



# **Transboundary Water Cooperation And Sustainable Water Management In The Lake Chad Basin.**

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## **ABSTRACT**

In view of the water crisis that looms across the continent of Africa, sustainable management of water has become an important issue of discussion in the 21<sup>st</sup> century. The growing need of water for development has brought intense political and economic tension among countries that share trans-boundary waters. Cooperation among riparian states is therefore critical to ensuring that water resources are managed in an equitable and sustainable manner. This paper reviews the rationale for adopting trans-boundary water cooperation in the Lake Chad basin and evaluates, using the Water Cooperation Quotient (WCQ), if the concept through the instrumentality of the Lake Basin Commission (LCBC) is working and has been able to address water problems in the basin. The paper concludes that trans-boundary water cooperation in the Lake Chad is still a work in progress. The paper therefore identifies the obstacles to water cooperation in the Lake Chad basin. Solutions to challenges facing water cooperation in the basin are proffered.

**Keywords:** Lake Chad Basin, Water Cooperation, Water Crisis, Water Management, Riparian Trans-boundary.

## **INTRODUCTION**

Water is essential for the maintenance of all life forms and it is therefore regarded as a basic and dominant development priority for most countries around the world (Ahile and Mailumo, 2018). Water resources and the range of services they provide underpin poverty reduction, economic growth and environmental sustainability (UN-Water, 2021).

Unfortunately, millions of people around the world suffer from scarcity of water. The problem of water scarcity is more pronounced in Africa where the demand for fresh water is rising in response to population expansion and increased pressure from competing uses such as agriculture, industrialization, recreation among others. World leaders recognize that we face a global water crisis and therefore advocate the need to reassess how water is valued and managed (HLPW, 2022).

As a response to the challenge of water scarcity and the growing pressure on water, many authorities have stressed the need for nations (particularly riparian states) to work out trans-boundary water agreements to take advantage of shared rivers and lakes to meet domestic, agricultural and industrial water needs. The Lake Chad Basin Commission typifies one of such attempts in Africa to address these problems at regional scale. Trans-boundary water management is however a very complex task, therefore a mere acknowledgement of the benefits of cooperation does not ensure cooperation over time (Arbour, Thomas and Zaky, 2021). For most basin agreements, their effectiveness and sustainability remains a key concern. This paper reviews the rationale for trans-boundary water cooperation in the Lake basin evaluates if the concept has been able to address water problems in the region. The paper therefore attempts to provide answers to the following questions:

- (a) What is the rationale for Trans-boundary Water Cooperation in the Lake Chad Basin?
- (b) How effective has this concept been in addressing the water problems in the Lake Chad Basin?
- (c) What are the constraints/challenges to sustainable Trans-boundary Water Cooperation in the Basin?
- (d) What are the possible solutions to these challenges?

#### **RATIONALE FOR WATER COOPERATION IN THE LAKE CHAD BASIN.**

The Lake Chad is Africa's fourth largest lake, with a maximum extent of 25000km<sup>2</sup>. The lake is shallow and has been susceptible to increasing variability and irregularity of rainfall during the last 40 years. The Lake Chad basin covers an area of 2,434,000km<sup>2</sup>, shared by Chad (45%), Niger (28%), Central African Republic (9%), Nigeria (7%), Algeria (4%), Sudan (4%), Cameroon (2%) and Libya (0.5%), and supports more than 20 million people whose sources of livelihood is mainly fishing, agriculture and pastoralism (FAO, 2021). The Lake Chad is an important resource both in terms of economic development and biodiversity.

The demand for water in the area has grown enormously, while the water resources are declining, leaving millions of people without access to water. This has been attributed to the shrinking of the Lake Chad. In 1964, when the Lake Chad Basin Commission (LCBC) was established, the lake covered 25000km<sup>2</sup>. However, the lake has been shrinking since due to natural causes like drought, the advancing desert and climate change, as well as an increasing diversion and withdrawal of water and anthropogenic causes and now covers less than 1000km<sup>2</sup> when the water is annually at its lowest level (Joint Environmental Audit Report, 2015). This is a situation that needs to be treated seriously and hence demands a multi-dimensional approach to finding lasting solutions.

Besides the shrinking of the Lake, there is also the issue of water pollution in the lake, which is considerably high. This high level of water pollution is mainly due to commercial cotton and rice production known to use large quantities of agro-chemicals (Salman and Momha, 2019). In the Chari river, which is a major source from which the Lake Chad draws its water, massive and uncontrolled chemical-based products pollute the water, leading to considerable environmental degradation (Nambatingar, Clement, Merle, Mahamat and Lanteri, 2017). This goes contrary to the aspiration of the Sustainable Development Goals, particularly goal 14, which seeks to conserve and sustainably use the lakes and other marine resources for sustainable development. Water pollution in the Lake Chad has affected fishing, a major source of livelihood in the area.

Water can and has been a potential driver of conflict among countries and communities. As earlier mentioned, the rich water resources of the Lake Chad have been a source of economic livelihood, sustaining over 20 million people inhabiting the catchment area of Nigeria, Chad, Niger, and Cameroon. Past studies have attributed regional tension and conflicts, as well as border disputes to increasing water scarcity especially among riparian communities or nations (Opara, Stringer, Dougil and Bila, 2015). Documented reports on the Lake Chad shows there were increased water crisis in the region during the droughts of the 1980s and 1990s. Specifically, between 1982 and 1985, interstate water and boundary conflicts increased among riparian nations (ibid). In recent times, there has been a rising wave of conflicts between and among fishermen, pastoralists, and farmers. These conflicts have a tendency to degenerate into large scale intra-ethnic, intra-state and inter-state wars. Also related is the issue of Islamic terrorism which has been featuring more frequently in the volatile portion of the Lake Chad in Nigeria, especially in the states of Borno and Yobe. A cursory analysis of these crises, suggest that the issue at stake is that of environmental deprivation projected by the drying up of the lake (Ifabiyi, 2018). Arising from these issues highlighted above, the Global High Panel on Water and Peace (2022) stressed the need for countries to work out trans-boundary water agreements. It is therefore the duty of coordinating bodies or institutions to work assiduously to ensure coordinated development and management of trans-boundary waters to strengthen water security, improve livelihoods, and fuel economic growth.

**HOW EFFECTIVE IS TRANS-BOUNDARY WATER COOPERATION IN THE LAKE CHAD BASIN?**

The Lake Chad Basin Commission (LCBC) established in 1964 is the institution saddled with the authority to make decisions on water allocation and resources management in the basin. In addition, the LCBC is mandated to protect natural resources, regulate and monitor water use and settle disputes (Salman and Momha, 2019). The overall mission of the LCBC is to supervise and coordinate water cooperation riparian countries in the basin. A fundamental question to answer is: how effective has the commission being in meeting this mandate?

To answer this question, sixteen set of indicators adopted from Strategic Foresight Group (2015) and Saruchera and Lautze (2015), are subsequently filtered into ten as shown in table 1. The paper then uses the Water Cooperation Quotient (Strategic Foresight Group, 2015) to measure and subsequently gauge the effectiveness of the Lake Chad Basin Commission in promoting water cooperation in the basin.

The filtered indicators are each ranked and scored based on the commitment level of riparian countries towards water cooperation. The lowest level of commitment/cooperation is scored 1, while the highest level is scored 10. A questionnaire is then administered to twenty members of staff of the LCBC to assign scores to these indicators based on their perception of the level of commitment of riparian countries to water cooperation. Respondents were to assign zero to any indicator where they felt riparian countries have shown no commitment. The average of the score is taken and then assigned against each indicator. The Water Cooperation Quotient (WCQ) is then calculated as follows:

$$WCQ = (\text{Total score}/55) \times 100; \text{ expressed as a percentage.}$$

The standard for this paper is that Trans-boundary Water Cooperation among riparian countries is deemed to be working if and when the WCQ exceeds 50%. In the Lake Chad basin, the WCQ was calculated to be 37.6% which is less than the 50% bench mark as shown in table 1 below. This result has shown that water cooperation in most areas is limited. For instance, when the indicator “financing available for trans-boundary institutions and projects,” is put under the spot light, evidence from the literature will show that water cooperation in the Lake Chad basin has been greatly hampered.

**Table I. Indicators for Measuring Transboundary Water Cooperation in Shared Basins.**

Indicator proposed by the Strategic Working Group (2015)	Indicator proposed by Saruchera and Lautze (2015)	Filtered indicators by Authors	Filtered indicator score	LCBC score
Agreement	Existence of trans-boundary agreement	Existence of trans-boundary agreement	1	8
Commission	Reference to trans-boundary waters in national legislation	Reference to trans-boundary waters in national legislation	2	2
Ministerial meetings	Having an inclusive basin plan	Having political commitment/involvement of HOGs	3	6
Technical projects	Regular data exchange	Standard units and methods for measurement of water data	4	1
Environmental Protection and Quality Harmonization	Standard units and methods for measuring water data	Financing available for trans-boundary institutions and projects	5	2
Joint monitoring of water flows	Financing available for trans-boundary institutions and projects	Regular execution of technical projects	6	3
Flood, Dam and Reservoir cooperation		Flood, Dam and Reservoir cooperation	7	4
High Political commitment/involvement of HOGs		Joint monitoring of water flows	8	1
Integration into economic development		Regular data exchange/sharing	9	2
Actual functioning of mechanism		Actual functioning of mechanism	10	7
		<b>Total Score</b>	<b>55</b>	<b>36</b>
		<b>WCQ</b>	<b>100%</b>	<b>37.6%</b>

## CHALLENGES OF TRANSBOUNDARY WATER COOPERATION IN THE LAKE CHAD BASIN

Trans-boundary water cooperation is critical for ensuring sustainable management of water and other natural resources in a river basin. The LCBC as a custodian agency mandated to oversee water cooperation in the Lake Chad basin has faced a lot of challenges over the years. Some of these challenges which will be discussed below have affected the smooth running of the LCBC and by extension derailed water cooperation in the Lake Chad.

**Poor Data Collection/Sharing:** Data collection, collation and dissemination through appropriate medium is essential to effective water management and cooperation in the basin. Unfortunately, the LCBC has come short in the area of collecting and managing data relating to the evolution and use of water resources in the Lake Chad basin (Joint Environmental Audit, 2015). This has been attributed to a lack of procedure and logistics. Member states of the Lake Chad have also been faulted for not showing enough commitment to promote data management and sharing.

**Inadequate Funding:** The LCBC is founded by member countries, with Nigeria, Cameroon, Chad, Niger and Central African Republic contributing 52%, 20%, 1%, 7% and 4% respectively to the total budget of the commission. However, not all these countries pay their entire duty to the LCBC. There is also the case of delayed payments, leading to huge arrears owned by member countries (Galeazzi, Mednilla, Ediede and Desmidt, 2019; The Joint Environmental Audit, 2015). The implication of this is an acute shortage of resources. The Joint Environmental Audit (2015) has also shown that available financial resources are not directed towards the activities that ensure the sustainable management of water and other natural resources in the Lake Chad basin.

The financing system of the LCBC also relies on external funding from donors which in most cases is not sustainable. Most donor agencies prefer to support larger basins with high population densities. Consequently, most financial contributions in Africa are allocated to the Nile, Senegal and Zambezi (German Technical Cooperation, 2019).

**Inadequate Mechanisms and Tools for Water Regulation:** Basin organization need to regulate the withdrawal of water and related resources in the basins they oversee. This should include authorization and control of withdrawals that might alter the ecosystems and river flows. This requirement makes it possible for the riparian countries to play a role in the equitable, rational and reasonable use of water resources of the basin in each country (The Joint Environmental Audit, 2015).

Climate variability and water withdrawal have been identified as the main cause of the fluctuation of water level in the Lake Chad. In 2010, water withdrawal from the Lake Chad, its tributaries and alluvial aquifers amounted to about 2.5 million m<sup>3</sup> (German Technical Report, 2019). With increased population and the need to secure food production, water withdrawal from the basin is likely to double. This can be a cause of tension among the riparian population. For this reason, it is expected the LCBC will put in place mechanisms and tools to determine the maximum levels for the withdrawal of water resources in each country in line with the sustainable management of these resources. Unfortunately, the LCBC does not have integrated information and monitoring system to enable it collect and store data on actual condition and levels of water resources in the basin (The Joint Environmental Audit, 2015).

## CONCLUSION AND RECOMMENDATIONS.

This paper has shown that trans-boundary water cooperation is a key instrument for addressing water scarcity issues in shared basins such as the Lake Chad. The paper further reveals that the Lake Chad Basin Commission (LCBC), the institution saddled with the responsibility of coordinating water development and use within the basin is challenged on many fronts, a situation that affects its operations. The paper concludes based on the adopted methodology that trans-boundary water cooperation in the Lake Chad basin is still a work in progress. Consequently, the paper puts forward the following recommendations that will help strengthen water cooperation in the basin:

- (a) Member countries of the LCBC should be made to live up to financial obligations to the commission. There should be an agreement to impose fines on member states that delay or fail to pay their dues.

- (b) Agreements on water withdrawal from the Lake by member countries especially for agriculture should be strengthened. This will reduce pressure on the already shrinking lake and also forestall conflicts arising water shortages.

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