

ADAMAWA STATE OF NIGERIA



**ADAMAWA STATE
WATER RESOURCES POLICY**

**Adamawa State Ministry of Water Resources
2016**

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I Foreword

Water plays a cardinal role in socio-economic development and it is fundamental to sustaining all forms of life. Industrial activities ranging from agriculture through tourism depend on water. Furthermore, social activities such as the availability and delivery of potable water, agriculture, recreation industry and improved sanitation services are of vital importance to the individual and society at large. However, the water resources in Adamawa State are yet to be fully harnessed to meet these competing needs. This situation has thus informed government decision to develop a policy to create an enabling environment for full exploitation and harnessing of the State's water resources. This policy will improve the presently ineffective state of the water sector as well as properly positioning the institutions within the sector to carry out their statutory roles and responsibilities more effectively and efficiently. In addition, the need for effective utilization of water, collation of data and information for planning and decision-making have been given due consideration.

Integrated water resources management (IWRM) has been defined by the Global Water Partnership (a widely respected international network) as "a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant

economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems". This Policy which was a product of extensive stakeholder consultations noted that IWRM offers the only option for effective water resource development in Nigeria. The State shall promote IWRM as a process to support and improve the water sector.

In addition, I wish to add that this Policy will provide a comprehensive framework for sustainable development, management and utilization of the State's water resources, and promote safe sanitation practices. Water is a crucial element for the preservation of the environment and thus it has to be managed in a sustainable manner so that the ability of future generations to meet their own needs are not compromised by lack of or poor action of the current generation.

Adamawa State Government is committed to improving the Water sector and has attempted through this comprehensive Water Resources Policy to create an enabling environment by providing a clearly defined framework within which all stakeholders (public sector, private sector, civil society organizations and donors etc.) would perform their roles and responsibilities while ensuring that water supply and sanitation is given the necessary priority. This will contribute to positive social and economic growth and increased productivity.

Finally, I wish to call upon all stakeholders to work together in order to achieve the objectives of their different sub-sectors strategies and programmes to ultimately meet the social and economic aspirations of the people of Adamawa State.

Sen. Mohammed Umaru Jibrilla,
Executive Governor,
ADAMAWA STATE

II Acknowledgements

The development of this State Water Resources Policy was based on a consultative process involving all key stakeholders in Adamawa State. The State Ministry of Water Resources would like to extend a hand of gratitude to UNICEF for having supported the Adamawa State Rural Water Supply and Environmental Sanitation Agency in the development of the draft WASH Policy which has been the foundation for the development of this comprehensive Water Resources Policy.

The State Ministry of Water Resources held several scoping meetings within the Ministry to generate a working draft which was then the subject of multi-stakeholder consultations and validation.

Accordingly, appreciation is extended to all those stakeholders, institutions and persons who participated in the development of this Water Resources Policy and hence assisted in moving forward the water sector reforms.

These include representatives from the following:

- i. State Government;
- ii. The State House of Assembly;
- iii. Local Government Councils;
- iv. Traditional Institutions;
- v. Civil Society Organizations;
- vi. Non-Governmental Organisations;
- vii. Research Institutions;
- viii. Faith based Organisations;
- ix. Line Ministries and other institutions;
- x. The Private sector.

We wish to further acknowledge the participation of all media institutions and those individuals who contributed to the development of this Policy in one way or the other.

The successful implementation of this Policy will depend greatly on the effective participation of all the above mentioned and people of Adamawa State in general.

Hon. Julius Kadala,
Commissioner

Adamawa State Ministry of Water Resources

Acronyms and Abbreviations

CSO	Civil Society Organization
FMWR	Federal Ministry of Water Resources
HIV/AIDS	Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome
IDP	Internally Displaced Person
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
LEEDS	Local Economic Empowerment and Development Strategy
LGA	Local Government Area
MDAs	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MHM	Menstrual Health Management
MICS	Multi Indicator Cluster Survey
NGO	Non-governmental Organisation
NIHSA	Nigerian Hydrological Services Agency
ODF	Open Defecation Free
PIM	Participatory Irrigation Management
RUWESSA	Rural Water Supply and Environmental Sanitation Agency
SDGs	Sustainable Development Goals
SEEDS	State Economic Empowerment and Development Strategy
STWSSA	Small Towns Water Supply and Sanitation Agency
SWA	State Water Agency
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Education Fund

VIP	Ventilated Improved Pit Latrine
WASH	Water, Sanitation, and Hygiene
WIMAG	Water Investment Mobilization and Application Guidelines
WCA	Water Consumers Association
WASHCOMS	Water, Sanitation and Hygiene Committees
WHO	World Health Organisation
WUA	Water Users Association

Definition of Terms

Access to adequate sanitation refers to households and public institutions with access to sanitation facilities which:

- hygienically separate human excreta and industrial effluents from contact with humans, animals and insects (particularly flies);
- have hand-washing facilities;
- do not pollute drinking water sources;
- do not cause intolerable smells;
- ensure privacy for those using the latrines;
- are kept clean.

Access to improved sanitation facilities refers to the percentage of the population using improved sanitation facilities.

Access to safe drinking water is measured by the percentage of the population using improved drinking-water sources.

Access to sanitation means the percentage of the population using improved sanitation facilities.

Accessibility refers to water supply and sanitation facilities and services that are usable in the household or its vicinity to everyone on a continuous and reliable basis and without security risk.

Adequate Sanitation means access to safe excreta disposal facilities, services to households, public facilities and disposal of liquid and solid waste without contamination of water sources, health hazards to people or deterioration of the environment.

Affordable Water refers to the ability and willingness of households to own, operate, maintain and/or pay for services without major disruption to their expenditure patterns.

Affordability refers to water supply and sanitation services whose cost can be borne by all; this does not necessarily mean free.

Availability means the quantity, quality and reliability of water supply and sanitation facilities must be sufficient for personal and domestic use (drinking, cooking and hygiene).

Catchment Area means a geographical area where all groundwater and surface water from rain, converges to a single point at a lower elevation, where the waters join another body of water, such as a river, lake, reservoir, estuary, wetland, sea, or ocean

Climate Change refers to the average change in climatic conditions in a specific region which is additional to the natural changes in the climate that may be expected to occur over time.

Community Led Total Sanitation refers to an integrated approach to achieve and sustain ODF (Open Defecation Free) community and finally to achieve total sanitation status.

Coverage refers to the percentage or proportion of the population with household access to safe water or adequate sanitation.

Domestic Purpose means the household use of water for drinking, cooking, washing, bathing or sanitation; subsistence gardening and support of livestock not being commercial livestock husbandry; subsistence fishing; the making of bricks for the private use of the occupier; the dipping of livestock not being commercial livestock husbandry; or firefighting; for which no permit is required.

EcoSan refers to a double vault urine diverting latrine which uses a dry disposal system in which urine and faeces are managed separately and ash, sawdust is added to the vault contents.

Equitable and Reasonable Utilisation refers to management and maintenance of a fair and justified allocation system and the utilisation of a water resource in a rational and sustainable manner so as to derive optimum benefits but not to cause significant harm to others and the environment.

Governance refers to a range of political, social, economic and administrative systems put in place to ensure accountability, and timely and efficient delivery of water services across all segments of the population

Groundwater means any water resource found under the surface of the ground.

Household refers to a family unit of an average of eight persons.

Hygiene Promotion is the communication of behavioral practices that improve health and wellbeing.

Improved Drinking Water Source is a source that, by nature of its construction, adequately protects the water from outside contamination; in particular from faecal matter.

Improved Water Supply is enhanced water solutions which include a range of technologies from protected wells equipped with manually

operated hand pumps to more complex gravity-flow or pumped piped water systems connected to houses or public stand posts.

Improved Sanitation refers to the upgrading of traditional latrines to reduce flies and odour, and provide superstructures, e.g. water flush system, ventilated improved pit (VIP) toilets (septic tank/soak away), sewerage system and hand washing facilities after use.

Improved Sanitation Facilities include flush/pour flush (to piped sewer system, septic tank, and pit latrine), VIP latrine, pit latrine with slab, and composting toilet, such as the Eco-San toilet.

Integrated Water Resources Management refers to a process that promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Open Defecation means passing excreta outside in the open field where people can see and/or come into contact with it (not in a latrine).

Open Defecation Free refers to a community or an open field where excreta is not found outside (excreta is found **only** in an appropriate latrine).

Polluter Pays Principle is the principle that any person or institution responsible for polluting the water resource must restore the water to its natural or acceptable state.

Pollution in relation to water refers to any direct or indirect contamination or alteration of the biological, chemical or physical properties of the water resources including changes in colour, odour, taste, temperature or turbidity of water.

Private Water Provider is a person who supplies potable water at a price.

Quality

Urban Sanitation Services refers to sanitation in areas that have a population above 20,000.

Urban Water Supply refers to water supply and sewerage services targeting area with a population greater than 20,000 inhabitants.

Use in relation to water means the entitlement limited to the equitable and reasonable utilisation of water for the purposes and up to the limit prescribed or specified by a permit and includes: abstraction, obstruction or diversion of water; storing water; discharge of materials or substances into water; de-watering of a mine, quarry or any land; furthermore, altering the bed, banks, course or characteristics of a water resource; or any prescribed activity of a kind relating to water but shall not include a guarantee as to the availability of water.

Vulnerable Community refers to people or communities without adequate water supply and sanitation services and liable to be at risk of water-related diseases and poverty.

WASH refers to Water, Sanitation and Hygiene.

Water includes surface water, water which rises naturally on any land or drains or falls naturally on to any land, even if it does not visibly join any watercourse, or groundwater.

Watercourse is a system of surface waters and groundwater constituting, by virtue of their physical relationship, a unitary whole and normally flowing into a common terminus.

Water Demand Management Practices are activities that minimize wastage of water, encourage sustainable and efficient use of water and improve the quality of water.

Water Resource includes water, any river, spring, hot spring, pan, lake, pond, swamp, marsh, stream, watercourse, estuary, aquifer, artesian basin or other body of naturally flowing or standing water.

Water Resources Development is the art of providing access to water, making it more profitable, productive or useful.

Water Resources Management includes planning for sustainable development of the water resource and providing for the implementation of any catchment management plan and national water resources strategy and plan; promoting the rational and optimal utilization, protection, conservation and control of the water resource; and improving access to sufficient quality, quantity and distribution of water for various uses.

Water Supply means all water either in its original state or after treatment, intended for drinking, cooking, food preparation or other domestic purposes, regardless of its origin and whether it is supplied from a drinking water system, or taken from other sources.

1.0 INTRODUCTION

Water is a vital natural resource that covers about 75% of the earth's surface. It is essential to the survival of all forms of life, including the human body that comprises about 75% water kept constant by regular water intake. It is a resource that is mired in contradiction because, in spite of its seeming abundance, it is a scarce resource in many places. It is of varied characteristics and usefulness, cuts across all forms of physical, cultural and political borders and could be both a source of blessing or despair. In essence, it is ubiquitous yet exhaustible and an indispensable resource that needs to be managed in a multilateral manner for the good of all. The management of such a resource is done by means of international treaties, national policies/statutes and technical standardisation. In the light of this situation, an Adamawa State Water Resources Policy becomes an absolute necessity.

The *Adamawa State Water Resources Policy* is intended to address relevant water resource issues in the State in general, with particular emphasis on water supply and sanitation. This is intended to further address the critical imbalance between supply and demand which has a strong bearing on the quality of human life. It is a matter of serious concern that only an average of 40% and 32% of the Adamawa State population has access to potable water and sanitation facilities respectively (Adamawa SEEDS, 2010).

This Policy delineates roles and responsibilities, and encourages synergy between stakeholders for an optimum and sustainable exploitation of the State's water resources. It is also expected to provide direction and strategies towards adequate funding, capacity building, gender streamlining, conflict resolution and poverty reduction in an integrated and multilateral manner for development and improved quality of human life.

2.0 BRIEF ON ADAMAWA STATE

2.1 Geography

On 27 August 1991, Adamawa State was created from the defunct Gongola State.

The State is located between coordinates 9.20⁰N,12.30⁰E and 9.33⁰N,12.50⁰E (citation). It is one of the largest States in Nigeria and has an area of 36,917 km². It is bordered by Borno State to the north-west, Gombe State to the west and Taraba State to the south-west. The State has a border with Cameroun Republic in the north-east.

2.2 Population

Adamawa State has 21 Local Government Areas (LGA) with a population of 3,178,950 comprising 1,607,270 males and 1,571,680 females (2006 census). It has a population density of 80 persons per square kilometer. At 2.9% annual growth rate, the 2015 estimated population of the State was put at 3,964,553 (Ministry of Information, 2015). The major occupation of Adamawa people is farming. (Adamawa SEEDS, 2010)

2.3 Topography

The State is essentially covered by a picturesque mountainous land, traversed by large valleys of the Benue, Gongola, and Yedzeram Rivers. The valleys of the Cameroun, Mandara and Adamawa undulating mountains form part of the landscape.

2.4 Climate

The State has a tropical climate marked by dry and rainy seasons. The rainy season commences in April and ends in October, the wettest months being August and September. The average annual rainfall is 759mm in Northern part and 1051mm in the Southern part of the State. The dust-laden north-easterly trade winds from the Sahara Desert approaches the State in November and is known as Harmattan period and persists to the month of March causing a marked effect on the climate, with cold and dry spells. The cold and dry temperatures vary with the seasons; the average recorded is a minimum of 15.2⁰ C and a maximum of 44.7⁰C. (Adamawa SEEDS, 2010).

2.5 Hydrology

Adamawa State is spread within two hydrological catchment areas. All of the Northern Senatorial zone is in the Chad Basin H.A.8 (hydrological area), while the Southern and Central Senatorial zones,

except Hong LGA (Chad Basin HA 8) are in the Upper Benue River Basin hydrological catchment area (HA3). The State is drained by major rivers notably the Gongola, Yedzeram, Hawul, Kilange, Faro and Mayo Inne. Hawul and Yedzeram rivers flow into the Lake Chad Basin (HA8) of Nigeria, while Gongola, Kilange, Faro and Mayo-Inne flow into the river Benue (HA3). The Gongola river starts from Jos Plateau through Bauchi Highlands and joins the River Benue at Numan. The Yedzeram river starts from the Mandara Hills, flows through Mubi and Michika, and finally drains into the Lake Chad. There are several non-perennial streams in the State. (NIHSA)

2.6 Geology

The geology of the State is marked broadly by three zones. In the northern and southern zones, the geology comprises the Precambrian Basement Rocks which are mainly igneous and metamorphic. In the central zone lies the Benue Trough which is covered by Cretaceous Sedimentary Rocks, with isolated Tertiary Volcanic Rocks around the Lunguda Plateau. Rocks of the Basement complex are thinly weathered and have no major defined fractures and therefore cannot store enough water. In contrast sedimentary rocks such as Bima Sandstones and Yolde Formations are good aquifers, because they are highly porous and permeable. These Rocks store and transmit large quantities of groundwater. (Geology of Nigeria, C.A Kogbe, 2013)

2.7 Vegetation

There are two main notable vegetation zones in the State; the sub-Saharan found in the Northern and the Guinea savannah in the Southern part. The Sub-Saharan is characterized by short grasses, scattered and stunted trees, while the guinea savannah is characterized by tall trees and thicker vegetation as a result of higher rainfall.

3.0 HISTORICAL PERSPECTIVE OF WATER SUPPLY IN NIGERIA

Public water supply started in a few towns of Nigeria in the early 20th century. It was placed under the lowest rung of the administrative ladder. With the creation of regional governments in the early 1950s the water supply undertakings continued to maintain the schemes but the financial and technical responsibilities for developing new water schemes came under the regional government.

However, rapid population growth led to increased water demand. It became necessary for the regional governments to set up parastatals such as Water Corporations/Boards to develop, operate and manage the water supply and sanitation undertakings. Presently, all the 36 states of the Federation and the Federal Capital Territory of Abuja have Water Boards/Corporations or public utilities managing their public water supply establishments. Their efforts are supplemented in many cases by Local Governments which supply water to rural areas in their areas of jurisdiction.

3.1 Overview of Water Resources Potential

Adamawa State's water resources (surface and groundwater) are significant and support all sectors of the economy. Predominately, water resources support agricultural, domestic, industrial, tourism and navigational purposes. Specific data and information on water demand has not been quantified. This gap will be one of the major interventions that this policy shall address.

4.0 THE NEED FOR A WATER RESOURCES POLICY

The Federal Government of the Republic of Nigeria launched the Nigeria Economic Empowerment and Development Strategy (NEEDS) in May 2004 as an entry point for strategic development planning. This was embraced by all States which domesticated it into the State Economic Empowerment and Development Strategy (SEEDS), and Local Economic Empowerment and Development Strategy (LEEDS) at local government levels.

Regarding water resources development, management and utilization, the NEEDS document provides as follows:

- i. Ensuring the development and management of water resources in an integrated manner and as a national strategic resource;
- ii. Protecting water resources and the environment for balanced social and economic development;

- iii. Involving all stakeholders including the private sector in the sustainable development of water resources through coordinated management and holistic utilization; and
- iv. Optimizing the use of water resources at all times for present generations to survive on without compromising water supplies for future generations.

The SEEDS document, while recognizing the integrated nature of water resources and its role in the economy, has placed water supply and sanitation as the primary focus of the Government. In the light of this, the Water Resources Policy will follow the same direction.

Since establishment, the Adamawa State Ministry of Water Resources has been operating without a State water policy, only relying essentially on the national legislative and policy instruments, such as Decree 101 of 1991 and the National Water Policy (2004), for its coordination of the State water sector. Therefore, it was not surprising that the National Water Policy (2004) caused many overlaps and conflicts amongst the various sector players in the State. For example, many institutions within this sector continue to play different roles and exercise different responsibilities regarding water resources management, development and utilization. The current National Water Policy 2016 has provided greater clarity and direction in the development, management, and utilisation of water resources in the Federal Republic of Nigeria. In the light of this, it has become pertinent that a reordering of the water sector be done. Therefore, it behoves on the Ministry of Water Resources to exercise its statutory role in providing the necessary guidance and leadership to the Water Sector; and not the least is the establishment of a clear vision and holistic policy direction for the sector.

In addition, the Ministry of Water Resources will gradually have to move away from being a service provider to strictly occupying a position of leadership and providing guidance to the sector. This would make room for an establishment of gradual legal and institutional reform of all institutions in the Water Sector. Moreover, it would enable the Ministry to play a greater role in the management of trans-

boundary and international waters using an appropriate collaborative mechanism for liaison and coordination.

4.1 Guiding Principles

The following principles will guide the implementation of this Policy:

- i. Water is a finite and vulnerable resource requiring an integrated approach to its management;
- ii. Water and Sanitation is a human right issue. It is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price;
- iii. Water is a socially vital economic good that needs increasing careful management to sustain inclusive and equitable economic growth and reduce poverty;
- iv. Water and Sanitation is a developmental concern requiring a multi-sectoral response;
- v. Equity in the provision of water and sanitation is a foundation for all water and sanitation systems;
- vi. Achievement of full cost recovery for water supply and sanitation services (capital recovery, operation and maintenance) through appropriate charges in the long run;
- vii. In order to successfully improve water supply and sanitation facilities in Adamawa State, programmes must be comprehensive, targeting both the direct and indirect causes responsible for poor service delivery in the sector;
- viii. A clear distinction between water as a service that must be delivered efficiently and as a resource that must be managed sustainably should be made with effectiveness and efficiency central to realizing the maximum benefits from available resources;
- ix. Evidence is the basis for sound water and sanitation policy and practice;
- x. Every person lives, works, learns and participates in an environment that has safe, adequate and affordable water and sanitation that promote peace, wellbeing and health;

- xi. Broad stakeholder ownership and participation at the appropriate level provide the foundation for sustainable management and access to safe water and reliable sanitation to all competing needs in the State;
- xii. The private sector will be recognized in water resources management, development and utilisation and the State will create the necessary enabling environment for the participation of the private sector in the delivery of water supply and sanitation services.

4.2 Vision

Water resources are developed and sustainably managed to ensure availability for all competing demands.

4.3 Mission

To ensure a harmonized, streamlined and coordinated sector-wide approach so that water resources are augmented, protected, harnessed and sustainably managed for all social, economic and environmental uses. Water resources are developed and sustainably managed to ensure availability for all competing demands.

4.4 Policy Thrust

The centerpiece of Adamawa State Water Resources Policy will be the management, development and utilisation of water resources for all competing uses and facilitating adequate sanitation for all in an affordable and sustainable way through participatory investment by government, the private sector and the beneficiaries. This is in line with the Sustainable Development Goal No.6: “Ensure availability and sustainable management of water and sanitation for all” by 2030. This was adopted by the General Assembly of the United Nations in 2015.

4.5 Targets for the Provision of Water Supply

The following targets have been provided by the respective Agencies of the Ministry of Water Resources.

4.5.1 Urban

- i. Attainment of access to potable water supply in all urban areas of the State;
- ii. Improvement of water supply coverage from the 30% coverage of the population to 80% coverage by the year 2030;
- iii. Increased production of water supply from the current 20% capacity to 90% by 2030;
- iv. Attainment of 80% metering of consumers by 2030.
- v. Government will ensure the completion of all water projects across the State.

4.5.2 Small Towns

- i. Construction of one water scheme in 48 small towns in all Local Government Areas (LGAs) of the State by 2030;
- ii. Facilitate gradual metering of all consumers by the year 2030.

4.5.3 Rural

- i. To drill and equip at least 1000 hand pump boreholes annually;
- ii. To provide minimum of 210 protected hand dug wells annually.
- iii. Develop existing spring water sources throughout the state.

4.6 Targets for the Provision of Sanitation Services

4.6.1 Urban Sanitation Sewerage Services

- i. Construct sewerage facilities in all urban areas of the state by the year 2030.
- ii. Charge an appropriate fee for the provision of sewerage services.

4.6.2 Small Towns Sanitation Services

- i. Provide 5 No. VIP latrines in 48 small towns by 2030;
- ii. To construct 1No block of multi-purpose *sani-centres* complex in 48 small towns by 2030.

4.6.3 Rural Sanitation Services

- i. To construct 300 VIP latrines annually;
- ii. To conduct sensitization workshop on hygiene promotion and Community Led Total Sanitation (CLTS) for 1,000 communities annually.

5.0 POLICY MEASURES AND IMPLEMENTATION

This Policy takes an integrated approach to management of water resources in the State by recognizing the fundamental role water resources play for all sectors. It is therefore necessary that this policy facilitates a management approach that will support and complement other sectors in the course of attaining their respective objectives. The water supply and sanitation (including hygiene) sub-sector will be given priority in the management of water resources as it is a critical sub-sector.

5.1 Water Resources Management

5.1.1 Policy Statement

A comprehensive framework for management of water resources will be gradually introduced giving due regard to the need for effective stakeholder/community consultation and involvement, assessment, monitoring, water conservation and preservation of acceptable quality and quantity, and efficient and equitable allocation to all users.

5.1.2 Objectives

The main objectives of water resource management are:

- i. To ensure inter-sectoral linkages in the management of water resources so as to support cross-sectoral development needs and the economic benefits accruing thereto;
- ii. To establish an autonomous regulator for water resources management, development and utilisation;
- iii. To promote and implement the development of an integrated catchment management system and improve accessibility and utilisation of water resources for various uses;
- iv. To promote effective community participation and stakeholder involvement, particularly women and children, in the design, execution and management, development and utilisation of water resources, programmes and projects;
- v. To support the Federal Government in promoting cooperation through effective international and trans-border water management;
- vi. To ensure that water resources are efficiently and equitably allocated to all users in a sustainable manner so as to contribute to economic growth, wealth creation and social differentiation;

- vii. To ensure that water resources are preserved and maintained at acceptable quality standards; and
- viii. In collaboration with Line Ministries, CSOs and NGOs, manage emergency situations effectively with minimum loss of life and property.

5.1.3 Measures

To achieve the objectives in 5.1.2, the following measures will be implemented:

- i. Establish a comprehensive legal, institutional and regulatory framework for effective management of the State's water resources in an equitable and sustainable manner with strong stakeholder participation by adopting an integrated water resource management (IWRM) approach;
- ii. Promote efficient use of water resources and water demand management practices for different purposes;
- iii. Undertake comprehensive water resources assessments of surface and groundwater sources;
- iv. In collaboration with relevant Ministries, Departments and Agencies (MDAs) responsible for the environment, identify ecosystems at risk and recommend remedial measures;
- v. Introduce an integrated water management system that allows the local people, particularly women and children, to effectively participate in the management, development and utilization of water resources in their respective catchment areas;
- vi. In consultation with the relevant agencies, reduce the impact of waterrelated disasters such as pollution, droughts and floods through the provision of early warning systems for emergency management ;
- vii. Strengthen the human, technical and financial capacity for addressing the water resources management needs in the water sector;

- viii. Establish feasible mechanisms for collaboration, coordination and consultation in the water sector;
- ix. In collaboration with other key institutions establish a water resources information management system and monitoring network including information dissemination mechanism;
- x. Develop State Water Resources Management Plans and Strategies;
- xi. In consultation with relevant Ministries and institutions develop regulations and guidelines for water resources management;
- xii. Develop mechanisms for equitable and reasonable allocation of water;
- xiii. Through stakeholder involvement develop equitable and justifiable tariffs for all uses of water;
- xiv. Contribute to the development of water allocation plans with the participation of key stakeholders and local communities;
- xv. Designate water protected areas in collaboration with Line Ministries and Institutions; xvi. Develop and maintain a water quality assessment system;
- xvii. Develop plans for the exploitation of the potential from trans-boundary waters in line with national and state priorities and the need for fostering regional cooperation;
- xviii. Promote national and regional collaboration in areas of research, data collection and information exchange;
- xix. Establish greater involvement of the Ministry responsible for water resources in the management of international waters in collaboration with national institutions to ensure that Adamawa State's interests are adequately protected;
- xx. Establish relevant agencies for the management of dams and other similar hydraulic structures. xxi. Establishment of relevant agencies for the management of irrigation and drainage activities.
- xxii. Develop the state's capacity for negotiation and management of international waters;

- xxiii. In collaboration with other institutions develop a decision support system for management of shared watercourses;
- xxiv. Establish early warning systems for disasters(drought, flood etc) in collaboration with other relevant institutions;
- xxv. Collaborate with regional and international bodies in dealing with emergency situations.

5.1 Water Resources Development

5.2.1 Policy Statement

To achieve sustainable water resource development with a view to facilitating access and equity in the provision of adequate quantity and quality of water for all competing groups of users at reasonable costs and ensuring security of supply under varying conditions.

5.2.2 Objectives

The objectives of water resource development are:

- i. To ensure that the state's water resources are developed to contribute to wealth creation through improved access to water, increased food production and food security for Adamawa State;
- ii. To ensure inter-sectoral linkages in the development of water resources so as to support cross-sectoral development needs;
- iii. To manage and regulate water resources in order to improve accessibility and sustainability;
- iv. To develop water resources to mitigate impacts of extreme hydrological events such as floods and droughts;
- v. To ensure improved access to water resources; and
- vi. To ensure sustainable development of water resources.

5.2.3 Measures

To achieve the objectives in 5.2.2, the following measures will be implemented:

- i. Ensure that Adamawa State water resources are effectively managed and contribute to wealth creation through increased access to safe drinking water and sanitation, increased food production and food security for the people of the state;
- ii. Promote and facilitate development of surface and groundwater resources to improve access;
- iii. Ensure, through regulations that water resources development is
multipurpose and benefits different categories of users;
- iv. Regulate the development of water resources and integrate other sector needs such as agriculture, tourism, industry and hydro-power;
- v. Issue statutory guidelines on the development of water resources;
- vi. Regulate, through legislation, the construction of all water resources development infrastructure;
- vii. Register water resources development projects and programmes;
- viii. Register and regulate water resources development, construction and consulting companies;
- ix. Monitor dam designs and dam safety;
- x. Promote the construction of dams and provide guidelines on their operations by private or public owners;
- xi. Design and implement water resources development projects in collaboration with other relative sectors;
- xii. Subject, according to relevant laws, the imperatives of Environmental Impact Assessments (EIAs) in respect of prescribed water resource development projects such as dams, rain harvesting schemes, water intake points, river diversions, pumping stations, water well drilling, groundwater exploration and use;
- xiii. Establish an integrated water resources data and information acquisition and management system to meet all water resource management, development and utilisation needs;

- xiv. Install or facilitate the installation of metering systems on all hydraulic structures;
- xv. Regulate water resources infrastructure to benefit all sectors of society especially disadvantaged, poor and physically challenged groups;
- xvi. Facilitate public-private participation in water development;
- xvii. Promote the construction of dams for hydro-power generation.

5.2 Water for Food and Agriculture

5.3.1 Policy Statement

Adamawa State is a state which is blessed with significant land and water resources. Agriculture plays an important role in terms of livestock production, aquaculture as well as irrigation of crops. Therefore measures will be introduced to take advantage of the state's water potential and support agriculture development in the State.

5.3.2 Livestock and Fisheries

The State generally is endowed with very large bodies of natural water in dams, rivers and lakes. Very little has been done towards harnessing the aquatic resources in reservoirs as well as providing additional reservoirs for livestock watering. These subsectors shall be supported to enhance their contribution to the development of the social and economic life of the populace.

To improve and support fisheries and livestock development the following strategies will be employed:

- i. Provide fish ladders in dams in order to facilitate the passage of fish;
- ii. Carry out studies in the pre-impoundment of dams to protect the ecology of reservoirs;
- iii. Ensure that sufficient water is released through dams to satisfy downstream requirements for livestock production;

- iv. Ensure that water resources management adheres to the requirements of self-sufficiency in fish production through an effective liaison with the State Ministry of Agriculture;
- v. Ensure that newly planned dams adhere to the requirements of self-sufficiency in fish production.

5.3.3 Irrigation

Irrigation will contribute to the State and national economy through the development of the State's Water Resources and expanding irrigation schemes. This will mitigate water shortage and thus improve and sustain agricultural production.

5.3.3.1 Objectives

The objectives are as follows;

- i. To reduce poverty through effective irrigation schemes allowing appropriate operation and management by beneficiaries;
- ii. To optimize the use of water and land resources to enhance production;
- iii. To slow, stop or reverse the rates of environmental degradation in the existing schemes.
- iv. Increase capacity of Water Users Association in each of the 21 Local Government Areas.

5.3.3.2 Strategies

- i. Establish communication systems for the adoption of best practice in irrigation development and management;
- ii. Encourage the use of indigenous tested and proven technology;
- iii. Ensure sustainable financial autonomy through cost recovery with the ultimate aim of achieving financial autonomy for agencies;

- iv. Ensure integration of irrigated agriculture into the State agricultural production system through improved inter-sectoral linkages between water resources and agriculture;
- v. Encourage the formation and strengthening of water users associations with a view to achieving Participatory Irrigation Management (PIM);
- vi. Encourage and support irrigation research and use of research findings;
- vii. Create an enabling environment for effective private sector participation;
- viii. Collaborate with external support agencies;
- ix. Increase the development of small scale/fadama irrigation projects.

5.3 Dams and Reservoirs

5.4.1 Policy Statement

Dams and other reservoirs are important structures for harnessing water resources, regulating flows and mitigating the effect of floods. Dams and reservoirs are important for the provision of water for economic activities for sectors such as tourism while at the same time providing opportunities for employment and potential for increased foreign exchange earnings for the State. In addition, efficient and effective management of dams is critical because the construction of dams and reservoirs automatically introduces the element of risk with possible loss of life and property to the people living downstream.

5.4.2 Objectives

The following objectives are envisaged:

- i. To ensure the availability of surface water for competing socio-economic uses through design, construction and operation of financially viable storage devices without compromising environmental requirements;

- ii. To ensure proper harnessing and utilization of the potential water resources of the State.

5.4.3 Strategies

In order to optimize the benefits of dams, the following strategies will be adopted:

- i. Ensure proper operation and management of dams and reservoirs in accordance with the relevant prescribed operational manual and engineering standards;
- ii. Ensure the construction of small and medium dams in accordance with the guidelines provided in the National Water Resources Master Plan;
- iii. Investigate potential inter-basin water transfers from areas of surplus to areas of need;
- iv. Improve existing reservoirs, and formulate a reservoir operation strategy for existing dams in line with the National Water Resources Master Plan.
- v. Dam owners and potential developers will be required to prepare dam safety monitoring plans and implement them in accordance with the established procedures.;
- vi. Emphasize the construction of small and medium size dams in locations where feasible, with low capital costs, easy to maintain and cheaper to manage compared to large dams;
- vii. Continuously monitor and inspect dams in accordance with the laid down rules and regulations;
- viii. Ensure provisions for downstream releases for the environment and other uses.

5.4 Water for Health

5.5.1 Policy Statement

The lack of access to and availability of potable water and sanitation has had devastating effects on many aspects of daily life in Adamawa

State. Areas without adequate supplies of freshwater and basic sanitation carry the highest burdens of disease which disproportionately impact children especially those under five years of age. Lack of these basic necessities also influences the work burden, safety, education, and equity considerations for women. Hence, there are likely to be more and more people visiting health facilities for one water related illness or other. Outbreaks of water borne diseases such as dysentery and cholera have been frequent occurrences, affecting the health and well-being of many people of Adamawa State. It is said that even where clean water and flush toilets are available poor hygiene awareness continues to result in outbreaks of water-related diseases.

It therefore becomes necessary to provide a direct and clear link between water, sanitation, and health. Hence, measures will be introduced to make potable water readily available especially at our health centres and hospitals while supporting the improvement of all poor sanitation and hygiene standards.

5.6 Water for Education

5.6.1 Policy Statement

This policy will therefore support and complement the Ministry of Education in providing schools with potable water, latrines, and hygiene education. It is only through the reduction of disease and provision of students' basic needs of water and sanitation, that schools can become more valuable assets to the community and catalysts for a better future of the people of Adamawa State.

Water has a direct link to education and this is evidenced by the fact that people cannot imagine a school without drinking fountains, toilets, or facilities to wash hands. However, in reality, the situation is that many schools do not have adequate water supply and sanitation facilities. The consequence of this is that children's education suffers greatly from a lack of safe water and sanitation for numerous reasons.

In many of rural areas pupils often have to fetch water from long distances from the school and end up losing valuable class time. Unsafe water leads to severe outbreaks of water related diseases. Improper waste disposal and lack of water for proper hand washing perpetuates diseases such as cholera, typhoid, trachoma, and hepatitis. These outbreaks force school closures, making it difficult for schools to be open in some rural areas.

5.7 International Waters

5.7.1 Policy Statement

The implementation of the *National Water Policy* (2016) provides for a more focused development and management of internationally shared water bodies. Consequently there is a need to enhance regional cooperation, flood and drought management, and resource evaluation based on information readily available on water aspects of regional importance.

It is a well-recognized fact that responsibility for managing international waters lies with the Federal Government. Adamawa State will contribute to the Federal Government's efforts at managing the River Benue through equitable and reasonable utilisation and by building capacity within the Ministry to provide all the technical information that may be required by the Federal Government during negotiations on international rivers. Adamawa State is in addition part of the Lake Chad basin. The collaboration will be done in conjunction with the relevant Federal Agencies already operating in the State.

5.8 Water and the Attorney-General's Office

5.8.1 Policy Statement

As mentioned earlier. Adamawa State does not have a Water Policy nor does it have a comprehensive water law. On approval, this Policy will be implemented through a State Water Law once enacted by the

Adamawa State House of Assembly. Additional legislation may be required to facilitate the complementary role of managing water resources at the State level through appropriate collaboration, liaison and coordination. The State Attorney-General's Office has a direct and indirect role in the management, development and utilization of water resources. It provides advice on a number of issues that pertain to:

- i. Policy and Legislation: ensures all policy directions and legislative provisions are consistent with the Federal ones;
- ii. Production of the relevant subsidiary regulations and instruments;
- iii. Provide legal advice regarding conflicts or overlaps in roles and responsibilities at the State level between different ministries or agencies so that harmony and cohesion are enhanced in the different sectors.

6.0 CURRENT INSTITUTIONAL FRAMEWORK FOR WATER RESOURCES

6.1 The National Water Resources Council

The National Council of Water Resources provides guidance to the Government on any proposed water-related legislation, national water resources policy and strategy, and issues of coordination in the water sector. The Federal Minister of Water Resources who chairs the Council while the members are State Commissioners responsible for Water Resources or any other person responsible for water resources in the States. The Council provides a forum for coordination across the water subsector and for discussion of issues of national importance; to provide guidance for and review of the formulation of national water-related legislation; water resources, water supply and sanitation policies, strategies and master plans; provide a forum for mediation of issues on the use or management of water resources arising between sub-sectors or across river-Hydrological Area boundaries; and review performance of the water resources sector in Nigeria as

well as the nation's compliance with obligations of international agreements and commitments on water-related matters.

6.1 Federal Ministry of Water Resources (FMWR)

The Federal Ministry of Water Resources has very wide ranging powers that include formulating national policy and strategy to guide the integrated planning, management, development, and use of the nation's water resources. In addition, it is responsible for effective functioning of its agencies most of which operate in the different states of the Federation.

6.2 National Water Resources Institute (NWRI)

The National Water Resources Institute is responsible generally for the promotion and development of training courses in water resources. It has several functions that include advising the Minister on national water resources training needs and priorities, conducting engineering research functions related to such major water resource projects as may be required for flood control, river regulation, reclamation, drainage, irrigation, domestic and industrial water supply, recreation, tourism, sewage and sewage treatment.

6.3 River Basin Development Authorities (RBDAs)

There are 12 River Basin Development Authorities in the country. The Upper Benue River Basin Development Authority caters for Adamawa, Gombe, Taraba and Bauchi States. The functions of each River Basin Development Authority include the following: comprehensive development of both surface and underground water resources for multipurpose use with particular emphasis on the provision of irrigation infrastructure and the control of floods and erosion and for watershed management, and the supply of stored water from the authority's reservoirs for irrigation and water supply, under commercially viable arrangements. It is expected that all relevant and necessary

consultation and liaison will be made with the State Ministry of Water Resources and other relevant Agencies in Adamawa State.

6.4 Nigerian Hydrological Services Agency (NIHSA)

The Nigerian Hydrological Services Agency (NIHSA) was established under an Act of 2010. It has several functions in its eight hydrological zonal offices across the country which include providing advice to policy and decision-makers, stakeholders in the public and private sectors on all aspects of hydrological services including operational hydrology, water resources activities and providing forecast on flood, drought and other extreme hydrological events.

6.5 State Ministry of Water Resources (SMWR)

Each state devises its functions according to its needs, but in line with the overall national aspiration for water resources as contained in the National Water Policy and legal framework. There is no chain of hierarchical answerability among the Federal, State and Local Governments in the delivery of water supply, sanitation and hygiene services. It is however expected that synergy is encouraged at various levels of Government in the State.

6.6 State Water Agencies (SWAs)

The State Water Agencies provide all basic information on their existing and proposed projects to the Federal Ministry of Water Resources (FMWR). Such information would include: water supply sources, volume of water pumped, quantity of chemicals, data on water quality, pipe types, sizes and lengths and any other relevant information that would be required by the FMWR. The SWAs also provide technical support to the LGAs in the areas of planning, design and supervision of their water supply schemes. The SWAs are autonomous and self-accounting but answerable to the Ministry of Water Resources.

6.7 Local Government Areas (LGAs)

Local Government Areas are responsible for water supply and sanitation services to the rural areas with the full participation of benefiting communities through the WASH units. The Local Government Water, Sanitation and Hygiene (WASH) units maintain records of extent and quality of rural water supply and sanitation services and submit such information to state water regulatory commissions where they exist or other State Government agencies appointed by the State for this purpose.

6.8 Non-Governmental Organizations/Civil Society Organizations (NGOs/ CSOs)

The role of non-governmental organizations and civil society organizations is critical in complementing Government in service delivery. Their roles include lobbying Government and the private sector to give the poor and other users better deals in policy formulation, project siting and implementation. They also act as watchdogs by ensuring that Government and public utilities remain honest, accountable and focused on serving the people; assist in finding ways to mobilize needy communities and facilitate service provision; and develop capacities, harness skills and abilities for sustainable water supply and sanitation services. Government considers these roles as important measures aimed at facilitating all-inclusive and sustainable access to water and sanitation services. Therefore, Government will continue to have an open door policy by providing access at all times to discuss issues and intervention measures pertaining to water supply and sanitation.

6.9 Water Users Associations (WUAs)

Water Users Associations are established under the relevant cooperative society laws of the States. In Adamawa State, most WUAs fall under the Upper Benue River Basin Development Authority which provides irrigation and dam development services.

6.10 Water Consumers Associations (WCAs)

These are associations established to manage water and sanitation schemes in small towns. They are set up by beneficiary communities that eventually delegate the management of the water scheme to the respective association. Thus, the Water Consumers Associations are accountable to the consumers; they are statutorily corporate bodies. In consequence, they are autonomous bodies that liaise and collaborate with the Small Towns Water Supply and Sanitation Agency (STWSSA). The STWSSA usually have a contractual arrangement with the WCAs on matters of water facilities; the former hands over to the latter. Moreover, the STWSSA provides financial and technical assistance to WCAs to enable them become sustainable and operate efficiently and effectively. Membership of WCAs shall be gender sensitive with adequate representation from the youth. It is envisioned that water facilities will eventually be operated by the private sector with the clients being the WCAs and not the State government.

6.11 Private Sector Service Providers (PSSPs)

The Public Sector has in many cases been the dominant player in water sector. The private sector have a pivotal role in water supply and sanitation service provision as in most cases they are generally more efficient and effective in the delivery of water services. They will therefore be encouraged to carry out water supply and sanitation service provision to foster improved service delivery in the urban, small towns and where possible in rural areas.

6.12 Water, Sanitation and Hygiene Committees (WASHCOMs)

At the community level Water, Sanitation and Hygiene Committees are committees established for the management of rural water supply, sanitation and hygiene services in conjunction with Local Government and State Rural Water Supply and Environmental Sanitation Agency (RUWESSA). These committees are supported by Local Government and ADRUWASSA through facilitation and capacity building on roles

and responsibilities in providing water supply and sanitation services in the Local Government Areas.

7.0 INSTITUTIONAL FRAMEWORK AT STATE LEVEL

7.1 Key Stakeholders

The current institutional framework for the development, utilisation and management of water resources in the State covers several institutions that have different roles and responsibilities. The Ministry of Water Resources is the lead Ministry with regard to the Sector. The water sector in the State only covers the administrative boundaries rather than catchment based management which is the logical management unit of a watercourse. Furthermore, the institutional framework is fragmented and lacks capacity to effectively deal with water resource management, development and utilisation.

There is need to separate the following: policy and guidance functions, regulatory functions, strategic functions and operational functions in the sector to enhance efficiency and relevance of the different institutions. The Ministry of Water Resources will divest itself of the role of service delivery or implementing water projects and focus more on supervising, monitoring, coordinating, planning, research and facilitating development of the sector. The implementation of this Policy will be greatly enhanced through the participation of key stakeholders.

The Sector stakeholders include:

- i. Ministry of Water Resources;
- ii. Ministry of Justice;
- iii. Ministry of Health;
- iv. Ministry of Education;
- v. Ministry of Commerce and Industry;

- vi. Ministry of Agriculture;
- vii. Ministry of Environment;
- viii. Ministry of Local Government Affairs;
- ix. Ministry of Finance;
- x. Ministry of Women Affairs;
- xi. Ministry of Youth and Sport;
- xii. Adamawa State Rural Water Supply and Environmental Sanitation Agency;
- xiii. Adamawa State Water Board;
- xiv. Adamawa State Small Towns Water Supply and Sanitation Agency;
- xv. Adamawa State Emergency Management Agency;
- xvi. Adamawa State Universal Basic Education Board;
- xvii. Primary Health Care Development Agency;
- xviii. Adamawa State Waste Management and Environmental Sanitation Agency;
- xix. Community and Social Development Agency;
- xx. Adamawa State Planning Commission;
- xxi. WASH Units/Department at the LGA;
- xxii. Water Users Associations;
- xxiii. Water, Sanitation and Hygiene Committees;
- xxiv. Water Consumers Associations;
- xxv. External Support Agencies;
- xxvi. Civil Society Organizations; xxvii. Academia;
- xxviii. Non-Governmental Organizations;
- xxix. Sustainable Development Goals Office;
- xxx. Security Agencies;
- xxxi. Faith Based Organisations;
- xxxii. Media Representatives;
- xxxiii. Organized Private Sector;
- xxxiv. Traditional institutions; xxxv. Vision 20:2020 Office.
- xxxvi. Donor Agencies.
- xxxvii. Organized Labour.

This Policy encourages all stakeholders in the sector to promote water resource management, development and utilisation measures in close collaboration, liaison and consultation with other stakeholders while recognizing the lead role played by the Ministry of Water Resources. Therefore, an Inter-Agency Coordinating Committee will be established with the following objectives:

- i. To create a platform for other Ministries, public and private agencies, NGOs, CSOs, relevant professional bodies, academia, community representatives and donor agencies to share data, information, knowledge and issues that affect availability, management, uses and threats to water resource practice in Adamawa State;
- ii. To serve as a body that will generate information to Government for policy decision on water resource management, development and utilization in the state;
- iii. To serve as a high level advocacy and support group to influence sector growth and allocation of financial resources for the development of the sector in the State;
- iv. Periodically inform the public on issues identified;
- v. To encourage and foster international best practices in the sector; vi. To review water governance practice in the State and make recommendations on social and political systems, structures and processes that can be introduced to promote equitable access to water resource benefits in the State;
- vii. To encourage research into the water resources sector so as to foster understanding and knowledge on the principles of sustainable water resources management in the State;
- viii. To utilize result and knowledge of the platform to show what is operational to local, national and international stakeholders on water resources management.

8.0 LEGAL AND REGULATORY FRAMEWORK

Adamawa State does not have a comprehensive law that regulates the water sector. However, it has pieces of legislation called edicts that are primarily aimed at facilitating the creation and operation of the Adamawa State Water Board, Small Towns Water Supply and Sanitation Agency and the Rural Water Supply and Sanitation Agency. All these institutions are service providers not regulated by any institution in the State with the exception of the executive oversight by the Ministry of Water Resources.

Lack of regulatory oversight usually gives room for abysmal performance in service delivery on the part of the service provider. This is compounded by the fact that the Ministry of Water Resources itself provides a mix of agency supervision and the provision of water and sanitation services. It is necessary that key institutional reforms are carried out to divest the Ministry of the service-provider role, in line with international best practice in public service delivery.

This Policy, will facilitate the development of a legal basis for enacting a comprehensive regulatory framework detailing appropriate service delivery and assigning appropriate roles and responsibilities.

Under this Policy a regulatory body (regulatory commission) for water and wastewater management is being envisaged. The lack of monitoring bodies and accountability creates a tendency for laxity on the part of service providers, while opening up possibilities of, or risk of, corruption within the water governance system. This Policy will, in addition, facilitate the establishment of a legal and institutional framework for integrated management, development and utilisation of the State's water resources.

The proposed regulatory and legal framework will include:

- i. Establishment of a regulator for all service providers in the water sector;

- ii. Commercialization and improved management in urban and small towns water services;
- iii. Improvements in enforcement of water resource regulations;
- iv. Statutory guidelines on the development of water resources;
- v. Regulation through legislation of the construction of all water resource infrastructure;
- vi. Development of an economic regulation model;
- vii. Tariff Setting on groundwater and surface water resources utilization in collaboration with the relevant agencies;
- viii. Issuance of licenses and charging of service fees;
- ix. Regulation of the quality of service;
- x. Regulation of prices and tariffs through a relevant agency;
- xi. Promoting use of benchmarking instruments; xii. Developing programmes on performance incentives and penalties.

9.0 CURRENT WATER SUPPLY AND SANITATION FRAMEWORK

The 2004 *National Water Supply and Sanitation Policy* provides the overall framework for water supply and sanitation policy formulation, data collection, resource and demand surveys, monitoring, evaluation, studies, research and development in Nigeria. At the State level, the Policy devolves to State Water Supply Agencies the responsibility for service provision, regulatory as well as water quality monitoring functions.

9.1 Agencies at the State Level

9.1.1 State Ministry of Water Resources

In Adamawa State, the functions of the Ministry for Water Resources include: sector coordination, promoting and ensuring rational and sustainable development of water resources through effective planning and management, formulating policies for water resources development, control, utilization, and providing advice to Government on related issues.

9.1.2 Adamawa State Water Board

The responsibility of developing and providing water service to urban areas of the State rests with the Adamawa State Water Board as contained in *Edict No. 4 of 1996*. The Board's functions include the control, management, and development of all waterworks. Approximately 41 % (Adamawa State Planning Commission, 2014) of the urban population has access to safe water and adequate sanitation. However, the existing water works often have operational challenges associated with design, operation and maintenance and lack of integrated management planning and use of technical tools such as water demand management.

9.1.3 Small Towns Water Supply and Sanitation Agency

The term 'Small Towns', refers to towns within a LGA with limited water and sanitation infrastructure. This concept was introduced following the European Union Intervention under the 7th European Development Fund. The Small Towns Water Supply and Sanitation Agency (STWSSA) was established under *Law No. 8, of 2013*. Its functions include developing sustainable access to potable water and sanitation in small towns; provision of safe water for large populations not adequately serviced by existing programmes; and involving the beneficiary communities in a cost-sharing arrangement towards capital investment for construction of water supply and sanitation facilities based on their willingness and ability to sponsor.

9.1.4 Rural Water Supply and Environmental Sanitation Agency

The Adamawa State Rural Water Supply and Environmental Sanitation Agency (ADRUWESSA) (*Gazette No.16, Vol. 6 of 1996*) is responsible for rural water supply and sanitation in the rural areas of the State. These are areas with a population of up to 5,000 people. RUWESSA carries out the following functions: provision of potable water to the rural communities of the State; enlightening and educating people in the rural communities on personal and domestic hygiene and good sanitary habits as steps for reducing the incidence and prevalence of water borne diseases; establishing committees to provide good sanitary conditions and teach hygiene; and to provide rural communities with public toilets in schools, markets and other public places; to trigger communities on the concept of Community Led Total Sanitation (CLTS) in order to achieve Open Defecation Free (ODF) and subsequently Total Sanitation (TS).

9.2 Challenges of Water Services Delivery

The following challenges are some of the critical issues facing the sub-sector:

9.2.1 Urban Areas (Adamawa State Water Board)

- i. Lack of policy framework and enabling environment

Over twenty years after the creation of Adamawa State and the Adamawa State Ministry of Water Resources, there has not been a policy to guide stakeholders on priorities, principles, rules and guidelines for sustainable access to potable water. The resulting poor environment for investment and adequate water services became the bane of this sector. To resolve this shortfall, clear policy directions, enabling laws and transparent regulations to support public-private partnerships are highly important and will be put in place.

ii. No Regulation of Service Providers

Currently there is no codified regulation to protect consumers. In consequence, there is general lack of discipline regarding finances, performance assessments and accountability. Decisions on allocations and pricing are marred by political interference. These give rise to a plethora of problems such as inefficient operations, inadequate maintenance, financial losses and unreliable service delivery. This observation is consistent with the assertion by the World Bank (2004) that “*currently there is no independent regulation of water service delivery at the state or local government levels.*” It is therefore highly desirable to establish an independent water regulator.

iii. Poor Operation and Maintenance

Mechanical equipment and pipes are poorly maintained, leading to frequent breakdowns and high loss of water through leakages. A good number of pipes especially in urban and small towns are made from asbestos and generally tend to be less robust in terms of durability and often lead to breakages or bursts. Such breakdowns lead to interruptions of service, intermittent water supply, and poor customer satisfaction culminating in unwillingness by consumers to respond to water tariffs and other sundry taxes and levies. Urban Water providers (Water Boards, private service providers) will be encouraged and supported through different facilities for funding and capacity building to improve their capacity for appropriate operation and maintenance strategies to improve service delivery.

iv. Low investment and low coverage

Low budgetary allocation, poor financial releases, unwillingness of customers to pay for services provided, low tariffs, leakages within the systems of billing, low collection, physical water loss, and illegal connections are some of the reasons for low investment and low water coverage. Addressing these challenges will be necessary to create avenues for investment and expand water supply coverage in the State. However, this will require political commitment and public support for the policy on water resources. All efforts will be made to plug these loopholes and abide by provisions of the relevant form of legislation in this direction.

v. Limited Autonomy

By the powers vested in it, the Adamawa State Water Board is a body corporate and can enter into loan agreements, and may take investment decisions for expansion of water services, including appropriate and periodic increases in tariff to improve revenues and service delivery, subject to approval by a regulator. However, its autonomy is extremely limited as it continues to function under civil service conditions and culture.

It is expected after implementation of this Policy and the Water Law that Adamawa State Water Board's autonomy will be realized both in terms of financial as well as administrative management. A stronger and more effective management will ensure that it carries out its statutory obligations under the direction of the Board. Furthermore, the Board will be able to exercise its powers to source the much-needed funds from the financial market. Such funding agreements will be guaranteed by the State Ministry of Water Resources. Any monies accessed will be against the value of the Agency's statutory allocation.

9.2.2 Small Towns Areas (Small Towns Water Supply and Sanitation Agency)

The Water Supply and Sanitation Agency is beset with several challenges that include:

- i. Poor technical and human resources;

The Agency has poor human resources capacity, technical tools and equipment to facilitate its operations and support relevant communities in operating and managing water facilities.

- ii. Lack of a mechanism for monitoring and evaluation of projects;

Monitoring and evaluation of projects has not been adequately carried out and hence corrective and other measures have not been effectively implemented. This has led to the continued lack of services in the small towns and lack of capacity mobilization and capacity development.

- vi. Poor coordination between Agencies under the State Ministry of Water Resources

Despite the clear limit to scope and function of the Agency has in some cases encroached upon the area of Adamawa State Water Board in the urban areas while in some small towns the Rural Water Supply and Environmental Sanitation Agency has encroached upon the areas of operation of the Small Towns Water Supply and Sanitation Agency. This situation has led to poor services and in some cases inappropriate intervention measures.

9.2.3 Rural Areas (Rural Water Supply and Environmental Sanitation Agency)

The following challenges are some critical issues facing the sub-sector.

- i. Inadequate funding;

The Rural Water Supply and Environmental Sanitation Agency does not have adequate funding to provide appreciable water supply and sanitation services to all rural areas of the 21 Local Government Areas

of the State. Hence the level of service delivery in rural areas needs great improvement and support from both the State Government and other donor agencies to support UNICEF who is already intervening in two out of the 21 LGAs.

- ii. Lack of capacity at LGA level to support efforts of rural water supply.

The Local Government are responsible for the provision of potable water services in rural areas with support from the State Government through the Rural Water Supply and Sanitation Agency. The situation however is that the Agency in most cases provides the bulk of intervention measures owing to the poor financial resources of the LGA.

9.3 Strategies for Improving Sector Institutions and Service Delivery

9.3.1 Urban Water Services Delivery

In keeping with the objectives of the *National Water Policy 2016*, the following strategies will be adopted:

- i. Develop a defined and acceptable approach to planning, developing and managing of the technical, legal, administrative and financial aspects of urban water utilities;
- ii. Establish, ensure and monitor water quality in accordance with the Nigerian Standard on Drinking Quality which abide by the World Health Organization (WHO) standards for public water supply operations for human health and development;
- iii. Review and update the edict establishing the Adamawa State Water Board with a view to improve service delivery and provide for the establishment of a Water and sewerage Corporation;
- iv. Set realistic and measurable targets for urban water and sanitation by targeting and financing key activities such as construction, maintenance, and expansion of facilities from rolling plans;

- v. Encourage more efficient use of water by consumers by improving quality, reliability and availability and increasing house connections to access minimum daily supply of 120 litres of water per person per day from the Adamawa State

Water Board in urban areas; vi. Promote a coordinated and integrated approach to the planning, expansion and development of new schemes by collaborating with relevant agencies and stakeholders in planning, developing, use and operations of urban infrastructure in the state;

- vii. Become more customer-centric;
- viii. Establish an effective and efficient data and information management system; ix. Employ the use of performance contracts to stimulate competitive use of resources and initiatives;
- x. Introduce benchmarking to improve service delivery;
- xi. Reduce non-revenue water and improving the billing system
- xii. Introduce metering of customers beginning with large scale users.

9.3.2 Small Towns Water Service Delivery

- i. Improve budget allocation and fiscal releases; ii. Review Small Towns Water Supply and Sanitation Edict; iii. Introduce mechanisms such as Commercialisation and private sector participation to improve service delivery in small towns.
- iv. Strengthen institution with qualified and competent staff, logistic support and office equipment;
- v. Improve staff capacity through training and retraining; vi. Establish and manage data and information management systems; vii. Improve accountability, good governance, and transparency through regular oversight functions by the Ministry of Water Resources and interaction with other stakeholders.

- viii. Establish more Water Consumer Associations and develop their capacity to carry out Operation and Maintenance of facilities.
- ix. Prepare a gradual and realistic transitional arrangement management action plan for rural to Small Towns to Urban areas management where necessary.

9.3.3 Rural Water Service Delivery

- i. Improve budget allocation and fiscal releases; ii. Support the establishment of WASH departments in all LGAs to improve service delivery;
- iii. Strengthen institution with qualified and adequate staff, logistic support and office equipment;
- iv. Improve staff capacity through training and retraining;
- v. Establish and manage a water resources information management system;
- vi. Improve accountability, good governance, and transparency through regular oversight functions by the Ministry of Water Resources and interaction with other stakeholders;
- vii. Rehabilitate and reequip broken-down equipment, office accommodation and laboratories; and
- viii. Strengthen coordination and communication with other sector agencies.

9.4 Current Sanitation Situation in the State

The issue of sanitation, as in most countries, has not been accorded its rightful place like water supply. This has caused sanitation to undeservedly assume the backseat, in terms of importance. Government will therefore raise the profile of sanitation. The coordinating Ministry for urban sanitation is the Ministry of Environment with its agencies. This therefore entails that greater collaboration and coordination mechanisms have to be put in place to support the improvement of the deteriorating environmental conditions

arising from low sanitation levels, high population density and low investment levels in the sector. This Policy under this section will limit itself to disposal and management of human excreta and proper drainage of water supply points.

9.4.1 Urban Sanitation

In urban areas, sanitation efforts have primarily been based on demonstrating twin-pit ventilated improved pit (VIP) latrines designed for urban houses, and multicompartment public latrines. However, their high cost has meant limited demand. Efforts will be made to source other forms of latrines with a view to presenting more choices within the context of preference and affordability. It would not need further emphasis that affordable household latrines are key to improved sanitation practices. Moreover, it would be necessary as a result of present situations to reintroduce hygiene education in schools. Furthermore, with growth of cities and resulting populations, the concomitant issue of polluting water bodies with liquid and solid wastes becomes a recurring problem. And this problem is further heightened by the absence of waste handling, and the lackadaisical and negligent attitude of sanitation agencies.

The 2012 sanitation coverage in the State is 32% (RUWESSA 2016) and is comparable with the low sanitation coverage in the country. Nevertheless, with the introduction of open defecation free (ODF) practices in some communities, increased awareness of health practices and cholera among Internally Displaced Persons (IDPs), families and communities, there has been a rise in inculcation of sanitation as a necessity for human dignity, resourcefulness, and social and economic wellbeing in families. This Policy aims to raise sanitation coverage using lessons learned from communities that have achieved sustained revolution against widespread poor sanitation practices.

Household sanitation facilities are fairly common in all parts of the State. Most households have one or two traditional pit latrines inside their compound. However, there is need to improve hygiene by

introducing better and improved latrines. Demand for improved latrines depends to a large extent on their cost, convenience and aesthetics. The State will share the cost of these latrines with the citizens of the State on an agreed proportion to be determined after appropriate consultation and relevant administrative procedures are put in place.

9.4.2 Small-Towns Sanitation

Sanitation in small-towns is coordinated by the Local Government Areas in collaboration with other major stakeholders such as Ministry of Environment, NGOs, CSOs and individual households. Human excreta disposal is done through the VIP latrine while solid wastes from a pool of refuse dumps are usually removed on weekly and monthly basis. The Small Towns Water Supply and Sanitation Agency, along with key stakeholders, has been making efforts at improving understanding, communication and collaboration to improve access to sanitation. Nevertheless due to financial, institutional and capacity constraints, the management of sanitation in the small town communities is far from adequate with service coverage below 50% which is very low and unacceptable by any standard. Efforts to remove the bottleneck that hampers the functioning of this Agency will be put in place.

9.4.3 Rural Sanitation

In rural areas sanitation should not be seen simply as construction of latrines but a concept whereby people create a healthy environment for themselves by erecting barriers to prevent the transmission of diseases and lay a foundation for sustainable development. In this light the issue of appropriate technology to facilitate sanitation should generally evolve from the local context and build on local innovations. This Policy will promote, stimulate and build upon appropriate local technology that should be safe and socially acceptable.

9.4.4 Task Group on Sanitation

This is a facility comprising different institutions, including public, private, civil society, and local government to coordinate sanitation across the State. It will be formed also at the LGA level to provide coordination in the LGAs.

9.5 Challenges of Sanitation Service Provision

The sanitation sub-sector has the following challenges impacting service delivery across the urban, small towns and rural areas:

- i. Undefined institutions charged with sanitation in the State. There are several players in the sector with no defined sector leader;
- ii. Lack of clearly defined household water supply, sanitation and hygiene education;
- iii. Poor coordination of the activities of various institutions involved in WASH service delivery (both public and private);
- iv. General poor appreciation of the need to deal adequately with issues of sanitation and personal hygiene;
- v. Inadequate allocation of financial resources;
- vi. Inadequate skilled manpower;
- vii. Lack of sense of ownership of facilities by beneficiaries;
- viii. Poor maintenance culture for existing facilities;
- ix. High cost of operation and maintenance of facilities;
- x. Weak institutional framework for the delivery of services;
- xi. Limited mandate for Local Government WASH Units;
- xii. Limited Private Sector and Civil Society participation;
- xiii. Poor stakeholder engagement and low profile of sanitation.

9.6 Strategies for Increased Sanitation Service Provision

9.6.1 Urban Sanitation

In order to address the sanitation challenges in urban areas the following strategies shall be introduced:

i. Increased provision for funding and trained manpower

The demand for sanitation is dynamic. Government will therefore:

- a. Ensure that training and retraining of staff shall be kept in tune with changing social demands and technological developments. This will culminate in an increase in financial allocations to water and sanitation projects;
- b. Support the commemoration of globally held events such as the Global Hand Washing Day and the World Toilet Day.

ii. Increase service coverage

In order to increase service coverage, the following shall be put in place:

- a. Promote the improvement of traditional waste disposal e.g. V.I.P, Eco-San toilet and others for the rural areas;
- b. Promote the improvement of small waste disposal schemes for semi-urban areas; and
- c. Promote the improvement of Sewage Treatment Plants and Solid Waste Disposal Schemes for urban areas.

iii. Ensure good water quality standards

Improved quality water supply and proper disposal of solid and sewage waste systems shall be maintained by water undertakers in the following ways:

- a. The Nigerian drinking water quality standards will be the baseline for the State drinking water quality;
- b. All waterworks serving 5,000 citizens and above to be equipped with a functional waste and water quality laboratory of appropriate capacity;

- c. Monitor and protect the quality of waste discharge into streams, rivers and raw water sources for drinking;
- d. Monitor the output of water and wastewater undertaking for conformity with discharge of waste to rivers and drinking water quality standards.

iv. Ensure availability of sanitation services for the citizens

- a. Promote the construction of VIP latrines or other forms of latrines on a cost-sharing basis between the State, households and communities to lessen the financial burdens on citizens. A 70% contribution by Government will increase the odds of acceptance, making such toilets a necessary structure for building approvals;
- b. Water supply and sanitation services cost reduction measures will be pursued without compromising the quality of service;
- c. Improved management practice (financial management operations and maintenance, abstraction and treatment techniques and control of water sources pollution) will be institutionalized to keep the cost to the minimum;
- d. Institutionalize efficiency improvement techniques by sanitation and water supply undertakings to reduce cost;
- e. All water supply and sanitation undertakings will be subjected to performance monitoring and evaluation measures.

v. Monitor the performance of sanitation and sewerage service provision for sound policy adjustment

- a. Maintain a state monitoring network for sanitation and sewerage services;
- b. Promote community participation in monitoring and evaluation at the small towns and rural levels;
- c. Maintain databases for sanitation services;

- d. Ensure feedback of information to promote proper planning and policy adjustment.

vi. Legislation, regulations, standards and laws for water supply and sanitation

- a. Develop standards on design procedures and material quality for water supply and sanitation services;
- b. Implementation of the provisions of the policy;
- c. Regular review of all legislation and laws relevant to water supply and sanitation to ensure that they meet modern day requirements for adequate and sustainable delivery of water supply and sanitation services in urban centers of the State.

9.6.2 Small Towns Sanitation

- a. Promote the use of pour flush toilets and multi-compartment alternating V.I.P.s;
- b. Transform the WASH units into Departments in all Local Government Areas in the State;
- c. Enhance training of community, State and LGA officers on sanitation development and management;
- d. Equip community latrine artisans and link them to latrine artisans;
- e. Promote sanitation as a potential lucrative business venture;
- f. Establish community Sani centres;
- g. Upscale CLTS to small towns;
- h. Promote the community and Water Consumers Associations to participate in global events that raise the profile of sanitation and personal hygiene during globally held events such as the World Hand Washing Day and World Toilet Day.

9.6.3 Rural Sanitation

To support and encourage safe and adequate sanitation and personal hygiene practices the following will be encouraged:

- a. Use of sanitary platform (*Sanplat*)latrine, single and multi-compartment V.I.P.s, and traditional latrines for communal use, in schools and health centres;
- b. Collaboration with the relevant Ministries, such as Health and Education in promotion of hygiene;
- c. Enhancement of sanitation/health clubs and hand washing in schools;
- d. Support the transformation of the WASH units into Departments in all Local Government Areas in the State
- e. Participation by communities and Water, Sanitation and Hygiene Committees in global events that raise the profile of sanitation and personal hygiene; examples are: World Hand Washing Day and World Toilet Day.

10.0 FUNDING

10.1 Cost-sharing Arrangements for Capital Investment, Operation and Maintenance

The cost-sharing arrangement for capital investment, operation and maintenance as presented in the National Policy on Water and Sanitation is shown below:

Stakeholder Group	Capital Investment Cost			Operation and Maintenance Cost		
	Urban	Small Towns	Rural	Urban	Small Towns	Rural
Federal	30%	50%	50%	Nil	Nil	Nil

State	60%	30%	25%	100%	Nil	10%
Local Govt.	10%	15%	20%	Nil	20%	20%
Community	Nil	5%	5%	Nil	80%	70%

Government is committed to actualizing this arrangement by honoring the release of funds to the local governments and relevant state agencies as and when due.

10.2 Loans and Grants

Apart from the annual budget instruments, another way open to Government to finance water resources activities is through loans from the major regional/world financial institutions such as the African Development Bank and the World Bank. Grants such as operated through financing by the European Union Water Supply and Sanitation Sector Reform Project Phase III (EU-WSSSRP–III) also go a long way in implementing and sustaining water resources in project areas, institutional development and capacity building. Moreover, government will encourage its agencies and parastatals to source funding by way of loans from financial institutions.

This practice would be allowed only when statutory allocations were not converted to monetary disbursements to these state agencies. In this situation, Government will guarantee such loans, since the agreement will be a borrowing against statutory allocation.

10.3 Internally Generated Revenue

The State Water Agencies are expected to generate sufficient revenue from different sources such as water rates to meet the cost of operation and maintenance. However, Government considers water supply, sanitation and hygiene education as a social service to be provided at a minimum and appropriate cost. This is within the context that water has to be treated within the balance of a social and economic good to ensure sustainability of water supply and sanitation services while, at the same time, satisfying the expectations of the

citizenry. Therefore, collecting these rates and associated revenues must meet a criterion of enforceability to meet this envisaged goal.

Sources of revenue will include the following;

- i. Drillers' Licence;
- ii. Application for Drilling permit;
- iii. Royalty on Sale of Water;
- iv. Fees for Laboratory use;
- v. Hire of Drilling Rigs;
- vi. Fee for use of Irrigation Land/Facility;
- vii. Registration of contractors;
- viii. Fee for Geophysical Survey;
- ix. Sale of processed hydrological data.

10.4 Private Sector

Pro-market reforms such as privatization, public-private partnerships (PPPs) and subcontracting of service provision has been promoted over the last two decades. The three main objectives of the public water sector with respect to partnership are to expand the water supply and sanitation systems in order to increase population coverage; expand water treatment and quality control in order to reduce water pollution and public health hazard; and provide a better quality of service. The secondary objectives of involving the private sector in water resource management are to ensure higher operating efficiency and to finance the system with little public subsidies or guarantees. Thus partnership in public water supply is likely to improve operational efficiency, while at the same time attracting private finance and improving the efficiency of investment.

Pro-market water resources sector reforms may include the following:

- i. Commercialization;

- ii. Privatization of water utilities;
- iii. Sub-contracting to private companies;
- iv. Public-private partnerships;
- v. Promotion of transparency and ethical business values in the private water resources sector;
- vi. Build, Operate and Transfer;
- vii. Payment for environmental services;
- viii. Irrigation/dam management transfer.

11.0 CROSS CUTTING SECTORAL ISSUES

11.1 State Strategic Planning and Development

The development of water resources has been hitherto sector-oriented (e.g. agriculture, water supply and sanitation, road construction) rather than integrated. This has hindered the realization of the overall objective of using water for socio-economic development for the State. Therefore, formulation of a comprehensive strategic water development plan that facilitates regular reviews during implementation within the framework of IWRM shall be encouraged. This practice will result in informed decisionmaking, and improved social and economic development. To achieve effective State strategic planning and development, the following measures shall be implemented:

- i. Water resources planning and development shall be based on accurate and reliable information;
- ii. Water resource management, development and utilisation shall be carried out on the basis of catchment boundaries in conformity with the notion of integrated water resources management in line with the National Water Policy;
- iii. A water infrastructure development strategy shall be implemented that will attract public investment as well as encourage public-private partnerships;

- iv. Use of wastewater recycling (where possible) shall be promoted to increase water availability.
- v. All water related development by Ministries and institutions in the sector must be approved/supervised by the Ministry responsible for water resources.

11.2 Community Participation

Community management is the key to sustainable water supply and sanitation facilities. The concept was introduced because of the inability of Governments to adequately provide for the required services. Water development, management and utilization shall therefore be based on a participatory approach involving users, planners and policy-makers at all levels. This includes water resources investigation, planning, implementation, operation and maintenance of schemes. The views of stakeholders are valuable in influencing decisions that affect communities in water resources management, development and utilization. This enhances the sense of community ownership but should not be seen as divesting the State Government's responsibility towards its people.

In order to achieve effective community management and participation, the following measures shall be implemented:

- i. Use participatory approaches to create awareness on important water issues to mobilize support from the general public, policy and decision makers on the best practices for management and development of the water resource facilities;
- ii. Build the relevant capacity within communities in community water project identification, formulation and implementation so as to equip them with appropriate knowledge and skills;
- iii. Encourage the establishment of other community management facilities with clearly defined roles;
- iv. Introduce participatory techniques in water resource management programs, including the enhancement of the role of members of the disadvantaged groups, youth and other members of local communities

- v. Introduce appropriate technology for the disadvantaged.

11.3 Administration of Water Utilization

This Policy will endeavour to facilitate the use of water resources through the appropriate regulatory instruments and institutions in the catchment area. The State will manage its water resources through the appropriate Federal catchment management instrument for water resources. Given the administrative set-up of the State, it will be necessary for an efficient system for administration of water use as a prerequisite for efficient resource allocation, guarantee reasonable returns to water suppliers, and encourage conservation and protection of water resources. It is envisaged that water permits shall facilitate use of water and will be administered using the principles of equity and reasonableness, hence promote efficiency and sustainability in the utilization of water resources for overall social and economic development within the catchment.

11.4 Water Resources Information Management System

The existing database on the status of water resources in the State is extremely poor and needs an overhaul. What is required is a new and robust information management system, which will support planning and decision-making, designing, and operation of water resource projects by providing information on the water resource potential in terms of access, quantity, quality, and distribution in time and space for both surface and groundwater. In addition, it will also embrace information on water-related development and other development plans and play an important role in the general development of the State. Such a system needs to take into account all data and information from the Local Government Areas to the State level and ultimately link up to the Federal Water Sector Monitoring system.

In order to achieve the above intervention, the following measures will be put in place:

- i. Establishment and maintenance of an appropriate water resource information management system;
- ii. Harmonizing and undertaking regular monitoring and assessment of water resources in conjunction with relevant institutions;
- iii. Regular dissemination of information on water resources to relevant institutions and stakeholders;
- iv. Developing an appropriate capacity building programme to train professionals in hydro-informatics and other related fields.

11.5 Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome

The Human Immune Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) pandemic has impacted negatively on the water sector and has contributed to the low human resource capacity and productivity in the sector. There is need to maintain and strengthen existing programmes to minimize the negative impact of HIV /AIDS. This Policy shall be complemented by the State. HIV/AIDS Strategic Plan in its implementation.

11.6 Research and Development

Research and development is crucial in water management, development and utilization. It therefore stands to reason that capabilities in the field of water resource research must be enhanced and encouraged at all levels from secondary schools up to tertiary institutions.

In order to achieve the above intervention, the following measures shall be promoted:

- i. Extending the traditional fields of water research to include investigative studies in social and financial issues,

- integrated catchment management, policy analysis and development, decision support systems, capacity building, ecosystem structure and functional development practices;
- ii. Encouraging interdisciplinary and participatory research approaches that provide linkages between technology and communities;
 - iii. Reviewing and updating data and information on land-water resources and related socio-economic issues, with particular emphasis on land and water conservation, water use efficiency, user-friendly affordable technologies, and drought-resistant crops; and
 - iv. Supporting the standardisation of methods of data collection and processing both at national, regional and international levels.

11.7 Climate Change

Climate change is one of the serious threats to sustainable development, due to its adverse effects. Nigeria, like many other countries, has not been spared from these effects. For instance, in Adamawa State both floods and droughts have occurred which can be attributed to climate change. These extreme events have negatively affected the socio-economic development process in the State. Resources meant for other development programmes and projects have been diverted to address these climatic challenges.

In order for Adamawa State to effectively address these challenges, the following measures shall be implemented:

- i. Conducting public awareness campaigns on climate change issues, including adaptation measures;
- ii. Assessing and monitoring the potential impact of climate change on ecosystems, especially woodlands, forests and wetlands;
- iii. Investing in irrigation systems;

- iv. Supplying clean and safe water to communities to prevent water-borne diseases that come with floods/droughts;
- v. Developing and promoting use of alternative energy especially wood, the effect of which reduces woodlands, forests and wetlands;
- vi. Contributing towards strengthening the existing national climate and meteorological databases and monitoring networks.

11.8 Gender Mainstreaming

Gender mainstreaming is an indispensable feature in modern management of water resources. Currently, at the global level, there is better understanding and greater awareness of the gender issues involved in water management and a range of initiatives have been introduced to improve gender equity. Gender mainstreaming aims to advance and empower women, children and the physically challenged to ensure that they substantially improve their productivity, wellbeing and quality of life. Therefore, it should be implemented at all levels of decision-making. Women generally occupy the lowest income levels in organizations and constitute the highest percentage in terms of the poor and vulnerable in the State. Gender has gained a prominent role in the water sector because women and children are the most affected if water is not properly managed to improve access and hence use.

A notable effect has been on girls who in some communities have to skip school to assist with fetching water for the house which takes up a good deal of time. Furthermore, once a girl reaches the age of menstruation water becomes even more critical to ensure personal hygiene and dignity. In a number of cases girls keep away from school because there may not be water for them to use to manage their menstruation. This again affects the education of the girl child.

In order to effectively mainstream gender in the water sector this Policy will support the responsible Ministry and institutions (public, private, CSOs, NGOs) to:

- i. Accelerate the representation of women at all levels and in all spheres of water resources management, development and utilization;
- ii. Ensure gender balance by defining the key roles played by women, men and children so that there is no gender discrimination in the ownership and management of the various water schemes operated by communities;
- iii. Articulate water sector programmes with full involvement of women in the development and implementation of the State Water Resources Policy;
- iv. Monitor and evaluate gender mainstreaming in the development and implementation of the water sector project activities in the State;
- v. Develop and disseminate gender mainstreaming tools;
- vi. Develop HIV/AIDS advocacy materials and disseminate the information with a focus on the role of water management, development and utilisation;
- vii. Introduce appropriate and gender-sensitive technology.

11.9 Conflict Prevention and Management

The development of conflict management mechanisms in the water sector is imperative due to its multi-sectoral nature. Dispute resolution will take the form of arbitration, mediation, reconciliation and courts of law as the last resort.

11.10 Capacity Building

There is an urgent need to develop adequate human resource capacity in the State Ministry of Water Resources in order to ensure optimum output and support the proposed legal and institutional framework. Capacity building is a cross cutting and well acknowledged issue in the State's transition to IWRM. The institutional structure and distribution

of responsibility envisaged in this Policy will require extensive and long-term capacity building to ensure effective implementation.

In addition, the potential of private sector involvement in urban, small towns and rural areas will supplement existing MDA capacity and this will be an important approach to supplement the efforts of the State. The State Ministry of Water Resources requires enhancing human resources capacity at all levels.

To enhance human resources capacity, the following shall be implemented:

- i. Identification of the capacity needs to determine current human resource capacity;
- ii. Designing a Human Resource Development plan for capacity needs;
- iii. Recruitment and training of personnel in the relevant fields at all levels;
- iv. Provision of incentives aimed at retaining skilled human resource;
- v. Development of a system for evaluating and rewarding personnel performance and productivity;
- vi. Introducing capacity building programmes for institutions and stakeholders in river catchments.

11.11 Disaster Management and Mitigation

Water resource management and utilization have not been left unaffected by different forms of disasters. Water-related disasters such as floods, droughts, over-extraction of groundwater, pollution of rivers and wetlands, loss of water-based ecosystem services, landslides, debris flows, storm surges, and tsunamis occur.

- i. Floods

Adamawa State has experienced water-related disasters with floods having significant effects. These have had long lasting effects on both human life and property in the State. Protection of people and property from water-related hazards is still very low in Adamawa and this is made worse by the fact that there is need for greater coordination regarding issues of flood forecasting and providing a robust early warning of extreme hydrological events in specific areas in the State. The State Ministry of Water Resources will provide for an elaborate early warning system that supports and incorporates all relevant stakeholders such as the National Emergency Management Agency, the Upper Benue River Basin Development Authority and Nigerian Hydrological Agency. This will require effective and efficient coordination, liaison and collaboration.

ii. Droughts

Over the past few years hydrological patterns have changed due to climate change and their occurrences have to be planned for and mitigation measures put in place. Such occurrences are: meteorological, hydrological, or agricultural.

- a. A meteorological drought is simply a prolonged period of below normal precipitation (rainfall);
- b. A hydrological drought is a prolonged period of below average flow in rivers, low storage in reservoirs, lakes, and aquifers, and soil moisture;
- c. An agricultural drought is the prolonged shortage of soil moisture in the root zone, leading to crop water stress.

Government will accelerate the development of water harvesting and storage infrastructure to minimize the effect of droughts.

iii. Pollution of Rivers

This is one area that is not usually considered as an emergency situation. However, the potential chemical pollution in the different

watercourses in and around the State needs to be recognized as an issue. There are many forms of toxic waste that have the potential to cause widespread pollution of watercourses in the State. Government will work with relevant agencies to make every effort to prevent the incidences of water pollution through the establishment of surveillance and monitoring. The Ministry of Water Resources will support the lead Ministry of Environment in dealing with issues of water pollution.

11.12 Water Governance

International consensus has noted that unsuccessful efforts to bring water and sanitation to everyone are due to problems of governance. This is very true of Nigeria where the issue of poor governance has been identified as the major challenge in the delivery of water services.

i. Transparency

All service providers including Government will facilitate access to information and their understanding of decision-making processes. These will reduce issues of misunderstanding as well as suspicion on the part of end-users that service providers are deliberately only paying lip service to their obligations.

ii. Accountability

This is crucial as it puts responsibilities on service providers to be answerable for their actions at all levels. This entails that the end-users are able to scrutinize their leaders/Government, civil society organizations, parastatals; and hold them accountable for their actions or lack of it. In this regard, it is important to provide a mechanism for benchmarking performance; performance contracts for officials at all levels of decision making will enhance good governance.

iii. Participation.

Effective stakeholder involvement and participation are crucial in promoting water governance and Government must directly support

this by providing the necessary mechanisms by legislation. The legislation needs not only to grant to communities and other stakeholders the right to become involved in the water management process but it will also encourage statutory institutions to provide communities with incentives to participate and access information for a deep understanding of the situation. Meaningful participation can also be attained through ensuring that policies and actions are coherent and integrated.

iii. Decision making and policy development

To provide harmony in the sector, this Policy has already taken due regard to the need to ensure collaboration, coordination and liaison in the decision-making process. Without coordinated planning and development of coherent policies it is hardly possible to apply integrated approaches in management of water resources; a situation that would foster conflict of roles and responsibilities.

11.13 Integrated Water Resources Management

Integrated water resources management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of the vital ecosystem. Water resources need to be managed in a sustainable manner to satisfy all competing uses such as water supply and sanitation, agriculture, industry and biodiversity.

IWRM helps to protect the environment, foster economic growth and sustainable agricultural development, promote democratic participation in governance, and improve human health. This is very important especially for the water supply and sanitation sub-sector which this Policy aims to raise as a priority sub-sector. Worldwide,

water policy and management are beginning to reflect the fundamentally interconnected nature of hydrological resources, and integrated water resources management is emerging as an accepted alternative to the sector-by-sector, topdown management style that has yielded little results in the past. This is also consistent with the SDG which are the universal guiding goals for the Water Sector and are being used to steer the Water Sector around the world.

This Policy which was a product of extensive stakeholder consultations noted that IWRM offers the only option for effective water resource development in Nigeria. The State shall promote IWRM as a concept to support the water sector.

12.0 POLICY IMPLEMENTATION FRAMEWORK

12.1 Time Frame

The time frame for implementation of this Policy is 10 years from the time of its adoption.

12.2 Institutional Arrangements

Effective implementation of the State Policy on Water Resources will be greatly enhanced by all institutions mentioned in this Policy through collaboration, liaison and coordination as they implement their objectives through sector intervention measures.

12.3 Coordination of the Water Sector

The inter-agency coordinating body shall coordinate the water sector to ensure that it meets its objectives and functions as a coordinated sector complementing all stakeholders' activities and interventions.

12.4 Monitoring and Evaluation

The State Water Sector does not have a monitoring and evaluation system. In order to ensure that the Policy measures and strategies are carried out, an effective monitoring and evaluating system will be put in place that will be linked from the LGA level to the State and finally to the Federal Ministry of Water Resources monitoring and evaluation system. The State Ministry of Water Resources, in collaboration with stakeholders, will develop verifiable indicators for the purpose of ensuring that the objectives of this Policy are being achieved in accordance with the implementation plans.

12.5 Transitional Arrangements

In all reform processes the issue of transition from one era into another needs to be provided for adequately. The current State institutional framework needs to evolve to the proposed arrangement under this policy and as will be provided for in the proposed Adamawa State Water Law.

12.5.1 Legislation

The existing edicts will be reviewed and improved to ensure efficient and effective service delivery. An appropriate water law will be prepared that provides for the continued existence of all the agencies and also providing for the establishment of regulatory body for water services.

12.5.2 Transfer of Responsibilities, Assets, Liability and Staff

This Policy ensures the establishment of a clear road map for the transfer of responsibilities, assets, liabilities and staff in line with the statutory responsibilities of the different agencies. Currently, there is an overlap regarding jurisdiction of responsibilities between the Agencies. The transition will be gradually implemented to ensure harmony and avoid conflict between agencies so that service delivery is not adversely affected.

