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GOVERNMENT OF THE REPUBLIC OF ZAMBIA

THE NATIONAL WATER POLICY

August 2006

First draft for discussion

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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, other industry and tourism are dependent on water. However, Zambia's water resources are yet to be fully exploited for the benefit of its people to enhance their ability to be productive for improved livelihood. 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, regarding the management of water resources, the Ministry of Energy and Water Development in consultation with other relevant stakeholders undertook a revision of the National Water Policy 1994 in order to provide a comprehensive framework for sustainable development, management and utilisation of Zambia's water resources. Water is a crucial element for the preservation of the environment thus, it has to be managed in such a way that future generations will benefit from the resource.

The revised National Water Policy embraces modern principles of water resources management and endeavours to deal with the daunting challenges of poverty reduction. The revised Policy takes into account the Decentralisation Policy of Government.

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, wet land conservation, climate changes and conflict management.

I, therefore wish to reiterate 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 natural 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 their strategies and programmes in order to meet the aspirations of the Zambian people.

Minister of Energy and Water Development

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 being extended to all those stakeholders who participated in the water sector reforms. These included representatives from the following:

- The House of Chiefs and other Traditional leaders;
- The National Assembly;
- The Zambia National Farmers Union and National Association for Peasant and Small Scale Farmers;
- Zesco limited and Lunsemfwa Hydropower company;
- The Chambers of Mines;
- The Zambia Chamber of Commerce and Industry;
- Institutions dealing with ground water development;
- Research institutions;
- The Line Ministries and Institutions responsible for the management of natural resources;
- Cabinet Office, the Ministries of Justice, Commerce, Trade and Industry, Community Development, Health and Foreign Affairs, Ministry of Energy and Water Development;
- The Decentralization Secretariat;

Special thanks go to the Legal and Policy Consultant and the 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 contributed to the development of this Policy through media programmes.

The success of the implementation of this Policy will depend on the effective participation of all the above mentioned and all citizens of Zambia.

Dr. Buleti G. Nsemukila
Permanent Secretary
MINISTRY OF ENERGY AND WATER DEVELOPMENT

Acronyms

ADB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
CU	Commercial Utility
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	
MDG	UN 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 Wildlife Fund for nature
ZAWA	Zambia Wildlife Authority
ZNFU	Zambia National Farmers Union

Working Definitions

In this Policy 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;

domestic purposes : means the household use of water for various purposes 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 utilization : means the management and maintenance of a fair and justified allocation system and, the utilisation of a water resource in a sensible and non-excessive 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, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems;

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 who is responsible for polluting the water resource must restore the water to its natural or acceptable state;

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 between Zambia and another state or among states including Zambia;

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 waste of water, encourage sustainable and efficient use of water and improve the quality of water;

water management : includes:-

- planning the 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 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 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;

water stressed area :

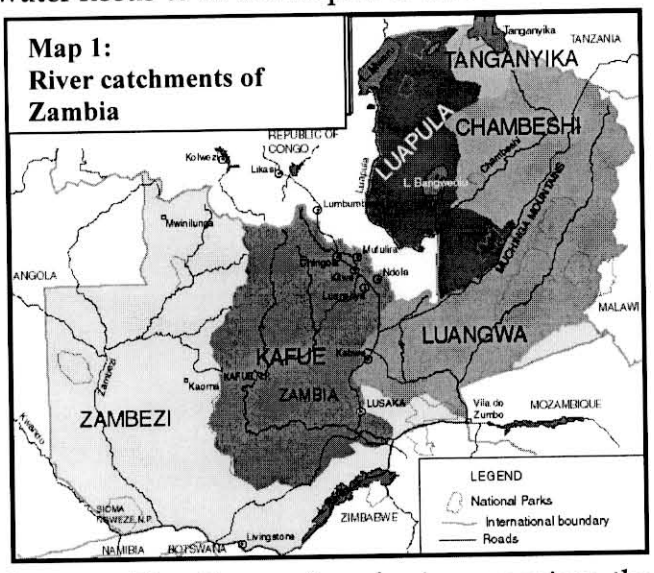
wetlands : are transitional areas between terrestrial and aquatic systems in which the water table is usually at or near the surface or the land is covered by shallow lakes, this includes tidal mudflats, river banks, natural ponds, marshes, wet meadows, dambos, bogs, peat, freshwater swamps and mangroves, not exceeding six metres in depth.

1. Introduction

1.1 Water Resources Availability

Zambia generates an estimated 100 Km^3 per year of surface water and an estimated annual renewable groundwater potential of 49.6 Km^3 per year (DWA/JICA, 1995). Most of the surface water is poorly distributed while groundwater is fairly well distributed. In any case most of this water needs to be developed to meet most of the present and future demand for various uses such as irrigation, domestic water supply and hydropower generation.

Map 1: River catchments of Zambia



There are two main river basins in Zambia namely the Zambezi and Congo River basins. These comprise the six catchments of Zambia being Zambezi, Kafue, Luangwa, Luapula, Chambeshi and Tanganyika.

The Zambezi river basin is the largest river and comprises the Zambezi, Kafue and Luangwa catchments. The Congo river basin comprises the Chambeshi, Luapula and the Tanganyika catchment and it is situated in the northern part of the country.

Zambia has two shared water course systems: the Congo basin in the north and north-eastern part of Zambia, which is shared with eight other riparian states, and the Zambezi basin, which is shared with seven other riparian States.

Table 1 gives a percentage contribution to the total water resources potential of the country from its catchments.

Table 1: Percentage Contribution of each river system

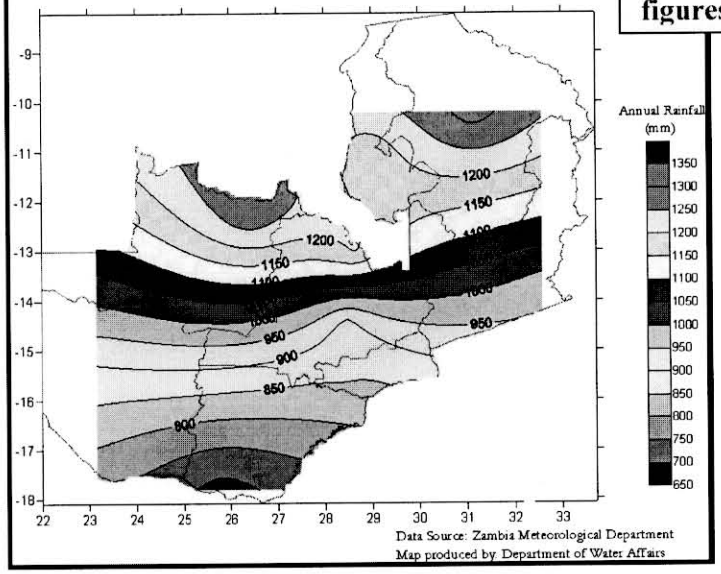
River Catchment	Total Catchment Area (Km2) *(Area outside Zambia)*	% Contribution to Surface Water Potential	Annual Run-off (Km^3)
Tanganyika	15,856	1.73	1.99
Kafue River	156,995	8.40	9.88
Chambeshi	44,427	7.62	8.75
Lauangwa	144,358 *(3,264)*	19.44	22.32
Luapula	173,396	26.25	30.14
Zambezi	268,235 *(418,814)*	36.36	41.75
Total for Zambia			114.83

1.2 Rainfall Situation

Zambia receives moderate rainfall ranging from an annual average of approximately 600 mm in the south of the country to over 1400 mm per year in the north. The country's annual average rainfall is 1000 mm. Map 2 shows the isohyets for average annual rainfall of Zambia based on historical rainfall data (MEWD-JICA 1995).

In the last two decades, most parts of the country have generally received below average annual rainfall. This was punctuated in some cases by above average annual rainfall. As a result there has been reduced surface water especially in the southern parts of the country. The country has a relatively higher density of rivers in the north although most of these terminate in the south and hence the southern half of the country has more water than the northern half but this water is confined to a few large rivers making it difficult to access it for most uses.

Map 2: Isohyetal of average annual rainfall.



NOTE
Look for a more recent rainfall map
And change figures

1.3 Surface Water Situation

Surface water trends are in most cases very similar to the rainfall trends because of surface water quick response to the seasonal rainfall pattern. In a normal hydrological year the country receives sufficient surface water resources to meet the present demand. However, its spatial distribution over the season is particularly very poor in the southern parts of the country. Table 3 below shows an estimated annual runoff at confluences of the major rivers for the 2003/3004 hydrological year.

Table 2: Annual Runoff at Selected points

CATCHMENT	ESTIMATED ANNAUL RUN-OFF (Km^3)	
	Historical	2003/2004
Tanganyika	1.99	3.16
Kafue	9.88	12.74
Chambeshi	8.75	5.27
Lauangwa	22.32	21.32
Luapula	30.14	19.87
Zambezi	41.75	44.68
Total for Zambia	114.83	107.03

1.4 Groundwater Situation

Zambia has a good amount of well distributed groundwater resources, which are not fully developed to contribute to increasing demand of water for different uses. In many areas, particularly in rural areas, it is the most reliable water source for safe drinking water and other economic activities. MEWD/JICA (1995) estimated the annual groundwater potential to be 49.6 Km^3. This 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 Conservation and Protection

Water resources exist in an environment of which it sustains. It is the state of the environment in which it exists that determines the state of the water in terms of quantity and quality of the water resources at any particular time of the year in an area. The state of the water resources also affects the environment. Changes caused by human activities within the environment and an unpredictable weather pattern results in some areas having unprecedented floods while other areas experience severe droughts.

Water quality in the natural environment is still relatively of good quality in many parts of the country for many uses. There are however hotspots such as in and around settlements which 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 of construction material and poor waste management. Water near industrial estates such as the mines on the Copperbelt is threatened by effluents discharged into rivers and streams. This can be demonstrated by the proliferation of water hyacinth near points of sewerage and industrial effluent discharge in areas such as the Kafue River catchment.

The protection of the headwaters, wetlands and forests has become very challenging due to pressures from unsustainable resource exploitation by people who want to survive and make a living. Trees are being cut down at an alarming rate for agriculture and other uses such as charcoal burning, depleting forests and the wetlands of its natural cover. It is therefore, very important to consolidate the environmental conservation and protection measures.

The Environmental Council has taken a lead to promote environmental management. This has been coupled with individual efforts by other organisations that are contributing to the protection of the environment which has become a paradigm in any large scale project planning. The Copperbelt Environmental Project, GRZ/WB/ZESCO and many other projects have greatly contributed to the protection and conservation of the environment and through it of the water resources.

1.6 Historical Background

Zambia's water law is based on principles of common law and as provided in the Water Act Chapter 198 of the Laws of Zambia. The Water Act was enacted in 1948. This Act supported the Department of Irrigation and Rural Development which was established by the Colonial Government in 1947 (and later became the Department of Water Affairs). This Department was an administrative unit of the Government with vast administrative powers over water resources underpinned with the statutory mandate of the Minister under the Water Ordinance. The mandate of the Department was to manage and develop water resources for industrial use and to accelerate rural development through irrigation. The DWA carried out –

- Water resources assessment and allocation;
- Boreholes and well drilling;
- Dam construction;
- Catchment conservation;
- Canal development; and
- Clearing of waterways for irrigation and navigation.

The activities of the DWA were supported, after 1948, by the Water Board established under the 1948 Ordinance. The functions of the Water Board are the allocation of water and the issuing of water rights.

After Zambia attained independence in 1964 the majority of district councils did not have the capacity to provide for water and sanitation services to the residents within their townships, the Government in 1972 allocated the responsibility of managing rural and township water schemes to DWA until such a time as capacity would be built in the affected councils. By the time the Local Administration Act of 1980 was enacted DWA was managing 48 township's 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 and has impacted negatively on the use, development, control, quality and availability of water.

2. SITUATION ANALYSIS

2.1 Water resources development and management

Water management is planning the sustainable development of the water resource and providing for the implementation of any catchment management plan and national water resources strategy and plan. It further, promotes the rational and optimal utilisation, protection, conservation and control of the water resource and improves the access to sufficient quality, quantity and distribution of water for various uses.

Currently water resources are not being managed effectively and efficiently due to a number of reasons such as a poor institutional and legal framework for the management of water, inadequate water resources data and information systems, poor coordination of various institutions and ministries dealing with water, centralised management of water resources, weak leadership of the water sector, lack of monitoring and evaluation of programmes and projects relating to water under various ministries and institutions.

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 location, quantity and quality. The development of water resources is undertaken by various players that includes the Government, private organisations, local communities and individuals.

There is no deliberate policy by government to invest in water resources infrastructure development. For example, Zimbabwe has approximately 260 large dams and 10,000 smaller dams and has developed its full potential. Zambia, on the other hand, has built 5 large dams and approximately 2,000 small dams. This is in spite of the fact that Zambia has more potential than Zimbabwe. However the total number of dams in Zambia is not known due to inadequate information and regulatory mechanisms 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. There are no accurate and updated records as to the number of boreholes and wells. However, a nation wide inventory was carried out by the Ministry responsible for water development in 1998, which estimated that there are approximately 11,000 boreholes and 22,000 protected wells in the country.

The lack of adequate information on boreholes and dams negatively impacts on strategic planning for water resources and affects efforts to regulate groundwater development and the creation of national and local information systems.

The principle of capturing rain from surfaces such as roofs, and land is known as rain water harvesting. This aspect of water resources development has not been fully

developed in Zambia. It is however being introduced in rural schools. This will assist greatly during the times of water shortage and reduce the walking distance to the water point. Plans are also underway to encourage the local community to harness rainwater in properly designed structures.

2.2 Water for Social and Economic Development

Water forms the vital links to all sectors of the economy. It is critical to food and agriculture, health, industry, energy, transport and tourism development and other uses. It provides formal employment to many people involved in water management and the various water supply and sanitation schemes in the country. The National Water Policy 1994 has helped to achieve a number of very important objectives as outlined in that policy.

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 and is estimated according to the 2000 Census Report at 49.1 %. Access in urban areas is estimated at 86.1 % and 29.5 % in rural areas. It is 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.

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 makes the soil productive. It is also important in the sustenance of the fishing and aquaculture industry, which has an important role to play in the provision of a certain level of nutrition needed by the people. Agriculture has now taken priority in government's planning for social and economic development. A lot of investments have been made to the food and agriculture sector. This sector provides employment to a large percentage of the population. In general water may be used for irrigation, livestock and aquaculture.

The area irrigated in Zambia is estimated at approximately 100,000 ha comprising 52,000 ha under formal (commercial) and 48,000 ha under informal (subsistence). 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.

The estimated demand for water in the agriculture sector up to the year 2015 is as follows:

(Unit: 1000m3/day)

	2005	2015
Irrigation	7346	9830
Livestock	183	223
Aquaculture	814	2130
Total	8343	12183

The use of substances such as fertilizers, pesticides and chemicals can cause pollution of aquifers and surface waters if not properly managed.

2.5 Water for Health

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 and accessible drinking water in order to enhance health and productive lives of the people. Improved access to water and sanitation has yielded direct economic benefit for the people of Zambia. Effective and efficient water resources management is vital to ensuring access to safe drinking water for communities and reducing the incidences of water related diseases. In addition, it contributes to the improvement of disposal of sanitary waste and other wastes that impact on health.

2.6 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 the provision of employment in industries, water greatly contributes to exports of some of the manufactured product that provide a source of foreign exchange.

The projected water requirement up to the year 2015 for the mining and manufacturing sectors is as follows:

(unit: 1000 m3/day)

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

The use of water by industry has in some cases contributed to the degradation of the quality of water and affected the quantity of water in the natural water systems due to inefficient utilization.

2.7 Water for Energy

Energy is a vital input to the mining, industrial, agriculture and manufacturing sectors. 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. Zambia presently earns well above US $2 million monthly in electricity exports. **MW exported**

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 poor resulting in the overexploitation of wood fuel, which increases deforestation.

2.8Water for Transportation

Water transport is a suitable and convenient mode of transportation and 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 it to cross rivers and travel to areas where road networks are poor or are not accessible by other means. The current statistics show that in 1992, a total cargo of about 296 tonnes and 8,669 passengers used the water transport through Mpulungu Port. Water transport has an advantage in that it is able to move goods in bulk. The Government maintains a system of canals in areas that are suitable for navigation.

2.9 Water for Recreation and Tourism

Zambia's major tourist sites such as national parks, water falls, wetlands and national forests are situated along rivers and lakes with their ecosystems. In addition most tourist infrastructure are located contiguous to or near a water resource. The existence of the Victoria Falls on the Zambezi River offers the largest and most popular single tourist attraction in the country. Other tourist attractions along the Zambezi River include water rafting downstream the Victoria Falls and boating on Lake Kariba as well as upstream the Victoria Falls, sport fishing on the Kafue River, lake Kariba, lake Itezhi-Tezhi and lake Tanganyika is a popular recreational activity. Further, there are approximately 100 waterfalls, hot springs, unique water bodies and sources of major rivers which have not been fully exploited as tourist and recreation sites. Water also supports the wildlife and maintains a balanced ecosystem for the sustenance of tourism.

The abundance of water resources in Zambia is strategic for the development of tourism and recreation centres which has contributed to economic diversity and growth.

2.10 Water for research and education

Professional and academic institutions play a vital role in the management of water resources as 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, the University of Zambia, Copper belt University, Mount Makulu Research Institute, National Aquaculture Development Centre (Mwekera), Nanga Irrigation Research Centre, Natural Resources Development College and all Agricultural Colleges in Zambia.

Currently Government does not invest enough resources in research and the little research carried out by these research institutions is not disseminated to institutions and stakeholders for effective use.

2.11 Water Resources Information and Monitoring

Basic information on the source, quantity and quality of, and interplay of human and natural factors on water resources is vital for effective and efficient sound 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.

The lead institutions currently responsible for water resources information in Zambia are the Department of Water Affairs for all aspects of hydrological data, the Water Board for water use, the Meteorological Department for meteorological data, the Environmental Council for environmental information, and Disaster Management and Mitigation Unit for information pertaining to emergencies.
Currently there is a general lack of quality and continuous information for effective water resources management.

2.12 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 an enormous effort in increasing food production is required, but this can only be done by identifying and looking at the issues and trends that may impact on this challenge that must be taken into account in developing appropriate action. One of the largest barriers to achieving sustainable food security in an increasing number of areas is water scarcity, which areas call for urgent investment. The need for better water distribution and control, new research to increase yields, research in water efficient utilisation and improved natural resource management has become a priority for the Government if Zambia is to deal with climate changes and avoid increased drought risks which will adversely affect crop yields and agriculture output and help create wealth.

The Government has since the mid 70s commissioned a number of initiatives on water reforms that aim at improving the management of water resources and hence improve accessibility, which included the following:

- The "Study on the Establishment of a National Water Authority and Regional Water Authorities". This was stated as an objective in the Third National Development Plan (1977-83);

- The Report of the National Executive Committee on Water Supply and Sanitation recommended a new institutional framework to reorganise the Water Sector;

- The Department of Water Affairs report of July 1979 on the "Proposed Zambia National Water Authority";

- The Report by Zambia Industrial and Mining Corporation in 1985 on "The Establishment of a Proposed National Water Authority";

- The Report by the Ministry of Decentralisation in 1988 on "Reorganisation Study of the Water and Sanitation Sector in Zambia"; and
- 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 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 issued a National Water Policy which would ensure better water resource management and water supply and sanitation services. This Policy was based on policy measures and strategies that were necessary to achieve long-term sustainability of the water resource as follows:

- recognising the important role of the water sector in the overall socio-economic development of the country;
- vesting control of water resources in the country under State control;
- promoting water resources development through an integrated management approach;
- defining clear institutional responsibilities of all stakeholders in the water sector for effective management and coordination;
- developing an appropriate institution and legal framework for effective management of the water resources;
- promoting a state of disaster preparedness to mitigate impacts of extreme occurrence of water (flood and drought); and
- recognising water as an economic good.

Within this policy framework, Government successfully implemented a broad-based, collaborative and consultative approach to elaborate strategies sufficiently specific to different "sub-sectors" and with respect 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.

The 1994 Policy did however, recognise the diffuse institutional structure and the lack of clear guidelines and coordination links, and because of this a number of problems regarding the management of the sector were spelt out in the policy.

These include –

- inadequate legislation for water resources regulation by the Government;
- lack of clear distinction between sector responsibilities leading to a situation where the Department of Water Affairs combines water resource management and operation of water supply scheme responsibilities;
- poor coordination of planning and management activities among institutions in other sectors leading to wastage of resources and duplication of effort;
- declining investment and sub-economic tariff adjustments leading to financial hardships for water supply schemes;
- 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; and
- lack of institutional and logistical capacity to put in place effective maintenance, material supply and cost recovery systems to operate water supply schemes.

However, the Policy did not develop policy statements and strategies on the above matters but instead recognised the establishment of the Programme Coordination Unit (PCU) as an administrative measure to spearhead the reorganisation of the water supply and sanitation sector. The PCU was mandated to undertake –

- sector policy reforms;
- clarification of sector responsibilities;
- sector organisation reforms;
- framework for planning project development and operation and maintenance; and
- 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 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 changes 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

A stakeholder's workshop was held in September 2004 to begin the process of reviewing the 1994 Policy. The participants identified the following issues that needed to be addressed in the revised policy:

- co-ordination between all the actors in the sector;
- clarity of roles and responsibilities of stakeholders;
- gender and HIV/Aids matters;
- sustainable management, usage and development of water;
- priority of water in national development plans;
- social safety net issues;
- monitoring and evaluation of policy implementation;
- mitigation measures in cases of drought, floods, chemical and toxic substances;
- promotion of investment especially infrastructure development;
- appropriate and gender sensitive technology;
- community management and community contribution;
- promoting the value of water;
- information dissemination;
- Poverty considerations;
- linkages with other national strategies and policies;
- holistic approach to policy development;
- international protocols on water;
- provision of incentives; and
- harmonization of policies.

The Consultant submitted a zero draft of the revised policy in July 2005.

3. RATIONALE

3.1 Revision of the National Water Policy 1994

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

- the following major principles of that Policy have been achieved :
  - separation of water resources management function from the water supply and sanitation function;
  - separation of regulatory and executive functions within the water supply and sanitation sector;
  - devolution of Authority to Local Authorities and commercial enterprises;
  - achievement of full cost recovery for the water supply and sanitation services (capital recovery, operation and maintenance) through user charges in the long run.

- the need to provide for a clear vision and holistic policy direction for the water sector in Zambia;

- the need to assess the progress made in the implementation of that Policy and update it taking into consideration the key developments in the water sector in Zambia and international best practises for water resources management;

- the need to re-align the water policy with the current international developments including the Rio Declaration, Millennium Development Goals, New Partnership for Africa's Development and Southern African Development Community Revised Protocol On Shared Watercourses;

- the need to re-examine the role of the water sector in terms of the National Development Plan;

- the need to integrate gender and HIV/AIDS issues in the water policy; and

- the need to re-examine the institutional and legal framework and bring them in line with modern principles of water resources management and harmonise them with other legislation on the environment.

The shortcomings identified by the stakeholders at the meeting held in September 2004 clearly bring out the shortfalls of the 1994 Policy.

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 as the main source of revenue up to the present day, despite efforts to diversify and place greater emphasis upon agriculture, constitutes one of the highest levels of dependence of any country on any one commodity, with copper exports still accounting 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.

Zambia has a liberalised market economy and despite this highly enabling environment, economic growth remains at a very low level of around one percent over the last decade and was the lowest in the Southern Africa Development Community (SADC) Region. The per capita gross national product has maintained a downward trend since the country attained independence in 1964 and is now less than 400 US$ compared with 650 US$ at that time. In order to address the country's unsatisfactory economic performance, the country has reverted to periodic planning under the National Development Plan for the period 2005 to 2011 which focuses upon economic stabilization and support for programmes aimed at wealth creation.

NOTE subject to critical scrutiny by economists

3. 3 The Millennium Development Goals

Whilst the eight UN Millennium Development Goals define the main areas of global concern that affect development objectives and related activities, the three that are of the greatest importance to the National Water Policy are Goal No 1, *Eradicate extreme poverty and hunger;* Goal No *6. Combat HIV/AIDS, malaria and other diseases;* Goal No 7, take measures to *Ensure environmental sustainability.* The Revised National Water Policy covers the socio-economic issues that impact on water as provided under the Millennium Development Goals.

3.4 Vision 2030

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 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 terms plans. The vision will be operationalised through the implementation of the five national development plans beginning with the Fifth National Development Plan covering the period 2006-2011. In this respect this 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;

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

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

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

- Water development and management should be based on a participatory and gender sensitive approach involving all users, planners and policy makers at all levels;

- 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 by having signed and/or ratified several international instruments. In the context of water resources management and development, the notable international instruments include:

- The UN Convention on the Law of the Non-Navigational Uses of Shared Watercourses 1997
    - The 1997 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. The convention though not in force remains an important framework for cooperation in Shared Watercourses.
- The Revised SADC Protocol on Shared Watercourses 2000
    - The Protocol was greatly influenced by the Helsinki Rules, 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. Zambia is revising the Water Act to conform to the tenets of the Revised Protocol.
- Zambezi River Authority 1987
    - The Zambezi river Authority is an inter-State institution that manages the Zambezi scheme which is on that part of the Zambezi river that is 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 provide adequate and reliable water resources to support the vital socio-economic progress and improve the quality of life for every Zambian through more efficient water supply, management, development and utilisation in a manner that will provide maximum benefits to all the users in households, industry, agriculture and other sectors."

4.2 Guiding principles for water resources management

- water resources shall be managed in an integrated manner;
- water is a basic human need;
- basic human needs and the environment shall enjoy priority of use;
- there shall be equitable access to water;
- water shall be used efficiently, sustainably and beneficially in the public interest;
- water has an economic and social value and this shall be reflected in its use;
- there shall be no ownership of water and no authorisation for its use shall be in perpetuity;
- there shall be equity between both gender 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;
- efforts to reduce poverty shall be reflected in all decisions made in relation to the use of water;
- location of a water resource on land shall not itself confer preferential rights to its use;
- the basic management unit shall be the catchment in recognition of the unity of the hydrological cycle; and

Zambia's water resources shall be protected, used, developed, conserved, managed and controlled sustainably, beneficially, reasonably and equitably for the needs of the present and future generations.

These principles form the basis for the development of this policy.

4.3 Expected outcomes and benefits

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

The overall objective of this water policy is to encourage 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

5.1 Water Resources Development

(a) Policy statement

The policy aims at achieving 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 resource development*** are, to:

i. ensure that Zambia's water resources are developed to contribute to wealth creation through increased access to safe water and sanitation, increased food production and food security for all Zambians;

ii. ensure inter-sectoral linkages in the development of the water resources so as to support cross-sectoral development needs; and

iii. develop and regulate water resources in order to improve accessibility and sustainability.

(c) Strategies

To achieve the above objectives on water resource development, the following strategies shall be implemented:

i. promote and facilitate development of surface and groundwater resources to improve access;

ii. issue guidelines on the development of water resources;

iii. regulate the construction of all water resources development infrastructure;

iv. register water resources development projects and programmes;

v. register and regulate water resources development construction companies;

vi. approve of water resources development projects and infrastructure designs;

vii. monitor dam safety;

viii. promote the construction of dams and provide guidelines on the operations by private or public dam owners and operators;

ix. design and implement water resources developments project ~~in coordination with~~ other relative sectors;

x. establish a programme for construction and rehabilitation of dams and weirs with emphasis on multi-purpose use;

xi. subject large water resources development projects such as dams, rain harvesting schemes, water intake points, river diversions, pumping stations, water well drilling, groundwater abstraction and use and inter-basin water transfer to an environmental impact assessment;

xii. establish an integrated water resources data and information acquisition and management system to meet all water resources management needs;

xiii. install or facilitate the installation of metering systems on all hydraulic structures;

5.2 Water Resources Management

(a) Policy Statement

A comprehensive framework for management of the nation's 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 resource management*** are, to:

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. 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;

iii. Promote and implement the development of an integrated catchment management system and improve accessibility and utilisation of water resources for various uses;

iv. promote effective community participation and stakeholder involvement, particularly women and children, in the design, execution and management of water resources, programs and projects;

v. promote regional cooperation on shared watercourses;
vi. 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;
vii. ensure that the water resources are preserved and maintained at acceptable quality standards; and
viii. manage emergency situations effectively with minimum loss to life and property.

(c) Strategies

To achieve the above objectives on water resource management, there is need to use the following are the strategies:

i. establish a comprehensive 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 resource management (IWRM) system approach;
ii. encourage efficient utilisation of water resources and water demand for different uses;
iii. undertake comprehensive water resources assessments for surface and groundwater sources;
iv. 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;
v. to contribute to the minimization of the impact of water-related disasters such as droughts and floods through the provision of early warning systems;
vi. strengthen the capacity for addressing the water resources management needs in the water sector;
vii. regulate the development of water resources and integrate other sector needs such as agriculture, tourism and hydro-power;
viii. establish mechanism 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 arid and semi-arid areas as 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 bi-lateral and multi lateral investments in water resources development for the benefit of the parties involved;
xx. promote regional collaboration in areas of research, data collection and information exchange;
xxi. establish institutions for the management of shared water courses in collaboration with national institutions;
xxii. develop a decision support system for international water resources management.
xxiii. establish early warning systems in collaboration with other relevant institutions;
xxiv. map out areas prone to water related disasters;
xxv. promote preventive measures through community education and awareness; and
xxvi. collaborate with regional and international bodies in dealing with emergency situations.

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) Objectives

- develop and manage water resources to support the agricultural and irrigation sector;
- support the development of the agricultural sector through the establishment of a fair, efficient and transparent water allocation system;
- facilitate conservation of national water resources through dissemination and awareness on sustainable water and soil conservation measures;
- collect, process and disseminate information on water resources in order to facilitate development of agriculture.

Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for agriculture such as the following:

- design, develop and promote appropriate and sustainable irrigation technologies and techniques for small-scale farmers for improved agricultural land productivity;
- establish accessible, efficient, transparent and service oriented demand-driven institutions according to principles of subsidiarity;
- establish a sustainable irrigation sector with particular emphasis on the need for efficient coordination of sectoral activities;

- facilitate tradable, mortgageable and well regulated long term Water Permits;
- ensure equitable access to irrigation resources, goods and services by all irrigators through a transparent and well-enforced irrigation regulatory framework;
- increase farmers knowledge and skills in proper land utilization and soil and water conservation;
- promote the conservation of natural resources especially soil, vegetation and water in order to sustain agricultural production;
- provide reliable information services necessary for production of irrigated produce; and
- promote conservation farming and rainwater harvesting technologies.

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) Objectives

- manage water resources quality and quantity in order to support sustainable fisheries development;
- protect water resources and aquatic environment from overexploitation and pollution caused by activities related to fishing or aquaculture; and
- enter into bilateral or multilateral agreements with any foreign state or government relating to any shared water resource.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for fisheries such as the following:

- encourage development of protocols to facilitate joint management of fisheries resource in shared water bodies;
- collaborate with other relevant sectors in monitoring, removing and minimizing factors contributing to environmental degradation and fish resource depletion;
- promote environmentally sound and economically viable exploitation methods for all fish stocks, and in particular for confirmed under-utilized fish-stocks in the public water bodies;
- increase fish conservation awareness and ensure that methods used in fishing are those that conserve fish stocks;
- promote the utilization of small water bodies, dams and reservoirs for aquaculture;
- promote where appropriate the inclusion of aquaculture in water supply and irrigation development programmes;

- initiate the establishment of code of conduct to provide guidelines to address issues such as introduction of exotic species, water abstraction, spread of diseases and effluent control;
- establish effective procedures to undertake appropriate environmental assessment and monitoring with the aim of minimizing adverse ecological changes and related economic changes and social consequences resulting from water extraction, land use, discharge if effluents, use of drugs and chemicals and other aquaculture activities;
- monitor and review environmental protection measures applied in all public water systems; and
- conduct planning meetings with sectors that have common interests in natural resources management.

5.5 Water for tourism

(a) Policy statement

Ensure sustainable management of water resources which foster tourism development, such as waterfalls, rivers and ponds.

development?

(b) Objectives

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

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for tourism such as the following:

- encourage sustainable waste disposal, green packaging and recycling, integrated environmental management, social and environmental audits;

- promote tourism development in areas where tourism offers a competitive form of land-use and ensure that tourism is integrated into land-use plans for such areas;

- develop plans for tourism management and promotion that address environmental sustainability and ensure that all sector strategies include tangible concern for the environment and ecotourism ethics;

- promote tourism as an industry within which there is abundant scope for new community and village-based tourism developments that provide incentives for care for the environment;

- monitor compliance with tourism regulations and ensure that health, graffiti, littering, vandalism and pollution rules are adhered to at tourism sites; and

- encourage eco-tourism to protect, conserve and manage the environment and natural resources to ensure sustainability and maximise benefits to local people.

5.6 Water supply and sanitation

(a) Policy statement
To promote sustainable water resources management and development with a view to facilitating an equitable provision of adequate quantity and quality of water for water supply and sanitation and other domestic uses.

(b) Objectives
To provide adequate, safe, and cost effective water supply and sanitation services with due regard to environmental protection.

(c) Strategies
The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for water supply and sanitation such as the following:

- development and provision of sustainable water and sanitation services to more people in urban and peri-urban areas;

- facilitation of universal access to safe, adequate, and reliable water supply and sanitation services in rural areas; and

- capital investment programmes consisting of projects for construction of new facilities and rehabilitation of facilities to secure or safeguard existing coverage.

5.7 Water for wildlife

(a) Policy statement
Ensure management and development of water resources in order to support wildlife.

(b) Objectives

- Promote the integrated planning, management and conservation of water resources; and In game management areas & game reserves/national Parks.

- Ensure that management of water resources takes into consideration the needs of local communities and those of wildlife.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for wildlife such as the following:

- undertake appropriate programmes of research and monitoring in relation not only to the protection and conservation but also the sustainable utilization of resources in ways that are socially and economically important and the minimization of the negative impacts on wildlife and natural habitats; and

- involve local communities and local authorities in planning; establishment of Integrated Resources Development Boards; hands-on management and administration of National Parks and Game Management Areas.

5.8 Water for mining

(a) Policy statement

To ensure that water resources are sustainably managed and developed to support mining activities.

(b) Objectives

- to ensure availability of water to support activities related to the mining sector;

- to protect water resources from pollution derived from mining activities; and

- to ensure that dewatering activities do not have a negative impact on the environment.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for mining such as the following:

- review and adopt as necessary, mining policies that are consistent with proper management of natural resources and the environment;

- ensure that plans for development and construction mining sites have adequate and appropriate waste disposal and pollution control facilities up to international standards;

- provide incentives to encourage the adoption of environmentally friendly mining technologies incorporating energy saving, reduction of health hazards, pollution control and safe disposal of waste measures, wherever appropriate;

- promote use of environmental guidelines and EIA before mining sites are developed and ensure application of a monitoring and auditing system for operating mines; and

- ensure that rehabilitation measures are included in any new concession so as to promote conservation and aesthetic values.

5.9 Water for industry

(a) Policy statement

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

(b) Objectives

- encourage the development of appropriate waste water disposal systems;

- protect and monitor water resources from pollution arising from industrial activities and effluents;

- facilitate the allocation of water of suitable quality for different industrial activities.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for industry such as the following:

- review and adopt as necessary, industrial policies that are consistent with proper management of natural resources and the environment;

- ensure that plans for development and construction of industries have adequate and appropriate waste disposal and pollution control facilities organised to meet international standards;

- ensure that plans and incentives for voluntary waste disposal are enshrined in the production plans of all industries;

- encourage development of industrial technologies that do not pollute or irreparably damage the local environment;

- provide incentives to encourage the adoption of environmentally friendly technologies where possible, incorporating energy saving, reduction of health hazards, pollution control and safe disposal of waste;

- ensure that all industrial and commercial premises have appropriate sanitation and waste and effluent disposal systems and that their immediate surroundings are kept clean.

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 generation.

(b) Objectives

- ensure sustainable management of water resources;
- increase public awareness on the conservation and protection of water resources and the environment;
- prevent and control pollution of ground and surface waters;
- maintain and protect the natural quality of water resources in the country; and
- collect, process, maintain and disseminate data and information on water quality and aquatic ecosystems as a basis for integrated and informed decision-making.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for the environment such as the following:

- formulation and implementation of appropriate policies, legal frameworks and plans in order to enhance environmental sustainability;

- incorporation of provisions for environmental assessment, biological diversity impact assessment and management in all economic and development activities;

- maintenance of a representation of eco-systems for the benefit of current and future generations;

- integration of international environmental conventions in national laws and local programmes; and

- promote effective water pollution monitoring and prevention programmes based on enforceable water quality guidelines and standards.

5.11 Water for energy

(a) Policy statement

To ensure availability and accessibility to adequate and reliable supply of water a reasonable and justified cost so as to promote national development goals of sustained growth, employment generation and wealth creation.

(b) Objectives

- facilitate hydropower generation; and
- Provide accurate information on water resources for hydropower generation.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for energy such as the following:

- promote energy saving and renewable energy technologies;
- promote hydro-power electrification of all urban and rural areas as an alternative to fuel wood;
- promote the control of production of charcoal and develop alternative environmentally friendly sources of household energy, including bio-gas, wind and solar power;
- explore means to make electricity more affordable and accessible in order to reduce the dependency on wood fuel;
- promote and carry out practical demonstrations and pilot schemes on the usage of solar energy, liquid petroleum gas, improved cook stoves, and gel fuel;
- develop and implement programmes that promote increased community participation in energy development and management programmes; and
- conduct awareness campaigns, establish, document, and promote development potential and investment opportunities available in the energy sector.

5.12 Water and land

(a) Policy statement

To ensure the integrated and sustainable management, planning and development of water resources in relation to land use.

(b) Objectives

- ensure the collection and management of data and information on water and land use practices as a basis for decision making;
- encourage integrated natural resources management in a catchment; and
- encourage the use of traditional best practices in the management of natural resources.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for land such as the following:

- develop a land use policy to guide and ensure sustainable land utilization and development and strengthen the Ministry responsible for land to facilitate better inter-ministerial coordination;
- review information on land resources, use, occupation and ownership, and establish a computerized land information data base to provide up-to-date information for current and future planning;
- empower local communities to manage common property resources in an environmentally sustainable manner; and
- improve co-ordination between ministries, other institutions and the environmental management institution with respect to land use and improved cultivation practices.

5.13 Water and 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) Objectives

- to conserve and manage in collaboration with the institution responsible for national heritage water resources which are a national heritage; and
- to encourage the practice and expression of folklore and customs related to water resources among indigenous people.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for national heritage such as the following:

- Encourage community participation in the conservation and management of the national heritage;
- Promote sustainable tourism development;
- Promote public awareness and education in heritage conservation;
- Strengthen research and management planning;
- Improve regional and international collaboration;
- Strengthen national heritage resource protection and monitoring

5.14 Water for health

(a) Policy statement

To manage water resources in order to improve the health status of the people in Zambia in order to contribute to socio-economic development.

(b) Objectives

- to manage water resources in order to reduce the incidence of water and vector borne diseases; and
- to manage water resources in order to reduce schistosomiasis and other parasitic infestations.

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for health such as the following:

- develop sanitation master plans and provide environmentally friendly services to district and town councils;
- improve water borne sanitation systems and solid waste disposal using appropriate technology as well as proper design, selection and licensing of disposal sites and routes;
- ensure that all hospitals, clinics, public places and residential areas have appropriate sanitation and waste and effluent disposal systems;

- promoting the establishment of new and strengthening of existing Water, Sanitation and Hygiene Education (WASHE) Committees at national, provincial, district, and sub-district levels;

- strengthening coordination and management of environmental health at all levels of care; and

- supporting provision of safe water and adequate sanitation standards.

5.15 Water for transportation

(a) Policy statement

To manage water resources in order to ensure, safe, pollution free, efficient, sustainable and navigable waterways for safer and efficient water transportation.

(b) Objectives

- promote a safe and clean maritime and inland waterways environment;

(c) Strategies

The management of national water resources will support the implementation of the strategies as undertaken by the Ministry responsible for transport such as the following:

- prepare a comprehensive plan for ensuring proper navigability on all designated waterways in the country;

6.0 INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION

6.1 Institutional framework

The current institutional framework for the management and development of water is based on district, provincial and national boundaries which do not promote catchment based management. Catchment based management focuses on using the geographical extent of the water resource which may cut across administrative boundaries. Additionally, the institutional framework is fragmented and lacks capacity to effectively deal with water resources and management.

Implementation of the National Water Policy will be greatly enhanced through the participation of all key stakeholders. This National Water Policy will provide a way forward for the creation of a legal and institutional framework under which the Government can fulfil its objective of creating wealth for all, thus improving the quality of life of the Zambian people.

The key stakeholders in the water sector are:

- the National Union of Farms and Small Scale Farmer's Association;
- water drillers;
- The Zambia National Farmers Union and National Association for Peasant and Small Scale Farmers;
- the Zambia Wildlife Authority;
- the Environmental Council;
- The Chambers of Mines;
- The Zambia Chamber of Commerce and Industry;
- Institutions dealing with ground water development;
- Research institutions;
- Institutions in the hydro power sector;
- the National Water Supply and Sanitation Council
- the National Heritage Conservation Commission;
- the Disaster Management Unit under the Vice-President's Office;
- the Ministry of Tourism, Environment and Natural Resources;
- the Ministry of Agricultural and Cooperatives;
- the Ministry of Local Government and Housing;
- the Ministry of Communications and Transport;
- Ministry of Health;
- Ministry of Justice;
- Ministry of Foreign Affairs;
- The Decentralization Secretariat;

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

The Ministries and statutory bodies shall ensure that they execute policy provisions within the context and confines of their legal mandates. The Ministry responsible for water as the lead institution in the water sector has the following responsibilities under this policy:

(a) promulgation, in consultation with other staked holders, appropriate water sector policies that will facilitate the proper management and development of the resource in accordance with the guiding principles under this Policy;

(b) implementation of the National Water Policy;

(c) coordination of all policy implementation functions of a sector and cross sector nature;

(d) develop, in collaboration with other stakeholders, a National Water Resources Strategy and Plan;

(e) monitor and evaluate the implementation of the strategies specified by the various Ministries relating to water resources management and development;

(f) take the lead role in any water sector advisory group;

(g) ensure that all cross-sector issues are addressed by respective institutions;

6.2 Legal and regulatory framework

The current legal framework for water resource management and development is governed by various Acts of Parliament such as the following:

- the Constitution;
- the Water Act;
- the Environmental Protection and Pollution Control Act;
- the Zambezi River Authority Act;
- the Fisheries Act;
- the Water Supply and Sanitation Act;
- the Inland Water Shipping Act;
- the Local Government Act;
- the Forestry Act;
- the Land Act;
- the Wildlife Act;
- the Mines and Mineral Act;
- the National Heritage Conservations Commission Act; and
- the Town and Country Planning Act.

The provisions of the above laws 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.

The majority of the above Laws generally deal with water usage, pollution control and conservation as part of natural resources. There are many lacunae in terms of management, planning and development of water. It does not adequately provide for the regulation of groundwater, shared water courses and effective stakeholder participation in the decision making process. Effective management of water resources requires an adequate legal and regulatory framework based on modern principles of IWRM which promotes efficient, effective, sustainable and participatory management of national water resources.

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

- an effective regulatory framework that provides guidance to all actors shall be developed;
- an effective legal and regulatory regime for WRM shall be developed and implemented;
- the harmonisation of all water related legislation shall be carried out;
- a clear mechanism for enforcement of the legal framework shall be developed; and
- capacity for the enforcement of the legal and regulatory provisions shall be built.

6.3 Data information and reporting

The existing database on the status of Zambia's water resources is outdated. The absence of reliable information system has made it difficult for all stakeholders to make informed decisions. As such the sector continues to lag behind in development. The efficient management and development of water resources will depend on accurate and reliable information systems that facilitate optimized decision making. In order to achieve this, the following measures shall be undertaken:

- the establishment and maintenance of an adequate data capturing system for both surface and groundwater;
- regular assessment of water resources shall be undertaken; and

- regular updating of information systems on water resources to other databases shall be established to enable exchange of information with players in other relevant sectors.

6.4 National strategic planning and development

In the past water resource development has been sector oriented (e.g. energy, agriculture) instead of inter sectoral. This has hindered the realisation of the overall objective to use water management for socio-economic development and wealth creation. Therefore, comprehensive planning of development has to be carried out within an appropriate IWRM system. Regularly updated development plans assist decision makers to improve infrastructure development within an IWRM framework. In order to achieve this, the following measures shall be implemented:

- Water resources planning and development shall be based on accurate, timely and reliable information;
- Water resource management and development shall be carried out on the basis of catchment and aquifer boundaries;
- Water management plans shall be elaborated with an integrated multi-sectoral approach;
- Water infrastructure development and harnessing shall be done with due consideration of small scale innovations and appropriate technologies;
- Guidelines shall be set for the development of water infrastructure taking into consideration safety factors and sustainability;
- Sustainable wastewater reuse shall be encouraged to increase water availability.

6.5 Financing and private sector participation

Very little investment has been directed to the development and management of water resources. Most of the private infrastructure has been build and maintained by commercial farmers. The majority of investment in the Water sector has been done by cooperating partners. There is need to attract more investment for improved water infrastructure development and management of the resource in order to enhance economic growth and make the resource available to all. In order to achieve this, the following measures shall be implemented:

- clear guidelines and procedures on the use of funds shall be developed to ensure transparency and accountability;
- development of economically viable infrastructure that are self financing shall be prioritised to ensure sustainability;

- an enabling environment that attracts funding shall be created;
- establish a water resources trust fund for the development and management of water resources;

- tariff structures that take cognisance of the small scale users and the different types of water uses and users shall be formulated; and

- facilitate tradable, mortgageable and well regulated long term Water Permits.

6.6 Community participation

It has become inevitable that communities should be involved at all stages of water resource development and management. This includes water resources investigation, planning, implementation, operation and maintenance. The views of stakeholders are valuable in reaching decisions and providing the basis for support in the management of water resources. In order to achieve this, the following measures shall be implemented:

- train communities in community water project identification, formulation and implementation so as to equip them with appropriate knowledge and skill;

- encourage the establishment of water users associations with clearly defined roles;

- introduce participatory techniques 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

- create awareness and support from the general public and key decision makers on the best practices for management and development of the water resources;

- to introduce appropriate technology for the disabled.

6.7 Gender

The management and development of water resources at the grass root level requires the effective participation of both gender in the decision- making process. Further, women are known to play a vital role in the provision, management and safeguarding of water and as custodians of national resources in the rural areas, they need to take proactive decisions on how these resources are managed and developed. In order to achieve this the following measures shall be implemented:

- accelerate the representation of women at all levels and in all spheres of water management activities;
- ensure gender balance by defining the key roles played by women, men and children so that there is no gender discrimination in the ownership and management of the various water schemes operated by communities;
- based on the National Gender Policy principles, goals and objectives, gender mainstreaming in water sector programmes will be articulated to the full involvement of women in the development and implementation of the water policy and the related water sector project activities;
- appropriate and gender sensitive technology shall be introduced; and
- gender consideration in the use and management of water resources shall be incorporated.

6.8 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 water sector. There is need to maintain and strengthen existing programmes to minimise the negative impact of Hiv /aids in the water sector. In order to achieve this objective the Ministry shall implement its policy on Hiv/aids.

6.9 Research and Development

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

- extending the traditional fields of water research to include research in social and financial issues, integrated catchments management, policy analysis and development, decision support systems, capacity building, ecosystem structure and functional development practices;
- encouraging interdisciplinary and participatory research approaches that provide linkages between technology and communities;

- 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
- supporting the standardisation of methods of data collection and processing both at national and regional levels for use by the SADC countries.

6.10 Conflict Management

The development of conflict management mechanisms in the water sector is imperative due to the multi-sectoral nature of the sector. Dispute resolution will mainly be mainly resolved through arbitration, mediation and reconciliation.

6.11 Capacity building

There is need to build capacity in the Water sector in order to support the legal and institutional frame work as provided in this policy. To achieve this objective the following measures shall be implemented:

- recruitment and training of personnel in the relevant fields shall be applied at all levels;
- create incentives aimed at retaining skilled manpower;
- develop a system for evaluating personnel performance and productivity; and
- introduce capacity building programmes for employees and stakeholders in various catchments.

6. 12 Monitoring and evaluation

In order to ensure that the policy measures and strategies as stipulated in this policy are carried out, an effective monitoring and evaluating system needs to be put in place. The Ministry shall develop verifiable indicators for the purpose of ensuring that the objectives of this Policy are being achieved.