

# 2004 National Monitoring Conference

“Multi-Jurisdictional Issues In International Water  
Quality Monitoring: The Case of Lake Chad Basin  
of West Africa”

By

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# Scope of the Presentation

- Purpose of the Research
- Background Information and the Issues
- Methodology and the Study Area
- Existing Regional Efforts
- Factors Responsible for the Problems
- Findings of the Research
- Recommendations and Conclusions

# Objectives of the Research

- To examine the issues in trans-boundary water quality monitoring in the Lake Chad Basin
- To explore the efforts of the agencies managing the Basin
- To present a simple approach for analyzing multi-jurisdictional trends in water management
- To update the literature on trans-boundary matters in international water quality management

# Background Information/Issues

- Africa is a continent where most rivers are international on the premise that river basins are shared by several countries (Johns Hopkins 1998).
- Declining water quality and ineffective management of the resource across different jurisdictions continues to be an issue in the area (Johns Hopkins 1998)
- The threats to African lakes appear in the form of eutrophication, salinization, pollution from industrial effluents and chemical run-off (UNEP2003)
- Already then, the communities along the Lake Chad shores are lacking access to safe drinking water (Joelly 2001).
- In response to these challenges, planning agencies were formed for coordinating the management of several basins with little success
- Researching the multinational issues in international joint monitoring of the health of these rivers helps us understand the challenges faced by the nations and ways of addressing them in the context of West Africa. In that light, monitoring of the quality of these waters is emerging as a regular component of international water management (Wolf 1998, Schoneboom 1998)

# Methodology and the Study Area

- The research stresses a four step approach involving a mix-scale connected to keyword literature search, descriptive statistics and spatial analysis.
- Step 1: Identification of the relevant literature and variables and procurement of spatial data
- Step 2: Design of data matrices
- Step 3: Measure of descriptive statistics for the percentages
- Step 4: Analysis of the trends

# The Study area

- Lake Chad originally extended as far as the Nile Basin. Today it stretches across 5 West African nations from Central African Republic to Nigeria
- The lake is less than 7 meters deep, and as the 4<sup>th</sup> largest body of water in Africa, it extends over an area of 967,000 km<sup>2</sup> with a population of 20 million
- While only 51% of the inhabitants have access to safe drinking water, unsustainable development has been eroding the Lake's ecosystem
- The fragility of the lakes ecosystem can be manifested with several cases of drought and fluctuations in size
- The affairs of the lake is administered by the Lake Chad Basin Commission (LCBC) created in 1964

# Figure 1: Map of the Study Area



# Table 1: The Lake Chad Nations

## ■ The Physical Attributes of the Countries

Country	Total area of the country (km <sup>2</sup> )	Area of the country within the basin	As of total area of basin (%)	As of total area of country( %)
Cameroon	4754440	50775	2.1	10.7
Chad	1284000	1046196	43.9	81.5
Central African Republic	622980	219410	9.2	35.2
Niger	1267000	691473	29.0	54.6
Nigeria	923770	179282	7.5	19.4
Total	4,573190	2,187,136	91.7	201.4

# Table 2: Population of the Lake Chad Basin

## Population Distribution

Nations	Population
Cameroon	2,550,000
Chad	5,048,530
Central African Republic	634,283
Niger	193,000
Nigeria	11,376,000
<b>Total</b>	<b>20,000,000</b>

# Existing Regional Efforts

## ■ Monitoring Initiatives

- Strategic action plans for assessing shared water resources based upon cooperation
- Preventive programs for controlling the spread of contaminants and water conservation

## ■ Reversal of Land Degradation Trends

- The LCBC has a program to regenerate its degraded water and land resources
- A world bank funded project emphasizes ecosystem recovery and integrated management

## ■ Joint Water programs

- African union of water distributors is helping the basin to improve its water quality programs
- The basin has drawn an ambitious program for protecting the region's fresh water ecosystem

# Factors Responsible For the Issues

## ■ **Politics**

- Differences in regulatory frameworks hindering the joint monitoring of water quality

## ■ **Environment**

- The rising incidence of ecological tragedy threatens the public access to clean water

## ■ **Technology**

- Some of the nations lack access to latest technology for improving the quality of water

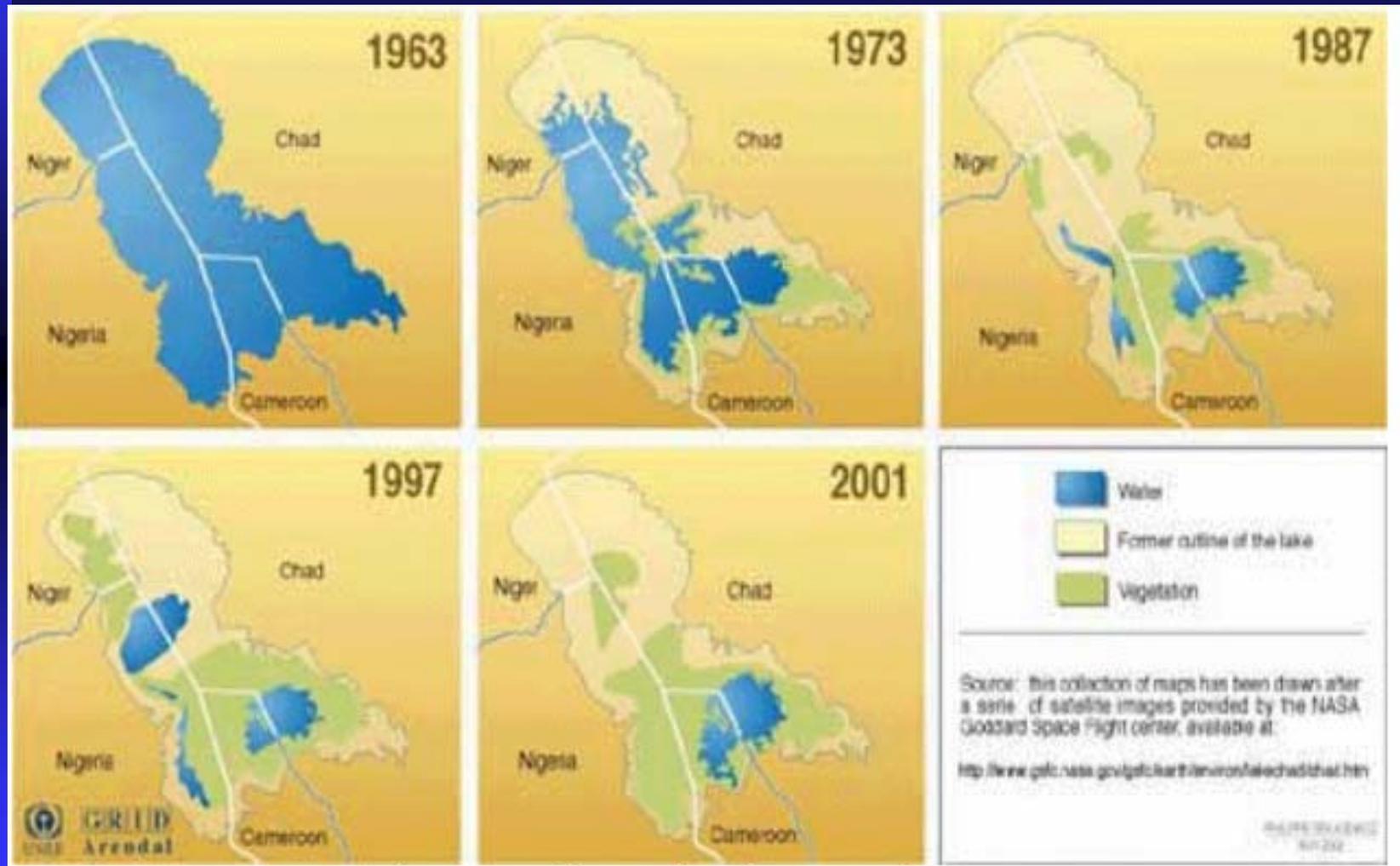
## ■ **Demography**

- Rapid population growth impacting severely on water quality and meager resources

## ■ **Economy**

- Financial constraints hinder the upgrade of trans-boundary water infrastructure

# Figure 2: Environmental Change



# Table 3 Population Distribution

## ■ The Percentage Distribution of the Population

Nations	Population
Cameroon	12.9
Chad	25.4
Central African Republic	3.2
Niger	1.0
Nigeria	57.4
Total	100

# Table 4 Budget Contribution

## ■ Budget Contribution of Member States

Nations	Percentage Contribution
Cameroon	26
Chad	11
Central African Republic	4
Niger	7
Nigeria	52

# Findings of the Research

- Multiplicity of shared waters makes Africa liable to problems of cooperation when water quality monitoring is shared among different countries
- In spite of the efforts to address trans-boundary water quality problems, the Lake Chad region still faces a daunting task in reversing the growing water degradation due to several factors
- Of all factors none is quite revealing than the insidious role of the region's diverse political and administrative settings rooted in British and French bureaucratic traditions
- The projected population growth of 33 million in 2025 will leave the region worse off in terms of access to quality water from the Lake Chad Basin
- The study reveals that LCBC operates a defective budgetary system that depends on over 50% of its budgetary contribution from a member nation. Such uneven funding system indicates that intervention mechanism for mitigating water problems are predicated on economic conditions

# Recommendations

- To address some of the concerns that were identified in the research, four recommendations are presented as part of the remedies
- **Ecosystem Approach**
  - The adoption of ecosystem approach in order to put monitoring mechanisms in sync with nature
- **Effective Monitoring and Stakeholder Consultation**
  - The LCBC should emphasize more on effective monitoring and community involvement
- **Coherent Policy Objectives**
  - The LCBC should outline a set of common policy guidelines for its member nations
- **Financial Consideration and Capacity Building**
  - There is a need for user fees, pollution taxes on industries as well as skills training programs

# Conclusions

- Three Important Conclusions can be drawn from this study
- 1) -African nations face difficult task in addressing trans-boundary water quality problems under joint jurisdictions
- 2) -Not only has the ecosystem of the Lake Chad Basin been stretched beyond its carrying capacity due to pollution and droughts caused by human activities, future population growth in the area will pose serious challenges to managers
- 3) -This study demonstrates that the analysis of trans-boundary issues embedded in the multi-jurisdictional monitoring of international waters of Lake Chad stands as a valuable tool for decision makers and resource managers in confronting the problems posed by shared waters in Africa