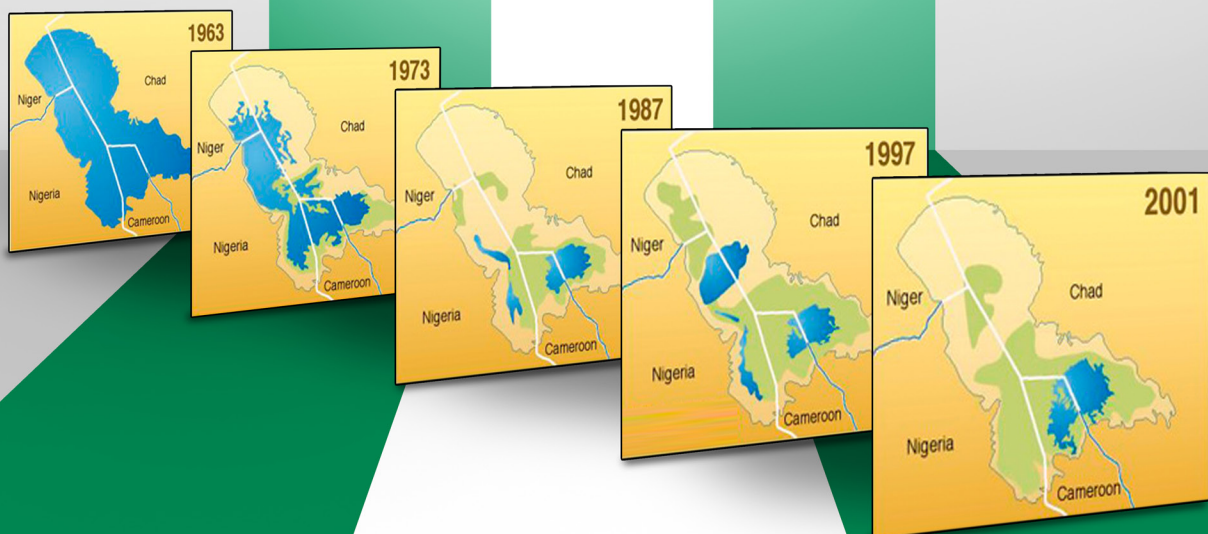




ENVIRONMENTAL AUDIT ON THE DRYING UP OF THE LAKE CHAD

A FOCUS ON WATER RESOURCES QUANTITY MANAGEMENT
BY THE NIGERIAN GOVERNMENT: 2008-2013



This report is Nigeria's part of the parallel environmental audit on Lake Chad Basin. Other member countries include Cameroon, Chad and Niger.

May 2015



National Audit Report of Nigeria



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Office of the Auditor-General
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FOREWORD

In accordance with Section 85(2) of the Constitution of the Federal Republic of Nigeria, 1999 as amended, I have the honour to transmit herewith an *Environmental Audit Report on the Drying up of the Lake Chad; a focus on water resources quantity management by the Nigerian Government: 2008-2013*.

In tune with the best global practices and the mandate given me in Section 85 of the Constitution for the "audit of public accounts", it has become imperative to complement the hitherto annual regularity auditing with performance auditing focussing on environmental audit issues. Set objectives of Government projects and programmes were not always met and most times deliverables were completed late at the cost of efficiency and/or economy.

The objectives of the Environmental Audit of Lake Chad were to determine whether Nigeria has effectively implemented control, monitoring and enforcement practices and systems to achieve sustainable use of water resource in the Lake Chad Basin.

Performance and Compliance Audit methods were used to examine sustainable and equitable management of the Lake Chad water and other transboundary water of the Lake Chad Basin by the Nigerian government. The audit focus was on water quantity management, excluding water pollution, action to stop climate change, etc. It focused in evaluating the performance of the Federal Ministry of Water Resources and its Agencies in Abuja and in the basin; and State Ministries of Water Resources and water agencies in Borno, Yobe, Bauchi, Plateau, Kano and Jigawa states. The Hadeija-Jama'are-Komadugu-Yobe Basin Trust Fund (HJKYB-TF), situated in Damaturu, Yobe State was also covered. Available laws on water resources include Water Resources Decree 101 1993 and River Basin Development Authority Decree 1979 which require urgent review in line with integrated water resources management principles.

The audit focussed on activities related to control, Monitoring and enforcement of laws on water use in the Lake Chad Basin.

The Key message is that Lake Chad is drying up very fast from 25,000 sq.km in 1960 to just 1,500 sq.km as at present . We must save Lake Chad from extinction.

Key Findings:

- i. Weak Control of human activities on the use of water resources in the Lake Chad Basin; for instance, excessive extraction of water, dam constructions, diversion of rivers. etc.
- ii. Water Resources Management decisions were not based on water-use-data;

- iii. Water use regulations exist but not enforced in the Lake Chad Basin. For instance non enforcement of sanctions to violators, non issuance of water permits to users etc

What should be done:

- i. Federal Ministry of Water Resources / State Ministries of Water Resources should put in place water use permits based on Water allocation strategy or quota;
- ii. FMWR should put in place control measures to check and stop excessive extraction of water, dam constructions, diversion of rivers etc.
- iii. Ministries, Departments and Agencies at Federal/State levels should ensure water resources management decisions are based on water-use-data generated and shared among stakeholders; and
- iv. Ministries, Departments and Agencies at Federal/State levels should enforce water use regulations and apply sanctions based on existing laws in the Lake Chad Basin.

My Maiden Environmental audit report is hereby humbly submitted "to each House of the National Assembly and each House shall cause the report to be considered by a committee of the House of the National Assembly responsible for public accounts" and the report is meant for the attention of the Accounting Officers.

Comments made by the FMWR are included in this report and I commend the cooperation extended to the audit team by all stakeholders for successful completion of the audit assignment. It is hoped that if issues raised in this report are addressed by all relevant stakeholders, there should be significant improvement in the performance of government programmes where resources are used economically, efficiently and effectively. This we hope will save Lake Chad from extinction



SAMUEL T. UKURA JP. OFR, FCA.
Auditor-General for the Federation.

May, 2015.

ABBREVIATIONS

AFROSAI	African Organization of Supreme Audit Institutions
BPP	Baga Polder Project
CAR	Central African Republic
CBOs	Community-Based Organizations
CFA	Currency for the Republic of Chad
CBDA	Chad Basin Development Authority
EIA	Environmental Impact Assessment
FCT	Federal Capital Territory
FMWR	Federal Ministry of Water Resources
FRN	Federal Republic of Nigeria
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Federal Enterprise for International Cooperation)
ha.	Hectares
HJRBDA	Hadejia Jama'are River Basin Development Authority
HJKYB-TF	Hadejia Jama'are Komadugu Yobe Basin-Trust Fund
HJKYBCC	Hadejia-Jama'are-Komadugu-Yobe Basin Coordinating Committee
INTOSAI	International Organisation of Supreme Audit Institutions
INTOSAI-WGEA	INTOSAI Working Group On Environmental Auditing
ISSAI	International Standards of Supreme Audit Institutions
IWRM	Integrated Water Resources Management
IWRMC	Integrated Water Resources Management Commission
IUCN	International Union for the Conservation of Nature (The World Conservation Union)

LCB	Lake Chad Basin
LCBC	Lake Chad Basin Commission
MCM	Million Cubic Meters
MWR	Ministry of Water Resources
MDAs	Ministries, Departments and Agencies
MEA-LCB	Multilateral Environmental Agreement on Lake Chad Basin
NWP	National Water Policy
MOU	Memorandum of Understanding
NGOs	Non-Governmental Organizations
₦	Naira; Nigerian currency
RBDAs	River Basin Development Authorities
NWRI	National Water Resources Institute
SAI	Supreme Audit Institution
SAP	Strategic Action Program
SCIP	Southern Chad Irrigation Project
SGHJKYB	Summit of Governors of Hadejia-Jama'are-Komadugu-Yobe Basin.
SIWRMC	State Integrated Water Resources Management Coalition
SWAs	State Water Agencies/Authorities
TDA	Trans-boundary Diagnostic Analysis of the LCB
US\$	Dollar: Currency of United States
WRECA	Water Resources and Engineering Construction Agency

GLOSSARY OF TERMS

For the purposes of this audit report the following terms shall have the meanings ascribed to them hereunder¹:

Abstraction /raw water fees

Royalties for abstracting raw water which has not incurred any costs of storage, processing, treatment whatsoever.

Agricultural water use

Use of water for stock watering, fishing, recession farming and for irrigation purposes.

Basin

Geographical area bounded by the watershed limits of any river system.

Basin State

Any of the six existing Nigerian States sharing Hadejia-Jama'are-Komadugu-Yobe Basin, Namely; Bauchi, Borno, Jigawa, Kano, Plateau and Yobe States and any State or States to be created from within the aforementioned States.

Catchment area

Means the hydrological river basin as far as it is shared by the basin States.

Domestic water use

Abstractions to meet the needs of human beings, limited to the quantities necessary for human consumption, hygiene, and livestock or vegetable production for family use only or use of water for drinking, washing, cooking, bathing and sanitation.

Hydrographic basin of the Lake Chad

Areas in which all the runoff converges towards Lake Chad being channelled through a network of rivers and lakes flowing into Lake Chad.

Industrial water use

Use of water for commercial, electrical power generations, industrial, manufacturing and mining purposes.

Integrated Water Resource Management

A process which encourages coordinated development and management of water, land and ancillary resources, in order to equitably maximise the resulting economic and social well-being without jeopardizing the sustainability of vital ecosystems.

¹ (a). LCBC Water Charter for the Lake Chad Basin - April 30, 2012

(b). Water Charter for Sustainable and Equitable Management of the Hadejia-Jama'are-Komadugu-Yobe Basin

Lake Chad Basin

Hydrographic basin of the Lake Chad

Lake Chad Conventional Basin

Geographical area bounded by the watershed limits of riparian countries of Cameroon, the CAR, Chad, Niger and Nigeria River Systems.

Lake Chad Geographical Basin

Geographical area bounded by the watershed limits of riparian countries of Algeria, Libya, Cameroon, the CAR, Chad, Niger, Nigeria, and Sudan River Systems.

River Basin

A geographical area described by the watershed limits of a water system including surface and underground water flowing into a common terminus or geographical areas described by the watershed limits.

Riparian State/States

A State/States situated on the bank of a river (▷ See Basin State(s)).

River System

The Hadejia-Jama'are-Komadugu-Yobe River together with its headwaters, tributaries, channels, lakes and groundwater flowing into these waters.

Sub-basin

An area in which all the runoff converges through the streams and rivers towards a specific point on a watercourse, usually a lake or a tributary (eg Yobe basin).

Tributaries of Lake Chad

Watercourses flowing into Lake Chad, therefore supplying it with water.

Watercourse

A surface or underground channel through which there is a continuous or temporary flow of water.

Stakeholder

Organization, group or individual that is concerned with or has an interest in water resources and that would be affected by decisions about water resources management.

EXECUTIVE SUMMARY

1. Background

The Lake Chad geographical basin is made up of Algeria, Libya, Cameroon, Central Africa Republic (CAR), Chad, Niger, Nigeria, and Sudan covering an area of 2,355,000 Km². The Lake Chad conventional basin surface area is 967,000 square kilometres with a population of over 30 million inhabitants, made up of Cameroon, CAR, Chad, Niger and Nigeria. The six Nigerian States located within the Lake Chad conventional basin are Borno, Plateau, Yobe, Kano, Bauchi and Jigawa.

Due to the significance of Lake Chad and its basin to the supply of water within the countries of the basin, and having observed the shrinking of the lake, the Auditors-General of the African Organization of Supreme Audit Institutions (AFROSAI) agreed in 2012 to conduct a parallel environmental audit on the drying up of Lake Chad with a focus on water quantity management by governments of the four Lake Chad Basin Countries, Cameroon, Chad, Niger and Nigeria.

2. Reasons for conducting this Audit

The need for an integrated, equitable and well-coordinated management of the basin's shared water resources and environment to improve quality of life of the people in the Lake Chad basin, has generated debates in parliament, among environmental experts, and interests by the general public.

An increasing trend of environmental degradation in the Lake Chad basin in all member countries, due to natural and man-made causes; high demand for water resources in the basin, due to the increased number and activities of pastoralists, fishermen, and environmental refugees as well as climate change with uncontrolled extraction of water resources caused the Lake Chad to recede and the amount of its water level reduced.

The Auditor-General for the Federation also expressed concern and interest over government's increased financial contributions and funding of Water Resources Management especially in the Lake Chad basin. While the sum of ₦31.5 billion was expended through the Chad Basin Development Authority (CBDA) and Hadejia Jama'are River Basin Development Authority (HJRBDA), a total sum of ₦2.4 billion (equivalent of 6.7 billion CFA) was the cumulative contribution by the Nigerian government to funding Lake Chad Basin Commission's (LCBC's) ordinary budgets from 2008-2013.

The conduct of this audit was aimed at finding the extent to which Nigerian government implemented control, monitoring and enforcement practices and systems to achieve sustainable use of quantity of water in the Lake Chad basin.

3. Major Findings

► On control of use of water in Lake Chad Basin

- Roles and responsibilities among MDAs and water bodies on control of use of water were unclear and overlapping;
- The coordination, control, monitoring and enforcement of use of water among MDAs at federal/States levels and other water bodies were weak;
- The policies and strategies on control of the use of water in the Lake Chad basin were deficient;
- The irrigation and old water conveyance structures were silted up;
- Water permits or licenses or other relevant documents were not routinely issued at all levels of governments in Nigeria to large water users to extract water in the Lake Chad basin.

► Assessment of the environmental impacts of governmental policies and programs of water resource management.

- There were no impact assessments or strategic environmental assessments done at both state and federal government levels on most policies, and programs of water resources management;
- Established policies, regulations and strategies to ensure compliance with water use quota, as defined in agreement of the Lake Chad Basin Commission were not in place;
- The Summit of Governors of Hadejia-Jama'are-Komadugu-Yobe Basin Trust Fund (SGHJKYB-TF) failed to adequately enforce its agreements, resolutions and decisions on water use in the Lake Chad basin; and
- The system of irrigation being practiced in the Lake Chad basin was not only unsustainable, but also inefficient and ineffective because the waters released from dams were not optimally utilized for agricultural, domestic and industrial uses.

► Monitoring of the performance and effectiveness of water management

- The established systems for monitoring the sustainability of water use in the Lake Chad basin in Nigeria were not functioning well;
- There were improper supervision, inspection and reporting systems and no regular evaluations of performance of various actions, programs, or strategies.

► **Relevant water data for appropriate decision-making in water management**

- No robust water and environmental data to support decision-making and to evaluate performance;
- No clearly defined monitoring coordination with defined roles and responsibilities that could ensure compliance with water use quota, as defined in agreement of the Lake Chad Basin Commission;
- No monitoring programs put in place to track implementation of policies and strategies on water use;
- No established practices to evaluate effectiveness and quality of water use monitoring system and to ensure improvement of this system over time;
- Water-use-data generated at local levels were not properly coordinated and shared all through the States' Ministries of Water Resources and Federal Ministry of Water Resources (FMWR);
- No clearly defined monitoring systems to ensure efficient and effective monitoring of sustainable water use and quality of monitoring in the Lake Chad basin;
- Regular, timely and reliable reports on the use of water in the Lake Chad basin were not prepared and transmitted to the FMWR and other related agencies in Nigeria;
- Water use monitoring reports and associated water use decisions taken were not sufficiently documented and implemented to produce future action plans to ensure the sustainability of water use in the Lake Chad basin.

► **Enforcement of water use regulations**

- No clear enforcement mechanism to ensure that water related legislations/policies were complied with;
- The enforcement strategies in place were out-dated and do not conform to current practices on integrated water resource management principles;
- The users of the basin's water were not regularly kept aware by the federal and state government on the importance of complying with the environmental regulations;
- No regular update of water laws/policies such as the River Basin Development Authorities (RBDAs) decree 1973 to 1990, decree 101 of 1993, 1978 Land Use Act based on top-down approach and not on IWRM principles;
- No regular enforcement activities carried out in the Lake Chad basin;
- Sanctions were not applied on non-compliance with water laws and environmental regulations in the Lake Chad basin;
- No well-defined and documented enforcement roles and responsibilities, as well as enforcement programs for responsible government departments. Hence weak enforcement coordination among key players, and
- No distinction between the regulator and the implementer (FMWR and states institutions), and regulations were not sufficiently known by those meant to implement and use them.

4. Conclusions

► Control

- The control of the use of water in the Lake Chad basin in Nigeria is inadequate and weak.
- Assessment of the environmental impacts of governmental policies and programs of water resource management in the Lake Chad basin is insufficient.

► Monitoring

- Monitoring of the performance and effectiveness of water management in the Lake Chad basin is not appropriately done.
- Available water use data is grossly deficient and inadequate for appropriate decision-making in water management.

► Enforcement

- Enforcement activities in the Lake Chad basin to ensure water regulations are complied with are weak and government shows no strong commitment to ensure effective enforcement of water use regulations in Lake Chad basin.

5. Recommendations

► Control

- The FMWR should establish water allocation strategy as the basis of issuing licenses or permits for the abstraction of water in the basin and applicable to all levels of government. The expected impact is to ensure that FMWR control water quantity in the Lake Chad basin.
- The FMWR should revise its organizational structure to show direct link between state ministries and other water bodies. This will enhance the effectiveness of institutions for water use control and reduce the overlap of roles and responsibilities.
- The FMWR and states MDAs in-charge of water resources should ensure that all major water projects like dams, irrigation etc. conduct EIA before the start of the projects. There should be no approval or permit given to water projects without complying with the conduct of EIA. Environmental audit should be conducted on existing water projects without EIA to mitigate the adverse effect on environment due to water use.
- The MDAs at states/LGAs levels should put in place control measures like establishing boundaries and designate areas as protected areas with punitive consequences for any encroachments. This will control encroachment and restrict human activities in protected areas.

- The State Water Agencies should build embankments to close up some large openings along the river system causing flooding and impeding free flow of water in the Lake Chad basin. This will ensure that quantity of available water in the Lake Chad basin is optimally used for intended agricultural/domestic purposes and for quick recovering of the Lake Chad.
- The RBDAs and the State Water Agencies should put in place systems to ensure rehabilitation of water conveyance and irrigation structures in the Lake Chad basin. The channel irrigation system should be replaced by the drip/ piping irrigation system as a way to avert the Typha Weed invasions of the weak rivers and irrigation channels. This will ensure that water released from dams and rivers is optimally utilized for agricultural, domestic and industrial uses.
- The FMWR should increase support both technically and financially to the HJKYB-TF through her membership of the HJKYB-TF Coordinating Committee. This is to ensure effective coordination of the key stakeholders responsible for water use control measures through the intergovernmental/interdepartmental committee.

► **Monitoring**

- The FMWR and states' MDAs should establish practices to evaluate the effectiveness and quality of the water use monitoring system and to ensure improvement of this system over time.
- The FMWR should ensure that there are enough data and information systems in place that allows the Ministry to identify the possible points of intervention in the water resource management. Water-use-data generated at local levels should be properly coordinated and shared all through the States Ministries of Water Resources (SMWR) to FMWR;
- The FMWR and states' MDAs should ensure that awareness campaigns are well planned and to use appropriate communication channels to reach the target audience. This will create effective awareness on the adverse effects of uncontrolled water use in risk areas and target groups.
- The FMWR and states' MDAs should ensure that established targets related to water resources monitoring are attained at different levels of the water use in Nigeria.
- The FMWR should clearly define monitoring roles and responsibilities to a variety of water regulators in order to ensure compliance with water use quota based on water allocation strategies.

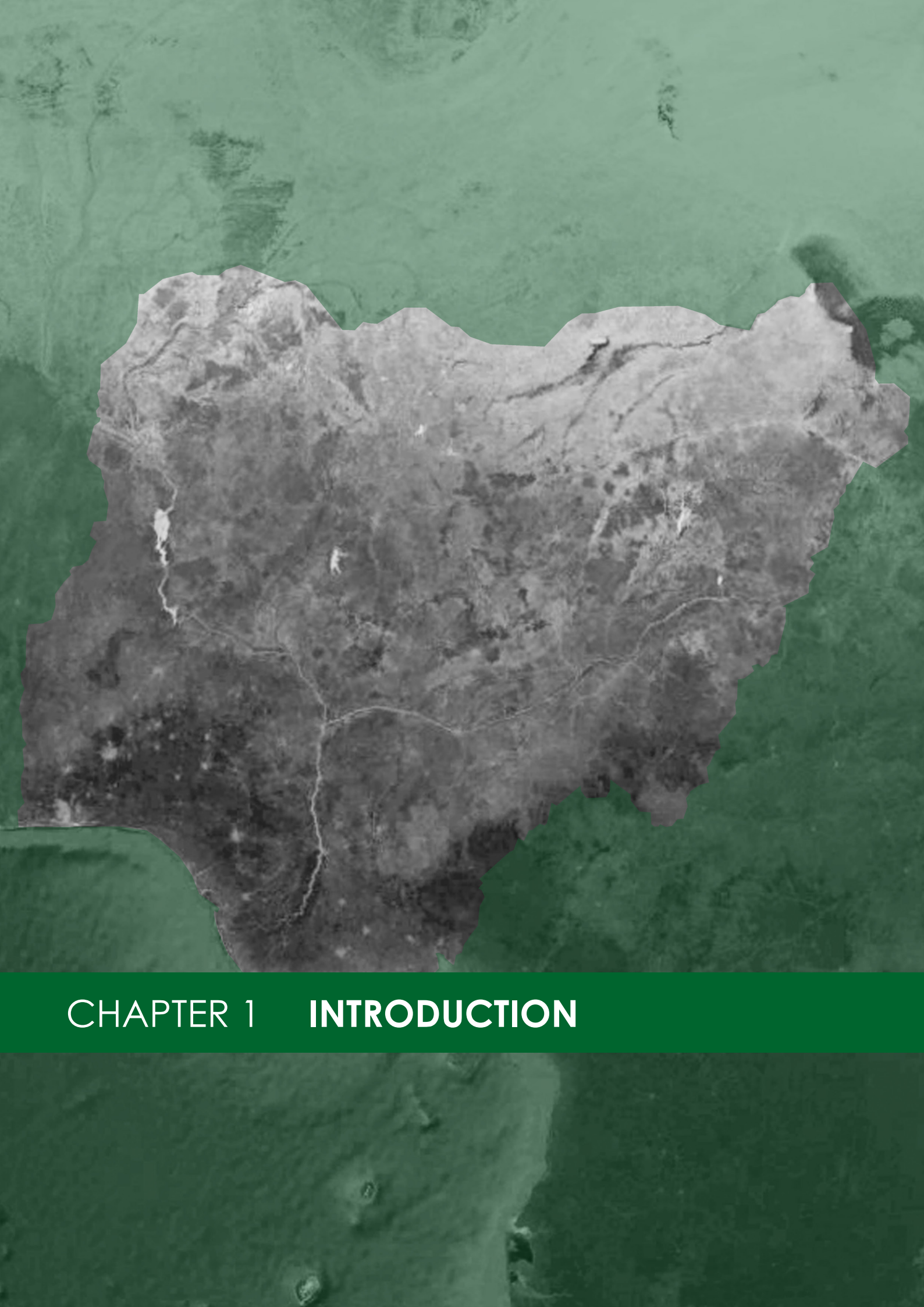
► **Enforcement**

- The FMWR and states' MDAs should establish enforcement mechanism that will allow water regulations and policies to accommodate the integrated Water Resource Management (IWRM) principles. The principles require a coordination of all stakeholders in water management in bottom-up approach.

- The FMWR and states' MDAs should put in place concrete actions including fines and penalties for people and companies who unlawfully draw water and degrade the environment. The fines and penalties should be executed to act as deterrent. Also the cost of fines and penalties applied should consider the environmental damage issues, in the way that offenders are required to pay for environmental restoration costs, that is, the "polluter pays principle" is enforced.
- The federal and the state governments should establish proper enforcement co-ordination among ministries, departments, agencies responsible for enforcement as well as other stakeholders active in water management.
- The Federal and State Ministries of Water Resources should establish mechanism that will enable regular inspection and patrol to ensure compliance with laws, regulations and standards on water use, and
- The FMWR and SMWR should put in place enforcement programs and periodically evaluate them to determine effective performance of such programs in ensuring compliance in the basin.

Comments by the ministries, departments and agencies

For auditors' responses to the written comments by the Federal Ministry of Water Resources on the draft audit report with reference number MWR/PRS/S/464/T1 dated 9th December, 2014, see **Appendix 7**.



CHAPTER 1 INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1. Background

The Lake Chad is the first lake in the category of fresh water lakes and fourth largest african lake after Lake Victoria, Lake Tanganyika and Lake Nyassa². The Lake Chad geographical basin is made up of Algeria, Libya, Cameroon, the Central African Republic (CAR), Chad, Niger, Nigeria, and Sudan covering an area of 2,355,000 Km².

The size of the basin on the Nigerian side is 188,000km² which is 19% of the total conventional basin size of 967,000 km² and 22.15% of the national surface area of 923,768 km². The surface water resources potential for Nigeria is estimated at 267.3 billion cubic meters³ while the ground water potential is 92 billion metres⁴.

The estimated total water demand in the basin is put under 3 billion cubic meters per annum and agricultural water requirement alone accounted for 99.7% of this demand per annum. With the rapidly growing population, Nigeria must be prepared for less per capita water supply.

With a low dependency ratio of about 20%, it is not likely that actions can be taken on transboundary rivers in the form of international agreements that would likely result in significant increase in cross-border water flows to Nigeria to make any impact.

Table 1: Surface Area of the Lake Chad Conventional Basin Among LCBC Member Nations

LCBC Member States	States/Regions/ Divisions	Size of Basin (km ²)	% of Conventional Basin	% of National Area
Cameroon	3 regions	56,800	6.0	12.12
Niger	2 regions	162,375	17.0	12.70
Nigeria	6 states	188,000	19.0	22.15
Chad	14 regions	361,980	36.0	28.42
CAR	3 Divisions	197,800	22.0	31.75
Total		967,000	100	-

Source: "Transboundary Diagnostic Analysis of the Lake Chad Basin."

² Hydrology of the Lake Chad, Orstom, Paris, 1996.

³ IJ Golgface-Irokalibe'' Water Management In: Federal And Federal-Type Counties: Nigerian Perspectives'' Ahmadu Bello University, Zaria Nigeria.

⁴ Executive Summary of the Nigeria Water Sector Roadmap, 2011, p.14

⁵ The LCBC-GEF Project on the reversal of Land and Water Resources Degradation, In: "Transboundary Diagnostic analysis of the Lake Chad Basin.", p.24

The figure below is a map of Africa showing Lake Chad's geographical basin (in light/ darker green), Lake Chad's conventional basin (darker green) and the receding Lake Chad (in light blue within white, North East Nigerian border).

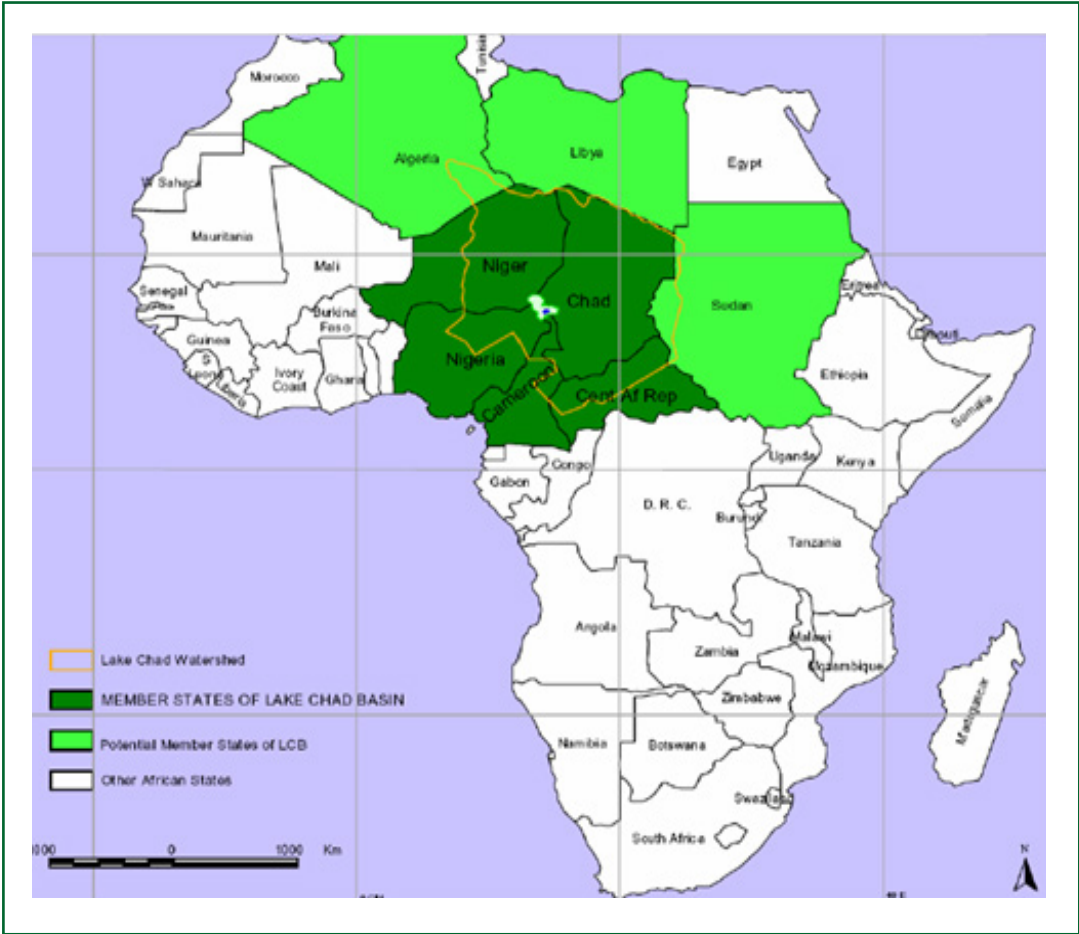


Figure 1: Map of Africa showing position of Lake Chad and LCBC Member States.

1.2. Audit Motivation

There has been an increasing trend of environmental degradation in the Lake Chad basin in all member countries. Scientists have attributed the drying of the lake to climate change which has caused the lake to recede and the water levels reduced over the years to current levels of below 2500 km². This has created high competition for scarce water, resulting into conflicts and forced migration.

Apart from climate change, natural causes and man-made causes such as uncoordinated upstream water impounding and withdrawal, land degradation, soil erosion, deforestation and bush burning, have also contributed to the environmental problems of Lake Chad basin.

Population pressure has been on the increase in the basin and according to Nigerian 2006 population census, the total population figure for the six (6) Nigerian States was 28,114,330 while a population of about 25 million lived within the Lake Chad conventional basin. In recent years, the population in Lake Chad basin has increased from 30 million people to about 47 million inhabitants.

The growth in population has brought about increased demand for resources; with a high demand for water in the Lake Chad basin. Water was highly demanded because of the increased number and activities of pastoralists, fishermen, and environmental refugees.

As a result of these problems arising in the Lake Chad and the basin, there have been debates in parliament, among the environmental experts, and clamour by the public demanding for quick action by the government to remedy the situation and have an integrated, equitable and well coordinated management of shared waters of Lake Chad to improve quality of life of people in Lake Chad Basin.

The Auditor-General for the Federation expressed concern and interest over government's increased financial contributions and funding of Water Resources Management. The federal government appropriated the sum of ₦356.6 billion for the Federal Ministry of Water Resources from 2010 to 2013 when FMWR was demerged from Federal Ministry of Agriculture & Water Resources. While the sum of ₦31.5 billion was expended through the CBDA and HJRBDA for the same period, the sum of ₦2.4 billion equivalent of 6.7 billion CFA was the cumulative contribution by Nigerian government to funding LCBC's ordinary budgets from 2008 to 2013.

The conduct of this audit was aimed at finding the extent to which Nigeria has implemented control, monitoring, and enforcement practices to achieve sustainable use of quantity of water in the Lake Chad basin.

1.3. Financing

Table 2: Federal Government Budgets for Water Resources, 2008-2013.

Year	FMWR (₦ bn)	FM- WR-Main Ministry (₦ bn)	CBDA: Borno, Yobe (₦ bn)	HJRBDA: Kano, Jigawa & Bauchi (₦ bn)	LCBC Water Transfer Project. (₦'000)	LCBC Actual Payment (CFA bn)
2008	FMA&WR 131.7	Not pro- vided	1.3	3.7	000	0.2
2009	FMA&WR Not pro- vided	Not pro- vided	Not pro- vided	Not pro- vided	000	0.2
2010	112.5	54.5	3.7	5.1	000	4.0
2011	70.9	25.3	2.0	4.9	740.0	1.9
2012	85.0	27.7	2.8	4.9	5,570.0	0.078
2013	88.2	27.4	2.5	5.6	27,000.0 ⁶	0.4
Total	356.6	134.9	11	20.5	33,310.0	6.7

Source: Compiled from Annual Budgets for FMWRs.

For the period 2008-2009, the Federal Ministry of Water Resources (FMWR) did not exist as a separate federal Ministry but as a department in Federal Ministry of Agriculture and Water Resources (FMA&WR). Consequently, the FMWR found it difficult to provide the required financial allocations made to it as a department in FMA&WR, though Nigerian government remained consistently committed to LCBC funding to the tune of ₦2.4 billion cumulatively. While FMWR had approved budgets totalling ₦356.6 billion from 2010 to 2013, only the sum of ₦31.5 billion was spent in the basin States through CBDA and HJRBDA.

⁶ Resolution no. 4 on the feasibility study of the water transfer project from the Ubangi River to Lake Chad was adopted 29th April, 2012. But the sum of ₦33,310,029 has been expended on water transfer project since 2011-2013 without an approved water transfer five-year plan by any resolution.



CHAPTER 2 **AUDIT DESIGN**

CHAPTER 2

AUDIT DESIGN

2.1. Objectives of the Environmental Audit of Lake Chad

The objectives of the environmental audit of Lake Chad were to determine whether Nigeria has effectively implemented control, monitoring and enforcement practices and systems to achieve sustainable use of water- resources in the Lake Chad basin.

The audit intended to show the extent to which Nigeria as a signatory of the N'Djamena Convention of 1964 complied with the standards and best practices of water resources management, with a view to restoring Lake Chad to its previous surface area.

2.2. Type of the Audit

This was an environmental audit:performance and compliance auditing methods have been applied to bring an emphasis on evaluating effectiveness, economy, efficiency and the sustainability of action undertaken by Nigerian government in implementing and complying with regional environmental agreements and regulations related to water management in the Lake Chad basin.

2.3. Audit Scope

This performance and compliance audit was on the examination of sustainable and equitable management of the Lake Chad water and other transboundary water of the Lake Chad basin on the Nigerian side.

The audit focus was on water quantity management, excluding water pollution, action to stop climate change, etc.

It focused on evaluating the performance of the Federal Ministry of Water Resources and its agencies in Abuja and in the basin as well as state Ministries of water resources and water agencies in Borno, Yobe, Bauchi, Plateau, Kano and Jigawa. The Hadejia-Jama'are Komadugu-Yobe Basin Trust Fund (HJKYB-TF) situated in Damaturu, Yobe State, was also covered. The audit covered the period 2008 - 2013.

2.4. Auditing Standards

The coordinated environmental audit was conducted in accordance with the provisions of ISSAIs. The audit was based on INTOSAI guidelines on auditing water-related issues as well as on experiences of SAIs on coordinated audits of Multilateral Environmental Agreements (MEA), INTOSAI-WGEA and AFROSAI-WGEA guidance and mentoring. In addition, the Nigerian national auditing standards and AFROSAI guidelines were used.

It was believed that, according to the audit objectives, the evidence obtained provided a reasonable basis for the findings and conclusions.

2.5. Audit Methodology

The audit was conducted in accordance with International Organization of Supreme Audit Institutions (INTOSAI) auditing standards and guidelines on auditing water-related issues. These standards required that performance audits should be planned in a manner which ensured that high quality audit was carried out in an economic, efficient and effective way and also in a timely fashion.

Methods used to collect data for this audit were: interviews, document review and field visits/physical verification.

2.5.1. Interviews

Interviews were conducted for many reasons, mainly to:

- obtain information from Federal and State government officials on control, monitoring and enforcement of water management measures in use in the Lake Chad Basin.
- confirm or explain information from the documents reviewed;
- give clues about relevant information in cases where information in the formal documents was lacking or missing.

Interviews and discussions were thus carried out with representatives of:

- a. Federal government executives from the MDAs in charge of management of water resources (Federal Ministry of Water resources, Agencies and Authorities in Abuja and in the Basin)
- b. State government executives from the MDAs in charge of management of water resources (State Ministries of Water Resources, Agencies and Water Boards in Bauchi, Borno, Jigawa, Kano, Plateau and Yobe States)
- c. principal officers of the HJKYB-TF. Headquarters in Damaturu, Yobe State.

2.5.2. Review of Documents

Many documents were reviewed in order to get a comprehensive, relevant and reliable picture of the performance of the Ministries of Water Resources, Agencies and Authorities. The review also aimed at ascertaining the system and practices in

place on sustainable management of water resources quantity in Lake Chad Basin.

The following documents were reviewed:

- i. The overall strategy for water management;
- ii. Strategic Management Plan;
- iii. Action Plan;
- iv. Relevant water laws, policies, regulations, directives and standards;
- v. Minutes of interdepartmental meetings;
- vi. Other related documents from Ministries of water resources and agencies at federal and state levels, as well as FMWR official websites. (see reference details in **Appendix 6**).

2.5.3. Site Visits

The audit team made field visits to water sector key players in Abuja and in Bauchi, Borno, Jigawa, Kano, Plateau and Yobe States. The aim of the visits was to assess the extent to which water authorities implemented control, monitoring and enforcement practices and systems to achieve sustainable use of water resource in the Lake Chad Basin.

The audit field survey included trips and administration of audit questionnaires to States of Borno, Yobe, Jigawa, Plateau, Kano and Bauchi in Nigeria that fall within the Lake Chad basin. It also covered visits to relevant MDAs within the Federal Capital Territory (FCT) Abuja, as illustrated in **Figure 2**.

The instrument (questionnaire) used covered three (3) lines of enquiry on control, monitoring and enforcement related to water use in the Lake Chad basin. After the field work, the collected data and information were analysed.

The chart below shows key water sector organizations at all levels of water governance and focal points contacted.

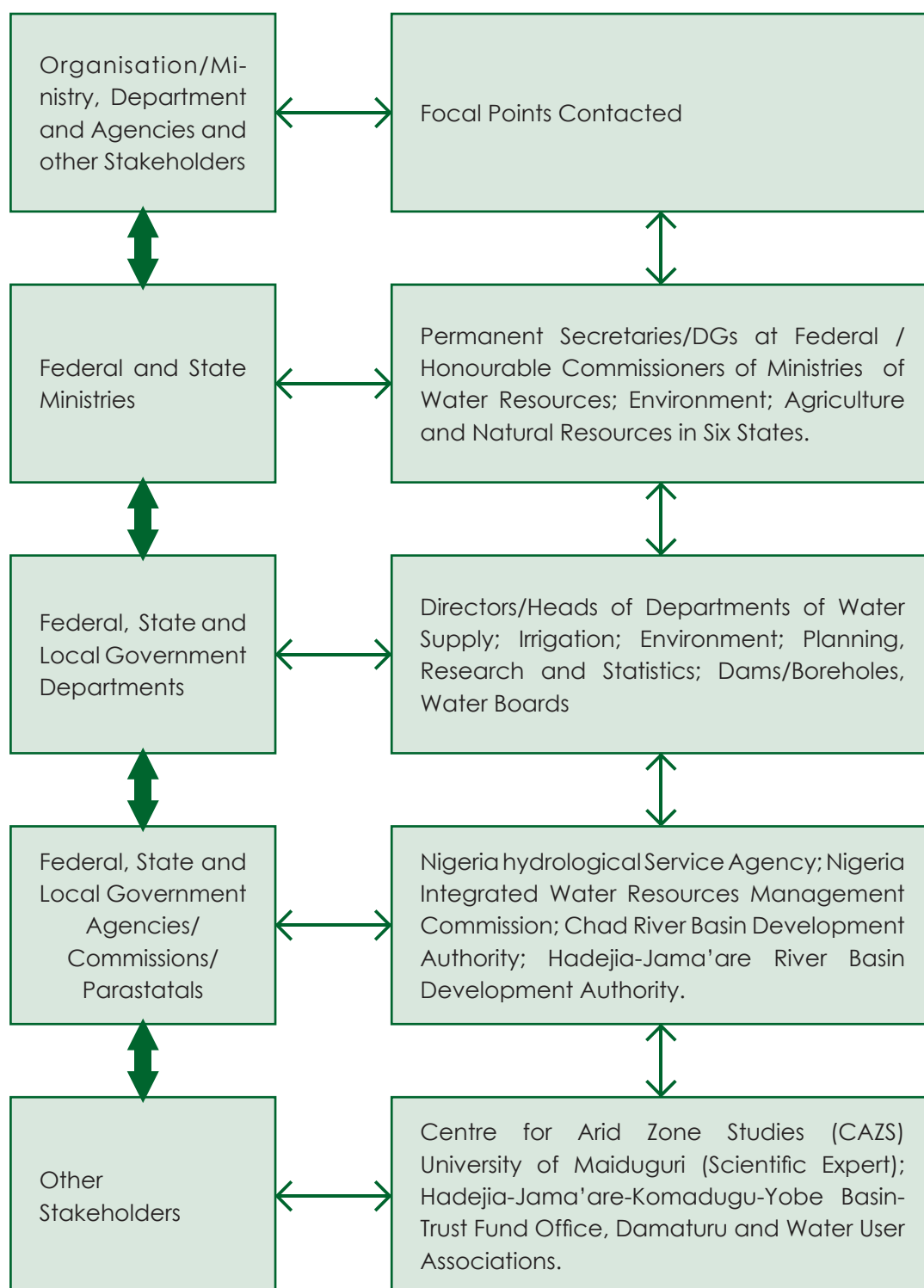
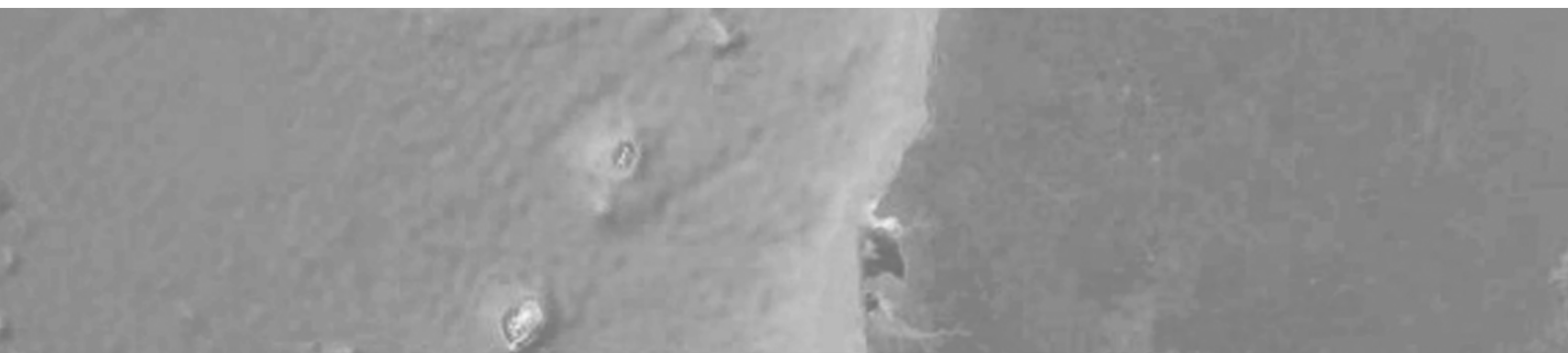


Figure 2: Data/Information source in Nigeria during audit field survey (Drawn, Audit Team 2013).



CHAPTER 3 **SYSTEM DESCRIPTION OF WATER RESOURCES MANAGEMENT**



CHAPTER 3

SYSTEM DESCRIPTION OF WATER RESOURCES MANAGEMENT

3.1. Roles and Responsibilities of Water Ministries and Agencies.

3.1.1. Federal Ministry of Water Resources (FMWR).

The Federal Ministry of Water Resources has the overall responsibility for management of nation's water resources. It promotes the optimum planning, development and use of Nigeria's water resources by ensuring application of appropriate standards and techniques for investigation, use, control, protection, management and administration of water.

Item 64 of Exclusive Legislative List of Nigerian Constitution 1999 (as amended) conferred the mandate on FMWR for, "water from such sources as may be declared by the National Assembly to be sources affecting more than one State"⁷.

► **Mission Statement**

The mission of the Federal Ministry of Water Resources, which is the focal point for water resources management in Nigeria, is to provide sustainable access to safe and sufficient water to meet the socio-economic needs of all Nigerians through efficient water resources management for basic human needs, irrigated agriculture, hydropower generation, national food security, promoting healthy population, while maintaining the integrity of fresh water bodies.

► **Statutory Mandate**

The Ministry's mandate includes to:

- i. formulate national water policy ensuring adequate water supply for agricultural, industrial, recreational, domestic and other uses;
- ii. formulate and implement a water resources master plan for the development of dams, irrigation and drainage, water supply, soil erosion and flood control as well as hydrological and hydro-geological activities;
- iii. develop and support irrigated agriculture and reduce the nation's dependence on rain-fed agriculture;

⁷ 2nd Schedule, section 4, 1999 Constitution of the Federal Republic of Nigeria.

- iv. collect, store, analyze and disseminate hydro-meteorological and hydrological data;
- v. support, monitor and evaluate the programs and performances of the River Basin Development Authorities (RBDA's) and National Water Resources Institute (NWRI);
- vi. explore and develop underground water resources;
- vii. formulate and review from time to time the National Water Legislation;
- viii. coordinate the development and utilization of water resources for irrigation and water supply;
- ix. liaise with all relevant national and international agencies on all matters relating to water resources development;
- x. support studies and research on the nation's underground and surface water resources potentials;
- xi. develop guiding principles for dam construction nationwide; and
- xii. promote adequate training and manpower development in the water resources sector.⁸

3.1.2. State Governments Ministries of Water Resources and Agencies

The 6 state governments (6 out of 36 and the Federal Capital Territory) within the Lake Chad basin exercise their concurrent legislative status by their establishment of State Ministries for Water and Natural Resources responsible for potable water supply through State Water Agencies (SWAs)

3.1.3. Local Government Water Departments/Units

The 154 Nigerian Local Government Councils (154 out of 774) within the Lake Chad Basin are constitutionally responsible for "the development of agriculture and natural resources, other than the exploitation of minerals", and "the economic development of the State, particularly in so far as the areas of authority of the council and of the State are affected"⁹. This level of government is responsible for the provision of rural water supplies and sanitation facilities.

⁸ www.fmwrdd.gov.ng

⁹ 4th Schedule, section 7, 1999 Constitution of the Federal Republic of Nigeria.

3.1.4. River Basin Development Authorities

There are 2 out of 12 River Basin Development Authorities (RBDAs) situated within the Lake Chad Basin, namely;

- i. The Chad Basin Development Authority (CBDA), which was established 1973 by decree no. 32 of 1973 and
- ii. Hadejia-Jama'are River Basin Development Authority established 1976.

The Federal Government's involvement in water resource management and development is through the RBDAs. Section 4(1) (a)-(d) of the RBDA Act of 1987 vest the authorities with the powers to undertake comprehensive development of both surface and underground water. It also has to construct and maintain dams, irrigation and drainage system.¹⁰

3.1.5. Hadejia Jama'are Komadugu Yobe Basin Trust Fund(HJKYB-TF)

The Hadejia Jama'are Komadugu Yobe Basin Trust Fund (HJKYB-TF) was established on June 8, 2006 by the Summit of Governors (SG-HJKYB) from Bauchi, Borno, Jigawa, Kano, Plateau, and Yobe States and with the support of the federal government. The HJKYB-TF was to serve as a joint platform for addressing water resources issues in the HJKYB.

The HJKYB covers about 148,000km² in the north east Nigeria (95%) and south east Niger (5%), drained by two main rivers sub-systems. The Yobe basin is formed by the Hadejia and Jama'are tributaries and the Komadugu Gana rivers. The HJKYB-TF envisioned a basin where the water resources are equitably and effectively distributed and regulated based on stakeholders' consensus.

3.2. Audit Criteria

The audit assessed the performance of the management of water resources in Nigeria against criteria drawn from the statutory mandates such as regulations, policies, and guidelines as well as best practices in the area of control, monitoring, and enforcement practices of water resources management (see **Appendix 5** for the used list of the criteria).

¹⁰ Decree 35 of 1987.



CHAPTER 4 FINDINGS



CHAPTER 4

FINDINGS

This chapter presents the audit findings as answers to the audit objective and questions established for this audit. The audit findings provide insight regarding performance of Nigerian governments at the levels of federal, state and local government councils in managing water resources in the Lake Chad Basin.

The main issues covered in this section include the performance of FMWR, CBDA, HJRBDA, and the State Ministries of Water Resources and Agencies in implementing control, monitoring, and enforcement measures on the use of water resources in the Lake Chad Basin.

4.1. Institutional Framework

For effective water management, there should be a clear institutional framework which describes the roles and responsibilities of key players. The audit team reviewed various documents and interviewed key officers of MDAs to find out if the present institutional framework for water management clearly indicated the roles and responsibilities of key players.

The audit observed that institutional framework existed with defined roles and responsibilities of key players as contained in **Appendix 2**-summary of regulatory and institutional framework.

However, it had no focus on water resource quantity management in a form capable of implementing control, monitoring, and enforcement measures on the use of water resources in the Lake Chad Basin. The weak institutional framework negatively affected sustainable management of the water resources in the Lake Chad Basin.

The table below shows the different rate of performance of roles and responsibilities at State and Federal levels.

Table 3: Institutional Performance of Roles and Responsibilities at States and Federal Levels.

Federal Government	There was an overlapping of roles and responsibilities among the actors regarding the water management (as in irrigated agriculture, fishing and water abstraction). The organogram of the Federal Ministry of Water Resources did not directly link to the State Ministry of Water Resources and other water sector bodies. • A top-down approach in policy making thereby contradicting IWRM principles which encouraged integration among various stakeholders and a bottom-up approach; • Inadequate integration and coordination of work among the various levels; • Deficient monitoring and reporting system among the various levels; • No clear distinction between the regulators and the implementers of policies (especially with FMWR/agencies and states institutions); • Lack of continuity/sustainability of policies.
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Plateau	The institutional framework in Plateau State included Ministry of Water Resources and state water agencies; Ministry of Agriculture and Natural Resources, Ministry of Environment, Plateau State Environmental Protection Agency (PEPA), and the Plateau State IWRM coalition. In Plateau State water supply, sanitation and hygiene promotion policy, control, monitoring and enforcement roles and responsibilities on water use were not clearly defined and implemented. The sustainable water charter of HJKYB-TF was not being implemented in the State as it lacked the force of law. Hence, available quantity of water resources in the State and in the Lake Chad basin was not managed sustainably.
Borno	In Borno State, institutional framework included: Ministry of Water Resources and state water agencies; Irrigation Department in Ministry of Agriculture and Natural Resources, and Ministry of Environment. In addition to state executive governor's directives, the Borno State water corporation edict no. 2 1999 regulates domestic water supply. The audit observed the lack of State Water Resources Edicts with clearly defined control roles and responsibilities for the various State Water Agencies involved in managing the waters of the Lake Chad basin. The effect was that available water quantity was not sustainably managed in the State.
Yobe	There was institutional framework in the form of MDAs such as Ministry of Water Resources and State Water Agencies; Ministry of Agriculture and Natural Resources, and Ministry of Environment. The state activities on water issues were based on "Water supply and Sanitation policy (January 2010) and executive governor's directives. Roles and responsibilities of the various MDAs involved in managing the waters of the Lake Chad basin were not clearly defined in terms of control, monitoring and enforcement measures on water use in the State. No water resources law in the State to compliment the sustainable water charter of HJKYB-TF. Hence, available water quantity was not sustainably managed in the State.
Bauchi	The institutional framework in Bauchi state included Ministry of Water Resources and State Water Agencies; Ministry of Agriculture and Natural Resources, and Ministry of Environment. In addition to state executive governor's directives, the Bauchi State had reviewed in March 2013 the state water supply and sanitation policy. There was no State Water Resources Edict that clearly defined control roles and responsibilities for the various State Water Agencies involved in managing the waters of the Lake Chad basin. The effect was that available water quantity was not sustainably managed in Bauchi State.
Kano	Kano State had MDAs such as Ministry of Water Resources and State water agencies; Ministry of Agriculture and Natural Resources, and Ministry of Environment. Water related activities were based on annual budgets, Water Resources and Engineering Construction Agency (WRECA) Kano State Edict 1991, and the Water Supply Edict 2013. In addition to state executive governor's directives, the audit observed the lack of State Water Resources Edicts with clearly defined control roles and responsibilities for the various State Water Agencies involved in managing the water of the Lake Chad basin. The effect was that available water quantity was not sustainably managed in the State.

Jigawa	The State had Ministry of Water Resources and State water agencies; Ministry of Agriculture and Natural Resources, and Ministry of Environment. These MDAs activities were based on annual budgets; Jigawa State Water Board and Sanitation Agency law 1999 (Law no. 9, 1999), and water supply and sanitation policy, in addition to state executive governor's directives. There was lack of State Water Resources Edicts with clearly defined control roles and responsibilities for the various State Water Agencies involved in managing the waters of the Lake Chad basin. Hence, available water quantity in the State was not sustainably managed.
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4.2. Implementation of Control Measures on Water Use

This section contains an assessment of performance regarding the effectiveness of control measures of water use as detailed in different sub sections below:

4.2.1. Overall Strategy on Control Measures

An overall strategy to govern the water use in the Lake Chad basin is important as it serves as road map to all users of water in the basin. The Water Resources Law of 1993 provides for the application of appropriate standards and techniques for the investigation, use, control, protection, management and administration of water resources¹¹.

Documentary review, and interview with officials of FMWR, CBDA and HJRBDA revealed that government developed and adopted an overall strategy governing water management in the Lake Chad basin contained in: The Water Resources Law 1993; Nigeria Water Sector Roadmap (2011); National water policy (revised) January 2009, and national integrated water resources management action plan with its 8 semi-autonomous catchments and Lake Chad Basin catchment management plan (2011).

The FMWR executed most water policies through 12 river basins development authorities, with HJRBDA and CBDA located within Lake Chad Basin. The RBDAs have an institutional framework that defined roles and responsibilities of key stakeholders involved in managing the waters of the LCB.

Analysis of strategic documents revealed that there were no water allocation policies to ensure bases of water use control put in place in the LCB at both Federal and State levels. There were no laws on water resources in all States of the LCB (see **Appendix 3**; overall strategy on control at a glance). The provisions of the Lake Chad catchment management plan 2011 under the HJKYB-TF and HJKYB-TF water charter

¹¹ Water Resources Decree No.101 1993 section 1.-(1)c.

for sustainable and equitable use were also not effectively implemented. There was poor implementation of the provisions of strategic documents particularly at the states level due to lack of strategic and action plans on water use control measures which led to abstraction of water without control. Hence, available water quantity was not sustainably managed in the States.

4.2.2. Institutional Framework for Water Use Control Measures

It is important to have institutional framework with defined roles and responsibilities of various stakeholders in water resources management so as to avoid duplication and waste of resources managing the waters of the Lake Chad Basin. The national water policy 2009 provides for, "institutional arrangement for water resources development and management such that all tiers of government, that is federal, states and local government are involved"¹².

Interviews conducted with officials of FMWR, CBDA, HJRBDA and MDAs of the basin States, together with analysis of documents describing the institutional framework revealed that there was an overlapping of roles and responsibilities among the actors regarding the water resources management. The organogram of the Federal Ministry of Water Resources did not have direct link to the state Ministries of water resources and other water sector bodies. It was designed in the model of top-down approach that did not allow getting necessary feedback from bottom-up which created a high risk of overlapping of roles and responsibilities on the use of water in the Lake Chad basin.

The National Council on Water Resources was an established interdepartmental committee which involved all tiers of governments with general meeting once a year. The States Integrated Water Management Coalition served as interdepartmental committee for the Basin States. However, the terms of reference of the interdepartmental committees and the minutes of meetings were not made available to the audit team for review. The lack of clear linkages of institutional frameworks among all tiers of governments led to ineffectiveness in the institutional arrangement for water resources development and management in the basin States.

4.2.3. Control Measures

Effective regulatory frame work such as laws to control water users is indispensable if water resources are to be efficiently managed in the Lake Chad basin. Water Resources Act of 1993 requires government to control "acquisition for rights to use or take water"¹³ by large water users in the Lake Chad basin.

¹² National Water Policy(revised) January 2009. p.4

¹³ Water Resources Act of 1993 section 3. p.2

Interviews conducted with officials of FMWR, CBDA, HJRBDA and MDAs of the riparian states revealed that governments at federal and state levels had established policies, regulations, guidelines and standards to control water use by large water users in the Lake Chad basin. Documentary review of relevant water laws/policies revealed water use control measures such as "acquisition for rights to use or take water"; unlawful diversion of water; application for and issuing of licence; power to impose fees, rates and charges; water allocation issues; water abstraction fees etc.

However, most of the water use control measures, including those listed above, were not administered on large water users in the Lake Chad basin. Dams that used much of water and other water users for irrigation, factories, fisheries (canals) etc. through motorized boreholes, tube wells boreholes, hand-pump boreholes, solar powered boreholes, wash-boreholes, solar powered tube wells, free flow (artesian wells) boreholes, underground reservoirs, overhead tanks etc. were not controlled by application of laws as to place economic value on quantity of water used. Large water users, such as: RBDAs, water boards, bore hole drillers, industries, big farms etc., operated dams and water reservoirs for agricultural, domestic and industrial activities without complying with relevant water use control measures.

Furthermore, the volume of water used was not known and documented, and lists of the large water users were not made available to the team for review. Hence it could be deduced that available water resources were not sustainably managed in the six (6) states.

Groundwater and surface water resources were left unprotected from over-exploitation and depletion. For example, though the estimated water requirement for the region was put at under 3 billion cubic metres per annum¹⁴, it was impossible to establish quantity of water used for the period of audit from about 50 dams in the 6 States of the Lake Chad basin as shown in **Table 4**.

¹⁴ KYBP, 2006.

Table 4: Constructed Dams within Nigerian's 6 States in the Lake Chad Basin

State	Projected population (use NPC Census Figures of 2006) ¹⁵	Number of Dams	Installed Reservoir capacity (MCM)	Estimated Water Use per Annual.
Borno	5,105,443.8	2	164.1	Not provided
Yobe	2,829,615.1	0	0	Not provided
Bauchi	5,751,462.1	3 & 2uc	91.4	Not provided
Plateau	3,909,414.9	21	135.608	Not provided
Kano	11,540,746	18	3336.235	Not provided
Jigawa	5,348,289.9	4	43.625	Not provided
Total		48 & 2uc¹⁶	3770.968	Not provided

Population source: FRN Official Gazette Vol.96 of 2nd February 2009.

4.2.4. Environmental assessment

Projects that used large volume of water such as agricultural programs, drainage and irrigation, construction of dams and manmade lakes, fisheries etc. are required to conduct environmental impact assessment (EIA) before its execution. The national water policy requires compliance with environmental regulation (EIA Act no. 86 of 1992) to "establish regulations compelling to carry out Environmental Impact Assessments (EIA) and Environmental Audits (EA) on all water resources programmes and projects and to impose sanctions to control environmental degradation"¹⁷. Nigeria has thus put in place environmental assessment requirements and guidelines for projects that involve water extraction from the Lake Chad Basin by large water users.

Interviews conducted with officials of FMWR, CBDA, HJRBDA and MDAs of the riparian States revealed that most water resources programmes and projects were approved and executed without the conduct of EIA. The Federal Ministry of Water Resources had no effective systems in place to ensure that the mandatory water use activities that required the conduct of EIA such as construction of dams and man-made lakes, boreholes, irrigation projects and other water infrastructures were strictly adhered to by agencies of government and the public.

¹⁵ Population Formula: {census figure + (census figure) * 3% * Base year} Nigeria Projected Population=172,186,698(2013) from 140,003,542(2006)

¹⁶ uc means under construction

¹⁷ ibid Water Resources Act 2009, p19.

The audit found out that about 50 dams in the States of the LCB were constructed without the conduct of EIA. The existing dams though constructed before the act came into being, there were no environmental audits conducted on them thereafter as required. Furthermore, list of large water users and registry of environmental assessments and documentation of the monitoring process were not maintained and made available for our review. Failure to conduct EIA led to adverse environmental impacts which were not appropriately mitigated in the basin. The extraction of water did not consider ecological and biodiversity protection.

4.2.5. Regular Information Campaigns

Since water users are required to comply with environmental assessment requirements for sustainable use of water resources, large water users should be made aware of environmental assessment requirements. The National Water policy requires government to, "strengthen the existing system of data collection, processing, storage and dissemination of various water resources information at National and Basin levels. This will be done on the basis of simplified, practical needs and cost effective and practicable solutions"¹⁸.

According to interviews conducted with officials of the FMWR, CBDA, HJRBDA and MDAs in the basin States, information awareness campaigns for large water users on environmental assessment requirements were not regularly conducted. The campaigns were only done on ad-hoc basis during flooding and other emergencies through brochures, radio, television and physical meetings.

Most large water users were not aware of environmental assessment requirements. Rate of compliance with environmental assessment requirements by agencies of government and the public was low. Hence, the awareness campaigns were not effective because the campaigns did not focus on large water users.

The audit could not carry out documentary review because documentary evidences such as: information campaign documentation (including activity calendars), field mission reports and internal reports on the effectiveness of the information campaigns were not made available to the audit team.

As regular information awareness campaigns were not carried out, large water users' activities continued to impact negatively on the sustainability of water resources management in the basin.

¹⁸ The National Water policy 2009, p.11.

4.2.6. Water Permits and Licenses

The use of water permits or other water use authorization instruments is meant to control the likely abuses of water use by water 'users' who extract water in Lake Chad basin. The water resources act 1993 requires that, "the diversion, storage, pumping or use on a commercial scale of any water or the construction, maintenance, operation, repair of any bore-hole or any hydraulic works shall be carried out only in accordance with a licence issued pursuant to this act or regulations made there under"¹⁹.

Interviews conducted with officials of FMWR, CBDA, HJRBDA and MDAs of the riparian States revealed that water permits/licences or other water use authorization instrument were never used as means of control on water users in the basin. Analysis of available regulations on the issuing of permits and licenses provided for: application for licence, issuing of licence, licence fee, power to impose fees, rate and charges and power to fix and levy rates on water users in the basin. However, no evidence was provided to show the use of permits and licenses by MDAs in the basin. Relevant documentary evidence such as: list of large water users in the Lake Chad basin, lists of permits and other control documents issued to large water users, evaluation reports from permit application files and lists of competent licensing authorities were not made available to the audit team.

Furthermore, there was no updated data maintained on: the number of water users, water quantity being extracted and water levels available for supply to the basin population. The non-implementation of water use regulations led to water extraction by dams (Tiga, Challawa, etc.), farmers, irrigation projects and fishing communities (construction of channels), companies, factories and individuals in uncontrolled and free-of-charge manner. Water resources in the basin were over-exploited and unsustainably managed. The figure 3 below shows one of the water channels from Tiga dam, owned by HJRBDA Kano but no permit given by any water regulator.



Figure 3: Upstream Tiga Irrigation Channel in Kano.

¹⁹ Water Resources Act 1993. p.4.

Unregulated extraction of water resources had negatively affected the flows of the rivers through siltation. Unregulated agricultural activities up stream compounded cases of sedimentation downstream. **Figure 4** below shows siltation in one of the small rivers.



Figure 4: Sedimentation Downstream of Tiga Dam in Kano as a Result of Upstream Land Degradation in Nigeria²⁰ due to Uncontrolled Water Use.

4.2.7. Settlement and Human Activities

Without established measures to regulate settlement and human activities in the Lake Chad Basin, a lot more damage could be done to the already worse fragile environment in the Lake Chad Basin. Section 2.3.5 of national water policy 2009 provides for "compliance with environmental requirements" ensuring resettlement, sustainable water access, conservation and protection of the environment from degradation, pollution and overexploitation.

²⁰ The LCBC-GEF Project on the Reversal of Land and Water Resources Degradation, TDA. of the Lake Chad Basin.

The documentary review for the basin States revealed rapid increase of population with increased demand for water to support the population while the water has been receding. Human activities had led to blockage of river channels (which reduced and diverted river flow) in the case of Hadejia-Jama'are and Gana-Yobe rivers, increased siltation, flooding and loss of farmland and settlements, extension of riverbanks and reduction of river channels.

From the interviews conducted with officials of MDAs in the States, the audit found that protected wetland areas or designated Ramsar site or receding Lake Chad were being encroached by human occupation of pastoralists and other farmers. Unregulated water users encroached supposedly protected areas due to non-compliance and non-enforcement of water laws and policies. There was also lack of synergies among government MDAs such as: Lands and Survey Ministry, Housing and Urban Development Ministry, Environmental Protection and Sanitation Agency, and Environment Ministry. With increasing rate of encroachment, governments at all levels did not put enough effort on sensitization and awareness of effects of human activities.

Figure 5 below indicates Animals Drinking Water in Receding Part of Lake Chad.



Figure 5: Human Activity Encroaching Receding Lake Chad²¹.

However, vital settlement and human activities records such as: regulations and standards on settlements, human activities, land use plans, maps of settlements, documentation of existing enforcement mechanisms, reports on control measures and evaluation reports on settlement and human activities in the Lake Chad Basin were not made available to the audit team for review. The 'non-compliance with environmental requirements to regulate settlement and human activities resulted in less water contribution by the Hadejia River to the Yobe River sub-system and the Lake Chad.

²¹ Posted by Apa, Posted date January 30,2014

4.2.8. Clearly Defined Roles and Responsibilities

Roles and responsibilities of the ministries and agencies responsible for control measures should not only be complementary and defined but also documented. The National Water Policy provides for putting in place "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water²².

Interviews conducted with officials of FMWR, CBDA, HJRBD, water resources ministries of the basin States and documents reviewed, revealed that there were institutions for water resources governance put in place at federal and state levels in disjointed fragments. Water use control roles and responsibilities for MDAs were neither clearly defined and documented nor complementary. The organograms and flow-charts of the MDAs did not precisely show the water use control functions each key official or stakeholder was assigned.

Audit found no documentary evidence of water use control roles clearly defined, documented and complementary on the different administrative levels for integrated, sustainable and participatory management and regulation of water. The condition was worse with the lack of operational procedures manuals regarding the control of water use in the Lake Chad Basin. Hence, the MDAs found it difficult to properly assess and evaluate failures and achievements.

4.2.9. Fulfilling Roles and Responsibilities

According to National Water policy, MDAs as custodian and implemental of water laws²³ at federal and state levels are expected to fulfil their water use control role and responsibilities as intended. Therefore, the water resources MDAs at the federal level and at the level of the 6 States were expected to give accounts of major activities, achievements and challenges annually to the lead agent at all levels.

Analysis from interviews conducted with officials of FMWR with 2 RBDAs and documents reviewed, the audit found that activity reports, magazines and annual reports were published to document fulfilment of roles and responsibilities within the confine of core functions of the MDAs. Also, the FMWR fulfilled roles and responsibilities to the best of its abilities, though, not as intended.

Activities reports, annual reports and minutes of interdepartmental meetings on water use control role and responsibilities were not prepared as they were not made available to the audit team for review. However, an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water put in place

²² National Water Policy(revised) 2009, p.14

²³ *ibid* p.14

by the HJKY-TF in the Lake Chad catchment area, including the 6 States were not implemented and fulfilled. By extension, the various states integrated water resources coalitions were unable to implement and fulfil assigned roles and responsibilities based on the principles of Integrated Water Resources Management. As roles and responsibilities were not clearly defined, it was difficult to ensure fulfilment of roles and responsibilities by MDAs at all levels.

4.2.10. Sufficient Resources

It is expected that ministries and agencies have sufficient human (expertise), financial and material resources through annual budgetary allocations to fulfil their responsibilities. The government at all levels are required to allocate sufficient resources to MDAs through appropriation act for control activities to fulfil their responsibilities.

Documentary review and interviews conducted with officials of MDAs in-charge of water resources revealed that, though MDAs in the region usually had budgetary commitment, the resources were not expressly made available to them for use to meet their roles and responsibilities.

At the federal level since the demerging of FMWR from FMA&WR in 2010, the sum of ₦356,567,429,569 has been cumulative budgetary allocation to FMWR²⁴ 2010-2013 for water infrastructures nationwide. Also, the sum of ₦31,380,307,837 was expended through the CBDA and HJRBDA for the same period. It was difficult to ascertain the effectiveness of the use of human and other resources by MDAs involved in the management of water resources because control measures in the form of human resource plans, activity reports and evaluation reports were not made available for our review at both states and federal levels.

The MDAs placed emphasis on water exploitation and supply without putting control measures on sustainable water management of available quantity of water resources. Without having access to sufficient human, financial and material resources, it was difficult for ministries and agencies to fulfil their roles and responsibilities.

4.2.11. Coordinated and Complementary Efforts

To ensure actions taken to put control measures in place are not duplicated and wasteful, control efforts of ministries, departments and agencies should be coordinated and complementary. Decree no. 101 (1993) requires government to ensure the coordination of such control activities that are likely to influence the quantity; distribution; use and management of water.

²⁴ Federal Government Budgets For 2008-2013

Interviews conducted with officials of FMWR, CBDA and HJRBDA and states MDAs responsible for water resources management revealed that FMWR was the coordinating body at federal level that ensured the efforts of ministries, departments and agencies were fully coordinated and complementary, especially the RBDAs as catchment units, while the state level had State Ministry of Water Resources as the coordinating body.

It was found out that, individuals, NGOs and other agencies of government drilled boreholes without permission from the statutory water authorities such as Ministry of Water Resources, Water Boards, RBDAs and LCBC. However, the audit noted that there were some coordinated efforts made by ministries, departments and agencies and joint meetings of key players in the water sector, though not regular.

Furthermore, documented evidences on coordinated efforts such as activity reports, evaluation reports, minutes of meetings and action plans were not made available for review. The non-availability of these records indicated a lack of proper implementation of relevant laws which implied that control measures in place were rarely coordinated and complementary. The effect was avoidable conflicting situations and waste of resources

4.2.12. Effective Coordination

The issue of effective coordination of the ministries, departments and agencies responsible for control measures on water sector key players is considered vital to address the fragmented water sector actors. The national water policy 2009 requires FMWR and its agencies to formulate policy, micro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organisations.²⁵

Analysis from interviews conducted with officials of FMWR, CBDA, HJRBDA and the state MDAs, efforts made to ensure effective coordination of ministries, departments and agencies responsible for control measures on water uses among key players were unsuccessful. An interdepartmental committee called Hadeija-Jama'are-Komadugu-Yobe Basin Coordinating Committee (HJKYBCC) under HJKYB-TF based on IWRM principles that could have ensured effective coordination was yet to function as intended. Coordination efforts were not effective.

Furthermore, minutes of interdepartmental meetings and terms of reference of the interdepartmental committee on effective coordination were not produced to

²⁵ ibid 2009. p.14

the audit team on demand for review. Inadequate implementation of roles and responsibilities in the statutory mandates of MDAs and lack of effective network for information sharing on water resources issues were major challenges. Hence MDAs had unclear/overlapping roles and responsibilities with fragmented water sector agenda among the federal and state MDAs.

4.3. Monitoring of Water Use

The FMWR with its agencies at the federal level, and Ministries of Water Resources with their agencies at the state level are mandated by National Water Policy to set standards as well as monitor and evaluate²⁶ water use in Nigeria.

4.3.1. Compliance with Allocated Water Use Quotas

For effective management and use of water resources it is expected that government establishes policies, regulations and strategies to enable monitoring of water use quota within the Lake Chad Basin in Nigeria. The FMWR through river basin organizations is expected to address water allocation issues based on water demand within hydrological area²⁷. The data on water quantity and allocation is expected to be kept by all MDAs to ensure effective distribution.

According to documents reviewed which included National Water Policies, water resources act of 1993 and RBDAs acts, and interviews conducted with officials of the FMWR, there were no provisions for allocated water use quotas in Lake Chad Basin. Furthermore, the audit found that MDAs of States and the LGAs did not establish specific units to ensure that water use was monitored to sustain water resources in the basin.

Consequently there was no mechanism in place to ensure monitoring of water use quota within the basin.

The non-establishment of allocated water use quotas by MDAs in the country led to indiscriminate use of water without regard to sustainability of the resources. The water use quota for Nigeria remained undefined by the government giving room for weak monitoring of water use in the basin.

²⁶ National Water Policy 2004/2009 p.14

²⁷ National Water Policy 2004/2009 p.14

4.3.2. Monitoring Programs

It is expected that Nigerian government establishes specific institutions with clear mandate for monitoring water use in the Lake Chad Basin. The National Water Policy requires "sound monitoring systems for all projects allowing for monitoring and evaluation on regular basis"²⁸.

Following interviews conducted with officials at the federal level, it was found that Chad Basin Development Authority in Borno State had the mandate to monitor water use in the basin covering Borno and Yobe States, while HJRBDA had the mandate to monitor water use in Kano, Jigawa and Bauchi States. The last review of organizational structure of the CBDA to meet current administrative challenges was in the year 2011. The authority set up an irrigation unit to monitor the level of water on seasonal basis, during the months of June to September, and September to February so as to ensure the level of water was at 296 million cubic metric (MCM) before pumping was done to Alau dam²⁹ for irrigation of farm lands in Borno State. However, no documented monitoring programme was produced to indicate monitoring of water use along the Lake Chad Basin over the five years under review. Similarly, interviews conducted with officials of the 6 State MDAs and documentary review revealed that five³⁰ out of 6 States did not have monitoring programs to enable tracking of the implementation of policies and strategies on water use. Though Kano State had monthly monitoring programme for 14 water stations along rivers and minor tributaries in the basin, there was no evidence of such programme made available to the audit team.

Consequently, the monitoring programme of HJKYB-TF under Integrated Water Management Coalition (IWMC) to enable tracking of the implementation of policies and strategies on water use along the Lake Chad Basin was not implemented. There was low commitment on the part of MDAs to monitor water use in the basin through sound monitoring program which led to unsustainable water use in the basin.

4.3.3. Reports on Water Use

For the effective monitoring, there should be a mechanism in place to oversee water use activities and ensure that all those engaged operate within conditions of access as approved by the government. It is expected that regular, timely, comprehensive and reliable monitoring reports on water use in the Lake Chad Basin are prepared and transmitted to Federal Ministry of Water Resources as required by set regulations in the country. The National Water Policy requires MDAs to "organise workshops, seminars and conferences on performance monitoring and evaluation and disseminate relevant outcomes to all stakeholders"³¹.

²⁸ National Water Policy(2009) section 2.3.3 p.18

²⁹ The Dam has reservoir capacity of 5.6 million cubic meters (MCM)

³⁰ (namely Borno, Yobe, Bauchi, Plateau and Jigawa)

³¹ ibid p.18

Analysis from interviews conducted with officials of the federal and state MDAs and documentary review revealed that there was inefficient storage and preservation of water use data and poor information sharing among the established institutions put in place by the governments to monitor and report on water use in the Lake Chad Basin. At the FMWR, water use monitoring reports were sent on quarterly basis by its agencies. The relevant department, stakeholders and the permanent secretary of the lead Ministry met one on one to discuss the reports. The feedback channel in place was periodic response to reports sent to Ministry and at times meetings were held to discuss issues raised in the reports. However, copies of water use monitoring reports and feedback reports were not made available to the audit team on demand.

Furthermore, the MDAs in the 6 States did not have documented reports on quantity of water use in the Lake Chad Basin. Therefore it was not possible for managements to meet regularly and take decisions on report of water use. The scenario created room for non-availability of sufficient data/information on water use in the basin. Also, the low commitment towards effective monitoring reports hampered future plans to manage the water resources.

Consequently, effective reports to show monitoring activities and evidence of management decisions, implementations and follow-up plans were not made available for review. There was no proper monitoring of data collection and report writing on water use in the basin by the lead agent FMWR. There were no documented bases for decisions to enable proactive steps towards sustainable water management in the Lake Chad Basin. As a result, proper management of water use in the basin was not assured. Complete lack of decisions on reports on water use in Lake Chad Basin led to further abuse of water use quota in the basin.

4.3.4. Using Information for Decision-Making

It is necessary for Nigerian government to have records of decisions taken based on previous water use monitoring reports and the reports used to inform the planning of future actions to ensure the sustainability of water use in the Lake Chad Basin. The National Water Policy (2009) provides strategy to "develop a comprehensive data bank on water resources projects to facilitate data handling, exchange and utilization for policy formulation and forward planning"³².

There was no documented water use monitoring reports produced for review and no evidence that decisions were taken based on water use monitoring reports by

³² ibid p.18

the management of the MDAs. It was also observed that none of the MDAs at all levels of government could produce concrete records of meetings held, decisions taken and corrective measures taken in reaction to water use monitoring reports in Lake Chad Basin.

From interviews conducted with officials of FMWR, CBDA, HJRBDA and state MDAs, it was discovered that water use monitoring reports were being used for decision making through management meetings. However, minutes of such meetings, as well as departmental plans and analysis based on the water use monitoring reports were not made available to the audit team on demand. Water use monitoring reports were not sufficiently documented to enhance effective decisions-making. Therefore, there was no basis for decision-making to inform the planning of future actions to ensure the sustainability of water use in the Lake Chad Basin.

4.3.5. Quality of Monitoring

To ensure quality of monitoring systems, government at all levels needs to establish practices to evaluate the effectiveness and quality of water use monitoring system and the continuous improvement of this system over time. The National Water Policy requires that federal and state Ministries of water resources to "design guidelines for monitoring and data collection to guide and promote relevant monitoring and data generation activities"³³.

Results of interviews conducted with the officials in charge of the water use in MDAs indicated that there was no clearly defined system put in place to ensure quality of monitoring based on designed guidelines for monitoring and data collection. The existing monitoring and evaluation divisions/units in FMWR, CBDA, HJRBDA and state MDAs charged with monitoring of water resources infrastructures did not focus on water use monitoring in Lake Chad Basin.

Furthermore, the federal and the state MDAs did not maintain vital periodic reports on data quality and systems performance, monitoring program evaluation and water use monitoring reports. Hence the MDAs could not produce the said reports for review. The non- existence of clearly designed systems on data quality, system performance evaluation, monitoring program evaluation and water use, impeded quality of monitoring water use and continuous improvement of monitoring system over time in the Lake Chad Basin

³³ ibid p.18

4.3.6. Clearly Defined Monitoring Roles and Responsibilities

The government is expected to have clearly defined and documented water use monitoring roles and responsibilities of its MDAs within the basin. The National Water Policy provides for putting in place "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water³⁴.

Documentary review on MDAs' mandate and organisation of ministries and agencies at both federal and state levels revealed that there were no clearly defined and documented roles and responsibilities for effective water use monitoring within the basin. Interviews conducted with officials of FMWR, CBDA and HJRBDA revealed that there were no clearly defined and documented roles and responsibilities for effective water use monitoring. Consequently, some MDAs relaxed in their expected monitoring roles and responsibilities which led to overlapping roles and responsibilities, double efforts and waste of resources by the MDAs. Work plans and activity plans for water use monitoring within the basin were not made available to the audit team for review.

Interviews conducted with officials of MDAs in-charge of water resources in the 6 basin States revealed the lack of clearly defined and documented water use monitoring roles and responsibilities as the States considered most of their water monitoring roles and responsibilities as internal water use activities which had no impact on Lake Chad. It was as if water use monitoring roles and responsibilities was the exclusive duty of CBDA and HJRBDA. In addition, documents such as flowcharts or system designs, work plans and activity plans for water use monitoring within the basin were not made available to the audit team for review.

The lack of effective institutional frameworks with clearly defined and documented water use monitoring roles and responsibilities led to non-integrated, unsustainable and non-participatory management and regulation of water quantity in the basin States.

4.3.7. Fulfilling Monitoring Roles and Responsibilities

As one of the ways to ensure sustainability of water use in the basin States, it is important that MDAs as custodian and implementers of water laws³⁵ at federal and state levels are expected to fulfil their water use monitoring role and responsibilities as required by National Water Policy.

Analysis of activity reports and annual reports of FMWR (2010), CBDA (2011) and HJRBDA at federal level provided accounts of major activities, achievements, challenges and prospects of water resources infrastructures in the basin. The MDAs

³⁴ National Water Policy(revised) 2009, p.14

³⁵ *ibid* p.14

submitted their activity reports on quarterly/annual basis to the lead agents, and also whenever the need arose. Such activity reports were not focussed on fulfilment of water use monitoring roles and responsibilities but on general budget implementation for all water-related infrastructures in the basin States. The above findings were corroborated through interviews conducted with officials of the FMWR, CBDA and HJRBDA.

In the 6 basin States, activity reports, annual reports and minutes of interdepartmental meetings on fulfilment of water use monitoring roles and responsibilities were not produced for review. However, interviews conducted with officials of the MDAs in the 6 riparian States revealed that the MDAs did not carry out water use monitoring roles and responsibilities. The lack of clarity in the definition of water use monitoring roles and responsibilities led to ineffective fulfilment of water use monitoring roles and responsibilities with the effect of unsustainable use of water resources in the basin States.

4.3.8. Sufficient Resources for Monitoring Water Use

For effective monitoring of water use in the basin, sufficient resources in terms of human, financial and equipment are needed. The government at all levels are required to allocate sufficient resources to MDAs through appropriation act for monitoring activities to fulfil their responsibilities.

Analysis from interviews conducted with officials of the FMWR, CBDA and HJRBDA and documentary review indicated that resources made available by the federal government amounted to ₦831,726,997 for monitoring activities of water infrastructures for the period 2011 to 2013³⁶. However, the resources committed by the government into monitoring activities over the years were not expressly made available to the MDAs. The extent of budgetary provisions and the levels of the inadequacies could not be ascertained by the audit team because documentary evidence relating to evaluation reports for the period under audit could not be produced as at the time of this report.

A review of the organizational charts of ministries in-charge of water resources in the riparian States showed that there were monitoring and evaluation Departments dedicated to monitoring of water infrastructures, but with no emphasis on water use monitoring functions in Lake Chad Basin. As a result, no dedicated resources were allocated to water use monitoring activities. Water use monitoring activities reports could therefore not be made available to the audit team on demand. Sufficient emphasis and resources, especially skilled human resources, were not deployed to water use monitoring. Hence water use monitoring responsibilities were not effectively fulfilled by MDAs at all levels of government.

³⁶ ₦326,563,894(2011); ₦121,590,752(2012) & ₦383,572,352(2013)

4.3.9. Coordinated Monitoring Efforts

The need to coordinate monitoring efforts of MDAs monitoring water use in the Lake Chad Basin is to avoid conflicting situations and the waste of resources. Decree no.101 (1993) requires government to ensure the coordination of such monitoring activities that are likely to influence the quantity; distribution; use and management of water³⁷. The federal Ministry of Water Resources is responsible for coordinating water use monitoring activities in the Lake Chad Basin.

Analysis of responses of interviews conducted with officials of FMWR, CBDA and HJRBDAs revealed that water use monitoring activities were not sufficiently coordinated by the FMWR to avoid conflicting situations and waste of resources in the Lake Chad Basin. From documents reviewed, though funds were being expended by CBDA and HJRBDAs on water infrastructures, activity and evaluation reports produced annually did not include water use monitoring in terms of quantity, distribution, use and management of water.

Interviews conducted with officials of MDAs in the 6 riparian States revealed the existence of Hadejia-Jama'are-Komadugu-Yobe Basin Trust Fund (HJKYB-TF) established to ensure that water use monitoring activities in the Lake Chad Basin were sufficiently coordinated and complementary to avoid conflicting situations and waste of resources. Unfortunately, an interdepartmental committee - Hadejia-Jama'are-Komadugu-Yobe Basin Coordinating Committee - established to ensure coordination of efforts based on IWRM principles has not started to function as intended.

Consequently, evidence of coordinated water use monitoring efforts of MDAs such as activity reports, evaluation reports, minutes of meetings and action plans were not made available to the audit team for review. There was lack of action plans for water use monitoring efforts. Hence, the uncoordinated water use monitoring efforts of MDAs at all levels led to conflicting situations and waste of resources through duplicated and fragmented efforts.

4.3.10. Effective Monitoring Coordination

For effective monitoring coordination, the government is expected to put in place an interdepartmental committee to ensure effective coordination of water use monitoring in Lake Chad Basin. The National Water Policy 2009 requires FMWR and its agencies to formulate policies, micro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international Organisations.

³⁷ Water Resources Decree No. 101 1999, section 1.-(1)b. p.1

Documentary review of terms of reference for the interdepartmental committee (Hadeija-Jama'are-Komadugu-Yobe Basin Coordinating Committee)³⁸ indicated 12 numbered terms of reference among which was, 'to consider and determine major policy issues of common interest to the Basin States concerning effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Hadeija-Jama'are-Komadugu-Yobe Basin'. However, minutes of interdepartmental meetings were not made available to the audit team for review.

In the basin States, there was no effective coordination of water use monitoring since the basin water charter could not be legally enforced by the HJKYB-TF. Interviews conducted with officials of MDAs at both federal and state levels revealed ineffective monitoring coordination. Water infrastructure activity reports were only made when needed by either FMWR/National Assembly at federal or lead Ministry/State Assemblies at state level, and are usually not regular.

The non-implementation and enforcement of water charter for sustainable and equitable management for Hadeija-Jama'are-Komadugu-Yobe Basin have led to ineffective water use coordination, indiscriminate water use, struggle for water use quota among the communities and social vices in the basin.

4.4. Enforcement

For an efficient control of water use in the Lake Chad Basin, the implementation of regulations, guidelines and standards on water management is necessary. The regulations in place should be relevant to incorporate current best practices on enforcement on water use.

4.4.1. Updating Policies and Regulation

Enforcement of water use within the basin is important to sustainable use of water resources. Section 2.2.5 of National Water Policy provides for a regulatory and law enforcement set-up for the different levels of government and a review of water policy with regard to institutional arrangements³⁹.

Review of documents related to enforcement of water use showed that at federal level the government has established regulations on water management which include water resource decree 101 of 1993; RBDA decrees of 1979, 1987 and 1990; Land Use Act 1978 as in **Appendix 2** (Summary of legal/regulatory and institutional framework). The audit team observed that all these laws were based on top down approach that contradicted Integrated Water Resources Management (IWRM)

³⁸ HJKYB-TF: Water Charter for Sustainable and Equitable Management of Hadeija-Jama'are-Komadugu-Yobe Basin. February 14, 2007. p.30

³⁹ National Water Policy 2004/2009. P. 14.

principles which required integration of all stakeholders in water management. In addition, there were gaps in the existing water laws which did not show linkages among the different enforcement agents. Analysis of annual appropriation for FMWR showed that the sum of ₦50,311,431 was expended on the review and update of water resources laws from 2011 to 2013⁴⁰.

At both the Federal and State levels (Borno, Yobe, Bauchi, Plateau, Kano and Jigawa) the water policies were not regularly reviewed and updated and have not been translated into laws by the respective governments. Some of the laws /policies were in draft form for a long time, such as the Draft Water Resources Bill of 2009 still in the National Assembly.

The reasons for the non-regular update of policies and regulations could not be established by the audited entities. Consequently, the existing legal framework was out-dated and did not take into account the current best water management practices. Therefore, the quantity of available water resources was not being managed in a sustainable manner.

4.4.2. Regular Enforcement Activities

To ensure compliance with the set regulations on water use, the government needs to carry out regular inspections and enforcement activities on water use in the Lake Chad basin to deter the abuse of water use especially by large users. For effective enforcement there should be adequate planning and allocation of resources required to conduct inspections and enforcement activities.

Examination of records maintained by the FMWR and the six States within LCB showed that there were no units set up to carry out enforcement activities to ensure compliance with regulations and standards on water use. It was also noted that the Federal/States did not prepare annual activity plans on enforcement and no enforcement inspection reports were made available to audit team. Further scrutiny of FMWR/ six States' MDAs appropriations for 2008 to 2013 revealed that there were no specific funds allocated to enforcement activities.

Consequently, large water users such as CBDA, HJRBDA, water boards, factories, industries, irrigation farmers, herdsman, fishing communities and other unidentified large water users in the States accessed water and drew water without restriction and regulation. Records of volumes of water resources drawn by large water users were not made available to the audit team by the MDAs.

The MDAs in the 6 States were without legal backing to enforce regulations. No specific definition of frequency of surveillance for enforcement and no sanctions

⁴⁰ FMWR review and update of National Water Resources law, decree 101, 1993 (Act 100 of 1999) in 2011(₦5,143,431), 2012(₦15,168,000), and 2013(₦30,000,000) Estimates

were spelt out in any regulations to apply in cases of non-compliance by water users in the Lake Chad Basin. Human activities on water use in the Lake Chad Basin were unregulated and that led to improper use of available water resources.

4.4.3. Sanctions on non-compliance

To ensure sustainable and proper use of water in the Lake Chad Basin there is need to put in place laws with provisions for sanctions to be applied to water-use-abuses in the Lake Chad Basin. The FMWR is mandated to coordinate the development and utilization of water resources for irrigation and water supply in the Lake Chad Basin⁴¹.

Interviews conducted with Federal and State MDAs' officials, there were no defined regulations and standards for enforcement in order to control the water uses in the basin. Hence, no water use surveillance was carried out by officials to apprehend defaulters and to enforce sanctions. Documents reviewed and site visits revealed that large water users in the basin had no fear of being caught by either the state or federal officials responsible for water resources control because of public perception of water resources as free gift from God devoid of governmental regulations. A number of irrigation schemes for large and small farmers, bore holes by individuals, factories etc could not be ascertained to have complied with any enforceable regulations and standards. **Figure 6** below indicates some of the irrigation schemes found in Borno State to which the extent of compliance to National Irrigation Policy could not be established.



Figure 6: South Chad Irrigation, Ngala Local Government Area of Borno State⁴¹.

At the levels of federal, state and local government councils, enforcement of regulations and standards and activity reports were not made available to the audit team on request. Large water users were at liberty to draw water at will, at no cost without complying with regulations and standards. Available water laws were breached and no sanctions were imposed for non-compliance at all levels of government.

⁴¹ FMWR 2010 Annual Report, p3.

⁴² Chad Basin News: A publication of Lake Chad Basin Development Authority (Vol.1 no1, Maiden Edition), 2013.

4.4.4. Evaluating Enforcement Programs

To assess performance of enforcement programs put in place by the MDAs in-charge of water resources, an evaluation of such programs needs to be done regularly and periodically. It is expected that federal and state ministries of water resources periodically evaluate the enforcement programs of the responsible ministries and agencies.

Analysis of responses from interviews conducted with officials of MDAs in-charge of water resources and documents reviewed indicated that there was no periodic evaluation of enforcement programs carried out to assess performance of the enforcement activities. The structure of MDAs in States made no provision for specific unit as water-use regulator to deal with enforcement issues. Hence, it was difficult for MDAs in States to know status of water resources exploitation and uses in their respective areas within Lake Chad Basin.

4.4.5. Awareness Campaigns

Compliance with environmental regulations needs regular and intensified awareness campaigns. It is expected that Nigeria as a signatory to the Fort Lamy convention of Lake Chad Basin regularly sensitized the Lake Chad Basin populations on threats associated with improperly managed water resources. The National Water Policy requires government through MDAs to, "create public awareness about water conservation and management" in the Lake Chad Basin.

From interviews conducted with officials of FMWR, CBDA and HJRBDA it was revealed that awareness campaigns were carried out to address the general public through radio, banners and television. However, the awareness campaigns conducted was on general water use in terms of water supply and irrigation, as against to regularly sensitize basin population on the consequences of non-compliance with environmental regulations. The audit could not determine the effectiveness or otherwise of the awareness campaigns as vital awareness campaigns documents such as communication strategies and work plans, campaign leaflets, jingles and awareness campaign reports were not made available to the audit team for review.

Similar interviews conducted with officials of MDAs in the riparian States revealed that awareness campaigns were only conducted during rainy/farming season on the basin population through radio and television by relevant MDAs. The awareness campaigns focus on effects of flooding and irrigation rather than to educate the Lake Chad Basin population on the effect of non-compliance with environmental regulations. The MDAs failed to make available to the audit team for review, communication strategies and work plans, as well as awareness campaign reports.

There were no proper assessments by the MDAs of the risk of the impacts of non-compliance with environmental regulations in the basin as to design specific awareness campaigns to parts of the basin community. Since the basin populations were not regularly sensitized on the consequences of non-compliance with environmental regulations, their behaviour towards sustainable water use in the basin States remained negative and unchanged.

4.4.6. Clearly Defined Enforcement Roles and Responsibilities

To effectively enforce the environmental regulations and apply sanctions, there is need to clearly define and document the roles and responsibilities of the MDAs tasked with enforcement. The National Water Policy provides for "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water.

Documentary review of Water Resources Act of 1993, draft National Water Resources Policy (2004/2009), Draft Water Resources Bill (2009), the RBDA Decree/Act 1979, 1987 & 1990 for FMWR, CBDA, HJRBDA, and Kano Water Supply Edict 2013, WRECA Kano State Edict 1991, Borno State Water Corporation Edict no.2 1999, Jigawa State Water Board and sanitation agency law 1999 (Law no.9 1999) and states water supply and sanitation policies for the MDAs of the 6 basin States revealed that enforcement roles and responsibilities were not clearly defined and documented (see **Appendix 3**). For instance, the water boards have the responsibility of enforcing rules on water supply in urban and rural areas but not enforcing regulation on the water resources of the States. None of the 6 States had water resources edicts with clearly defined and documented enforcement roles and responsibilities. Due to lack of clearly defined enforcement roles and responsibilities, MDAs had multiple roles as the regulators, implementers, suppliers, development managers, users and consumers of water resources of the Lake Chad Basin.

Interviews conducted with officials of both Federal and State MDAs affirmed that enforcement roles and responsibilities for MDAs were not clearly defined and documented; that there were no laws mandating MDAs to perform enforcement roles.

Thus, lack of clearly defined roles among the many stake-holders made enforcement of regulations on water use within the Lake Chad Basin difficult.

4.4.7. Fulfilling Enforcement Roles and Responsibilities

For the MDAs responsible for enforcement to be able to fulfil their responsibilities, there is need for viable legal framework that provides the necessary principles for the effective operation and management of water resources and to apply sanctions on defaulters. According to National Water Policy, MDAs as custodian and implementers of water laws at Federal and State levels are expected to fulfil their water use enforcement role and responsibilities as intended.

Interviews conducted with officials of MDAs at the federal and state levels revealed unsatisfactory fulfilment of their enforcement roles and responsibilities as contained in water resources act of 1993 reviewed. For instance, the provision on unlawful diversion of water in section 9(1) that, "the diversion, storage, pumping or use on a commercial scale of any water or the construction, maintenance, repair of any borehole or any hydraulic works shall be carried out only in accordance with a licence issued" was never enforced and fulfilled.

It was further observed that the provisions of water laws were not well known to most MDAs in-charge of water resources. To them, they lacked the mandate to fulfil enforcement roles and responsibilities effectively. Consequently, activity reports, annual reports, and minutes of interdepartmental meetings on enforcement roles and responsibilities were not made available by MDAs of the basin States to the audit team for review.

Due to poor awareness and implementation of enforcement provisions of water laws and policies at all levels, many unauthorized water users continued with overexploitation of water resources in the Lake Chad Basin.

4.4.8. Sufficient Resources for Enforcement

For effective enforcement of regulations, there is need for the government to provide resources and ensure appropriate allocation of resources to MDAs to function well. The government at all levels are required to allocate sufficient resources to MDAs through appropriation act for enforcement activities to fulfil their responsibilities.

Documentary review of budgets for the period under audit revealed that both the Federal and State governments had made financial allocations for the MDAs on water resources. For instance, Federal Ministry of Water Resources budgeted the sum of ₦356.6 billion for the ministry and agencies activities for 2010 to 2013 when it was demerged from FMA&WR. However, there was no amount specifically allocated for water use enforcement activities. Analysis of CBDA annual report (2011) revealed the non-appointment/recruitments of officials to fill 53 posts out of 384 staff strength made vacant by retirement from service due to embargo on filling vacancies which amounted to depletion of the available human resources.

Interviews conducted with officials of the MDAs revealed that funding for the ministry activities had no specific allocation for enforcement activities such as patrol/surveillance activities with sound project vehicles to ensure effective enforcement in the Lake Chad Basin.

Documents reviewed did not contain sufficient information on enforcement activity plans and programs, human resource and equipment needs assessment plans/implementation. Therefore, the audit could not determine the sufficiency or otherwise of resources (human, financial and material) allocated for enforcement of water use. The MDAs at all levels did not make available to the audit team for review activity plans and programs, financial reports, organisational charts, activity reports

and evaluation reports on enforcement.

4.4.9. Coordinated Enforcement Efforts

In order to ensure planning and management of water resources of the basin, it is important to coordinate the efforts of MDAs at all levels of government to enforce regulations on water use. Nigerian Water Resources Decree no 101 of 1993, requires the FMWR to ensure the co-ordination of such enforcement activities as are likely to influence the quantity; distribution, use and management of water.

Interviews conducted with the officials of FMWR, CBDA, HJRBDA and MDAs of basin States, and also documentary review indicated that water use enforcement activities were not well coordinated and complementary by the lead water resources ministries to avoid conflicting situations and waste of resources in the Lake Chad Basin. In most cases, water use enforcement activities/programs were not put in place by lead water resources ministries.

Furthermore, activity reports, evaluation reports, minutes of coordination meetings, action plans on coordinated enforcement efforts were not made available for review. Hence, weak enforcement coordination efforts which led to unregulated water use in the basin.

4.4.10. Effective Enforcement Coordination

In order to ensure an effective coordination of ministries, departments and agencies at the federal and state level, responsible for enforcing regulations on water use, the need exists to establish systems where all MDAs could collaborate on water enforcement laws. The National Water Policy 2009 requires Federal Ministry of Water Resources and its agencies to formulate policies, micro planning regulations, setting standards, monitoring and evaluation, coordination and collaboration with national and international organisations.

Interviews conducted with officials of FMWR, revealed that Nigeria's Integrated Water Resources Management Commission, which was the only organisation with the mandate to coordinate and regulate water use in the basin, lacked the enabling establishment act to be effective. Also, there was no effective enforcement coordination at State level. As at the time of this report, coordination reports on enforcement and minutes of interdepartmental committee meetings were not made available to the auditors for review.

Due to ineffective co-ordination, it was difficult to ascertain whether the various stakeholders implemented their roles and responsibilities effectively. Further review of the 1999 Constitution of the Federal Republic of Nigeria (as amended) revealed that water resources was on the concurrent legislative list, thus making water resources management a function of government at all levels. This posed huge challenge to coordination and definition of roles. The shared responsibilities led to fragmentation,

duplication and lack of inter-sectorial coordination with each segment pursuing its independent water agenda. Hence, the ineffective coordination of law enforcement in the Lake Chad Basin.

4.5. Good Practices and Initiatives

The HJKY-TF is an institutional framework that defined the roles and responsibilities of the various ministries, departments and agencies involved in managing the waters of the Lake Chad Basin, but the roles and responsibilities agreed were not followed. The HJKYB-TF is a regional body, made up of the 6 States of Bauchi, Borno, Jigawa, Kano, Plateau and Yobe in the Lake Chad Basin, just like LCBC to the member countries of 1964 N'Djamena Convention.

The HJKYB-TF Member States were supposed to fund its activities. The States through the SGHJKYB-TF failed to adequately enforce its agreements, resolutions and decisions on water use in the Lake Chad Basin. The HJKYB-TF is with the best of intentions and potentials to exhibit water use best practices capable of sustainable management of available water resources in the Lake Chad Basin. The TF has produced for the region the building blocks based on IWRM principles whose objective is to ensure sustainable management of the Lake Chad Basin water resources.

The Summit of Governors of the 6 States adopted a "Water Charter for Sustainable and Equitable Management of the Hadejia-Jama'are-Komadugu-Yobe Basin" in addition to the "Catchment Management Plan". In order to ensure an integrated, equitable, sustainable and concerted management of the shared water resources and the environment of the basin on the basis of IWRM principles, the Charter provides for an institutional framework platform made up of:

- Traditional rights of local communities and indigenous knowledge;
- Public participation in decision-making processes;
- Responsibilities and interests of the States; and
- Responsibilities and interests of the Federal government.

The above interests created committees such as Coordinating Committee (HJKYBCC); Technical Advisory Committee to CC; States IWRM Coalition, and the Trust Fund (HJKYB-TF).

To achieve the objective of ensuring sustainable management of the basin water resources Member State governments need to activate their political will for full implementation of decisions taken under the HJKYB-TF. The HJKY-TF regularly conducted information campaigns targeted at large water users to ensure that they were aware of environmental assessment requirements through the states IWRM Coalition in each of the 6 states made up of states officials, Non-Governmental Organisations (NGOs), traditional rulers, market women, Community-Based Organisations (CBOs) and trade unions. The communication strategies included meetings, radio, television and print media.



CHAPTER 5 **CONCLUSIONS**

CHAPTER 5

CONCLUSIONS

i. **Control**

- The control of the use of water in the Lake Chad Basin in Nigeria is inadequate and weak.
- Assessment of the environmental impacts of governmental policies and programs of water resource management in the Lake Chad Basin is insufficient.

ii. **Monitoring**

- Monitoring of the performance and effectiveness of water management in the Lake Chad Basin is not appropriately done.
- Available water use data is grossly deficient and inadequate for appropriate decision-making in water management.

iii. **Enforcement**

- Enforcement activities in the Lake Chad Basin to ensure water regulations are complied with are weak and government shows no strong commitment to ensure effective enforcement of water use regulations in Lake Chad Basin.



CHAPTER 6 **RECOMMENDATIONS**

CHAPTER 6

RECOMMENDATIONS

i. Control

- The FMWR should establish a water allocation strategy as the basis of issuing licenses or permits to withdrawal of water in the basin and applicable to all levels of government. The expected impact is to ensure that FMWR controls water quantity in the Lake Chad Basin.
- The FMWR should revise its organizational structure to show direct link between State ministries and other water bodies. This will enhance the effectiveness of institutions for water use control and reduce the overlap of roles and responsibilities.
- The FMWR and States' MDAs in-charge of water resources should ensure that all major water projects like dams, irrigation etc. conduct EIA before the start of the projects. There should be no approval or permit given to water projects without complying with the conduct of EIA. Environmental audit should be conducted on existing water projects without EIA to mitigate the adverse effect on environment due to water use.
- The MDAs at States/LGAs levels should put in place control measures like establishing boundaries and designate areas as protected areas with punitive consequences for any encroachments. This will control encroachment and restrict human activities in protected area.
- The State Water Agencies should build embankment to close up some large openings along the river system causing flooding and impeding free flow of water in the Lake Chad Basin. This will ensure that quantity of available water in the Lake Chad basin is optimally used for intended agricultural/domestic purposes and quick recovering of the Lake Chad.
- The RBDAs and the State Water Agencies should put in place systems to ensure regular desiltation and rehabilitation of water conveyance and irrigation structures in the Lake Chad Basin. The channel irrigation system should be replaced by the drip/ piping irrigation system as a way to avert the Typha Weed invasions of the weak rivers and irrigation channels. This will ensure water released from dams and rivers are optimally utilized for agricultural, domestic and industrial uses.
- The FMWR should increase support both technically and financially to the HJKYB-TF through its membership of the HJKYB-TF Coordinating Committee. This is to ensure effective coordination of the key stakeholders responsible for water use control measures through the intergovernmental/interdepartmental committee.

ii. Monitoring

- The FMWR and states' MDAs should establish practices to evaluate the effectiveness and quality of the water use monitoring system and to ensure improvement of this system over time.

- The FMWR should ensure that there are enough data and information systems in place that allows the ministry to identify the possible points of intervention in the water resource management. Water-use-data generated at local levels should be properly coordinated and shared all through the State Ministries of Water Resources (SMWR) to FMWR;
- The FMWR and States' MDAs should ensure that awareness campaign are well planned and to use appropriate communication channels to reach the target audience. This will create effective awareness on the adverse effects of uncontrolled water use in risk areas and target groups.
- The FMWR and States' MDAs should ensure that established targets related to water resources monitoring are attained at different levels of the water use in Nigeria.
- The FMWR should clearly define monitoring roles and responsibilities to a variety of water regulators to ensure compliance with water use quota based on water allocation strategies.

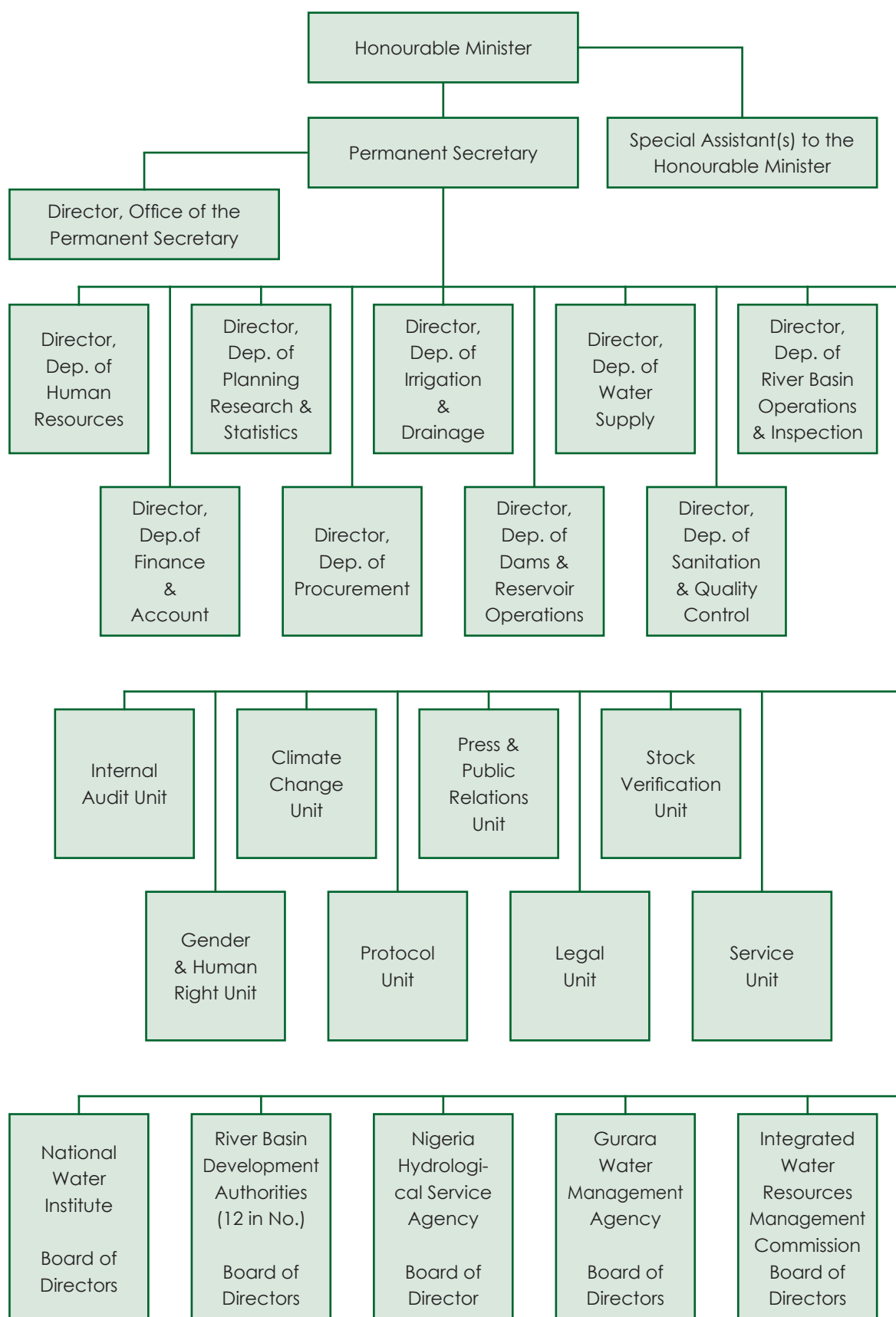
iii. Enforcement

- The FMWR and States' MDAs should establish enforcement mechanism that will allow water regulations and policies to accommodate the integrated Water Resource Management (IWRM) principles. The principles require combination of all stakeholders in water management in a bottom-up approach.
- The FMWR and States' MDAs should put in place concrete actions including fines and penalties for people and companies who unlawfully draw water and degrade the environment. The fines and penalties should be executed to act as deterrent. Also, the cost of fines and penalties applied should consider the environmental damage issues, in the way that offenders are required to pay for environmental restoration costs, that is, the "polluter pays principle" is enforced.
- The Federal and the State governments should establish proper enforcement co-ordination among ministries, departments, agencies responsible for enforcement and other stakeholders in water management.
- The Federal and State ministries of water resources should establish mechanism that will enable regular inspection and patrol to ensure compliance with laws, regulations and standards on water use, and
- The FMWR and SMWR should put in place enforcement programs and periodically evaluate them to determine effective performance of such programs in ensuring compliance in the basin.



APPENDICES

1. Organisational Structure of the Federal Ministry of the Water Resources.



2. Table 5: Summary of Legal (Regulatory) and Institutional Framework

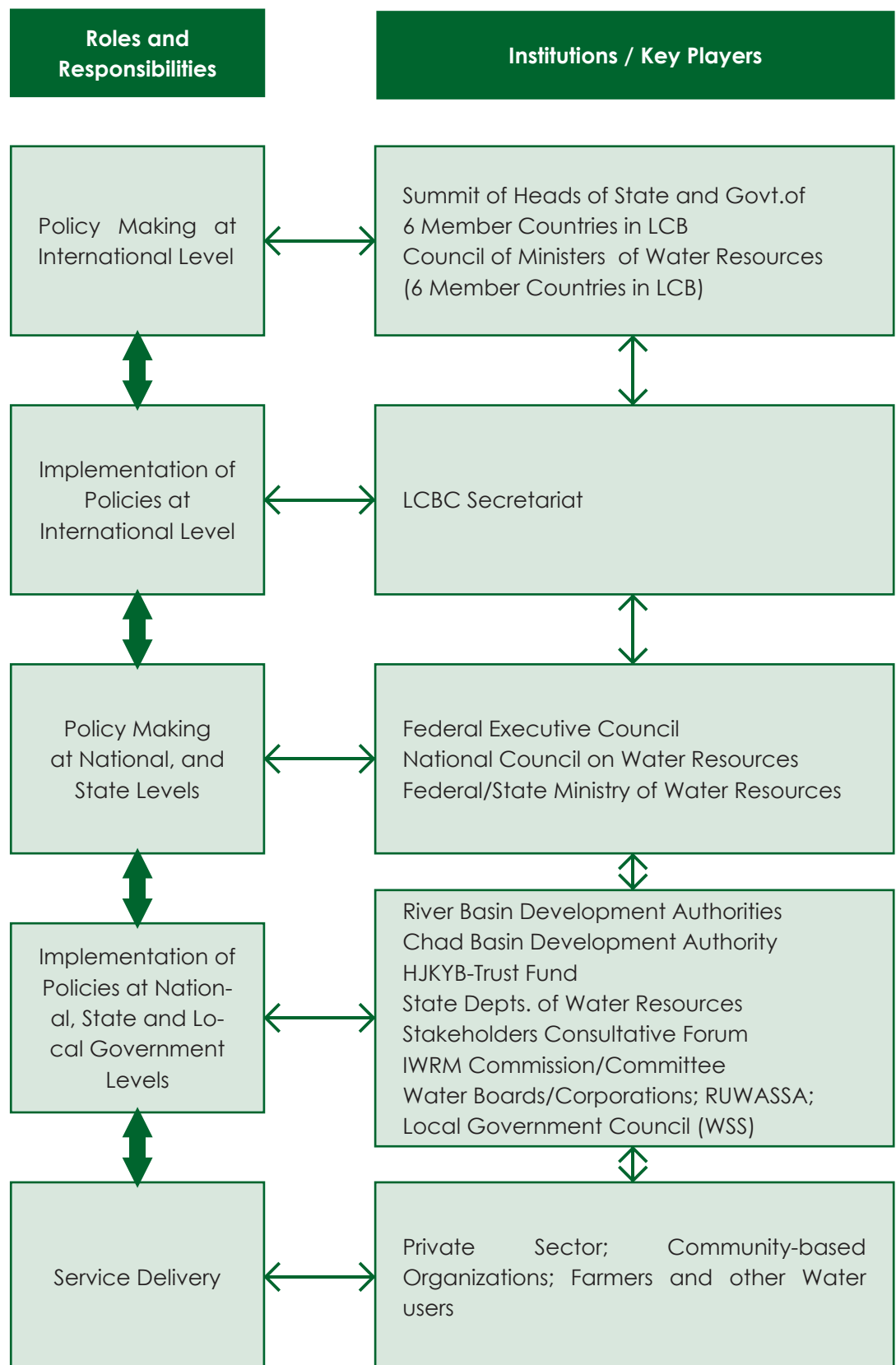
Institution	Role and Responsibilities in Water Resources Management	Regulating Act	Remarks
National Council on Water Resources	Overall national water resources policy formulation	The 1999 Constitution of the Federal Republic of Nigeria (As amended)	Minister for Water Resources and Commissioners for Water Resources from 36 States and Federal Capital Territory are members of Council
a) Federal Minister of Water Resources	Responsibility of overall water resources management and development; Controls the provision of water supply and sanitation service delivery; Responsible for planning and irrigation development.	a)i) Water Resources Decree of 1993 ii. Draft National Water Resources Policy (2004/2009) iii. Draft Water Resources Bill (2009) iv. National Irrigation and Drainage Policy (2007)	a)i) Over due for review. Is still being reviewed and yet to be approved by the executive for submission to the parliament for enactment. iv. Prepared jointly between FMWR & FAO and approved by NCWR in 2008.
b) Nigeria Integrated Water Resources Management Commission	b) Water regulation, allocation and management and issuing of water rights for all purposes on behalf of HMWR. Only organisation with the mandate to coordinate and regulate the water uses in the basin.	b) Bill is yet to be signed into law.	b-c) The Act establishing yet to be enacted.
c) Nigeria Hydrological Services Agency	c) Responsible for all hydrological services in the country	c) Bill is yet to be signed into law.	
d) Chad Basin Development Authority e) Hadejia-Jamaare River Basin Development Authority	d-e) Gives effect to the inter-state agreement relating to the utilisation of shared rivers for economic, industrial and social developments. In addition, hydrological and environmental data is collected and used for dam operations.	d-e) The River Basin Development Authority Act of 1987, RBDA Act 1990, RBDA Decree 1979.	d-e) Over due for review.
f) Lake Chad Basin Commission (LCBC)	f) Sustainable and equitable management of the Lake Chad waters and other transboundary water resources of the Lake Chad basin; Preservation and protection of ecosystems of the catchment area, and promotion of integration and preservation of peace and security in the conventional basin.	f) 1964 N'djamena Convention; Sundry resolutions, and Water Charter for the Lake Chad Basin, April 30. 2012	f) Niger Republic, Chad and Cameroon out of 6 signatories countries ratified the Charter.
g) SGHJKYB-TF (2006); HJKY Basin Coordinating Committee 1999(HJKY-TF)	g) Facilitating improvements in the flow of water for all uses and users through partnership building, institutional and policy reforms, community empowerment, infrastructural interventions and efficient utilization.	MoU of 8th June 2006: SG (Kano, Jigawa, Borno, Yobe, Bauchi & Plateau.)	No legal backing and has not met in the last 4 years.

h) Borno State	h) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Borno State Water Corporation Edict No.2, 1999.	Water supply Edicts only; No water resources Edicts in State.
i) YOBE State	i) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Water supply and sanitation policy, January 2010.	Water supply Edicts only; No water resources Edicts in State.
j) BAUCHI State	j) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Reforming the water and sanitation sector in Bauchi State, March 2013.	Water supply Edicts only; No water resources Edicts in State.
k) Plateau	k) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Plateau State Water, Supply, Sanitation and Hygiene Promotion Policy.	Water supply Edicts only; No water resources Edicts in State.
l) Kano	l) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Water Supply Edict 2013; WRECA Kano State Edict, 1991.	Not yet in circulation as at year end.
m) Jigawa	m) State Ministry of Water Resources (State Water Agencies); State Ministry of Agriculture and Natural Resources, and State Ministry of Environment	Jigawa State Water Board and Sanitation Agency law 1999 (Law no.9 1999), Water Supply and sanitation policy.	Water supply Edicts only; No water resources Edicts in State.
n) Ministry of Foreign Affairs	Responsible for all Foreign Affairs/Relations on behalf of Government and people of Nigeria.	The 1999 Constitution of the Federal Republic of Nigeria (As amended)	Member, LCBC Council of Ministers. Member, Federal Executive Council
o) Federal Ministry of Energy	Responsible for planning, designing, constructing and operating hydropower facilities. In addition hydrological and environmental data is collected and used for dam operations.	The 1999 Constitution of the Federal Republic of Nigeria (As amended)	Member, Federal Executive Council
p) Federal Ministry of Environment	Securing a quality environment conducive for good health and well-being of fauna and flora and promoting sustainable use of natural resources including water.	EIA Act. 1992	Nothing to fill on Questionnaire (Loe I-III) -Director (PRS) FMEnv. Member, Federal Executive Council

3. Table 6: Overall Strategy on Control at a Glance for Basin States.

States	Strategic Documents
Plateau	i. Plateau State Water, Supply, Sanitation and Hygiene Promotion Policy ii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iii. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB iv. No Water Resources Edict v. No Water Allocation Policy
Borno	i. Borno State Water Corporation Edict No.2 1999 ii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iii. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB iv. No Water Resources Edict v. No Water Allocation Policy
Yobe	i. Water supply and Sanitation policy, January 2010. ii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iii. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB iv. No Water Resources Edict v. No Water Allocation Policy
Kano	i. WRECA Kano State Edict 1991. ii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iii. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB iv. No Water Resources Edict v. No Water Allocation Policy
Jigawa	i. Jigawa State Water Board and Sanitation Agency law 1999(Law no.9 1999) ii. Water Supply and Sanitation Policy. iii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iv. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB v. No Water Resources Edict vi. No Water Allocation Policy
Bauchi	i. Reforming the Water and Sanitation Sector in Bauchi State. March 2013 ii. Lake Chad Catchment Management Plan 2011 under the HJKYB-TF. iii. HJKYB-TF Water Charter for Sustainable and Equitable Management of the HJKYB iv. No Water Resources Edict v. No Water Allocation Policy

4. Institutional Framework for Water Management; Roles and Responsibilities of Key Players



5. List of Audit Criteria

1. Control Measures

1.1. Overall Strategy on Control Measures

The water resources law 1993 provided for the application of appropriate standards and techniques for the investigation, use, control, protection, management and administration of Water resources. - Water Resources Decree 1993 section 1. -(1)c

1.2. Institutional framework for water use control measures

The national water policy 2009 provided for "institutional arrangement for water resources development and management such that all tiers of government, that is federal, states and local government are involved". - National water policy (Revised) 2009. p.4

1.3. Regulatory framework

Water Resources Act of 1993 required government to control "acquisition for rights to use or take water"⁴³ by large water users in the Lake Chad Basin. - Water Resources Decree 1993 section 3. p.2

1.4. Environmental assessment

The national water policy required compliance with environmental regulation(EIA act no. 86 of 1992) to "establish regulations compelling to carry out environmental impact assessment EIA and environmental audit EA on all water resources programmes and projects and to impose sanctions to control environmental degradation". - National water policy (Revised) 2009. p.19

1.5. Regular Information campaigns

The national water Policy required government to ,"strengthen the existing system of data collection, processing, storage and dissemination of various water resources information at National and Basin levels. This will be done on the basis of simplified, practical needs and cost effective and practicable solutions". - National water policy (Revised) 2009. p.11.

1.6. Water Permits and Licenses

The water resources Act 1993 required that, "the diversion, storage, pumping or use on a commercial scale of any water or the construction, maintenance, operation, repair of any bore-hole or any hydraulic works shall be carried out only in accordance with a licence issued pursuant to this act or regulations made there under". - Water Resources Decree 1993. p.4

1.7. Settlement and Human Activities

Section 2.3.5 of water policy of 2009 provided for "compliance with environmental requirements" ensuring resettlement, sustainable water access, conservation and

⁴³ Water Resources Act of 1993 section 3, p.2

protection of the environment from degradation, pollution and overexploitation.
- National water policy (Revised) 2009. Section 2.3.5

1.8. Clearly Defined Roles and Responsibilities

The national water Policy provided for the putting in place "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water".
- National water policy (Revised) 2009. p.14

1.9. Fulfilling Roles and Responsibilities

According to National Water Policy, MDAs as custodian and implemental of water laws at federal and state levels were expected to fulfil their water use control role and responsibilities as intended. - National water policy (Revised) 2009. p.14.

1.10. Sufficient Resources

The Government at all levels were required to allocate through appropriation act sufficient resources to MDAs for control activities to fulfil their responsibilities.
- Government Budgets

1.11. Coordinated and Complementary Efforts

Decree No. 101(1993) required government to ensure the coordination of such control activities that were likely to influence the quantity, distribution, use and management of water. - Water Resources Decree 1993. section 1. -(1)b p.1

1.12. Effective Coordination

The National water Policy 2009 required FMWR and its agencies to formulate policy, micro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organisations. - National water policy (Revised) 2009. p.14.

2. Monitoring of Water use

2.1. Compliance with Allocated Water Use Quotas

The FMWR through river basin organisations was expected to address water allocation issues based on water demand within hydrological areas. - National water policy (Revised) 2009. p.14.

2.2. Monitoring Programs

The National Water Policy "required sound monitoring systems for all projects allowing for monitoring and evaluation on regular basis". - National water policy (Revised) 2009. section 2.3.3 p.18

2.3. Reports on water use

The National Water Policy required MDAs to "organise workshops, seminars and conferences on performance monitoring and evaluation and disseminate relevant outcomes to all stakeholders". - National water policy (Revised) 2009. p.18

2.4. Using Information for Decision-Making

The National Water Policy (2009) provided strategy to, "develop a comprehensive data bank on water resources projects to facilitate data handling, exchange and utilization for policy formulation and forward planning". - National water policy (Revised) 2009. p.18

2.5. Quality of Monitoring

The National Water Policy required that federal and state ministries of water resources to, "Design guidelines for monitoring and data collection to guide and promote relevant monitoring and data generation activities". - National water policy (Revised) 2009. p.18.

2.6. Clearly Defined Monitoring Roles and Responsibilities

The National Water Policy provided for the putting in place "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water". - National water policy (Revised) 2009. p.14.

2.7. Fulfilling Monitoring Roles and Responsibilities

According to National Water Policy, MDAs as custodian and implemental of water laws at federal and state levels were expected to fulfil their water use monitoring role and responsibilities as intended. - National water policy (Revised) 2009. p.14.

2.8. Sufficient Resources or Monitoring Water Use

The government at all levels were required to allocate through appropriation act sufficient resources to MDAs for monitoring activities to fulfil their responsibilities.

2.9. Coordinated Monitoring Efforts

Decree No. 101 (1993) required government to ensure the coordination of such monitoring activities that were likely to influence the quantity, distribution, use and management of water. - Water Resources Decree 1993. section 1. -(1)b p.1

2.10. Effective Monitoring Coordination

The National Water Policy 2009 required FMWR and its agencies to formulate policy, micro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organisations. - National water policy (Revised) 2009. p.14.

3. Enforcement

3.1. Updating Policies and Regulation

Section 2.2.5 of the National Water Policy provided for a regulatory and law enforcement set-up for the different levels of government and a review of the water policy with regard to institutional arrangements. - National water policy (Revised) 2009. section 2.2.5 p.14.

3.2. Regular Enforcement Activities

For effective enforcement there should be adequate planning and allocation of resources required to conduct these inspections and enforcement activities.

3.3. Sanctions on Non-Compliance

The FMWR was mandated to coordinate the development and utilization of water resources for irrigation and water supply in the Lake Chad Basin. - FMWR 2010 Annual Report p.3

3.4. Evaluating Enforcement Programs

It was expected that, federal and state Ministry of water resources periodically evaluated the enforcement programs of the responsible ministries and agencies. - National water policy (Revised) 2009. p.14.

3.5. Awareness Campaigns

The National Water Policy required government through MDAs to, "create public awareness about water conservation and management" in the Lake Chad Basin. - National water policy (Revised) 2009. section 1.2 p.6.

3.6. Clearly Defined Enforcement Roles and Responsibilities

The National Water Policy provided for the putting in place "an effective institutional framework with clearly defined roles on the different administrative levels for integrated, sustainable and participatory management and regulation of water." - National water policy (Revised) 2009. p.14.

3.7. Fulfilling Enforcement Roles and Responsibilities

According to National Water Policy, MDAs as custodian and implemental of water laws at federal and state levels were expected to fulfil their water use enforcement role and responsibilities as intended. - National water policy (Revised) 2009. p.14.

3.8. Sufficient Resources for Enforcement

The government at all levels were required to allocate through appropriation act sufficient resources to MDAs for enforcement activities to fulfil their responsibilities. - Government Budgets

3.9. Coordinated Enforcement Efforts

Nigerian Water Resource Decree no 101 of 1993, required the FMWR to ensure the co-ordination of such activities as are likely to influence the quality, quantity; distribution, use and management of water. - Water Resources Decree 1993. section 1. -(1)b p.1

3.10. Effective enforcement coordination

The National Water Policy 2009 required Federal Ministry of Water Resources and its agencies to formulate policy, micro planning regulation, setting standards, monitoring and evaluation, coordination and collaboration with national and international organisations. - National water policy (Revised) 2009. p.14.

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- <http://www.cb.lt.org/en/geography> & <http://www.cb.lt.org/en/lake-chad>.

7. Auditors' Responses to Comments by the Ministries, Departments and Agencies

- ▶ The FMWR commented that "of all the 32 items in the questionnaires none was mentioned in the report as a factor contributing to the outcome or recommendations of the report"
- ▷ **Response:** This is not correct based on the objective of the audit which was to determine whether Nigeria has effectively implemented control, monitoring and enforcement practices and systems to achieve sustainable use of water resources in the Lake Chad Basin. The key lines of inquiry were 3, namely control, monitoring and enforcement, further analysed under 32 subsidiary lines of inquiry. The facts of the report have been presented based ministry's assessment criteria under "the 32 items", including control (12 items), monitoring (10 items) and enforcement (10 items). Hence details of findings have been presented in chapter 4, while conclusions and recommendation have been formulated in tune with the audit objective.
- ▶ That, "the amount in the budget was for Nigeria's participation in statutory meetings related to the Water Transfer Project".
- ▷ **Response:** The fact remains that resolution No. 4 on the feasibility study of the water transfer project from the Ubangi River to Lake Chad was adopted 29th April 2012, while the sum of ₦33,310,029 was expended for Nigeria's participation in statutory meetings related to the water transfer project excluding Nigeria's extra-budgetary funding of the feasibility studies of water transfer project.
- ▶ Implementation of control measures on water use. That, "the 1993 law on water resources now Act 100 has not been signed into law and therefore cannot be enforced, cannot be implemented owing to the confusion on who does what in the water sector? The indiscriminate use of water in Nigeria is well understood since there is no enforcement. The non-existence of water laws makes enforcement difficult for RBDAs".
- ▷ **Response:** That the 1993 law on water resources is now Act 100 means the water resources bill has been signed into law. Though, the Act 100 was not made available to the audit team. The Water Resources Decree No. 102 of 1993, which commenced 23rd August 1993, the River Basin Development Authority Decrees of 1979, 1987 and 1990 and The National Water Policy (revised) remain valid documents until they are repealed. Therefore, assessment criteria as in **Appendix 5** for this audit were provisions contained in these valid regulatory documents. The CBDA and HJRBDAs exist today due to cited RBDA decrees with defined powers to undertake comprehensive development of both surface and underground water, and to construct and maintain dams, irrigation and drainage system. It is expected that the FMWR discharges its overall responsibility for management of nation's water resources by clearly defining control and enforcement functions among MDAS in tune with constitutional concurrent nature of water resources.

- ▶ Budget appropriation. That "it might be misleading to think that all the money appropriated within the year under review was released".
- ▷ **Response:** The report contains compilations from annual budgets by federal government for water resources, 2008 to 2013. The FMWR did not provide yearly actual budget performance against budget estimates. It was a fact that federal government budgets were often less than 100% implemented and cash- backed.
- ▶ The FMWR commented that "you don't manage what you don't know its quantity. The result of their finding would have been based on data availability of the existing number of boreholes within the Lake Chad Basin"
- ▷ **Response:** The National Water Policy requires that federal and state ministries of water resources to, "design guidelines for monitoring and data collection to guide and promote relevant monitoring and data generation activities". The FMWR should ensure as part of its overall responsibility for management of nation's water resources the establishment of data on available water quantity, water requirements and water use in the Lake Chad Basin. Audit findings did reveal non-availability of data on water use in the Lake Chad Basin as in **Table 4** of the report.
- ▶ "The expected impact of recommendation bullet one should be, not only to control water quantity in the Lake Chad Basin but also the water quality"
- ▷ **Response:** The audit focus was on water quantity management, excluding water pollution, water quality, action to stop climate change, etc. Refer to **Section 2.3** on scope of audit in the report.
- ▶ "There should have been a specific recommendation relating to hydro-meteorological data gathering as the basin was noted to lack a robust water and environmental data to support decision making".
- ▷ **Response:** Kindly refer to one of our recommendations that, "the FMWR should ensure that there is enough data and information systems in place that allows the ministry to identify the possible points of intervention in the water resource management. Water-use-data at local levels should be properly coordinated and shared all through the States Ministries of water resources (SMWR) to FMWR". Refer to **Chapter 6, Section II** on monitoring, **Bullet 2**.
- ▶ "The FMWR through its principal agency- Nigeria Integrated Water Resources Management Commission (NIWRMC) should establish water allocation strategy as the basis of issuing license or permit to withdrawal of water in the basin and applicable to all levels of government."
- ▷ **Response:** Our recommendation is that, the FMWR should establish water allocation strategy as the basis of issuing license or permit to withdrawal of water in the basin and applicable to all levels of government. The expected impact is to ensure that FMWR controls water quantity in the Lake Chad Basin. It is correct to remain so for the reasons that (i) FMWR has the overall responsibility on issue of water allocation

strategy, (ii) the NIWRMC has no law establishing it and to that extent, (iii) the NIWRMC was excluded from the list of key stakeholders presented in **Chapter 3** of this report.

- ▶ **Control.** "the CBDA grows rice and wheat under most of its projects. Both crops require flood system to thrive well. Drip irrigation system is best suited for orchards and vegetables normally produced in small scale".
- ▷ **Response:** The audit recommendation remains valid because the channel irrigation system has been rendered ineffective by Typha Weed invasions of the weak rivers and irrigation channels. Typha Weeds thrive better than rice and wheat in flood system to the extent that Jigawa state government expended ₦60,170,250.00 on 210Km length of typha grass clearing from (MONTH) 2012 to October 2013⁴⁴. MDAs in the region now budget annually to tackle typha weed invasion of weak channel irrigation system. Small scale farmers can still optimally flood their rice and wheat farms by the use of drip/piping irrigation system. Water released from dams and rivers should flow into Lake Chad and are optimally utilized for agricultural, domestic and industrial uses.
- ▶ **Budget Appropriation.** "That the CBDA was appropriated the sum of ₦10,576,780,462.00 in the period under review and received ₦5,613,463,629.00 only".
- ▷ **Response:** The table 2 of the report was a compilation from Federal Government Annual Budgets for FMWR totalling ₦11 billion round figure for 2010 to 2013. Only CBDA presented a budget performance in terms of releases. The explanations could have been more helpful if budget performance was extended to include FMWR and HJRBDA.

⁴⁴ Speech by The Honourable Commissioner of Water Resources Alh. Hannafi Yakubu on the visit of the Committee Members on the main study on the Joint Environmental Audit of Lake Chad on 31st October, 2013 to Jigawa State.

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