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NATIONAL WATER POLICY 2010



NATIONAL WATER POLICY

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FOREWORD

Water plays a cardinal role in socio-economic development and it is fundamental for sustaining all forms of life. Productive activities ranging from agriculture, mining, tourism and other industries are dependent on water. However, Zambia's water resources are yet to be fully exploited for the benefit of its people to enhance their productive ability for improved livelihood. In order to achieve this, the Government of Zambia in 1994 formulated the National Water Policy which led to significant changes in the water sector.

However, in view of the new challenges and modern approaches that have evolved in the management of water resources, the Ministry of Energy and Water Development in consultation with other stakeholders undertook a revision of the National Water Policy (1994) in order to provide a comprehensive framework for sustainable development, management and utilisation of the water resources. Water is also a crucial element for the preservation of the environment and thus has to be managed in ways that will not only benefit the environment but future generations as well.

The revised National Water Policy embraces modern principles of water resources management and endeavours to deal with the daunting challenges of poverty reduction. In addition it takes into account other interventions, such as the National Decentralisation Policy.

I am gratified to note that the revised National Water Policy also seeks to address cross-sectoral interests in the water sector with particular focus on water resources planning, development, management and utilisation. Integrated water resource management will address cross-sectoral issues such as land use, irrigation, wetland conservation, climate change and conflict management.

Therefore, I wish to state that the Government is committed to improving the sector and has attempted through this Policy to create an enabling environment by providing a clearly defined framework within which all stakeholders would perform. This will contribute to positive economic growth and increased production. Ultimately, Zambia will attain its Vision of *“optimally harnessing the water resource for the efficient and sustainable utilisation of this resource to enhance economic productivity and reduce poverty”*.

Finally, I wish to call upon all stakeholders to work together in order to achieve the objectives of the policy to meet the aspirations of the Zambian people.

Hon. Kenneth Konga, MP,

Minister of Energy and Water Development

February 2010

ACKNOWLEDGEMENT

The development of the National Water Policy was based on a consultative process involving all the major stakeholders in the water sector. Accordingly, due appreciation is extended to all those stakeholder institutions and persons who under the water sector reform process participated in formulating this Policy. These included representatives from the following:

- i. The House of Chiefs and Traditional Leaders;
- ii. The National Assembly;
- iii. The Zambia National Farmers Union and National Association for Peasant and Small Scale Farmers;
- iv. ZESCO Limited and Lunsemfwa Hydropower Company;
- v. The Chambers of Mines;
- vi. The Zambia Chamber of Commerce and Industry;
- vii. Institutions dealing with ground-water development;
- viii. Research institutions;
- ix. Line Ministries and institutions responsible for the management of natural resources;
- x. Cabinet Office, the Ministries of Justice, Commerce, Trade and Industry, Community Development, Health, Foreign Affairs. Local Government and Housing;
- xi. The Decentralization Secretariat;

Special thanks are also extended to the Legal and Policy Consultant and cooperating partners: GTZ, NORAD, Irish Aid, JICA, European Union, World Bank, UNDP, ADB, KfW and DANIDA.

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

The successful implementation of this Policy will depend greatly on the effective participation of all the above mentioned organizations and all citizens of Zambia in general.

Teddy J.Kasonso,
Permanent Secretary
MINISTRY OF ENERGY AND WATER DEVELOPMENT

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ACRONYMS

ADB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
CU	Commercial Utility (Water Supply and Sanitation)
DMMU	Disaster Management and Mitigation Unit
DTF	Devolution Trust Fund
DWA	Department of Water Affairs
ECZ	Environmental Council of Zambia
EIA	Environmental Impact Assessment
ENR	Environment and Natural Resources
ERB	Energy Regulation Board
GIS	Geographical Information System
GRZ	Government of the Republic of Zambia
GTZ	Gesellschaft fuer Technische Zusammenarbeit
IWRM	Integrated Water Resources Management
HIV	Human Immuno-deficiency Virus
JICA	Japanese International Cooperation Agency
KfW	Kreditanstalt fur Wieder
MDG	United Nations Millennium Development Goals
MEWD	Ministry of Energy and Water Development
MLGH	Ministry of Local Government and Housing
MTENR	Ministry of Tourism, Environment and Natural Resources
NGO	Non-Governmental Organisation
NHCC	National Heritage Conservation Commission
NISIR	National Institute for Scientific and Industrial Research
NWASCO	National Water Supply and Sanitation Council
PCU	Programme Coordination Unit
RWSS	Rural Water Supply and Sanitation
SADC	Southern African Development Community
SAG	Sector Advisory Group
SWAp	Sector Wide Approach
UNDP	United Nations Development Programme
WASHE	Water, Sanitation and Hygiene Education
WDTF	Water Development Trust Fund
WRAP	Water Resources Action Programme
WRM	Water Resources Management
WSS	Water Supply and Sanitation
WWF	World Wide Fund for Nature
ZAWA	Zambia Wildlife Authority
ZNFU	Zambia National Farmers Union

WORKING DEFINITIONS

In this document the following words and terms have the following meanings:

Biodiversity: means the variability among living organisms from all sources including genetically modified living organisms, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part of.

Catchment: is a geographical area which naturally drains into a water resource and from which the water resource receives surface or ground flow which originates from rainfall.

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.

Domestic Purposes: means the household use of water for various purposes such as drinking, washing, including the making of bricks for the private use of the occupier or for fire-fighting.

Ecosystem: means the biological community of interacting organisms and their physical environment.

Equitable and Reasonable Utilisation: refers to the management and maintenance of a fair and justified allocation system, 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.

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

National Water Resources Strategy and Plan: is a plan that is formulated after public consultation for the management, use, development, conservation, preservation, protection, control and regulation of water resources.

Permit: means a permit for the use of water.

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

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.

Rainwater harvesting: a process of capturing rain from surfaces such as roofs, and land.

Reserve: in relation to a water resource, means that quantity and quality of water required to satisfy basic human needs of all the people who are or may be supplied from the water

resource; and protect aquatic ecosystems in order to secure ecologically sustainable development and use of the water resource.

Riparian habitat: includes the physical structure and associated areas of a water resource which are commonly characterised by alluvial soils and inundated or flooded to an extent, and with a frequency, sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.

Riparian land: means any land on which, or along the boundary of the whole or any portion of which, a water resource exists.

Sustainable Water Resources Development: is development which facilitates the equitable provision of adequate quantity and quality of water for all competing groups of users at acceptable costs that ensures security of supply under varying conditions.

Shared Watercourse: means a water resource that forms, or is bisected by an international border

Use: in relation to water, is 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; 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.

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 ground-water.

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

Water Conservation Management Practices: are practices that minimise 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 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 utilisation, protection, conservation and control of the water resource; and improving the access to sufficient quality, quantity and distribution of water for various uses.

Water Shortage Area: is an area where, among other things, the flow of water falls under a prescribed level in a water resource or in storage works;

Wetlands: are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.

1. INTRODUCTION

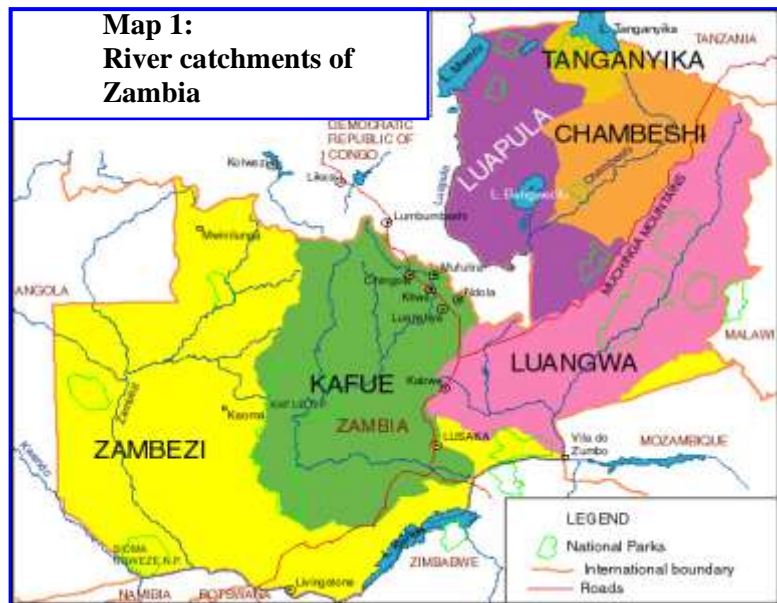
1.1 Water Resources Availability

Zambia generates an estimated 100 km³ per year of surface water and an estimated annual renewable groundwater potential of 49.6 Km³ per year (DWA/JICA, 1995). Most of the surface water resource is poorly distributed while groundwater is fairly well distributed. In any case most of this water needs to be developed to meet present and future demand for various uses such as irrigation, domestic water supply and hydropower generation.

There are two main river basins in Zambia namely the Zambezi and the Congo River Basins. Within these fall the six main catchments of Zambia, namely the Zambezi, Kafue, Luangwa, Luapula, Chambeshi and Tanganyika. (See Map 1)

The Zambezi River Basin is the largest and comprises the upper Zambezi, Kafue and Luangwa catchments. The

Congo River Basin comprises the Chambeshi, Luapula and the Tanganyika catchments and is situated in the northern part of the country. Extending over the northern and north-eastern parts of Zambia the Congo Basin is shared with eight other riparian states: Democratic Republic of the Congo, Central African Republic, Republic of the Congo, Cameroon, Angola, Tanzania, Burundi and Rwanda. The Zambezi Basin, in the south and southwest of the country is shared with seven other riparian states: Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania and Zimbabwe.



Map 1 River catchments of Zambia

Source: Ministry of Energy and Water Development, 2002

Table 1 gives the total length and basin area of main river catchments of the country.

Table 1 River length and basin area of six main river catchments

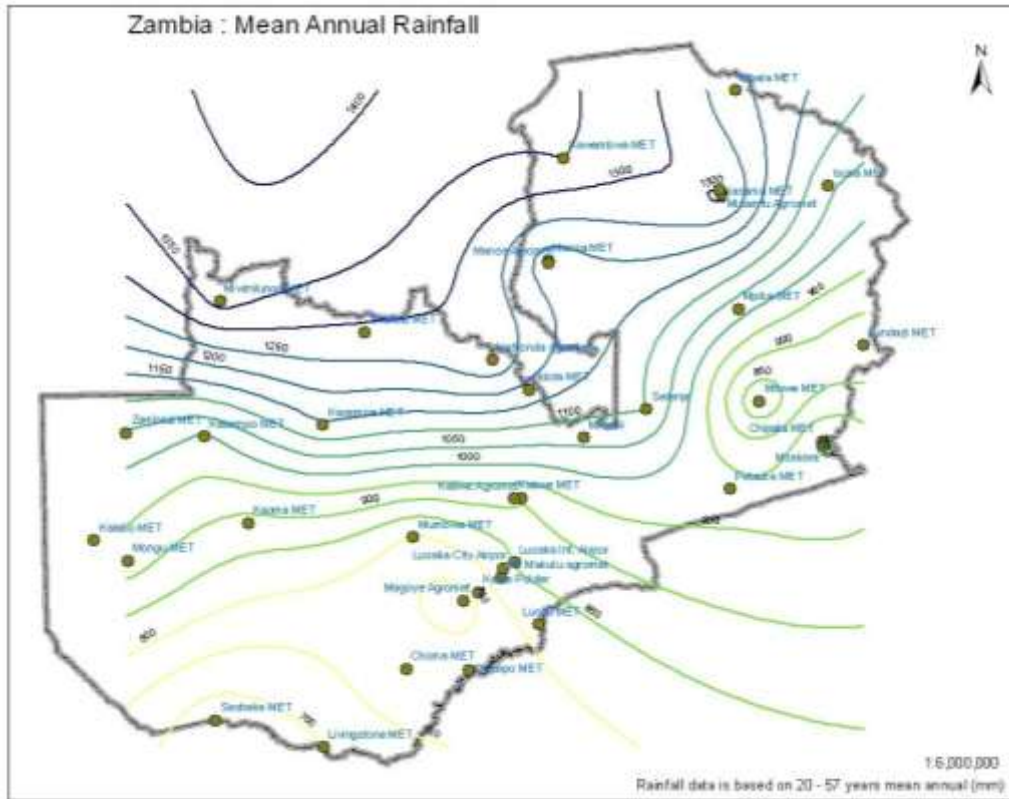
River Catchment	River Length (km)	Catchment area within Zambia (km ²)	Catchment area outside Zambia (km ²)
Tanganyika	250*	15,856	233,144
Kafue River	1,576	156,995	0
Chambeshi	579	44,427	0
Luangwa	867	144,358	3,264
Luapula	627	113,323	60,073
Zambezi	1,700	268,235	418,814
Other basin		8,658	0
Total catchment area		751,852	715,295

*Lufubu River and note that river lengths within Zambia only.

Source: National Water Resources Master Plan Study, 1995

1.2 Rainfall Situation

Zambia receives moderate rainfall ranging from an annual average of approximately 600 mm in the south of the country to 1335.9 mm per year in the north. The country's annual average rainfall, based on a 30 year period from 1976 to 2006, is 967.3 mm. Map 2 below shows the isohyets for average annual rainfall in Zambia based on historical rainfall data source Zambia Met Dept, 2006.



Map 2 Isohyetal of Average Annual Rainfall

In the last two decades, most parts of the country have generally received below average annual rainfall. This has been punctuated in some cases by above average annual rainfall. The poor rainfall has generally resulted in the lack of access to water for populations, especially in the south of the country.

1.3 Surface Water Situation

Surface water trends in most cases follow the rainfall trends because of surface water's quick response to the seasonal rainfall pattern. In a normal hydrological year the country generates sufficient surface water to meet current demand. However, its spatial distribution over the season is particularly very poor in the southern parts of the country. Nevertheless, the southern part of the country has more surface water flows only because of the presence of large rivers such as, the Zambezi, the Kafue and the Luangwa.

Table 2 below shows the estimated annual runoff at confluences of the major rivers for the 2003/2004 hydrological year.

Table 2: Annual Runoff at Selected Points

CATCHMENT	ESTIMATED ANNAUL RUN-OFF (Km³)	
	Historical	2003/2004
Tanganyika	1.99	3.16
Kafue	9.88	12.74
Chambeshi	8.75	5.27
Luangwa	22.32	21.32
Luapula	30.14	19.87
Zambezi	41.75	44.68
Total for Zambia	114.83	107.03

Source: Department of Water Affairs, 2004

1.4 Groundwater Situation

Zambia has a good amount of well distributed groundwater resources. These resources however are not fully developed to contribute to increasing demands of water for different uses. In many areas, particularly in rural areas, ground water is the most reliable source for safe water drinking and water for other economic activities. The estimated annual groundwater potential is based on an estimated annual recharge with very little variations from year to year.

Currently there is inadequate data to make an accurate assessment of the groundwater availability. Unregulated exploitation and exposure to pollution may threaten this important source of water.

1.5 Environmental Management

Water resources exist in an environment which in turn it sustains. It is the state of the environment in which it exists that determines the state of the water in terms of its quantity and quality at any particular time of the year. The state of the water resources also affects the environment. Changes caused by human activities within the environment and climate change result in some areas having unprecedented floods while other areas experience severe droughts. Climate change has the potential of reversing gains made in water resources management and thus the need to develop and employ adequate coping and adaptation measures.

The quality of water in the natural environment is relatively good in many parts of the country for various uses. However in densely populated areas such as the peri-urban areas of Lusaka, the Copperbelt and Mpulungu on

the Lake Tanganyika, the concentration of people in settlements pose the biggest threat to both the quality of water resources and the environment. Unsustainable exploitation and utilisation of water and other resources has resulted in environmental degradation. Groundwater in Lusaka and other towns has for a long time been exposed to pollution through the quarrying for construction materials and poor waste management. The quality of water near industrial estates such as the mines on the Copperbelt is threatened by effluent discharged into rivers and streams.

The protection of headwaters, wetlands and forests is increasingly challenging due to pressures from unsustainable resource exploitation by people who settle in areas of key importance for sustaining water resources. Activities such as cutting trees for agriculture and charcoal production are increasingly depleting forests and impacting on these water sustaining areas. It is therefore, very important to consolidate and ensure implementation of environmental management measures.

The provisions of the Environmental Protection and Pollution Control Act of 1990 and the environmental management programmes and projects initiated by the Environmental Council of Zambia (ECZ) as a result of implementation of the Act are critical to any large scale project planning and implementation. These programmes and projects implemented with the close collaboration of line ministries have greatly contributed to the protection and conservation of the environment including the water resources.

1.6 Historical Background

Zambia's water law, the Water Act Chapter 198 of the Laws of Zambia is based on principles of common law. The Water Act was enacted in 1949. This Act supported the Department of Irrigation and Rural Development established by the Colonial Government in 1947 (which later became the Department of Water Affairs). This Department was an administrative unit of the Government with vast administrative powers over water resources bestowed upon it with the statutory mandate of the Minister under the Water Ordinance. The mandate of the Department of Water Affairs (DWA) was to manage and develop water resources for industrial use and to accelerate rural development through irrigation. The DWA carried out the following activities:

- i. Water resources assessment and allocation;
- ii. Boreholes and well drilling;
- iii. Dam construction;

- iv. Catchment conservation;
- v. Canal development; and
- vi. Clearing of waterways for irrigation and navigation.

The activities of the DWA were supported, after 1948, by the Water Board established under the 1949 Ordinance. The functions of the Water Board are the allocation of water and the issuing of water rights. The Local Authorities were responsible for provision of water supply and sanitation services. However, after Zambia attained independence in 1964 the majority of Local Authorities did not have the capacity to provide water and sanitation services to the residents within their townships. Government, therefore in 1972 transferred the responsibility of managing rural and township water schemes to DWA until such a time when capacity would be built in the affected Local Authorities. By the time the Local Administration Act of 1980 was enacted DWA was managing 48 townships water supply schemes. This gave rise to a situation where the DWA was managing and regulating the resource and actively participating as a user of the resource.

The combination of executive and regulatory functions was a challenge to the sustainability of the water resource in view of conflicts of interest in relation to the use, regulation, development and management of the resource. This was exacerbated by the numerous pieces of legislation and institutions dealing with environmental management, which resulted in overlaps and conflicts of roles and responsibilities.

2. SITUATION ANALYSIS

2.1 Water Resources Development and Management

Water resources management is the practice of making decisions and taking actions on how water should be managed. These decisions and actions relate to river basin planning, development of water harnessing infrastructure, controlling of reservoir releases, regulating floodplains, and developing new laws and regulations. It also promotes the rational and optimal utilisation, protection, conservation and control of the water resource in order to secure supply of water resources. This improves access to water for various uses.

Currently water resources are not being managed effectively due to a number of reasons. These include a poor institutional and legal framework for the management of water; inadequate water resources data and information systems, poor coordination of various ministries, departments and institutions dealing with water, centralised management of water resources, lack of monitoring and evaluation of programmes and projects relating to water.

The development of water resources refers to the harnessing of water resources from different sources such as rivers, lakes, rain and underground for purposes of various uses, by means of works such as dams, weirs, boreholes, wells and canals so that the water can be accessed at the desired locations. The development of water resources is undertaken by various players that include the Government, private organisations, local communities and individuals.

Zambia has only built 5 very large dams and has approximately 1,700 small dams in spite of the existing potential for the development of such facilities (FAO, 2010). This state of affairs is attributed to limited funding to the sector. The state of the dam facilities is not accurately known due to inadequate information and a regulatory framework to monitor their development.

The construction of boreholes and wells particularly in the rural areas has been mainly for the provision of safe and adequate drinking water. A nationwide inventory carried out by Government in 1998, estimated that there are 11,000 boreholes and 22,000 protected wells in the country. Government is working with local authorities to update the rural water supply and sanitation data base.

The lack of adequate information on boreholes and dams negatively impacts on strategic planning for water resources and also affects efforts to regulate groundwater development.

Rainwater harvesting is not fully developed in Zambia. It is however being introduced in rural schools and communities. This will greatly assist these communities during times of water shortage and reduce walking distance to water points. Plans are also underway to encourage the local communities to harness rainwater in properly designed structures.

2.2 Water for Social and Economic Development

Water plays an important role in all sectors of the economy. It is critical to food and agriculture, energy, health, industry, transport and tourism development and other uses. The role of water in the development of these sectors makes it an important factor in formal and informal employment creation. However the provision and access to water for these and other sectors continues to be a challenge.

2.3 Water for Domestic Purposes

Water for domestic purposes is mainly used for drinking, cooking, washing, bathing and sanitation. In addition water is used for subsistence gardening and support of domestic animals, subsistence fishing, the making of bricks, the dipping of domestic animals and fire fighting. Access to safe and adequate water supply is still low. The 2000 Census Report estimates average supply at 49.1%. Access has not increased significantly from this level. Accessibility in urban areas is estimated at 86.1% whilst in rural areas it stands at 29.5%. It is further estimated that domestic use per unit consumption rate in the urban areas is taken as 180 litres/capita/day for the larger urban areas (cities), 150/litres/capita/day for small urban areas (small towns) and 45 litres/capita/day for rural areas.

With regard to sanitation, the estimated coverage (according to the CSO 2000) was 37% for urban areas and 13% for rural areas. Real coverage is much lower and varies considerably from one place to another due to non-functioning facilities, and poor usage. In the peri-urban areas, where 50% to 70% of the urban population reside, water supply and sanitation services are poor, inadequate and unreliable; at least 56% of the population do not have access to safe water supply, and as much as 90% do not have access to satisfactory sanitation facilities.

The amount and quality of water consumed by a community determines its standard of living. The benefits from supply of sufficient quantities and good quality water and sanitation are important for the sustenance of health.

The Government has invested in the provision of safe drinking water. That safe water is accessed is critical for enhancing health and the productive lives of the people. In areas where access to water and sanitation has visibly improved this has yielded direct economic benefit for the people of Zambia. Effective and efficient water resources management, development and use cannot therefore be overemphasised.

2.4 Water for Food and Agriculture

In the food and agriculture sector, water is a prime factor in the production of adequate food for the country. Water is necessary for crop production (whether rain-fed or irrigated) and for livestock production. It is also important in the sustenance of the fishing and aquaculture industry, which has an important role to play in the provision of recommended levels of nutrition needed by people. Agriculture is given priority in government's planning for social and economic development. Considerable investments have been made in the food and agriculture sector. Continued security of supply of water for agriculture will in turn secure the production food and other agriculture products. The agriculture sector provides employment to a large percentage of the population.

According to the National Irrigation Strategy and Plan, the total irrigated area in Zambia is estimated at approximately 100,000 ha comprising 52,000 ha under formal (commercial) and 48,000 ha under informal (subsistence) farming. These figures are far below Zambia's estimated irrigation potential of 400,000 ha. Water use for irrigation is steadily increasing due to Government policy of promoting agriculture development and is likely to be higher than estimated. Table 3 below shows the estimated demand for water in the agriculture sector from 1995 up to the year 2015.

Table 2 Agriculture water demand (1000m³/day)

	2005	2015
Irrigation	7,346	9,830
Livestock	183	223
Aquaculture	814	2,130
Total	8,343	12,183

Source: National Water Resources Master Plan Study 1995

2.5 Water for Industry

Water in industry is used for various purposes such as steam generation for heating, cooling, product dilution, reagent make-up, product or surface washing and transportation of materials or wastes. The water quality

requirement varies depending on the intended use. Apart from being an important factor in production and thereby supporting the functioning of many industries that in turn provide employment, water greatly contributes to exports of manufactured products that provide a source of foreign exchange for the country such as sugar and cement. The projected water requirement up to the year 2015 for the mining and manufacturing sectors is shown in Table 4 below.

Table 3 Water requirements for mining and manufacturing industries: 1000m³/day

Year	2005	2015
Mining	307.1	307.1
Manufacturing	366.7	446.1
Total	673.8	753.2

Source: National Water Resources Master Plan Study 1995

The unsustainable use of water by industry has in some cases contributed to the degradation of the quality of the resource and affected its quantity in the natural environment.

2.6 Water for Energy

Water is essential for the production of energy, a vital input to the socio-economic development of the country. Hydro-electric power is the main driver of the country's industrial development. Zambia's current installed electric power capacity is 1,800 MW with 94% being from hydropower. Total useable hydro-power potential of Zambia is approximately 6,000 MW which is far higher than the present available capacity. As at 1995 hydro-power generation utilised was 1,150 m³/s (42%) of the available surface water. National demand for power in 2015 is expected to total 2,380 MW requiring 1,200 m³/s of water.

Currently Zambia and the whole of the southern African region are experiencing serious power shortages resulting in regular load shedding which is affecting economic production. The situation will become more acute in the coming years and requires integrated planning and development of infrastructure that can be used for power generation. Zambia has not fully exploited its hydropower potential and as a result electricity coverage for domestic lighting and heating, mining, industrial, and agriculture and manufacturing is now resulting in the continued overexploitation of wood fuel, which increases deforestation.

Apart from hydro-power generation, water is a critical requirement for growing crops such as sugar cane, maize, sorghum, soya beans for producing bio-fuels to supplement hydro-electricity. For this to be realized

requires the encouragement of private and public investments in the energy sector.

2.7 Water for Transportation

Water transport is a mode of transportation that has proved to be an important alternative to other forms of transportation such as road, air and rail. It is a convenient form of transport particularly in areas with navigable rivers and lakes. Most rural communities use water transport to travel to areas where road networks are poor or areas which are not accessible by other means. Water transport has an advantage in that it is able to move goods in bulk. Statistics show that a total cargo of approximately 296 tonnes and 8,669 passengers use the water transport through Mpulungu Port. The Government maintains a system of canals in areas that are suitable for navigation such as the flood plains in Western Province and the Bangweulu Swamps in Luapula Province. Water resources management plays an important role in maintaining the navigability of these water ways.

2.8 Water for Recreation and Tourism

Water supports wildlife and other tourist resources and maintains a balanced ecosystem for the sustenance of tourism. Zambia's major tourist sites such as national parks, waterfalls, wetlands and national forests are situated near to or along rivers and lakes. Tourism operators take advantage of the aesthetic value of water and locate infrastructure contiguous to or near a water resource. The Victoria/Mosi-oa-tunya Falls on the Zambezi River offers the most popular single water based tourist attraction in the country. Its dependence on the availability of water is well appreciated. Other tourist attractions along the Zambezi River include water rafting downstream the Falls and boating on Lake Kariba as well as upstream of the Falls. Sport fishing on the Kafue River, Lakes Kariba, Itezhi-tezhi and Tanganyika is a popular recreational activity. There are approximately 100 waterfalls, hot springs, unique water bodies and sources of major rivers around the country which have not been fully exploited as tourist and recreation sites.

2.9 Water for Research and Development

Professional and academic institutions play a vital role in the management of water resources. They are instrumental in research and training in the various water related disciplines. The success of integrated water resources management lies in the strength of research institutions. Some of the institutions conducting water related research are the National Institute of Scientific and Industrial Research, University of Zambia,

Copperbelt University, Mount Makulu Research Institute, National Aquaculture Development Centre at Mwekera, Nanga Irrigation Research Centre, Natural Resources Development College and all Agricultural Colleges. These institutions carry out training and research in different aspects of water resources management, development and utilisation especially in developing appropriate technologies.

Current measures taken by Government to promote research and development should be encouraged. The research and development results should be disseminated to industry and stakeholders for effective use.

2.10 Water Resources Information and Monitoring

The lead institutions responsible for water resources information in Zambia are the Department of Water Affairs for all aspects of hydrological data, the Water Board for water demand and utilization, the Meteorological Department for meteorological data, the Environmental Council for environmental information, and Disaster Management and Mitigation Unit for information pertaining to emergencies.

Basic information on the source, quantity and quality of water and interplay of human and natural factors on water resources is vital for effective and efficient water resources management. Fundamentally, information on water resources is necessary for planning and managing the resource as its quality, quantity, and availability varies over time and location. Timely information is important in providing early warning of immediate disasters such as droughts, floods or chemical toxic spillages and seepages, thus mitigating the adverse effects of loss of life, property and economic production. Currently there is inadequate information for effective water resources management.

2.11 Policy Development Process and Methodology

Government recognises the important role of the water sector in the overall socio-economic development of the country. Government is aware that communities with access to sustainable safe water supplies and sanitation and water for other productive uses have greater potential for engaging in economic activities to reduce poverty and improve their quality of life. The Government also realises that if the goals of the 1996 World Food Summit to reduce by half the number of malnourished people by 2015 and the Millennium Development Goals are to be achieved enormous effort in increasing food production is required. However, this can only be done by identifying and addressing the issues and trends that may impact on this challenge and which must be taken into account in developing appropriate action. One major barrier to achieving sustainable

food security in an increasing number of areas is water scarcity. Urgent investment in infrastructure development is required to improve access to water. The need for better water distribution and control, new research to increase yields, research in efficient water utilisation and improved natural resource management requires serious attention to assist Zambia adapt to the challenges of climate change.

The Government has since the mid 1970s commissioned several water reform initiatives aimed at improving the management of and accessibility to water resources. The initiatives are detailed in the following reports:

- i. The “Study on the Establishment of a National Water Authority and Regional Water Authorities”.
- ii. The Report of the National Executive Committee on Water Supply and Sanitation which recommended a new institutional framework to reorganise the Water Sector;
- iii. The Department of Water Affairs report of July 1979 on the “Proposed Zambia National Water Authority”;
- iv. The report by Zambia Industrial and Mining Corporation in 1985 on “The Establishment of a Proposed National Water Authority”;
- v. The report by the Ministry of Decentralisation in 1988 on “Reorganisation Study of the Water and Sanitation Sector in Zambia”; and
- vi. The report on the “Revision of Legislation Relating to the Water Sector”, Ministry of Environment and Natural Resources, Environment Support Programme, May 2000.

These different initiatives and the recommendations thereof have not been followed through particularly with regards to water resources management due to the fact that priority was predominately accorded to the domestic water supply and sanitation sub-sector.

In 1994 Government adopted a National Water Policy which would ensure better water resource management and water supply and sanitation services. The Policy espoused measures and strategies necessary to achieve long-term sustainability of the water resource as follows:

- i. Recognising the important role of the water sector in the overall socio-economic development of the country;
- ii. Vesting control of water resources in the country under State control;
- iii. Promoting water resources development through an integrated management approach;

- iv. Defining clear institutional responsibilities for all stakeholders in the water sector for effective management and coordination;
- v. Developing an appropriate institution and legal framework for effective management of the water resources;
- vi. Promoting a state of disaster preparedness to mitigate impacts of extreme occurrence of water (flood and drought); and
- vii. Recognising water as an economic good.

Within the policy framework, Government successfully implemented a broad-based, collaborative and consultative approach to elaborate strategies specific to different “sub-sectors”, in addition to water supply and sanitation (WSS).

For rural areas, in 1996 the government adopted the WASHE (Water, Sanitation, and Health Education) concept as a national strategy for the improvement of WSS services. This strategy facilitates the involvement of the rural population in assessing priorities; determining affordable and sustainable technology; management, operation and maintenance; and improving the health and hygiene practices in rural communities. The strategy is being implemented through district level committees (D-WASHEs), which are part of the formal district level planning process under institutional arrangements which mandate the local authorities with the responsibility of services provision.

The 1994 National Water Policy is cognisant of the diffuse institutional structure and the lack of clear guidelines and coordination links. The resultant challenges regarding the management of the sector were in this respect spelt out as follows:

These include:

- i. Inadequate legislation for water resources regulation by the Government;
- ii. Lack of clear guidelines on the implementation of the policy leading to a situation where the Department of Water Affairs continued to combine water resource management and operation of water supply scheme responsibilities;
- iii. Poor coordination of planning and management activities among institutions in other sectors leading to wastage of resources and duplication of effort;
- iv. Declining investment and sub-economic tariff adjustments leading to financial hardships for water supply schemes;

- v. Unsustainability of water supply schemes resulting from perception of water as a cost-free social good rather than as an economic one and inadequate community participation; in these schemes and
- vi. Lack of institutional and logistical capacity to put in place effective maintenance, material supply and cost recovery systems to operate water supply schemes.

A Programme Coordination Unit (PCU), an administrative measure to spearhead the reorganisation of the water supply and sanitation sector was established. The PCU was mandated to undertake:

- i. Sector policy reforms;
- ii. Clarification of sector responsibilities;
- iii. Sector organisation reforms;
- iv. Developing a framework for planning project development and operation and maintenance; and
- v. Developing proposals for institutional strengthening.

The PCU was guided by 7 principles which were adopted by the Government of the Republic of Zambia as follows:

- Principle 1:** Separation of water resources management functions from water supply and sanitation;
- Principle 2:** Separation of the regulatory functions and executive functions within the water supply and sanitation sector;
- Principle 3:** Devolution of authority to local authorities and private sector;
- Principle 4:** Achievement of full cost recovery for the water supply and sanitation services through user charges in the long run;
- Principle 5:** Human resource development leading to more effective institutions;
- Principle 6:** Technology appropriate to local conditions; and
- Principle 7:** Increased GRZ spending priority and budget spending to the sector.

The following major principles of the 1994 Policy have been largely achieved during the reorganisation of the sector:

- i. partial separation of regulatory and executive functions within the water supply and sanitation sector;

- ii. devolution of authority to Local Authorities and commercial enterprises; and
- iii. Achievement of partial cost recovery for the water supply and sanitation services (capital recovery, operation and maintenance) through user charges in the long run.

3. RATIONALE

3.1 Revision of the National Water Policy

The reasons for revising the National Water Policy of 1994 are as follows:

- i. The need to provide for a clear vision and holistic policy direction for the water sector;
- ii. The need to assess the progress made in the implementation of the 1994 Policy and update it taking into consideration the key developments in the water sector in Zambia and international best practices for water resources management;
- iii. The need to re-align the Water Policy with international frameworks including the Rio Declaration, Millennium Development Goals, New Partnership for Africa's Development and the Southern African Development Community Revised Protocol On Shared Watercourses;
- iv. The need to re-examine the role of the water sector and priorities of the national development planning process;
- v. The need to integrate cross cutting issues such as gender, HIV/AIDS and climate change ; and
- vi. The need to re-examine the institutional and legal framework and align it to modern principles of water resources management and harmonise it with other pieces of legislation.

A stakeholders' workshop was held in September 2004 to initiate the process of reviewing the 1994 Policy. The participants identified the following issues that needed to be addressed:

- i. Co-ordination between all the actors in the sector;
- ii. Clarity of roles and responsibilities of stakeholders;
- iii. Gender and HIV/AIDs issues;
- iv. Sustainable management, usage and development of water;
- v. Priority of water in national development plans;
- vi. Social safety net issues;
- vii. Monitoring and evaluation of policy implementation;
- viii. Mitigation measures in cases of drought, floods, chemical and toxic substances;
- ix. Promotion of investment especially infrastructure development;
- x. Appropriate and gender sensitive technology;

- xi. Community management and community contribution;
- xii. Promoting the value of water;
- xiii. Information dissemination;
- xiv. Poverty considerations;
- xv. Linkages with other national strategies and policies;
- xvi. Holistic approach to policy development;
- xvii. International protocols on water;
- xviii. Provision of incentives; and
- xix. Harmonization of policies.

3.2 Macro-Economic Policy Issues

Until the beginning of the 1980s, Zambia was one of the most prosperous countries in Sub-Saharan Africa. The country's reliance on copper constitutes one of the highest levels of dependence of any country on a single commodity. Copper accounts for 95% of total export earnings.

Some major constraints to sustainable development are poor access to social services such as basic education, health, food and clean water which form part of the cycle of poverty and contribute to the deterioration of the Nations' resource base. According to the 2003 Human Development report for Zambia, overall poverty levels reached nearly 73% in 1998, averaging about 83% in rural areas and 56% in urban areas with women generally faring worse than men in both urban and rural areas.

Zambia has a liberalised market economy. In order to address the country's unsatisfactory economic performance in the recent past, Government reverted to periodic planning under the National Development Plan. The current plan is for the period 2006 to 2010. The focus of the plan is economic stabilization and support for programmes aimed at wealth creation.

3.3 Millennium Development Goals

Eight (8) United Nations Millennium Development Goals define the main areas of global concern that affect development and related activities. Three goals are of the greatest importance to the National Water Policy and subsequently to water resources management. They include Goal No 1, Eradicate extreme poverty and hunger; Goal No 6, Diseases, and; Goal No 7, take measures to ensure environmental sustainability. The revised National Water Policy embraces the socio-economic issues that impact on water but also recognises the role of water in achieving the Millennium Development Goals.

3.4 Vision 2030

The Vision 2030 articulates the appropriate national sector goals and targets and calls for the implementation of sustainable social economic development policies and actions. It is based on policy oriented research on key national strategic issues and on a process of discussion and dialogue with the private sector, civil society and the general citizenry on the long term goals and the future of Zambia.

The Vision will be the basis for interface by all sectors and will provide direction for short and medium term plans. The Vision will be operationalised through the implementation of national development plans beginning with the Fifth National Development Plan covering the period 2006-2011. In this respect this revised National Water Policy is tailored to take into account the objectives of Vision 2030.

3.5 International landmark events and instruments

A number of landmark events have shaped most of the current paradigms and the consensus on norms regarding water resources and water resources management. The chronology of events building up to the current consensus includes the following;

- i. The UN Conference on Water (Mar del Plata, 1977);
- ii. The International Conference on Water and Environment (Dublin, 1992);
- iii. The UN Conference on Environment and Development (Rio de Janeiro, 1992);
- iv. The 1st World Water Forum (Marrakech, 1997);
- v. The 2nd World Water Forum (The Hague, 2000);
- vi. The Millennium Development Goals (2000);
- vii. The World Summit on Sustainable Development (Johannesburg, 2002); and
- viii. The 3rd World Water Forum (Kyoto, 2003).

The central message in each of the above events, revolve around the recognition that:

- i. Water is a finite and vulnerable resource, essential to sustain life, development and the environment;

- ii. Water development and management should be based on a participatory and gender sensitive approach involving all users, planners and policy makers at all levels; and
- iii. Water has an economic value in all its competing uses, and should be recognised as an economic and social good.

Zambia is part of the international community and enjoys certain rights and obligations resulting from the signature and/or ratification of several international instruments. In the context of water resources management and development, the notable international instruments include:

- i. The UN Convention on the Law of the Non-Navigational Uses of Shared Watercourses 1997: This framework convention is not yet in force but it provides a sound basis for managing shared watercourses. Zambia was one of the first countries to sign and ratify the Convention. Though not in force it remains an important framework for cooperation on shared watercourses;
- ii. The Revised SADC Protocol on Shared Watercourses 2000: This Protocol was greatly influenced by the Helsinki Rules of 1966, the Dublin Principles, Agenda 21, and the UN Convention. It is also basically a framework for cooperation on the sustainable utilisation of shared watercourses in SADC and;
- iii. Zambezi River Authority Act, 1987; The Zambezi River Authority is an inter-state institution that manages the Zambezi scheme which is on that part of the Zambezi River common to the borders of the two States. The Zambezi scheme as defined in the Agreement is “the Kariba complex and any additional dams, reservoirs and installations that may be constructed or installed on the Zambezi river”. The two Governments recognise that the operation and maintenance of the Zambezi scheme is an economical and effective means of providing water for the generation of electric power and for other purposes which the contracting states may decide upon.

4. VISION, PRINCIPLES AND OUTCOMES

4.1 Vision

“To optimally harness water resources for the efficient and sustainable utilisation of this natural resource to enhance economic productivity and reduce poverty.”

4.2 Guiding Principles for Water Resources Management

This Policy recognises the following principles;

- i. Water is a basic human need and for other living organisms;
- ii. Government shall be the trustee of the nation's water resources and will ensure that water is allocated equitably, protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, in the public interest while promoting environmental and social values and protecting Zambia's territorial sovereignty;
- iii. Water resources shall be managed in an integrated manner;
- iv. Domestic and non-commercial needs and the environment shall enjoy priority of use of water;
- v. There shall be equitable access to water;
- vi. Water has a social value and all domestic and non-commercial use of water will not be required to obtain a water permit. ;
- vii. Water has an economic value and the cost of facilitating its use has a significant administrative cost element and this will be reflected in the fees for water permits for the use of water resources for economic purposes;
- viii. There shall be gender equity in accessing water resources and, in particular, women shall be empowered and fully participate in issues and decisions relating to sustainable development of water resources and, specifically, in the use of water;
- ix. Efforts to create wealth shall be reflected in all decisions made in relation to the use of water;
- x. Location of a water resource on land shall not itself confer preferential rights to its use;
- xi. The basic management unit shall be the catchment in recognition of the unity of the hydrological cycle; and

- xii. Zambia's water resources shall be managed to promote sustainable development.

These principles formed the basis for the development of this Policy.

4.3 Expected Outcomes and Benefits

This National Water Policy provides a direction and framework for management, development and utilisation of water resources. It sets out the approach, objectives, principles and strategies for implementation. This Policy in addition outlines the human, institutional, technological and financial requirements for the achievement of the policy objectives.

The major outcome of this National Water Policy is to improve the management of water resources, institutional coordination and defined roles and responsibilities. It encourages the use of water resources in an efficient and equitable manner consistent with the social, economic and environmental needs of present and future generations. This will help to achieve the national goal of increasing accessibility to reliable safe water by all sectors of the economy in order to enhance economic growth and improve quality of life.

5. POLICY MEASURES AND IMPLEMENTATION

The National Water Policy covers all sectors in view of the cross-cutting nature of water and the fact that it impacts or is impacted by several sectors in a number of ways. It is therefore necessary that all sectors undertake activities in a sustainable manner to maintain the integrity of water resources.

This Policy is cognisant of other sectors' policy objectives as they pertain to water resources management practices and has incorporated these as water resources management measures for the different sectors. This is in order to not only demonstrate the inter-linkage that exists between water resources and other sectors, but also to promote actions that will ensure sustainable use.

5.1 Water Resources Management

(a) Policy Statement

A comprehensive framework for management of the water resources shall be developed taking into account catchment management of water resources, stakeholder consultation and involvement, assessment, monitoring, water conservation and preservation of its acceptable quality and quantity, efficient and equitable water allocation to all users and disaster preparedness.

(b) Objectives

The main objectives of water resources management are:

- xiii. To ensure inter-sectoral linkages in the management of the water resources so as to support cross-sectoral development needs and maximise the economic benefits accruing there to;
- xiv. To promote and implement the development of an integrated catchment management system and improve accessibility and utilisation of water resources for various uses;
- xv. To promote effective community participation and stakeholder involvement, particularly for women and children, in the design, execution and management of water resources, programs and projects;
- xvi. To promote regional cooperation on shared watercourses;
- xvii. To ensure that water resources are efficiently and equitably allocated to all users in a sustainable manner so as to contribute to economic growth and wealth creation;

- xviii. To ensure that the water resources are preserved and maintained at acceptable quality standards; and
- xix. To manage emergency situations effectively with minimum loss to life and property.

(c) Measures

To achieve the above objectives for water resources management, there is need to implement the following measures:

- i. Establish a comprehensive legal, institutional and regulatory framework for effective management of the country's water resources in an equitable and sustainable manner with strong stakeholder participation by undertaking an integrated water resources management (IWRM) system approach;
- ii. Encourage efficient utilisation of water resources and water demand practices for different uses;
- iii. Undertake comprehensive water resources assessments for surface and groundwater sources;
- iv. Identify ecosystems at risk and recommend remedial measures;
- v. Introduce an integrated catchment water management system that allows the local people, particularly women and children, to effectively participate in the management of water resources in their areas;
- vi. Contribute to the minimization of the impact of water-related disasters such as droughts and floods through the provision of early warning systems and put in place emergency management systems;
- vii. Strengthen the human, technical and financial capacity for addressing the water resources management needs in the water sector;
- viii. Establish mechanisms for collaboration, coordination and consultation in the water sector;
- ix. Establish a water resources management information system and monitoring network including information dissemination mechanism;
- x. Develop national water resources management plans;
- xi. Develop water resources regulations and guidelines;
- xii. Develop mechanisms for equitable and reasonable allocation of water;

- xiii. Develop a fair and justifiable tariff structure for water use;
- xiv. Develop water allocation plans with the participation of local communities;
- xv. Designate protected areas in collaboration with line ministries and institutions;
- xvi. Declare water shortage areas;
- xvii. Develop and maintain a water quality assessment system;
- xviii. Develop plans for the exploitation of the potential from shared water courses in line with national priorities and the need for fostering regional cooperation;
- xix. Promote regional collaboration in areas of research, data collection and information exchange;
- xx. Establish institutions for the management of shared water courses in collaboration with national institutions to ensure that Zambia's interests are protected;
- xxi. Develop national capacity for negotiation and management of shared watercourses;
- xxii. Develop a decision support system for management of shared water courses;
- xxiii. Establish early warning systems in collaboration with other relevant institutions;
- xxiv. Promote preventive measures through community education and awareness; and
- xxv. Collaborate with regional and international bodies in dealing with emergency situations.

5.2 Water Resources Development

(a) Policy Statement

To achieve sustainable water resource development with a view to facilitate an equitable 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.

(b) Objectives

The objectives of water resources development are:

- i. To ensure that Zambia's water resources are sustainably developed to contribute to wealth creation through improved access to water, increased food production and food security for all Zambians;
- ii. To ensure inter-sectoral linkages in the development of the 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;

(c) Measures

To achieve the objectives on water resources development, the following measures shall be implemented:

- i. Ensure that Zambia's 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 all Zambians;
- ii. Promote and facilitate development of surface and groundwater resources to improve access;
- iii. Ensuring 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 and hydro-power;
- v. Issue guidelines on the development of water resources;
- vi. Regulate the construction of all water resources development infrastructure;
- vii. Maintain an updated register of water resources development projects and programmes;
- viii. Maintain a register of, and regulate water resources development construction companies;
- ix. Monitor dam safety;
- x. Promote the construction of dams and provide guidelines on the operations by private or public dam owners and operators;
- xi. Design and implement water resources development projects in coordination with other relative sectors;
- xii. Establish a programme for construction and rehabilitation of dams and weirs with emphasis on multi-purpose use;

- xiii. Ensure that strategic environmental assessment and environmental impact assessment are undertaken for water resources development programmes and projects in dams development, rain harvesting schemes, water intake points, river diversions, pumping stations, water well drilling, groundwater abstraction and use and inter-basin water transfer;
- xiv. Establish an integrated water resources data and information acquisition and management system to meet all water resources management needs;
- xv. Install or facilitate the installation of metering systems on all hydraulic structures;
- xvi. Regulate infrastructure to ensure that water resources infrastructure benefits all sectors of society especially the disadvantaged and poor; and
- xvii. Facilitate public private participation in water development;

5.3 Water for Food and Agriculture

(a) Policy Statement

To manage and develop water resources in order to support the development of a sustainable and well-regulated agricultural sector which will ensure food security and income generation at household and national levels and maximize the sector's contribution to gross domestic product.

(b) Measures

- i. Develop and manage water resources to support the agricultural sector, particularly irrigation;
- ii. Support the development of the agricultural sector through the establishment of a fair, efficient and transparent water allocation system;
- iii. Facilitate conservation of national water resources through dissemination and awareness on sustainable water and soil conservation measures; and
- iv. Collect, process and disseminate information on water resources in order to facilitate development of agriculture.

5.4 Water for Fisheries

(a) Policy Statement

To ensure that water resources and the aquatic environment are managed and protected in order to support the sustainable utilization of fisheries resources and encourage the development of aquaculture.

(b) Measures

- i. Manage water resources quality and quantity in order to support sustainable fisheries development;
- ii. Protect water resources and aquatic environment from overexploitation and pollution caused by activities related to fishing or aquaculture; and
- iii. Enter into bilateral or multilateral agreements with any foreign state or government regarding any shared water resources supporting shared fisheries.

5.5 Water for Tourism

(a) Policy Statement

To ensure sustainable management of water resources in order to effectively conserve and preserve national heritage sites that foster tourism development.

(b) Measures

- i. Promote an integrated approach to planning and management of water resources which impact on tourism activities in order to ensure optimal and sustainable utilization of the resource; and
- ii. Monitor the impact of tourism on water resources and ensure that the resource is protected from pollution and over exploitation.

5.6 Water Supply and Sanitation

(a) Policy Statement

To promote sustainable water resources management and development with a view to facilitate an equitable provision of adequate quantity and quality of water for water supply and sanitation in a timely manner.

(b) Measures

Support the provision of adequate, safe, and cost effective water supply and sanitation services with due regard to environmental protection.

5.7 Water for Wildlife

(a) Policy Statement

To manage and develop water resources effectively in order to sustain wildlife and the ecosystem.

(b) Measures

- i. Promote the integrated planning, management and conservation of water resources which impact on wildlife and ecosystems; and
- ii. Ensure that management of water resources takes into consideration the needs of wildlife and related resources.

5.8 Water for Mining

(a) Policy Statement

To ensure that activities in the mining industry are conducted in an efficient manner in order to minimize negative impacts on the water resource and the environment.

(b) Measures

- i. Ensure availability of water to support activities related to the mining sector;
- ii. Protect water resources from pollution emanating from mining and related activities; and
- iii. Ensure that dewatering activities do not have a negative impact on the environment.

5.9 Water for Industry

(a) Policy Statement

To protect, manage and develop water resources in order to ensure availability of water of a quality suitable for industrial activities.

(b) Measures

- i. Facilitate the allocation of water of suitable quality for different industrial activities.
- ii. Encourage the development of appropriate waste water disposal systems in industry;
- iii. Protect and monitor water resources from pollution arising from industrial activities and effluents; and

5.10 Water for Environment

(a) Policy Statement

To provide a management framework for Zambia's water resources so as to ensure that they are managed on a sustainable basis and retain their integrity to support the needs of the current and future generations.

(b) Measures

- i. Ensure sustainable management of water resources;
- ii. Increase public awareness on the conservation and protection of water resources and the environment;
- iii. Prevent and control pollution of ground and surface waters;
- iv. Maintain and protect the natural quality of water resources in the country; and
- v. Collect, process, maintain and disseminate data and information on water quality and aquatic ecosystems as a basis for integrated and informed decision-making.

5.11 Water for Energy

(a) Policy Statement

To protect, manage and develop water resources in order to ensure availability of water for sustained energy development

(b) Measures

- i. To ensure availability and accessibility to adequate and reliable supply of water at reasonable and justified cost so as to promote energy development;
- ii. Ensure availability of accurate information on water resources for hydropower and bio fuel development; and
- iii. Encourage private public partnerships in the energy sector.

5.12 Water and Land

(a) Policy Statement

To promote integrated land and water resources management in order to enhance sustainable land use.

(b) Measures

- i. Ensure the collection and management of data and information on water and land use practices as a basis for planning and decision making;
- ii. Encourage integrated natural resources management in a catchment; and
- iii. Encourage the use of traditional best practices in the management of natural resources.

5.13 Water for National Heritage

(a) Policy Statement

To provide an enabling environment for safeguarding and promoting Zambian tangible and intangible heritage and culture related to water resources.

(b) Measures

- i. Conserve and manage water resources in collaboration with the institution responsible for national heritage; and
- ii. Encourage the practice and expression of folklore and customs related to water resources among indigenous people.

5.14 Water for Transportation

(a) Policy Statement

To effectively manage water resources in order to facilitate the development and operation of navigable water ways in a sustainable manner.

(b) Measures

- i. Promote a safe and clean maritime and inland waterways environment; and
- ii. Ensure availability of accurate information on water resources for water ways development.

6. INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION

6.1 Institutional Framework

The Ministry responsible for water resources is the lead institution in the sector and has the following responsibilities under this policy:

- i. Promulgation, in consultation with other stakeholders, appropriate water sector policies that will facilitate the proper management and development of the resource in accordance with the guiding principles under this Policy;
- ii. Ensure effective implementation of the National Water Policy;
- iii. Coordination of all policy implementation functions of a sector and cross sector nature;
- iv. Development, in collaboration with other stakeholders, a National Water Resources Strategy and Plan;
- v. Ensure the Monitoring and evaluation of the implementation of the strategies specified by the other sectors relating to water resources management and development as well as the implementation of this policy through collaborative and consultative arrangements
- vi. Coordinate the Water Sector Advisory group; and
- vii. Monitor and coordinate the cross-sector issues and that these are being addressed by respective institutions.

The key stakeholders in the water sector include the following

- i. Small Scale Farmer's Association;
- ii. Water drillers;
- iii. Zambia National Farmers Union'
- iv. National Association for Peasant and Small Scale Farmers;
- v. Zambia Wildlife Authority;
- vi. Environmental Council;
- vii. Chambers of Mines;
- viii. Zambia Chamber of Commerce and Industry;
- ix. Institutions dealing with ground water development;
- x. Research institutions;
- xi. Institutions in the hydro power sector;

- xii. National Water Supply and Sanitation Council;
- xiii. National Heritage Conservation Commission;
- xiv. Disaster Management Unit under the Vice-President's Office;
- xv. Ministry of Energy and Water Development;
- xvi. Ministry of Tourism, Environment and Natural Resources;
- xvii. Ministry of Agricultural and Cooperatives;
- xviii. Ministry of Community Development and Social Welfare;
- xix. Ministry of Local Government and Housing;
- xx. Ministry of Communications and Transport;
- xxi. Ministry of Health;
- xxii. Ministry of Justice;
- xxiii. Ministry of Foreign Affairs;
- xxiv. Ministry of Gender in Development;
- xxv. Decentralization Secretariat;
- xxvi. Zambezi River Authority;
- xxvii. Local Authorities; and
- xxviii. Commercial Water Utilities.
- xxix. Civil Society Organisations
- xxx. Local communities

These stakeholders should ensure that water resources management and development measures stipulated under specific sectors in this policy are enshrined in their sector policies and are integrated into their sector plans.

The current institutional framework for the management, development and utilisation of water resources is fragmented and lacks capacity to effectively deal with water resources management. It will therefore be necessary to promote an integrated approach to managing water resources such as catchment management and to address issue of management at the local level. This management approach is based on the geographical extent of a water resource which may cut across district, provincial and national boundaries. In this regard this Policy shall promote catchment based management of water resources with the active participation and involvement of stakeholders.

This Policy will facilitate the establishment of a legal and institutional framework for effective management, development and utilisation of the

country's water resources for wealth creation leading to economic development.

6.2 Legal and Regulatory Framework

The current Water Act enacted in 1949 is restrictive in nature as its jurisdiction is limited to consideration, issuing and monitoring of water rights. It does not elaborate on modern water resources management practices. It does not deal with shared water courses or with the management of ground water resources and does not adequately reflect issues of reasonableness and equity.

This Water Act is over fifty years old and inadequate in many respects. It among other things does not provide for:

- i. Clear water resources management principles;
- ii. Equitable and reasonable principles for water allocation;
- iii. Management of international waters;
- iv. Groundwater management, development and utilisation;
- v. Involvement of stakeholders at the lowest appropriate level in the decision making process;
- vi. Harmonization in the management of the water resource at institutional level;
- vii. coordination and leadership in the sector (suggested national authority for coordination); and
- viii. Adequate involvement of traditional authorities in water resources management (customary law).

The above limitations in the Act have led to a real threat to the sustainability of the water resource base and have impacted negatively on the control, quality and availability of water.

The current legal framework for water resource management and development is complemented by various Acts of Parliament which include the following:

Table 4 Complementing Acts to the Water Act

Enabling Act	Purpose
Constitution of Zambia 1991 (as amended in 2006)	The Bill of Rights and the Directive Principles of State Policy establishes the framework within which the regulation and allocation of water can take place.
1. The Inland Waters Shipping Act Cap 466 (enacted in 1961)	This Act deals with the use of inland waters for navigational purposes. Section 10 of the Act empowers the President to declare any lake or river or part of these to be inland waters for navigational purposes. It provides for the registration and certification of vessels.
2. National Heritage Conservation Act Cap. 173 (enacted in 1989)	This Act provides for the conservation of, <i>inter alia</i> , ancient, cultural and natural heritage and objects of aesthetic, historical and scientific interest. The definition of “ancient heritage includes any dam, weir, bridge, ford, harbour works, landing place or ancient ship-way, and any landmark for use on water, which is known or believed to have been erected, constructed or used before 1 st January, 1974, whether above ground, underground or under water. The definition of natural heritage includes any waterfall.
3. The Lands Act Cap 184 (enacted in 1995)	In Zambia all land is vested in the President, under section 3 of the Lands Act, who holds it in perpetuity for and on behalf of the people of Zambia. Subsection (5) of section 3 provides that all land in Zambia subject to any other law, shall be administered and controlled by the President for the use or common benefit of the people of Zambia. This is significant as far as natural resources is concerned as subsection (7) provides that, in alienating land the President shall take such measures as shall be necessary to control settlements, methods of cultivation and utilisation of land as may be necessary for the preservation of the natural resources on that land; and set aside land for forest reserves and game management areas and national parks and for the development and control of such reserves, game management areas and national parks.

Enabling Act	Purpose
4.The Forests Act Cap 199 (enacted in 1973)	This Act provides for the conservation and protection of forests and trees. The Act defines “river” for purposes of that Act as including lakes, streams, canals and other channels whether natural or artificial.
5. Environmental Protection and Pollution Control Act, Cap 204 (enacted in 1990)	This Act provides for the protection of the environment and the control of pollution.
6. Fisheries Act, Cap 200 (enacted in 1974)	This Act deals with the control and development of fishing. For the purposes of the Act, “water is defined as water in any river, stream, watercourse, lake, lagoon, swamp, pond, dam, reservoir or other place of a similar nature.” Section 6 of the Act is of significance as the Minister, i.e. the portfolio Minister, may, for the purposes of recreational, subsistence, or research fishing declare any area of water to be a prescribed area, or declare any area to be a commercial fishing area.
7.Local Government Act, Cap 281 (enacted in 1991)	The Local Government Act, in the Second Schedule, lists the functions of a Council which state as follows, “to provide and maintain supplies of water and, for that purpose, to establish and maintain water works and water mains”, and “to take and require the taking of measures for the conservation and the prevention of the pollution of supplies of water.” As can be observed, these functions are not the only domain of the Environmental Council.
9. The Tourism and Hospitality Act No. 23 of 2007	This Act provides for (among other things) the development of the tourism industry through planning, management and coordination and incentives for investors in the tourism industry.
10. The Zambia Wildlife Act, No. 12 of 1998	Responsible for all Game Management Areas (GMAs) and National Parks covering approximately 33% of the total land area of Zambia. It is largely responsible for the management of wildlife but is also responsible for the management of forests and water catchment areas found in National Parks.

Enabling Act	Purpose
11. The Public Health Act, Cap 295 (enacted in 1930)	Responsible for monitoring sanitation; health education; monitoring of drinking water quality; setting standards and general sanitary supervision throughout the country
13. The Town and Country Planning Act, Cap 283 (enacted in 1962)	Responsible for urban planning and demarcation of areas for development, the preparation, approval and revocation of development plans, the control of development and subdivision of land. These features are important in that the impact of development on natural resources is an important component of town and country planning, and this includes water.
14. The Mines and Minerals Development Act, No. 7 of 2008	Provides for environmental protection during prospecting and mining and abandonment of mines.
15. The Zambia Development Agency Act, No.11 of 2006	Fosters economic growth and development by promoting trade and investment in Zambia through an efficient, effective and coordinated private sector led economic development strategy.
16. The Water Supply and Sanitation Act, No 28 of 1997	Regulates water supply and sanitation service providers.
17. The Energy Regulation Act, Cap.436 (enacted in 1995)	Established the Energy Regulation Board and defines its functions and powers; provides for the licenses of undertakings for the production of energy, for the production or handling of certain fuels.

Table 6 Relevant international instruments

Instrument	Purpose
1. The Zambezi River Authority Act, Cap. 467 (enacted in 1987) (amendment in 2000)	This Act gives effect to provisions of an interstate agreement relating to the utilisation of the Zambezi River concluded between Zambia and Zimbabwe. The Zambezi Scheme as defined in the Agreement is “the Kariba Complex and any additional dams, reservoirs and installations that may be constructed or installed on the Zambezi River”.
2. The Convention on the Sustainable Management of Lake Tanganyika, 2003	To ensure the protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika and its Basin by the contracting States on the basis of integrated and co-operative management.
3. The Revised Protocol on Shared Watercourses in the Southern Africa Development Community, 2000.	To foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilisation of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation.

The majority of the above laws generally deal with water usage, pollution control and conservation as part of natural resources management. They are in the main complementary to the policy objectives for water resources management and development which will enhance collaboration and cooperation between the key stakeholders.

For the effective implementation of objectives and strategies outlined in this Policy the following measures shall be undertaken:

- i. The Water Act of 1949 will be repealed and replaced with new legislation which will address the current deficiencies of the Water Act and provide a framework that promotes Integrated Water Resources Management;
- ii. An effective regulatory and institutional framework that provides guidance to all actors shall be developed and implemented ;
- iii. The harmonisation of all relevant legislation shall be carried out to avoid overlaps, conflicts and inconsistencies;

- iv. A clear mechanism for enforcement of the legal framework shall be developed; and
- v. Effective coordination between all key institutions shall be promoted;
- vi. Capacity for the enforcement of the legal and regulatory provisions shall be developed.

7. CROSS-SECTORAL ISSUES

7.1 National Strategic Planning and Development

The development of water resources has been sector oriented (e.g. energy, agriculture) rather than integrated. This has hindered the realisation of the overall objective of using water for socio-economic development. Therefore, formulation of comprehensive water development plans aligned with national development priorities and that allow regular reviews during implementation within the framework of IWRM shall be encouraged. This practice is expected to result in informed decision-making for improved infrastructure development. In order to achieve this, the following measures shall be implemented:

- i. Water resources planning and development shall be based on accurate and reliable information;
- ii. Water resource management and development shall be carried out on the basis of catchment boundaries;
- iii. Catchment management plans shall be elaborated with an integrated multi-sectoral approach;
- iv. Develop a water infrastructure development strategy that will attract public investment as well as encourage public private partnerships; Provide incentives for public private partnerships on infrastructure development; and
- v. Encourage use of water recycling including sustainable waste water reuse to increase water availability.

7.2 Stakeholder and Community Level Participation

Water resources shall be managed through a national water resources management institution. The national institution shall be supported by river catchment and sub-catchment organs and water users associations. Water development and management shall be based on a participatory approach, involving users, planners and policy-makers at all levels. The water users association shall be the lowest organ for community participation. 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 and development. This enhances the sense of community ownership in the provision of water services. In order to achieve this, the following measures shall be implemented:

- i. Use participatory approaches to create awareness on important water issues to mobilise support from the general public and policy and decision makers on the best practices for management and development of the water resources;
- ii. Women shall play a central part in the provision, management and safe-guarding of the water resources;
- iii. Train communities in community water project identification, formulation and implementation so as to equip them with appropriate knowledge and skill;
- iv. Encourage the establishment of water users associations with clearly defined roles;
- v. Introduce participatory approaches in water resources management programs, including the enhancement of the role of members of the disadvantaged groups, youth and other members of local communities; and
- vi. Promote the introduction of appropriate technology for the disabled.

7.3 Administration of Water Permits

Water permits play a key role in water sector development through their impact on the usage of water in the economy. An efficient system for administration of water permits is a prerequisite for efficient resources allocation, guarantees reasonable returns to water suppliers, and encourages conservation of water resources. To the extent possible the acquisition of permits should reflect both the social and the economic value of water resources and promote efficient use of the resource by the permit holders. However, these permits should be based on the principles of fairness and equity, and hence should promote efficiency, and sustainability in the utilization of water resources for overall national social and economic development. In order to achieve this, the following measures shall be undertaken:

- i. All domestic and non-commercial uses of water resources will not be required to acquire permits;
- ii. Development of a national strategy that aims to promote efficiency and sustainability in water use;
- iii. Wealth creation and empowerment of the disadvantaged shall be a primary objective in the implementation of the strategy; and;
- iv. The process of facilitating use of water resources through the issuance of water permits shall take into account the sustenance of administrative services for granting of permits.

7.4 Data Information and Reporting

The existing database on the status of water resources is outdated and unreliable for planning purposes. This weakness in information management has made it difficult for all stakeholders to make informed decisions. As such the sector is unable to effectively support the development of other sectors, especially the economic sectors. The efficient management and development of water resources depends on readily available accurate and reliable data and information on water resources that will facilitate informed decision making. In order to achieve this, the following measures shall be undertaken:

- i. Establishment and maintenance of an appropriate water resources information management system;
- ii. Harmonise and undertake regular monitoring and assessment of water resources in conjunction with relevant institutions; and
- iii. Regular dissemination of information on water resources to relevant institutions and stakeholders.

7.5 Financing and Private Sector Participation

Water infrastructure built and maintained by the private sector has been constructed at great cost. Accessibility to credit finance for investment has not been easy for the majority of potential developers. Government has been developing strategies of raising capital and modalities for infrastructure development. The establishment of a water resources infrastructure financing facility operationalised through a revolving fund will attract private investment in the sector and promote public private partnerships in water development for productive use.

The following measures shall be implemented to facilitate investment in the sector:

- i. Promote economic development by facilitating investment in water resources management, use and infrastructure development by creating a conducive legal and institutional framework;
- ii. Provision of clear guidelines and procedures on the use of funds to ensure transparency and accountability;
- iii. Development of economically viable infrastructure that are self financing shall be prioritised to ensure sustainability;
- iv. Creation of an enabling environment that attracts funding;

- v. Establishment of a water resources development trust fund for the development, conservation and management of water resources; and
- vi. Promotion of public private partnerships in infrastructure development.

7.6 HIV/AIDS

The 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 minimise the negative impact of HIV /AIDS. This Policy shall be complemented by the National Aids Policy in its implementation.

7.7 Research and Development

The sustainable management of water resources is largely dependent on maintaining and developing recognised capabilities in the field of water resources research. The Government will therefore develop research capabilities in water resources management and shall implement the following measures:

- 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.

7.8 Climate Change

Climate change is considered as one of the serious threats to sustainable development, due to its possible adverse effects. The incidences of drought and floods that Zambia is experiencing are increasingly being attributed to a changing climate regime. These extreme events have negatively affected the socio-economic development process. Resources meant for other development programmes have been diverted to solve these climatic eventualities. Zambia needs to be prepared to address the growing challenges of climate change.

Therefore in order for the country to address these challenges, the following measures shall be implemented:

- i. Conducting public awareness campaigns to ensure that the public is enlightened on climate change issues, including mitigation and adaptation measures;
- ii. Assessing and monitoring the potential impact of climate change on ecosystems especially woodlands, forests and wetlands.
- iii. Investment in irrigation systems;
- iv. Supply of clean and safe water to communities to prevent water borne diseases that come with floods/droughts; and
- v. Developing and promoting alternative energy sources to fuel-wood and technologies in order to reduce the use of fuel-wood and woodlands, forests and wetlands Strengthening the existing national climate and meteorological databases and monitoring networks.

7.9 Gender

The management and development of water resources from the lowest to the highest decision-making levels require effective participation by both genders. It is well recognised that, women play a vital role in the provision, management and safeguarding of water. As custodians of natural resources, it is imperative that they take proactive decisions on how these resources are managed and developed. In order to achieve this, the following measures shall be implemented:

- i. Accelerate the representation of women at all levels and in all spheres of water resources management;
- 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, management and sharing of benefits of various water schemes operated by communities;

- iii. Gender mainstreaming in water sector programmes will be articulated with the full involvement of women in the course of implementation of the Policy; and
- iv. Appropriate and gender sensitive technology shall be introduced.

7.10 Conflict Management

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

7.11 Capacity Building

There is need to build capacity in the water sector in order to support the legal and institutional framework, and implementation of measures as provided in this policy. To achieve this objective the following shall be implemented:

- i. Recruitment and training of personnel in the relevant fields shall be applied at all levels;
- ii. Provisions of incentives aimed at retaining skilled manpower;
- iii. Development of a system for evaluating personnel performance and productivity; and
- iv. Introduction of capacity building programmes for institutions and stakeholders in river catchments.

8. IMPLEMENTATION FRAMEWORK

8.1 Time Frame

The time frame for implementation of this policy is ten (10) years from the time of its adoption.

8.2 Institutional Arrangements

The Ministry responsible for water, as the lead institution in the water sector, with responsibilities outlined in section 6.1 will spearhead the implementation of this policy.

8.3 Coordination of the Water Sector

The Zambian government in 2003 introduced Sector Advisory Groups (SAGs) as a vehicle for contributing to the process of planning, implementation, monitoring and evaluation of poverty reduction programmes in the implementation of the Fifth National Development Plan. The SAGs act as advisors to government on sector policy issues on budget consolidation in line with national priorities and projects/programmes implementation. In the water sector, the Water Advisory Group is operational and provides useful technical advice and direction for the water sector.

The Water Sector Advisory Group comprises representatives from key institutions and stakeholders and is chaired by the Ministry of Energy and Water Development, which also provides the secretariat. Stakeholders currently represented in the Water Sector Advisory Group include: line Ministries, Statutory Institutions, Cooperating Partners, Academic and Research Institutions, Civil Society and Non-Governmental Organisations. Membership is open to any other organisations with an interest in the water sector.

8.4 Decentralisation

The new focus in water resources management is using the catchment as the management unit. This approach centres on empowering stakeholders in a particular locality with the ability and responsibility to make decisions regarding the management of water resources in the catchment. Catchment management of water resources will transcend provincial and district boundaries. The catchment approach will be sustained by the Decentralisation Policy whose goal is to empower local communities by

devolving decision making authority, functions and resources from the centre to the lowest level (district and provincial levels). There is a direct link between the National Water Policy and Decentralisation Policy even though the latter takes the administrative boundaries as the management unit. Both aspire to take power from the centre to the local levels and with matching resources, can considerably improve the efficiency and effectiveness in service delivery.

The management of water resources will be carried out by catchment councils, who will have as its members, representatives of the provincial administration. Catchments will be divided into smaller units called sub-catchments which will have as its members' representatives of all the Local Authorities in the sub-catchment and representatives of the traditional authorities in the sub-catchment. All district and provincial plans will be integrated into the catchment and sub-catchment plans.

8.5 Monitoring and Evaluation

In order to ensure that the Policy measures and strategies are carried out, an effective monitoring and evaluating system shall be put in place. The Ministry responsible for water resources, in collaboration with stakeholders, shall develop verifiable indicators for the purpose of ensuring that the objectives of this Policy are being achieved in accordance with the implementation plans.

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10. DRAFTING PERSONNEL