameroon. It appears that many authors fit into different parts of our analysis. First Ahidjo (2019), who recalled the importance of floods in the occurrence of humanitarian and environmental crises. However, Gueme (2016) recalled that ecological vulnerability is the result of the outbreak of bush fires. Rognon (1991) targeted the return of drought and places it as a major factor in the occurrence of famine in the Sahel.

Ecological disasters have indeed weakened agriculture in the region; then considered as one of the basic economic activities in northern Cameroon. At the level of the Waza plain, floods have been raging since the 1960s. Economic activity, mainly agricultural, suffered many losses between 1970 and 1980, especially with the creation of Lake Maga in 1979 which led to ecological dysfunctions and returns of quite violent water. The disasters they cause have an impact on populations since these floods destroy homes, plantations and sometimes they have caused human

losses (drownings, accidents, etc.). Floods are therefore responsible for crop losses of more than 25 percent, while the impact of animals (and rodents) on agricultural reserves adds to the destruction of food resources and the worsening of famine. The intervention of INGOs is all the more necessary since the question of ecological refugees is now recurrent in the region with, for example, the case of 1990 when global warming in Nigeria led to the massive dumping of its population in Cameroon. Similarly in the North and Far North of Cameroon, where Chadian refugees who fled not only political crises but also famine caused by global warming and the drying up of Lake Chad, find themselves mixed with the local population and occupying the labor market and the sphere of tertiary economic activities already suffering the spatial distribution of the ever-growing population in the region has led to an incompatibility between needs and available resources, hence the emphasis on income-generating activities in the detriment of environmental obligations.

Drought is therefore particularly responsible for the effervescence of famine in the Far North region of Cameroon. It caused agricultural difficulties, potential crop losses and slowed production. These impacts are therefore at the origin of the difficulty of producing enough food for the populations.

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The author declares no competing interests.

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