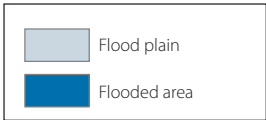
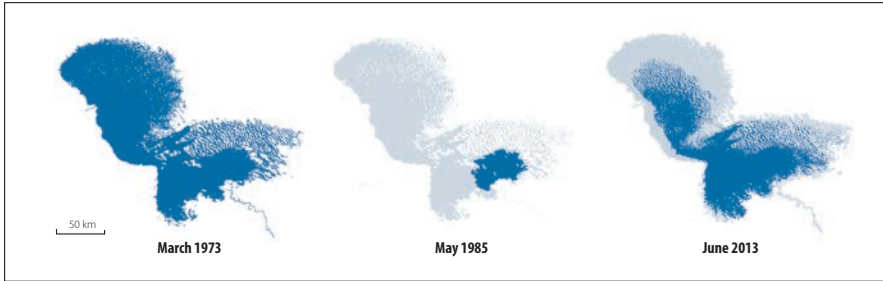


### M40. Flooded areas of Lake Chad between 1973 and 2013

Source NASA



### M41. Poles and trade flows around Lake Chad

Source: author, 2016

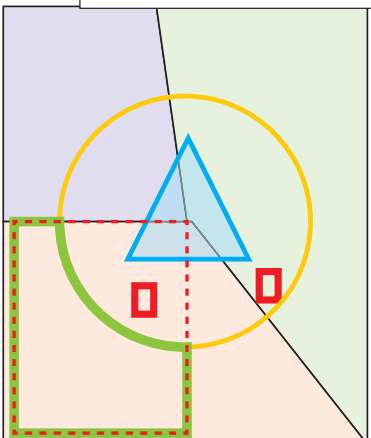
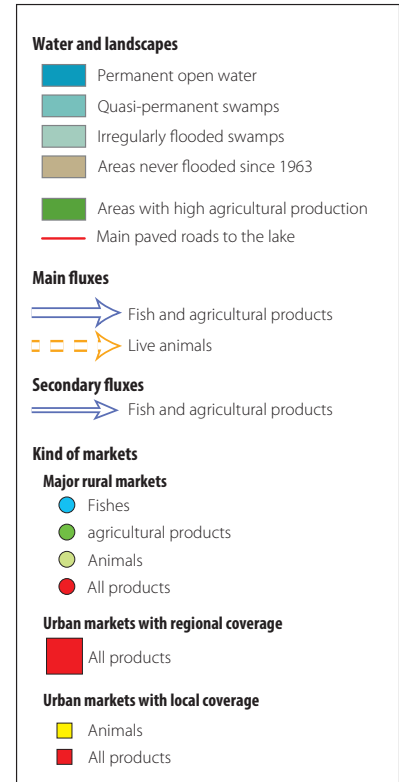
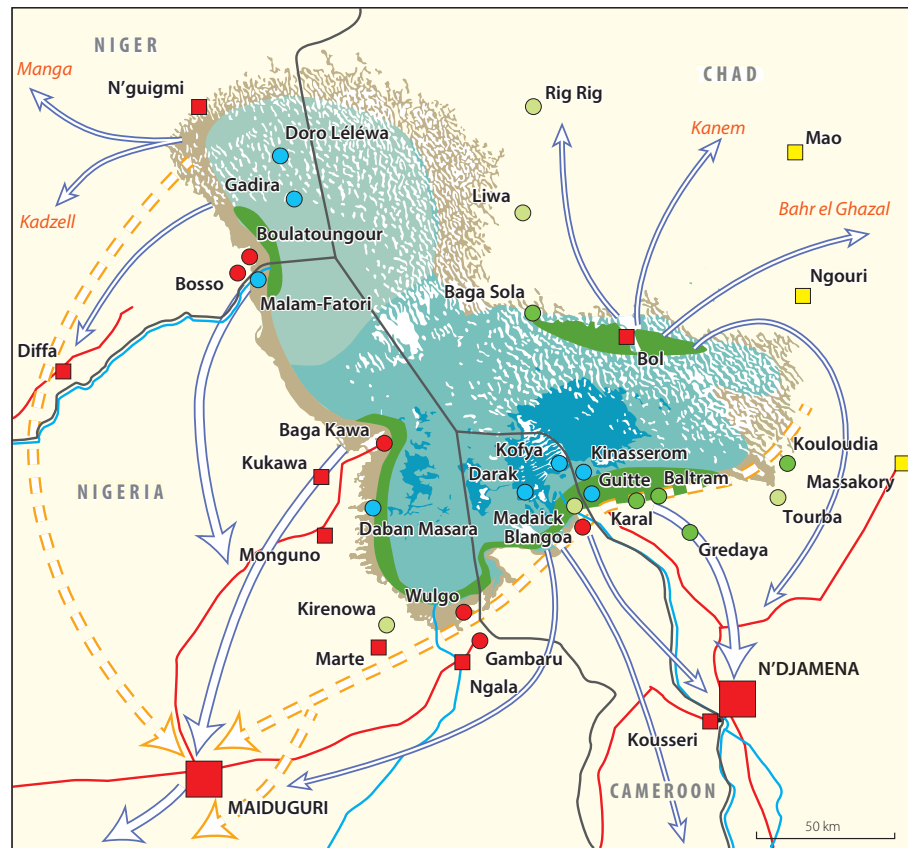


Fig. 20. Modelling the geographical area of Lake Chad (chorematic diagram)

Source: author 2016

## LAKE CHAD: A MULTITUDE OF CHALLENGES

***In 2016, Lake Chad is in the eye of the storm of Boko Haram terrorist attacks. These attacks are obscuring the threat of its possible disappearance, which has – wrongly so far – been the main focus of concerns about the lake for many years. This unique lake, which straddles four countries (Cameroon, Chad, Niger and Nigeria), is emblematic of the potential for territorial development based on wetland agriculture. An African rural sustainable development model could emerge on its shores.***

### • From the myth of disappearance to unrecognised prosperity

The droughts of the 1970s and 1980s reignited fears about the disappearance of Lake Chad. The idea that the surface area of the lake has decreased from 25 000 km<sup>2</sup> in 1969 to 2 000 km<sup>2</sup> today due to human water use and climate change took up the greater part of the development agenda until recently. However, for the last 25 years, this idea has been at odds with the realities of the lake, which has made it difficult to design and implement public policies.

Lake Chad has a high natural variability: it is very shallow (three meters at most) and subject to high evaporation; its surface area reflects rainfall in its basin. The sources of its two main tributaries, the Chari and Logone rivers (85% of inflow), are located in the Sudanian zone. High rainfall in the 1950s and 1960s produced a Medium Lake Chad, with a single body of water covering 25 000 km<sup>2</sup>. Since the drought in 1973 it has been known as Small Lake Chad, with two

basins (southern and northern) separated by a shoal and surrounded by marshlands. If the inflow from the Chari that feeds the southern basin is insufficient, the northern basin remains dry. This is then known as the Dry Small Lake Chad, a situation observed several times between 1973 and 1991, but not since then. Since 1991, the average flooded area is 10 000 km<sup>2</sup> (+/- 4 000). The past failure of large-scale irrigation projects in the basin explains the low level of human water use: 2-3 km<sup>3</sup> for 18-20 km<sup>3</sup> average inflow.

The Small Lake nevertheless displays great economic dynamism. Its natural resources (fish, water, land and floodplain grazing marshes) have attracted many migrants from different origins who have been affected by drought. The lakeside communities (2 million people in 2014) have adapted to the variability of the environment through mobility (to follow resources), multi-activity (associating farming, fishing and livestock rearing, depending on the water level, ethnic specialities and resources available) and multifunctionality (the same area of land may sometimes be used for three different activities over the course of a year). Successive endogenous innovations have resulted in a substantial increase in agricultural productivity. These family farming systems create value-added (per worker and at the territorial level) and far more jobs than those provided by modern farms specialising in cereals in Africa. Through regular food exports (cereals, vegetables, fish and cattle), they contribute to food security in a hinterland with 13 million people polarised by N'Djamena and Maiduguri.

### • Insecurities

This situation does not preclude vulnerability, which concerns water first of all. Although there is no doubt about global warming, the IPCC models do not yet give any reliable forecast of rainfall changes in this part of Africa. What is certain is that the population of the Chad Basin is going to increase substantially: from 51 million people in 2016 to 130 million in 2050. If per capita water use doubles to meet new food and urban requirements, water withdrawals upstream will reach nearly 10 km<sup>3</sup> annually. However, if inflow to the lake is less than 15 km<sup>3</sup>, the northern basin will not be fed. Since the 2000s, the revival of irrigation in the basin, both public and private, has demonstrated the dangers of inefficient, uncoordinated water resource management. The project for water transfer from the Ubangi River to Lake Chad, which was first conceived in the late 1980s and adopted by the Lake Chad Basin Commission (LCBC) in 2014, makes sense in the face of these long-term prospects. It nevertheless raises a number of questions (impacts, financial viability, geopolitics) that make its implementation improbable.

The main threat currently facing Lake Chad is violence. The Boko Haram insurgency began in 2009 in Maiduguri, Nigeria, due to local political causes. It then gradually spread through rural parts of the Borno region and Lake Chad in 2013-2014. Villages have been razed, and tens of thousands of people have fled to the lake's shores in neighbouring countries. The crisis highlights and exacerbates tension linked to poverty in the Lake Chad Basin, which has one of the highest population growth rates in the world. In Lake Chad, growing tension over land had become difficult to manage in a context of decentralisation conducive to partisan manipulation. The large numbers of young islanders joining Boko Haram has been interpreted as an attempt to repel the

migrants who were threatening their access to resources. The Lake Chad "oasis" is in danger.

### • A laboratory for territorial development?

But the worst-case scenario may never happen, and Lake Chad could also serve as a framework for new territorial development policies. The Lake Chad Development and Climate Resilience Action Plan presented in December 2015 by the LCBC at COP21 in Paris, with the support of the World Bank, establishes some possible guidelines for this framework. The challenge is to reconcile respect for environmental balances and contributions to food security and employment. Increasing resilience in the immediate term implies ensuring development: providing public goods (roads, water, education, electricity) and supporting productive sectors, but also increasing the security of land rights, based on principles of inclusive democratic citizenship.

The goal would thus be to articulate support for agriculture and for spatial management (by increasing the resilience of family farms to environmental variability), regional integration (based on the management of trade and shared water resources) and territorial development (through the equipment of secondary poles helping to create jobs and value based on rural production, while balancing the urban network). Lake Chad provides the resources – both natural and human – for an innovative development model. Meeting the political and institutional conditions for its implementation remains a challenge.

Géraud Magrin