National Urban Water Supply and Sanitation Programme

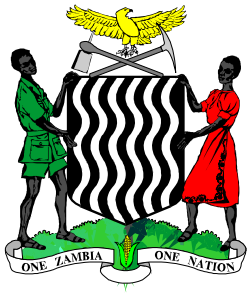
2011-2030

Main Volume

October 2010

REPUBLIC OF ZAMBIA

MINISTRY OF LOCAL GOVERNMENT AND HOUSING



GOVERNMENT OF THE REPUBLIC OF ZAMBIA

MINISTRY OF LOCAL GOVERNMENT AND HOUSING

NATIONAL URBAN WATER SUPPLY AND SANITATION PROGRAMME

2011 – 2030

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MINISTERIAL FOREWORD

ACKNOWLEDGEMENT

PREFACE

The National Water Supply and Sanitation Programme (NUWSSP) is presented in two volumes, namely:

The **MAIN VOLUME** which gives a concise and brief overview of the background, the policies, the objectives, the strategies and the activities to achieving improvements of the urban water supply and situation in Zambia.

The Main Volume is intended for:

- all institutions, organisations and individuals in need of a concise overview of the National Water Supply and Sanitation Programme in Zambia

The **BACKGROUND AND ANALYSIS VOLUME** which gives a more comprehensive account of the background and current status of urban water supply and sanitation, analysis of the situation, identification of gaps in the knowledge base, comments and discussions, strategies and activities necessary to achieving improvements, conclusions and recommendations.

The Background and Analysis Volume is required for:

- all institutions and organisations directly involved in the planning and implementation of the NUWSSP
- ensuring the availability of adequate and correct background information for developing the NUWSSP
- stakeholders' effective and informed participation during the process of developing the NUWSSP
- having records of background data, circumstances and reasoning that resulted in the NUWSSP
- institutions, organisations and individuals in need of comprehensive and detailed information on urban water supply and sanitation in Zambia
- future updating and modification of NUWSSP

The same names and numbering of chapters, sections , tables and figures have been used in the two volumes to facilitate making cross references. This causes some apparent gaps in the numbering of tables and figures in the Main Volume.

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ABBREVIATIONS AND ACRONYMS

LIST OF ABBREVIATIONS AND ACRONYMS

ABP	Area Based Programme
ADC	Area Development Committee
AfDB	African Development Bank
AG	Auditor General
CDPPDS	Capacity Development Progr. for Provision of Decentralised Services
Capex	Capital Expenditure
CBO	Community Based Organisation
CP	Cooperating Partner
CSO	Central Statistical Office
CU	Commercial Utility
DANIDA	Danish International Development Agency
DCI	Irish Aid
DHID	Department of Housing and Infrstructure Development (replaced DHID)
DHMB	District Health Management Board
DISS	Department of Infrastructure Support and Services
DIP	Decentralisation Implementation Plan
DTB	District Tender Board
DTF	Devolution Trust Fund
DWA	Department of Water Affairs
D-WASHE	District Water, Sanitation and Health Education
ECZ	Environmental Council of Zambia
FNDP	Fifth National Development Plan
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
GTZ	Gesellschaft fur Technische Zusammenarbeit
HIPC	Heavily Indebted Poor Country
IFM	Investment Financing Mechanism
IMS	Information Management System
IPPC	Intergovernmental Panel on Climate Change
JASR	Joint Annual Sector Review
JASZ	Joint Assistance Strategy Zambia
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
LA	Local Authority
LFA	Logical Framework Approach
M&E	Monitoring & Evaluation
MCDSS	Ministry of Community Development and Social Services
MDGs	Millennium Development Goals
MEWD	Ministry of Energy and Water Development
MIPFU	Municipal Investment Planning and Financing Unit
MLGH	Ministry of Local Government and Housing
MoE	Ministry of Education
MFNP	Ministry of Finance and National Planning
MoH	Ministry of Health
MoTENR	Ministry of Tourism Environment and Natural Resources

ABBREVIATIONS AND ACRONYMS

MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
NDP	National Development Plan
NGO	Non Governmental Organisation
NISIR	National Institute for Scientific and Industrial Research
NRWSSP	National Rural Water Supply and Sanitation Programme
NUWSSP	National Urban Water Supply and Sanitation Programme
NWSSSC	National Water Supply and Sanitation Steering Committee
NWASCO	National Water Supply and Sanitation Council
O&M	Operation & Maintenance
Opex	Operational Expenditure
PEMFA	Public Expenditure and Financial Accountability Reforms
PRSP	Poverty Reduction Strategy Paper
PSC	Programme Steering Committee
PSD	Private Sector Development
PSMP	Public Service Management Project
PSRP	Public Service Reform Programme
PTI	Part Time Inspector
PUU	Peri Urban Unit
PUWSS	Peri-Urban Water Supply and Sanitation
RDE	Royal Danish Embassy
R&M	Research and Development
RWSP	Rural Water Supply Project
RWSS	Rural Water Supply and Sanitation
RWSSP	Rural Water Supply and Sanitation Project
SWMC	Solid Waste Management Company
SWAp	Sector Wide Approach
TA	Technical Assistance
TC	Technical Committee
UNICEF	United Nations Children's Fund
UNZA	University of Zambia
US$	United States Dollars: Exchange rate used: 1 US$ = 4000 ZK
UWSS	Urban Water Supply and Sanitation
UWSSS	Urban Water Supply and Sanitation Section
V-WASHE	Village Water, Sanitation and Health Education
WASHE	Water, Sanitation and Health Education
WS	Water Supply
WSAG	Water Sector Advisory Group
WSP	Water and Sanitation Programme
WSS	Water Supply and Sanitation
ZBS	Zambian Bureau of Standards
ZK	Zambian Kwacha
ZPPA	Zambia Public Procurement Authority
ZS	Zambian Standard

EXECUTIVE SUMMARY

1. BACKGROUND

1.1 Introduction

1.1.1 Overview: Urban Water Supply and Sanitation

Zambia has one of the highest urban populations in Sub-Saharan Africa, with about 5 million people out of the total population of 11.5 million living in urban areas.

The rate of urbanization has exceeded the rate of infrastructure development and provision of water supply and sanitation services.

Most of the water supply and sewerage infrastructure in the urban areas of Zambia were constructed in the 1960's and 1970's and have since been inadequately maintained resulting in dilapidation. The peri-urban (informal housing) areas in all of the Zambian towns and cities have grown considerably in recent years, and most have poor water supply and sanitation.

Wastes generated from all the sectors of the economy are currently not well managed. It is estimated that only about a tenth of the urban areas in Zambia are serviced as regards solid waste collection.

Deficient or non-existent drainage systems for 'stormwater and greywater contribute substantially to the unhealthy living conditions and incidents of malaria in densely populated urban areas.

In order to address this situation, the Government of the Republic of Zambia has developed the National Urban Water Supply and Sanitation Programme (NUWSSP) which will provide a coherent set of institutional and sector support activities aimed at facilitating provision of water supply and sanitation services to the urban population in Zambia.

The NUWSSP will thus serve as a single reference document for implementers in Government; the Private Sector; Non- Governmental Organisations; Development and Cooperating Partners and the general public on urban water supply and sanitation related interventions to support the socio-economic growth of Zambia.

The NUWSSP is outlined in 19 Chapters. Chapter 1 gives the general administrative, demographic and socio-economic background. Chapter 2 sets the national policy framework in which the plan shall be developed and describes the status of the urban water supply and sanitation sector. The overall vision and strategic approach are presented in Chapter 3. Chapter 4, 5, 6 and 7 outline the detailed development programmes for urban water supply, sanitation, solid waste management and drainage respectively. The policy, capacity, information management and R&D development programmes are presented in Chapter 8, 9, 10 and 11. Chapter 12 is dedicated to the presentation of the investment and financing plans. The management and financing mechanisms are presented in Chapters 13 and 14 respectively. Chapter 15 deals with monitoring, reporting, reviews and evaluation whereas Chapter 16 focuses on the communication strategy and the implementation of the programme is described in Chapter 17. The risks that may affect implementation and mitigation measures are presented in Chapter 18. The long list of consulted reference documents is shown in Chapter 19 of the Background and Analysis Volume.

1.1.2 National Development Planning Framework

The NUWSSP is a planning instrument which is linked into the overall planning framework through the National Development Plan and the National Long-term Vision A single and overall framework, which encompasses short, medium and long term strategic planning, has been defined in Zambia. . Figure 1.1 illustrates the relationships between the planning instruments.

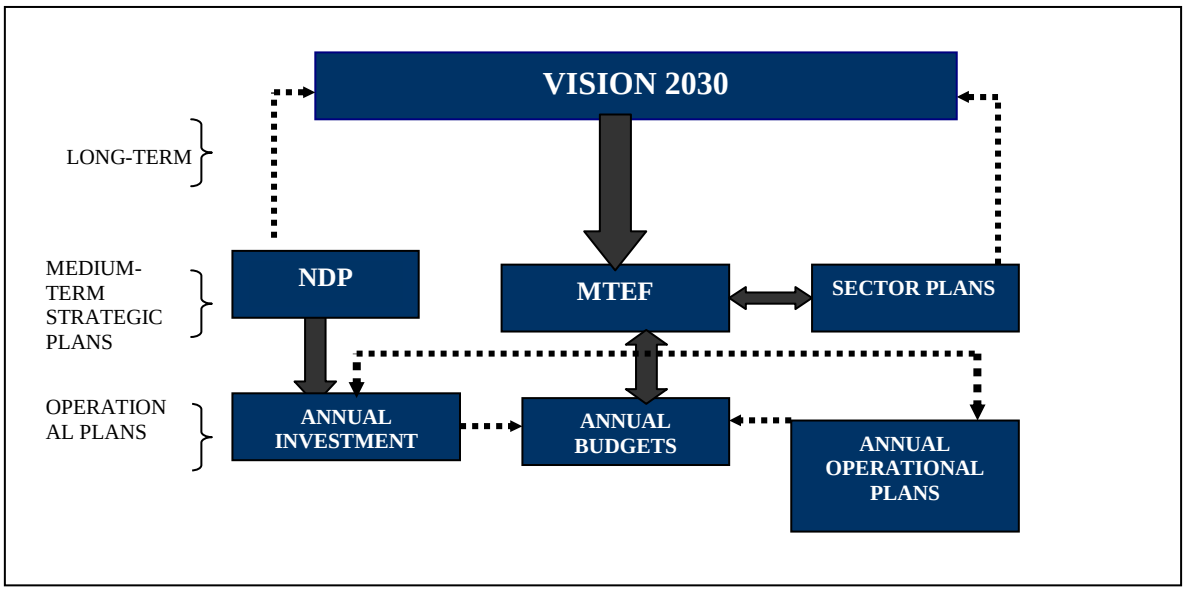


Figure 1.1: National Development Planning Framework (GRZ, 2007, IWRM)

1.1.3 Programme Development Process

The development of the NUWSSP began in 2007. The formulation process was governed regularly by the NUWSSP Task Team comprising representatives from Government ministries and institutions, commercial utilities, non-governmental organisations and co-operating partners.

The formulation of the NUWSSP has, to a large extent, been based on the findings and recommendations found in a multitude of existing studies and reports and the legislation on water supply and sanitation in Zambia. In addition, special studies have been conducted
Its formulation has also drawn upon various policies, programmes and plans. Keys among these are:

i. Vision 2030
ii. The Fifth National Development Plan
iii. Proposed Strategy and Institutional Framework for Water Supply and Sanitation Sector (1994)
iv. The National Water Policy (1994 and draft revision 2007)
v. The Integrated Water Resources Management and Water Efficiency Implementation Plan (draft 2007)
vi. National Rural Water Supply and Sanitation Programme
vii. The National Water Resources Master Plan

1.1.4 Scope and purpose of the National Urban Water Supply and Sanitation Programme

The NUWSSP is a holistic and integrated programme that aims at improved livelihood and public health for the urban population in Zambia. Hence, it encompasses provision of water supply and sanitation in a broad sense including off and on-site facilities as well as solid waste management and drainage which all are indispensable components for creating a robust sustainable service system.

Furthermore, the NUWSSP encompasses service provision in all urban settlements comprising high, medium and low cost housing areas, industrial and commercial as well as formal and informal peri-urban areas.

1.2 Location and Administration

Zambia is divided, for administrative purposes, into 72 districts in 9 provinces as shown in Figure 1.3 and 1.4.

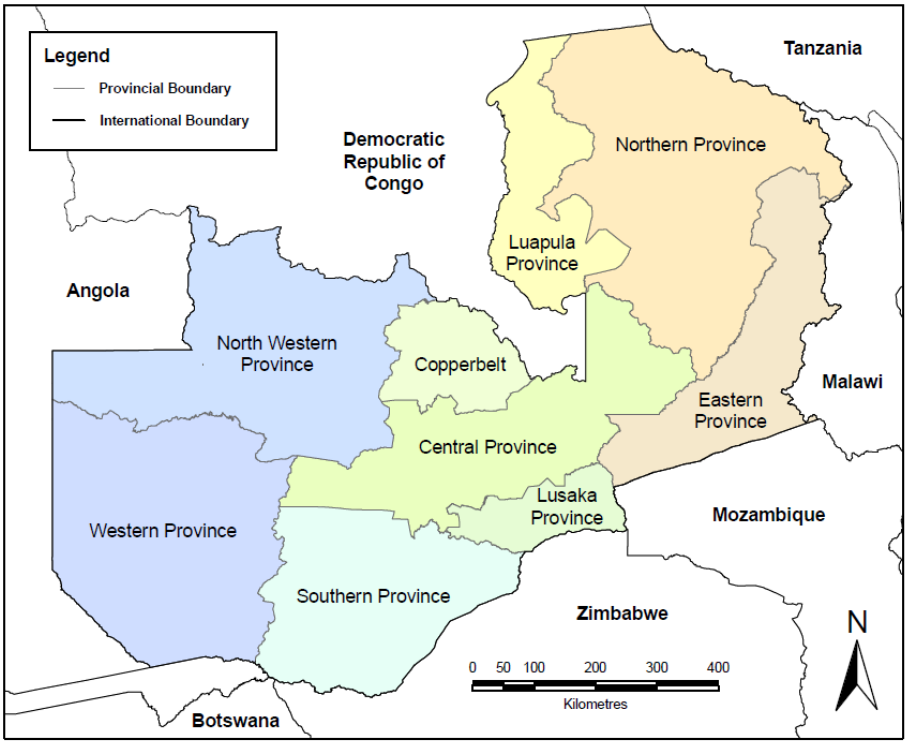


Figure 1.3 Provinces in Zambia

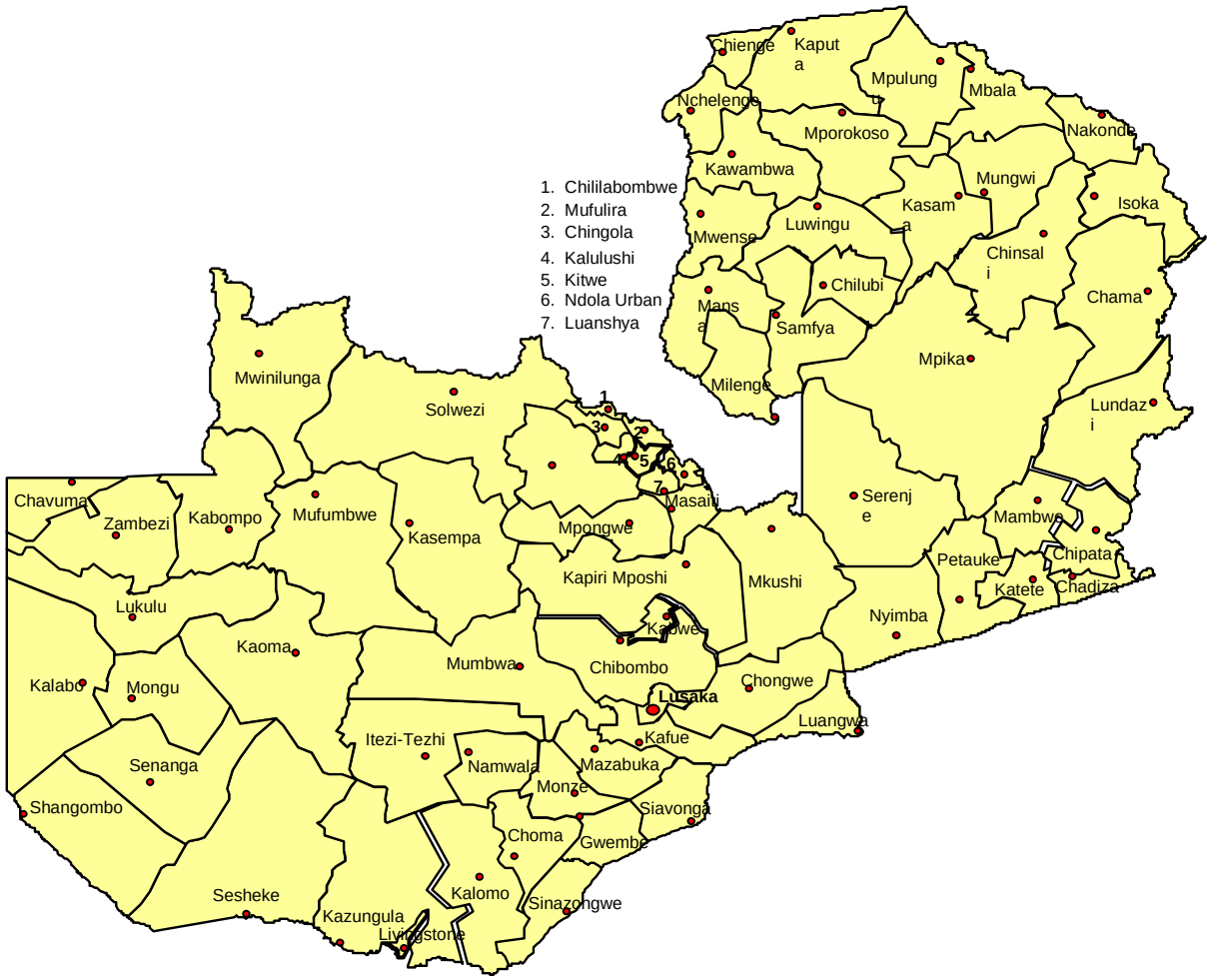


Figure 1.4 Districts in Zambia

1.3 Demographic and Socio-Economic Conditions

The census of population in 2000 revealed that Zambia's population was 9,885,591 with an average annual inter-census (1990-2000) growth rate of 2.4% (CSO, 2000). The urban growth rate of was 1.5% over the same period.

Table 1.1 Population data and projections from various sources

Source	Area	Cate-gory	2000	2005	2010	2015	2020	2025	2030 i)
CSO 2003 Pop. proj. report (with AIDS)	**Zam-bia**	Low projn.	**9,792**	**11,449**	**13,274**	**15,246**	**17,436**	**19,923**	**22,764**
		Medium projn.	**9,792**	**11,441**	**13,273**	**15,303**	**17,626**	**20,347**	**23,489**
		High projn.	**9,792**	**11,519**	**13,518**	**15,742**	**18,284**	**21,321**	**24,863**
	Urban	Low projn.	**3,401**	**3,923**	**4,361**	**4,695**	**4,961**	**5,179**	**5,405**
		Medium projn.	**3,401**	**3,928**	**4,387**	**4,776**	**5,121**	**5,478**	**5,860**
		High projn	**3,401**	**3,944**	**4,506**	**5,014**	**5,514**	**6,077**	**6,696**
CSO 2004 Living Condn. Mong. survey	**Urban**	Total		**4,297 ii)**					
		Low cost residential		**3,032**					
		Medium cost residl.		**803**					
		High cost residential		**461**					
Nwasco 2005 and 2010	**Urban**	**Total**		**4,900**	**5,424 iii)**	**6,100**			

i) own extrapolation
ii) 2004
iii) 2009/2010

CSO gives lower urban population figures than NWASCO. This can be explained by the different ways the population figures have been obtained. Some Peri-Urban areas are classified as "rural" in the CSO Census in spite of the fact that they may have all the urban characteristics (e.g. high population densities). The NWASCO figures build on the reports from the Service Providers.

The rate of urbanization has not been accompanied by appropriate infrastructure development and has resulted in the mushrooming of unplanned informal settlements that are largely underserved in terms of economic and social infrastructure. These areas are commonly known as "peri-urban areas" and they have become a major feature of Zambia's urban landscape. Over the last 20 years peri-urban areas have absorbed the bulk of Zambia's population growth. The percentage of the population living in peri-urban areas range from about 25% in smaller towns up to about 70% in the big cities. Lusaka City has 33 peri-urban areas accounting for at least 60% of the city's population.

Income Poverty

Poverty is pervasive and majority of population in Zambia live in income deficit and suffer from other deprivations such as little access and poor quality of social services. The areas of extreme poverty are characterised by high prevalence of material deprivations in terms of food and nutrition, health, education and literacy, safe water and sanitation, and clothing and shelter.

According to the Living Conditions Monitoring Survey (LCMS) IV of 2004, as much as 68 percent of the population in Zambia fell below the national poverty line, earning less than K111,747 per month. The poverty levels slightly fell in 2004 compared to 1998 when poverty stood at 73 percent. Extreme poverty (covering people earning less than K78, 223

per month) fell from 58 percent in 1998 to 53 percent in 2004. The urban poverty levels are shown in Table 1.3.

Table 1.3 Poverty in different strata of urban dwellers

Stratum	Poverty Status				Total Population
	Total Poor	Extremely Poor	Moderately Poor	Non Poor	
Urban Low Cost	**58**	**39**	**19**	**42**	**3,014,561**
Urban Medium Cost	**46**	**26**	**20**	**54**	**795,563**
Urban High Cost	**30**	**18**	**12**	**70**	**455,165**
Urban Total	**53**	**34**	**19**	**47**	**4,265,289**

Adapted from CSO, 2005, Living Conditions Monitoring Survey Report 2004

Non-Income Poverty

There are a number of non-income or social dimensions of poverty that are also important for household welfare. Significant improvements have also been made in school completion rates. In 2000, the completion rate was 63.6 percent and increased to 72 percent in 2004.

Adult literacy stands at only 55.3 percent and has remained unchanged since 1990.

Health indicators have also shown some improvement since the early 1990s. Both rural and urban infant mortality fell considerably between 1990 and 2000 and is projected to decline further. Furthermore, according to recent estimates, the adult prevalence of HIV/AIDS has fallen from 20 percent in 1998 to 16 percent in 2002.

Health statistics in Zambia indicate that malaria is the leading cause of morbidity and mortality for all age groups. However, diarrhoea is ranked among the top common causes of out-patient attendances for all age groups. Diarrhoea is a disease indicative of poor sanitation, unhygienic environment, and poor water supplies.

Life expectancy in Zambia has fallen from 54.4 years in 1990, 50 years in 2000 and 36 years in 2006 (World Bank 2007).

1.4 Economic Conditions

At independence in 1964, Zambia, with Per Capita income in excess of US $750 (nominal), inherited a strong economy, which was primarily based on mining. At this time Zambia was classified as a medium income country by the United Nations. Nonetheless, the country had poor socio-economic infrastructure and low human capital.

Over the last two decades, Zambia's economic performance has declined, in real terms, with per capita income falling to less than half (US$300, nominal) in 2000. However, the economy stabilised since 2001 and begun to grow. Thus the real GDP had grown from 3.6 percent in 2000 to 5.7 percent in 2007. The per capita income in 2007 was estimated at US$ 864 (nominal) or 1400 (PPP).

Table 1.4 Macro-economic indicators

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Real GDP growth rate	**2.2**	**3.6**	**4.9**	**3.0**	**5.1**	**5.4**	**5.2**	**6.2**	**5.7**	**5.7**	**6.3**
Inflation (%)	**20.6**	**30.1**	**18.7**	**26.7**	**17.2**	**17.5**	**15.9**	**8.2**	**8.9**	**16.6**	**9.9**
Exchange rate (US$1 = ZKW)	**2,386**	**4,109**	**3,607**	**3,931**	**4,662**	**4,671**	**3,425**	**4,132**	**3,775**	**3,746**	**5,046**

Source: MFNP, 2004-2010

In 2005 Zambia reached the completion point under the Heavily Indebted Poor Countries (HIPC) Initiative resulting in debt cancellation. In the same year, Zambia also became eligible for debt relief under the G8 initiative which proposed to cancel 100 percent of all concessional debts owed to the International Monetary Fund, the African Development Bank and the World Bank. Following the debt relief provided, Zambia's foreign debt came down from ZK29.82 trillion at the end of 2004 to ZK2.1 trillion in 2005. This is a very important development and it is anticipated that more financial resources will now be available for development, including social sectors such as water and sanitation.

2. STATUS OF THE URBAN WATER SUPPLY AND SANITATION SECTOR

2.1 Sector Policies and Legal Framework

2.1.1 National Water Sector Policy

In the late 1980s, the GRZ began policy and institutional reform of the water sector which culminated in the development and adoption of the National Water Policy of 1994. The National Water Policy provides the overall policy framework for the water sector. It covers water resources management, urban water supply and sanitation, rural water supply and sanitation, water quality, and water tariffs.

The National Water Policy 1994 is guided by seven key sector principles, namely:-

1) Separation of water resources management from water supply and sanitation.
2) Separation of regulatory and executive functions.
3) Devolution of authority [from central government] to local authorities and private enterprises.
4) Achievement of full cost recovery for the water supply and sanitation services through user charges in the long run.
5) Human resources development leading to more effective institutions.
6) The use of technologies more appropriate to local conditions.
7) Increased Government priority and budget spending to the sector.

These water sector principles have guided the sector reforms since 1994 and have been the basis of the policy measures and strategies with respect to the key water sub-sectors, namely, water resources management, urban water supply and sanitation, and rural water supply and sanitation.
Ten years after the adoption of the NWP 1994 there was a felt need of revising it and the process started at a workshop in September 2004.. The new National Water Policy was drafted under the auspices of MEWD was adopted by the Government in February 2010.

It is recognised by the NWP 2010 that the following (out of the seven key sector principles listed above) 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.

2.1.2 The relevance of the National Water Policy to Urban Water Supply and Sanitation

The National Water Policy 1994 was very specific and detailed with regard to urban water supply and sanitation. It laid the foundation for the sector reforms and its main principles are largely valid and applicable even in 2010.

Chapter 2 STATUS OF URBAN WATER SUPPLY AND SANITATION

The new National Water Policy (2010) deals mainly with the overriding principles of water resources management and is very general about the uses of water.

The Policy recognises the following guiding principles:

i. Water is a basic human need;
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. There shall be equitable access to water;
v. Water has a social value and all domestic and non-commercial use of water will not be required to obtain a water permit;
vi. 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;
vii. There shall be 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;
viii. Efforts to create wealth shall be reflected in all decisions made in relation to the use of water;
ix. Location of water resources on land shall not itself confer preferential rights to use it;
x. The basic management unit shall be the catchment in recognition of the unity of the hydrological cycle, AND
xi. Zambia's water resources shall be managed to promote sustainable development and protect its territorial sovereignty.

Regarding water supply and sanitation only the following is stated specifically:

(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 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.

The requirement for considering the protection of the environment is expressed as follows:

(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) Measures
- 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 DHIDeminate data and information on water quality and aquatic ecosystems as a basis for integrated and informed decision-making.

The NWP (2010) addresses the issue of climate change and states that the following among other measures shall be implemented:

- Conducting public awareness campaigns to ensure that the public is enlightened on climate change issues, including adaptation measures;
- Supply of clean and safe water to communities to prevent water borne diseases that come with floods/droughts; and

2.1.3 Related National Policies and Strategies

For more than a decade, Government has been implementing the **Public Service Reform Programme (PSRP)** aimed at improving efficiency and effectiveness in delivery of services by the public sector. The PSRP embarked on streamlining the functions, structures, establishments, and operations of ministries/institutions so as to improve efficiency and effectiveness, and accountability. One of the key components of PRSP was decentralisation and strengthening of Local Government.

The **National Decentralisation Policy,** developed in 2002 and launched formally in August 2004, aims at decentralising government responsibilities and functions to lower level government through "devolution". The Decentralisation Policy reaffirms the local authorities as the institutions responsible for water supply and sanitation. More importantly, it acknowledges the need for *the Government to "decentralise with matching resources, some of its functions to the district"*, thus empowering the local authorities to discharge their responsibility with respect to UWSS.

Between 2002 and 2004, Zambia implemented the **Poverty Reduction Strategy Paper (PRSP)** aimed at addressing poverty through a multi-sectoral and integrated approach for sustainable economic growth (GRZ, 2002). Provision of urban and peri-urban water supply and sanitation was identified as one of the interventions for dealing with poverty in urban areas

Based on the National Water Policy framework, a number of strategies relevant to the UWSS sub-sector have been developed and include: **Strategy and Institutional Framework for the Water and Sanitation Sector (1995)** which specifies the institutional framework, development standards and arrangements for provision of WSS by local authorities; **National Environmental Sanitation Strategy** (1998) aimed at raising the profile of sanitation in provision of basic social services, as well as outlining the strategies for provision of sanitation services), the **Community Water Supply and Sanitation Strategy** (2000) primarily focused rural areas but also targeted at Peri-Urban areas; and **Mainstreaming Gender in Water Supply and Sanitation Sector** (2000). To varying degrees these strategies have an impact on the implementation of service delivery of water supply and sanitation to Zambia's urban areas.

The National Policy on Environment (final draft 2006) states that all programmes related to water should be implemented in such a matter that mitigate environmental degradation and consideration should be given to safe disposal of the resultant waste water. The approach should be pollution minimization and prevention.
The NPE stresses the strategy to capacitate MLGH (DHID) with adequate resources to rehabilitate and extend sewerage systems and other forms of sanitation and the local authorities to develop and manage solid waste systems. NPE also lays out the strategy for developping master plans including solid waste and contingency plans for droughts and floods.

In order to address the situational, the **National Solid Waste Management Strategy for Zambia** was formulated in 2004 by the Environmental Council of Zambia (ECZ). Further, the Ministry of Local Government and Housing, recognizing the need to address the situation, instituted studies how the solid waste management could be improved through a **Strategy for Solid Waste Management through Private Sector Participation** (PSP), in 2005.

A significant strategy with respect to UWSS is **WASHE (Water, Sanitation and Health Education)** adopted in May 1996. Its objective is to promote integrated development of water, sanitation and hygiene education so as to improve the health impact of water and sanitation interventions and to promote community management in order to ensure sustainability of services through better financial support and operation and maintenance. Implemented through the Local Authorities, the WASHE strategy brings together different local stakeholders drawn from district level.

2.1.4 Legal Framework for WSS and Solid Waste

The legal framework for the water and sanitation sector is anchored by two main pieces of legislation: the Local Government Act No. 22 of 1991, and the Water Supply and Sanitation Act No. 28 of 1997. The main tenets of the two acts are outlined below:

a) **Local Government Act No. 22 of 1991** gives the local authorities prime responsibility for the provision of water supply and sanitation services to all areas within the local authority boundary, including rural areas. The local authorities are also empowered to make by-laws, set standards and guidelines for provision of services. According to this Act the local authorities operate under the control of the minister responsible for local government (presently Minister of Local Government and Housing).

b) **Water Supply and Sanitation Act No. 28 of 1997** specifies how Local Authorities may provide water supply and sanitation services and establishes the National Water Supply and Sanitation Council (NWASCO) as the regulator for the UWSS sector. There are four options for Local Authorities to provide services: 1) by continuing providing services themselves through a section within the Council; 2) through the establishment of a commercial utilities (CU) as a company; 3) entrustment of the management of provision of WSS to a private operator while the assets can be managed by the LA or an Asset Holding Company and 4) by selling off up to 49 % of its equity to a private company and then together to form a commercial entity. Service providers will be licensed and regulated by NWASCO

c) **Statutory Instrument No. 65:** establishes a Devolution Trust Fund (DTF) to assist Commercial Utilities established by local authorities under Act No. 28.

d) **The Town and Country Planning Act, Cap. 283:** regulates physical planning and development throughout the country. Under this Act the Local Authorities have delegated powers as planning authorities with power to enforce planning control on any physical development in their respective Local Authority area. Another legislation related to the control of urban development is the Housing (Statutory and Improvement Areas) Act. This provides the legal framework for the regularization of unplanned settlements not covered by the regular planning process as set out in the Town and Country Planning Act.

The **Water Act, Cap. 198** (enacted in 1948) is concerned with the development and management of surface water resources. The Act excludes groundwater. A revision of the Water Act is scheduled to be presented to Parliament soon. The proposed new act will have provisions for regulating groundwater (currently unregulated), and this will have an impact on development and management of groundwater for water supply and sanitation. The **Environmental Protection and Pollution Control Act of 1990** deals with protection of the environment and control of pollution; and the **Public Health Act of 1995**, which has provisions for the management of sanitation and prevention of pollution to water supplies by the local authority.

2.2 Sector Institutions

Figure 2.1 provides an overview of the organisation of the water supply and sanitation sector. It is clear that the sector has many players with distinct although at times overlapping roles as a result the WSS sector appears "complex". Organisations in the WSS sector can be grouped into three categories: (i) water service providers; (ii) policy, regulatory and coordination institutions; and, (iii) institutions with an indirect role (mainly sector ministries)

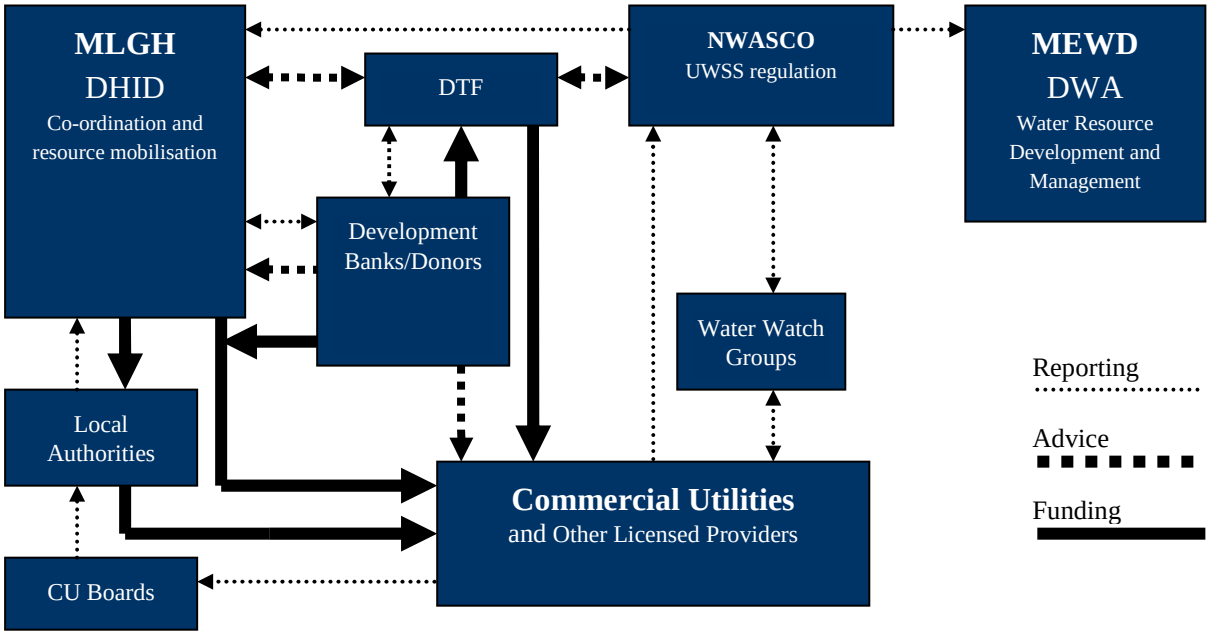


Figure 2.1 Organisation of the urban water supply of sanitation sector

2.2.1 Water Service Providers

Different organisations are involved in water supply and sanitation to urban, peri-urban and rural communities. The principal providers are local authorities and commercial utilities as mandated in the WSS Act of 1997. See Table 2.1

Table 2.1 CUs by province

Province	Number of CUs	Name of CUs	Number of Towns served
Central	**1**	**Lukanga Water and Sewerage Company Limited**	**6**
Copperbelt	**3**	**Kafubu Water and Sewerage Company Limited**	**3**
		Mulonga Water and Sewerage Company Limited	**3**
		Nkana Water and Sewerage Company Limited	**3**
Eastern	**1**	**Eastern Water and Sewerage Company Limited**	**8**
Luapula	**1**	**Luapula Water and Sewerage Company Limited**	**7**
Lusaka	**1**	**Lusaka Water and Sewerage Company**	**4**
Northern	**1**	**Chambeshi Water and Sewerage Company Limited**	**12**
North Western	**1**	**Northwestern Water and Sewerage Company Limited**	**7**
Southern	**1**	**Southern Water and Sewerage Company Limited**	**17**
Western	**1**	**Western Water and Sewerage Company Limited**	**6**
Total	**11**		**76**

There are 12 water trusts in Lusaka supplying water to the unplanned settlements. These water trusts play an important role. The daily production of 5,390 m^3 by the water trusts can be compared with the production of 28,600 $m^3$and the billed volume of 13,400 m^3 by LWSC for the peri-urban areas.

There are also independent water and sanitation providers covering about 1.4 % of the urban population. These schemes are also regulated by NWASCO.

Licensed water supply and sanitation providers can be seen in Figure 2.2

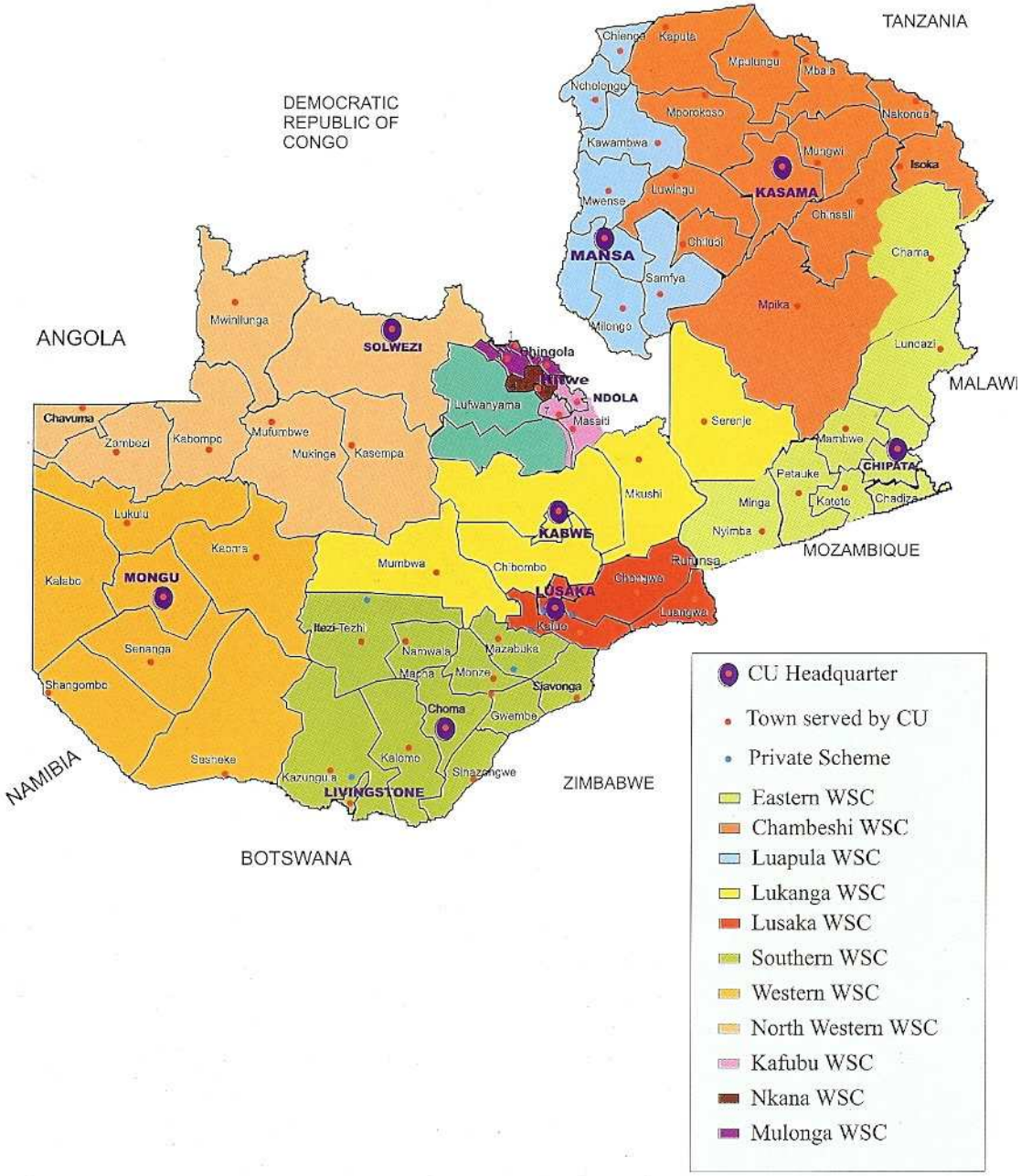


Figure 2.2 Licensed water supply and sanitation providers.

2.2.2 Policy, regulatory and coordination institutions

The Ministry of Local Government and Housing (MLGH) has the overall mandate to coordinate WSS to all users through local authorities. The Department of Infrastructure and Support Service (DHID) co-ordinates investments in the sector and oversees the execution of loan and grant investments extended to CUs by funding institutions. MLGH is the principal channel through which GRZ disburses funds supporting rehabilitation and capital investments in municipal WSS.

With respect to UWSS this is principally done through NWASCO which licenses all water schemes with 500 users or more. NWASCO monitors and enforces standards for UWSS schemes and is answerable to the minister in MEWD. The Department of Water Affairs is responsible for policy formulation and monitoring of developments within the sector.

An overview of key institutions is given in Table 2.3.

Table 2.3: Key Institutions in the water and sanitation sector

Organisation	Description of key roles
Water Service Providers	
Local Authorities	**In municipalities not covered by commercial utilities, provide water supply and sanitation to urban and peri-urban communities.**
Commercial Utilities	The WSS Act empowers local authorities to form CUs under the Companies Act. CUs operate along business lines for the purpose of water supply and sanitation provision. There are 11 CUs in Zambia with the formation of Luapula WSC. Chipata Water has been enlarged to cover all urban Centres in Eastern Province and has become Eastern Water and Sewerage Company.
Independent Providers	**Some companies have private WSS schemes for their employees in areas not covered by local authorities or commercial utilities.**
Community Driven Development Schemes	**Community demand driven schemes in peri-urban and rural areas supported by donors, the Zambia Social Investment Fund (ZAMSIF), Micro Projects Unit (MPU), the Rural Investment Fund (RIF) and NGOs.**
Policy, Regulating, Facilitating and Coordinating Institutions	
Ministry of Energy and Water Development	**The Department of Water Affairs (DWA) provides overall coordination of the water sector and is responsible for policy formulation and for monitoring developments in the sector. DWA was originally responsible for many smaller water supply schemes and has seconded staff, in certain localities, to assist local authorities that have taken over these schemes. DWA drills boreholes in rural areas using GRZ and donor funds before handing them over to V-WASHEs through D-WASHEs.**
Ministry of Local Government and Housing	**The Department of Infrastructure and Support Services (DHID) has responsibility for the co-ordination and monitoring of investments in municipal and commercial utilities infrastructure including water and sanitation. This ministry also coordinates the activities of the Water and Sanitation and Health Education (WASHE) programme.**
WASHEs	**Committees representing organisations actively involved in rural water supply and sanitation. Called D-WASHEs at district level. The concept was promoted in Western Province under a Norwegian funded RWSS programme but adopted as a national concept in 1996.**
National Water Supply and Sanitation Council	**Regulates service providers to improve delivery, efficiency and sustainability. Created under the WSS Act (28) of 1997, it came into being in June 2000. Service providers covering more than 500 users required a Nwasco license.**
Water Board	**Issues water rights to providers extracting water from surface water. Under the present Water Act, extraction of groundwater is not covered.**
Ministry of Environment and Natural Resources	**Through the Environmental Council of Zambia is responsible for establishing environmental standards including the aspects of effluent discharge and erosion caused by uncontrolled storm water drainage.**
Institutions With an Indirect Role	
Ministry Community Development and Social	**Has responsibility of monitoring and assessing rural communities in the development of water and sanitation projects particularly through the D-**

Welfare	**WASHE programme**
Ministry of Health	**Has responsibility for health and hygiene promotion among water users**
Ministry of Education	**Responsible for the implementation and management of rural water supply and sanitation in schools.**

Source: Water supply and sanitation sector finance and resource flow assessment, April 2004

2.3 Sector Position

2.3.1 Water Resources

In general Zambia does not suffer from a scarcity of either surface or groundwater resources. The total available surface water resources far exceed the total consumptive demand (domestic and industrial, irrigation, livestock, etc) even in a drought year. The annual available surface water is estimated at 237 million m^3/day. Even in a drought year Zambia consumes only 5% of the available surface water (National Water Resources Master Plan , 1995)

The country has an estimated total potential groundwater abstraction of 157 million m^3/day. Parts of Southern and Eastern Provinces, and some parts of Northern and Copperbelt Provinces have low yielding aquifers, but overall there in no scarcity of groundwater. Groundwater quality is sometimes affected especially with high iron content.

The total urban requirement for 2015 is estimated at 2,402,000 m^3/day, up from the present (2005) theoretical need of 1,766 m^3/day (NWRMP, 1995) and the actual production of approximately 926,000 m^3/day (deduced from NWASCO 2009/2010). Table 2.7.

Table 2.7 Water demand for domestic/industrial use and additional requirements

(Unit: 1000 m^3/day)

	Base Scenario-Industrialisation (high population projection)		
	Large Urban Areas	**Small Urban Areas**	***Total***
Demand/2005			
Domestic use	**663**	**199**	**862**
Industrial use	**447**	**129**	**576**
Losses	**278**	**49**	**327**
Total	**1,388**	**378**	**1,766**
Demand/2015			
Domestic use	**940**	**322**	**1,262**
Industrial use	**552**	**145**	**697**
Losses	**373**	**70**	**443**
Total	**1,865**	**537**	**2,402**
Present Capacity	**809**	**137**	**946**
Shortage in 2005	**-579**	**-241**	**-820**
(%)	**42**	**64**	**46**
Shortage in 2015	**-1,056**	**-400**	**-1,456**
(%)	**57**	**74**	**61**

Table adapted from National Water Resources Master Plan (1995)

2.3.2 Access to Safe Water Supply

2.3.2.1 Definition of Access to Safe Water Supply

In this section, an attempt is made to explain the current levels of access to water supply and sanitation in Zambia's urban areas. Reported water supply coverage does not contain all the critical parameters such as **access** (water available from source all day), **amount** (quantity per capita), **safety** (physical, chemical and bacteriological quality) and **convenience** (distance to source, time required to draw specified amount). The term coverage means different things in different contexts and there is a need for clear definitions and harmonization.

2.3.2.2 Safe Water Supply Coverage

The 2000 census conducted by CSO indicates that 49% of Zambians had access to safe water supply in that year, with the figure being 86.1% for urban areas. The latest official figures from the CSO are summarized in Table 2.8 and 2.9. This assessment indicates that coverage for water remained at 86 % in urban areas.

Table 2.8: Summary of Access to Safe Water Supply in Zambia, 1990-2005 according to CSO

	1990		2000		2005	
	Population ('000)	Coverage (%)	Population ('000)	Coverage (%)	Population ('000)	Coverage (%)
Zambia	7,759	73	9,886	49.1	11,563,212	53
Urban	2,949	85	3,433	86.1	4,025,010	86
Rural	4,810	58	6,452	29.5	7,538,202	37

CSO, 2000. *Zambia in Figures*; CSO, 2004. *Selected Socio-economic Indicators*; CSO, 2004. *Population Projections Report*.

Table 2.9. Distribution of households by main source of water in urban areas, 2004

Residence/ Stratum	Water source (Dry season), percent							
	River Lake	Unpro-tected well	Protect-ed well	Bore-hole	Public tap	Own tap	Other tap	No of house-holds
Low Cost	2.9	14.3	3.7	6.8	35.7	24.3	11.7	593,484
Medium Cos.	0.8	5.6	1.3	6.8	11.7	65.7	8.2	143,394
High Cost	2.5	9.2	0.9	5	5.2	71	6.1	95,697
Total	2.5	12.3	3	6.6	28.5	36.2	10.5	822,575

Adapted from CSO, 2005, Living Conditions Monitoring Survey Report 2004

The coverage based on reports from CUs/LAs and compiled by NWASCO gives different results as shown in Table 2.10.

Table 2.10. Water service coverage according to NWASCO

Commercial Utility/Local Authority	Total Population in Service Area	Water Service Coverage, %
Nkana WSC	685,420	88
Lusaka WSC	1,831,408	70
Kafubu WSC	633,656	86
Southern WSC	328,882	89
Mulonga WSC	436,249	89
Lukanga WSC	365,869	66
Western WSC	176,477	58
North Western WSC	223,817	69
Chambeshi WSC	275,474	63
Eastern WSC	217,632	58
Luapula WSC	173,206	19
Total	5,348,090	
Private Providers	75,632	90
Total	5,423,722	
Served population	4,013,554	
Average (weighted)		74

Adapted from NWASCO Urban and Peri-Urban Water Supply and Sanitation Report 2009/201

Table 2.11. Coverage levels for Water Supply in Peri-Urban and Low-Cost Areas

Type of area:	Peri-Urban	Low-Cost
Province:	Coverage	
	%	%
Northern	6	38
Luapula	1	21
North-Western	33	49
Copperbelt	19	29
Central	7	4
Eastern	31	55
Lusaka	57	28
Western	16	34
Southern	32	63
Average	36	32

Source: Aquatis Information System

By using the information in table 2.11 above and assuming an arbitrary chosen 80 % coverage level in High-Cost and Medium-Cost areas the aggregate coverage in **urban areas in Zambia can be estimated at 44 %.** This coverage figure represents the service coverage roughly as defined in the Baseline Study considering the quality of services..

If the coverage is defined as the population using piped water, without considering the quality of the services, the coverage can be estimated at **66 %** by using the data from the Aquatis Information System.

2.3.3 Access to Sanitation

On-site sanitation systems predominate over water-borne, sewerage connected sanitation in urban areas. On-site sanitation water-born systems comprise un-sewered family and public toilets, aqua privies and septic tanks. Tables 2.12 -2.16.

Central Statistical Office (CSO) calculates coverage by asking people what the main type of toilet is used by members of a household (e.g. Flush toilet, pit latrine, buckets). Beyond definitional problems, CSO data is also a subject to errors of underestimation because "basic sanitation facilities" are not counted. There are different criteria behind CSO and sector data which leads to disparities in the coverage figures.

Table 2.12: Summary of Access to Sanitation, 1990-2005 according to CSO

	1990*		2000*		2005	
	Population ('000)	Coverage (%)	Population ('000)	Coverage (%)	Population ('000)	Coverage (%)
Zambia	7,759	23	9,886	13	11,563	23
Urban	2,949	54	3,433	33	4,025	41
Rural	4,810	5	6,452	4	7,538	13

* Coverage figures based on CSO definition of sanitary facility (i.e. Flush toilet or VIP latrine)

The Baseline Study used broader definition of improved on-site sanitation as shown in Box 2.3 below. This definition drastically increases the coverage figures as can be seen in Table 2.13.

Box 2.3

The following technology options are considered as improved:

- Connection to an individual septic tank;
- Pour flush latrine;
- Ventilated improved pit latrine (VIP);
- Urine-diversion latrine;
- Compost latrine;
- Improved single-pit latrine (provided with structurally safe squatting plate and superstructure).

adapted from GLW, 2006, Assessment of required investments

Table 2.13. Summary of Access to Sanitation in Peri-Urban and Low-Cost areas according to Baseline Study

Type of area:	Peri-Urban	Low-Cost
Province:	Population with access to a sanitation facility %	%
Northern	94	99
Luapula	91	98
North-Western	92	95
Copperbelt	80	94
Central	82	99
Eastern	77	80
Lusaka	84	95
Western	73	96
Southern	52	82
Zambia	80	93

Source: Aquatis Information System

Note: The table includes all types of facilities – the study did not differentiate between improved and other facilities.

By using the information in table 2.13 above and assuming 100 % coverage level in High-Cost and Medium-Cost areas the aggregate coverage in **urban areas in Zambia can be estimated at 85 %.** This coverage figure represents the service coverage all technology off-site and on-site options and the percentage of unsuitable facilities is not known..

Table 2.14. Distribution of households by main type of toilet facility in urban areas, 2004 according to CSO

Residence/Stratum	Type of toilet facilities, percent						Number of households
	Own flush toilet	Commu-nal flush toilet	Own pit toilet	Commu-nal pit toilet	Other	None	
Low Cost	23.5	1.6	54.2	15.8	6.5	0.4	593,484
Medium Cost	61,6	2.0	30.9	3.3	1.8	0.2	143,394
High Cost	70.0	3.8	18.9	1.7	5.3	0.3	85,697
Urban Total	33.3	1.9	46.6	12.2	5.6	0.4	822,575

Adapted from CSO, 2005, Living Conditions Monitoring Survey Report 2004

Table 2.15 Sanitation coverage (by sewer network)

Commercial Utility/Local Authority	Total Population in Service Area	Sanitation Service Coverage, %
Nkana WSC	685,420	52
Lusaka WSC	1,831,408	19
Kafubu WSC	633,656	59
Southern WSC	328,882	58
Mulonga WSC	436,249	71
Lukanga WSC	365,869	27
Western WSC	176,477	16
North Western WSC	223,817	22
Chambeshi WSC	275,474	32
Eastern WSC	217,632	22
Luapula WSC	173,206	0
Total/Average	5,348,090	35

Adapted from NWASCO Urban and Peri-Urban Water Supply and Sanitation Report 2009/2010

The Sanitation Pre-Feasibility Strategy Study for the NUWSSP (MLGH/ASCO, 2008) indicates that none of the towns have well-functioning reticulation and treatment works, 17 towns have partially functioning reticulation and treatment works, 23 towns have dilapidated reticulation and treatment works and 38 towns have no sewer network or treatment at all.

Faecal sludge management

Faecal Sludge management activities are noticed in Lusaka City and the Copperbelt province where highly mechanized sewage treatments are in use allowing disposal of excreta from septic tanks. In the remaining parts of the country, most towns use stabilization pond systems to treat their sewage and these may not be appropriate for disposal of faecal sludge.

Even where faecal sludge management services are reported faecal sludge haulage and disposal is not effectively monitored. This suggests that most of faecal sludge collected from on-site sanitation systems in Zambia is likely discharged untreated into lanes, drainage ditches, open urban spaces, streams, etc, thereby posing great risks to water resources and public health.

2.3.4 Access to Solid Waste Services

Waste generated from all the sectors of the economy are currently not well management. It is estimated that about 10% on average of urban areas in Zambia are serviced as regards solid waste collection.

The most common method used for disposing garbage in urban areas is pitting and dumping as can be seen in Table 2.16.

Table 2.16. Distribution of households by type of garbage disposal in urban areas, 2004

Residence/Stratum	Type of garbage disposal, percent					Number of households
	Refuse collected	Pit	Dumping	Burning	Other	
Low Cost	8.5	62.7	27.8	0.9	0.1	593,484
Medium Cost	12.2	71.3	16.0	0.3	0.2	143,394
High Cost	17.4	70.1	11.5	0.9	0.0	85,697
Urban Total	10.1	64.9	24.1	0.8	0.1	822,575

Adapted from CSO, 2005, Living Conditions Monitoring Survey Report 2004

2.3.5 Drainage of storm water and greywater

Deficient or non-existent drainage systems for greywater and storm water contribute substantially to the unhealthy living conditions in densely populated urban areas in all seasons. Due to lack of statistical data the situation is not well known and has not been addressed systematically.

In the rainy season the unsafe conditions are exasperated in particular in peri-urban areas as large areas are flooded, pit latrines collapse and wells become polluted.

2.3.6 Operation and Maintenance

The operation and maintenance of the UWSS facilities is the responsibility of Commercial Utilities for approx. 92 %, Local Authorities for approx. 7 % and Private Providers for slightly over 1 % of the urban population.

2.3.6.1 O&M – Water Supply

Table 2.17 to 2.20 below give an overview of the situation and challenges with regard to the operation and maintenance.

Table 2.17 Overview of key performance indicators 2007/2008

CU/ WSC	Water production Million m^3/year	No. of connec-tions	Prod. litre/con-nection /day	Per capita prod. l/c/d 1)	Number of towns served	No. of emp-loyees
Nkana	56.6	43,805	3540	226	3	347
Lusaka	95.0	73,240	3554	142	4	777
Kafubu	55.9	48,365	3167	242	3	356
Southern	19.4	29,529	1800	162	17	266
Mulonga	59.0	41,600	3886	371	3	307
Lukanga	22.0	1,360	4197	165	6	187
Western	7.6	9,775	2130	118	6	109
North Western	3.6	6,882	1433	44	7	91
Chambeshi	11.0	12,344	2441	109	11	182
Eastern	5.2	9,903	1439	65	8	97
Luapula	2.8	3,993	1921	44	7	56
Total/Average	338	293,796	3152	173	76	2589

Adapted from NWASCO Urban and Peri-Urban Water Supply and Sanitation Report 2009/2010

1) Calculated as an average on total population in the service areas (i.e. incl. all without connection and those using standpipes/kiosks)

Table 2.18 Overview of key performance indicators 2007/2008

CU/LA	Unaccounted-for water %	Metering ratio %	Hours of supply	Collection Efficiency %	O&M coverage collection %
Nkana WSC	42	58	16	77	106
Lusaka WSC	48	52	17	80	92
Kafubu WSC	45	45	16	73	104
Southern WSC	39	76	19	96	106
Mulonga WSC	42	55	17	93	136
Lukanga WSC	48	77	19	84	71
Western WSC	52	13	10	96	90
North Western WSC	34	100	23	103	85
Chambeshi WSC	46	38	16	79	69
Eastern WSC	30	67	21	91	72
Luapula WSC	62	0	4	51	21
Average	44 (w)	55 (w)	16 (s)	86 (w)	106 (w)

Adapted from NWASCO Urban and Peri-Urban Water Supply and Sanitation Report 2009/2010

(w), (s) weighted and simple averages respectively

Water consumption

Actual consumption figures in the Copperbelt is reported as 135 lcd in Low Cost, at 281 in Medium Cost and at 593 – 1050 lcd in High Cost areas. (MLGH, 2001, Consumer assessment survey for water and sanitation in council townships).

An analysis of the situation in Mongu and Mansa has given the consumption figures of 433 lcd and 747 lcd respectively for the population with house connections. (MLGH, 2004, Identification and preparation study of support to water supply and sanitation in peri-urban and low-cost areas, draft Report).

Daily per capita consumptions at kiosks and public taps have been measured in seven towns chosen from five different provinces. The consumption varied from 3 to 16 lcd with an average of 10 lcd. (Source: GKW Consult, water consumption measurements, 1995-2003)

Table 2.19 Cost and tariffs (house connections) 2009/2010

CU	Cost of operation ZK bn.	Prod. Costs ZK/m^3	Average tariff ZK/m^3	Water bill of 6 m^3 charged	Water bill of 30 m^3 charged	Water bill of 60 m^3 charged
Nkana WSC	46.5	822	1795	7800	48700	107700
Lusaka WSC	96.4	1015	2085	10800	58800	124800
Kafubu WSC	36.7	657	2442	10818	67860	146520
Southern WSC	17.5	902	2047	8400	54600	132600
Mulonga WSC	39.7	673	1727	8242	47280	103620
Lukanga WSC	11.1	505	1967	7200	51000	126000
Western WSC	4.7	618	1400	6480	38718	87318
North Western WSC	9.7	2694	4086	12300	97640	241790
Chambeshi WSC	5.8	527	2200	8400	54000	144000
Eastern WSC	7.7	1481	2359	10140	71600	164600
Luapula WSC	3.7	1321	1420			
CU total	279.5					
Average bill				9058 (s)	59020(s)	137895(s)
Average ZK/m^3		827 (s)	2139 (s) 1)	1510(s)	1967(s)	2298(s)

Adapted from NWASCO Urban and Peri-Urban Water Supply and Sanitation Report 2009/2010

1) The UFW and collection efficiency are considered when setting the tariffs

Table 2.20 Tariffs (public and communal connections) 2006/2007

Commercial Utility (CU)	NWASCO Approved Under CUs (ZMK)			Not NWASCO Approved and Outside CU (ZMK)
	Kiosk (metered) per 20 litre bucket	Communal (Un-metered) Fixed charge per month	Single tap (Un-metered) Fixed charge per month	Water Trust (metered) per 20litre bucket
Nkana	20	-		-
Lusaka		8,000		50
Kafubu	20	7,500		-
Southern	20	6,000 – 9,000	12,000 – 21,000 for various districts	-
Lukanga	20	50,000		-
Mulonga	20	-	1,000	-
Western	18	12,000		-
North Western	40	-		-
Chambeshi	20	-	4,000 to 10,500 for various districts	-
Chipata	26	-		-

Tariffs
Tariffs generally are suggested by the CUs/LAs and approved by NWASCO.

Households in peri-urban areas using public taps pay substantially more per cubic meter than households with house connections: a study in Lusaka reported that people in peri-urban areas using public taps pay up to five times the rate paid by households in conventional areas. (Brockenhurst and Senke: Lusaka Water and Sewerage Company - Social Assessment, May 2004)
From tables 2.19 and 2.20 above it can be concluded that the tariffs for using house connections are approximately 1400 ZKW per cubic metre varying from 1140 to 1650 depending on the consumption level and for using kiosks it varies from 900 to 2500 ZKW per cubic metre. Tariffs at un-metered simple taps are difficult to estimate but are likely to be lower - naturally depending on the consumption.

Water quality
The quality of the distributed water is not satisfactory and has to be improved by all providers. Monitoring in accordance with the Water Quality Guidelines (2005) is still to be implemented fully. However, the public health inspectors of Ministry of Health monitor the water quality periodically. (NWASCO, 2006)

2.3.6.2 O&M - Sewerage

Data submitted by CUs and by NWASCO on sanitation is scanty and not disaggregated from the water supply. This reflects the low importance assigned to sanitation by the Service Providers.
The information the quality of effluents is scanty even where wastewater works are at least partly functioning like in Lusaka. Industrial wastewater containing metals and chemicals often receive no treatment. Overloading of works receiving domestic wastewater , deficient facilities and poor operation and maintenance result in effluents whose pollution contents are far above the targets set by ECZ.

The summary status of the sewerage systems is shown in Table 2.22.

Table 2.22: Summary of Status of Sewerage Infrastructure

No	Status of Sewerage Infrastructure	Towns	Total Population (2000)[1]
1	Well-functioning reticulation and Treatment Works	None	Nil
2	Partially functioning reticulation and Treatment Works	17	1,379,540
3	Dilapidated reticulation and Treatment Works	23	1,835,390
4	No reticulation or Treatment	38	212,819

[1] Note that only a small fraction of the population is connected to the sewerage system
Source: ASCO,2008, Sanitation Pre-Feasibility Strategy Study for the NUWSSP based on Aquatis database (2005), interviews with CUs and LAs and visits to towns (2008) and ASCO library

2.4 Cross Cutting Issues

2.4.1 Gender Strategy

Government recognises the importance of equal participation of both men and women in the development process and that this can only be achieved if gender issues are an integral dimension of the design, budgeting, implementation, monitoring and evaluation processes so that all can participate and benefit equally. In order to achieve this, Government adopted the national gender policy in 2000 and launched the strategic plan of action (2004 - 2008) in 2004.

The outcome of the above mentioned reforms are critical in the water and sanitation service delivery and will guide the programme to ensure that gender equality is achieved in other spheres of life.

2.4.2 HIV and AIDS Strategy

The HIV/AIDS is one of the worst crises facing Zambia today. According to UNAIDS (2002) in Zambia there are 1,250,000 people living with HIV/AIDS, of which approximately 1,000,000 are adults (15-49 years) and about 250,000 children (1-14 years).

Heightened illness and deaths arising from HIV/AIDS have dire consequences on household income and enormous consequences for the Zambian economy.

HIV/AIDS affect the delivery and quality of water supply services in three key areas. Firstly HIV/AIDS patients require a higher service level, a higher quantity of water to ensure the hygienic standards and minimize the risks of infections with water borne diseases; this impacts water demand and cost of providing services. Secondly, caregivers (these are mostly women and children - for drawing water) have to spend disproportionate amount of time in health support, which ultimately deprives the caregivers of gainful or productive use of their time. Lastly loss of educated and trained workers due to increased sicknesses and premature retirement negatively impact labour productivity whether in an employment situation or otherwise.

2.4.3 Environmental Considerations

Environmental degradation has reached alarming proportions in many parts of the country. The country's forests are under tremendous pressure, with wood harvesting for fuel and timber and the clearance for agriculture and human settlement being some of the primary causes. In the last decade, environmental degradation, especially deforestation, has become particularly severe and threatens sustainable economic growth and sustainability of the water resource.

Deforestation also degrades water catchments thus reducing base flows during the dry season and lowering water tables which impacts on surface water sources, and yields of wells and boreholes. In addition there are problems with untreated wastewater and greywater from urban and peri-urban areas polluting water courses and groundwater aquifers. Poor environmental sanitation contributes to the prevalence of malaria and diarrhoea.

2.4.4 Good Government Strategy

It is in the FNDP stated that: *"the concept of 'governance' cuts across the entire spectrum of both Government and non-Government delivery systems. It is essential that the Government provides good systems of governance which will create the conditions for markets to function; facilitate the efficient and effective delivery of basic services; ensure civil society participates in decision-making processes; and, ultimately, maximise the welfare of Zambian communities and individuals."* Furthermore, *"bad governance imposes a particular burden on the poor*

and throws them deeper into poverty and that poverty constrains the poor from participating in the development process, leading to weak governance of institutions".

2.4.5 Climate Change

Africa is one of the most vulnerable continents to climate change and climate variability and its major economic sectors are vulnerable to current climate sensitivity, with huge economic impacts. This vulnerability is exacerbated by existing developmental challenges such as endemic poverty, complex governance and institutional dimensions; limited access to capital, including markets, infrastructure and technology; ecosystem degradation; and complex disasters and conflicts.

Farmers have developed several adaptation options to cope with current climate variability, but such adaptations may not be sufficient for future changes of climate. Changes in a variety of ecosystems are already being detected, particularly in southern African ecosystems, at a faster rate than anticipated .

Zambia lies in a zone that has experienced an increase of mean temperature of 1 – 2 ^{o}C between 1974 and 2004, (IPPC, 2007, Working Group II Report "Impacts, Adaptation and Vulnerability") and is situated where the temperature may increase by 3 – 4 ^{o}C by the end of the century.
This may affect urban water supply and sanitation through changed economic development, socio-economic conditions, water resources, rainfall patterns and public health.

2.5 Donor Involvement, Co-ordination and Financial Arrangements

The cooperating development partners (CPs) supporting the water sector have established an informal forum aimed at enhancing cooperation and coordination of policies, strategies and approaches in support of WSS development. The forum has facilitated closer cooperation among the CPs including the move towards a SWAp. Issues of aid coordination and harmonization, as well as joint financing support are under active discussion in the forum. The principle of Lead Partner for the sector is in operation and the lead CP is the focal point of CPs' policy dialogue with Government. Presently the Lead Partner for the WSS sector is Danida and Germany for water resources management. The Lead CP is elected among the CPs for a two year period.

A joint Government-CP coordination mechanism for WSS is developing though not yet fully established. But budget cycles, financial systems, monitoring, and reporting are still done on a programme by programme basis. The Government together with the CPs is developing the Joint Assistance Strategy Zambia (JASZ) as a framework for a coordinated approach to support the country's development including the water sector. Until then, aid coordination and harmonisation are done on an ad hoc basis.
An overview of donor involvement in the water sector as a whole in Zambia is shown in Table 2.24.

Table 2.24. Overall donor involvement in the water sector in Zambia

Donor	Type of Support
World Bank	Formerly supported the water sector reform process, the Bank is in the process of formulating a Water Sector Reform Project planned to comprise support for sector wide policy making capacity in MEWD and MLGH. Specific support to Lusaka Water and Sewerage Company is under formulation.
Africa Development Bank	Supporting the Central Province Rural Water Supply and Sanitation Project. Outputs include construction or rehabilitation of boreholes; sanitation support; health education; catchment protection; community mobilisation and training; and institutional support.
Germany/GTZ	Primarily provided support to the water sector reform process. Has continued to supply advisory services to NWASCO and DTF under MEWD. Also supports urban, Peri urban through commercial utilities and rural water supply and sanitation. Continues to support the Water Resources Action Program.
Germany/KFW	Supports Rural Water Supply Projects in Eastern and North Western Provinces. Physical targets include borehole construction and rehabilitation, establishment of O&M systems at local and district levels, and capacity building of WASHE committees.
Ireland/ DCI	Supported the water sector reform process and currently funding the Water Resources Action Program. Continues to provide support to Northern Province Rural Water Supply and Sanitation Programme. Support is comprised of construction and rehabilitation of RWS infrastructure; provision of household, school, and health centre sanitation; health and hygiene education; capacity building of WASHE committees at all levels.
UNICEF	Primarily provided support to the water sector reform process particularly in promulgating the WASHE concept. Continues to provide support to Community WASHE and the School Sanitation and Hygiene Education projects in schools and communities in selected districts of Southern and Eastern provinces.
JICA	Supporting Groundwater Development and Sanitation Improvement in Northern Province, construction of boreholes; hygiene and health promotion; community management. Establishing maintenance systems in two districts of Southern and Central provinces.
EU - Water Initiative for Africa	Seeks to improve coordination and make efficient use of donor support both at national and international levels, latter being important for river basin issues.

Ref: GRZ / Government of Denmark, 2005. Water Sector Programme Support, Sector Programme Support Document, Final, October 2005

Table 2.25 shows external support specifically for UWSS.

Table 2.25 CP involvement in support to UWSS

Province	CU or Communities within licensed area	Major External support during past five years	Minor External support during past five years	NGOs and Others involvement
Lusaka	**Lusaka WSC**	WB/ JICA	WB/ JICA	**CARE**
Copperbelt	**Nkana WSC**	ADB/ WB*	DCI, Danida	
Copperbelt	**Mulonga WSC**	-	Danida	
Copperbelt	**Kafubu WSC**	-	GTZ, Danida	CARE
Southern	**Southern WSC**	KfW	KfW	
Western	**Western WSC**	Danida	Danida	
North Western	**North Western WSC**	KfW	KfW	
Northern	**Chambeshi WSC**	DCI	DCI	
Eastern	**Eastern WSC**	KfW	KfW	
Central	**Lukanga WSC**	ADB	ADB	
Luapula	**Luapula WSC**	Danida/ BADEA		**ZAMSIF**

* World Bank support to mine townships on the Copperbelt through AHC – MSS which was phase out and absorbed by Nkana Water and Sewerage Company in 2006

2.6 Sector Financing

2.6.1 Historic Investments and Budgets

The official total national and the urban water supply and sanitation budgets and expenditures 1997 to 2007 are shown in Table 2.26 to 2.29.

Table 2.26 Grand Total and Urban Water Supply and Sanitation Budget

Year	Total Country and UWSS		
	Zambia Grand Total Authorized Provision (US$)	UWSS Total Authorized Provision (US$)	UWSS Authorised Provision against Grand Total Authorised Provision
1997	406 240 513	8 601 681	2.12%
1998	492 458 898	11 557 250	2.35%
1999	625 374 062	12 416 550	1.99%
2000	817 638 431	8 891 222	1.09%
2001	1 356 406 755	56 147 605	4.14%
2002	1 531 603 336	33 152 285	2.16%
2003	1 949 799 275	38 692 833	1.98%
2004	2 293 489 555	60 609 895	2.64%
2005	2 695 347 852	107 175 813	3.98%
2006	2 711 333 418	25 316 683	0.93%
2007	3 172 281 840	67 063 431	2.11%
Ten year totals	**18 051 973 934**	**429 625 248**	**2.38%**

US$1.00 = ZMK 4000
(adapted from MNFP Budget Reports 1997 to 2007)

Table 2.27 Grand Total and Urban Water Supply and Sanitation Expenditures

Year	Total Country	Urban Water Supply and Sanitation	
	Grand Total Actual Expenditure (US$)	WSS Total Actual Expenditure (US$)	% Total Actual Expenditure against Grand Total Actual Expenditure
1997	282 097 687	12 425	0.00%
1998	279 109 963	828 877	0.30%
1999	282 097 554	595 227	0.21%
2000	464 792 643	1 628 790	0.35%
2001	669 099 585	8 670 549	1.30%
2002	817 314 560	2 331 365	0.29%
2003	1 188 763 558	1 950 556	0.16%
2004	1 497 025 305	1 931 988	0.13%
2005	1 816 713 612	2 121 179	0.12%
2006	1 932 364 822	1 522 277	0.08%
2007	2 449 677 850	14 355 483	0.59%
Ten year totals	**11 679 057 139**	**35 948 717**	**0.31%**

US$1.00 = ZMK 4000
(adapted from MNFP Budget Reports 1997 to 2007)

2.6.2 The National Development Plan

The primary source of information on the planned investments in UWSS has been the 5 Fifth National Development Plan 2006-2010 (FNDP). Figures from the plan have been abstracted and are shown in Table 2.30.

The Sixth National Development Plan (SNDP) for the period 2011-2015 is under preparation.

Table 2.30 Provision for WSS in the Fifth National Development Plan (FNDP) 2006-2010

	Total req'd	GRZ	CPs	% CPs
	ZK bn	ZK bn	ZK bn	
Rural water & sanitation	292.6	25.2	267.4	91%
Urban water supply & sanitation	247.6	26.2	221.4	89%
Peri-urban water supply & sanitation	644.3	16.2	628.1	97%
National solid waste management	23.9	11.5	12.4	52%
Sub-total	1,208.4	79.1	1,129.3	93%
O&M of water schemes	19.4	19.4		
Total water and sanitation	1,227.8	98.5	1,129.3	92%
Total 'core costs' in terms of FNDP	38,645.4	25,177.3	13,468.1	35%
Total national expenditure	62,623.2	48,442.8	11,198.3	18%

Notes:
1. CP stands for 'Cooperating Partners', the international support to the various programmes (donors)
2. The 'Core costs' in terms of the FNDP are those which are focused on development programmes.

2.6.3 National Estimates

FNDP provisions should be carried forward in the Medium Term Expenditure Framework (MTEF) and the National Estimates. A comparison between the FNDP figures, the National Estimate and the requirement under this Programme is shown in Table 2.31.

Historically there has been limited commitment to this budget and departments could not be sure they would receive the funds indicated. However, efforts to improve the national budgeting arrangements and improve commitment to the 'estimates' are bearing some fruit.

Table 2.31 Comparison between FNDP figures and the National Estimates

FNDP average expenditure on UWSS per year	187.0	ZK bn
2008 national estimates for UWSS i)		
- Operating expenditure (aministration, campaigns, retrenchment)	4.9	ZK bn
- Rehabilitation and development WSS	315.4	ZK bn
- Solid waste management	8.9	ZK bn
- Drainage	0.8	ZK bn
Total	330.0	ZK bn

i) adapted from MLGH 2008 budget head 20 and 29

Estimates by the CUs
The CUs have recently (2010) submitted to MLGH estimates of their investment needs. The aggregated amount is approximately ZKW 1200 bn per year. Further see Chapter 12.

2.7.1 Key Sector Issues

From the foregoing background data and analysis, the following are the key UWSS sub-sector issues and challenges:

Box 2.6: Key Sector issues

1. The majority of Zambia's urban population has access to safe drinking water supply but the service level is low in particular in low-cost residential areas. 86 % benefit to some extent from improved water supply but only 44 % have access to what can be considered as basic service level.

2. Low levels of access to adequate sanitation estimated at only 41% of the urban population. Only 35 % live in areas with sewer systems, while the majority only has access to unimproved pit latrines. This situation is due, to a large degree, to lack of emphasis on sanitations by all sector players.

3. Lack of sector investment plans, whether at scheme or national levels have hampered the developmemt. It has resulted in only very limited extension of services and in extremely inequitable service provision over the last decades.

4. Deficient operation and maintenance systems due to inadequate financial and personnel resources leading to the deterioration of infrastructure, high water losses and low service levels.

5. Low financial sustainability of UWSS at local level. Local level financial resources are, in most cases, unable to cover any preventive maintenance and development costs.

6. Inadequate technical, financial, and institutional capacities at local authorities level to support planning, implementation and maintenance of urban WSS facilities.

3 OVERALL VISION AND STRATEGIC APPROACH

3.1 Holistic and integrated approach

The approach shall be holistic and integrated. The programme aims at improved livelihood and public health for the urban population in Zambia. Hence, it encompasses provision of water supply and sanitation in a broad sense including off and on-site facilities as well as solid waste management and drainage which all are indispensable components for creating a robust sustainable service system.

3.2 Vision 2030

The National Long Term Vision 2030 (Vision 2030) is for Zambia to become **"A Prosperous Middle Income Nation by 2030".**

Among the many sector visions and targets set out in Vision 2030 the following concern water and sanitation in urban and peri-urban areas directly:

- Improved access to appropriate environmental friendly sanitation by all Zambians
- Attainment of 80 percent access to clean water supply to all by 2015 and 100 percent by 2030.
- Attainment of 68 percent access to sanitation to all by 2015 and 90 percent by 2030.
- Fully integrated and sustainable water resource management.
- Rehabilitation, reconstruction of sewage treatment facilities in all major town and cities.
- 80 percent of waste collected and transported.
- 90 percent of polluting industrial facilities comply with environmental legislation
- 80 percent of unplanned settlements upgraded and the residents have access to clean drinking water and sanitation facilities.
- Reduce the under-five mortality rate from the current 168 to 50 per 1000 live births by 2030.

3.3 The National Water Policy (2010)

The vision of the NWP is:

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

The Policy recognises and is based on the following guiding principles:

i. Water is a basic human need;
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. There shall be equitable access to water;

v. Water has a social value and all domestic and non-commercial use of water will not be required to obtain a water permit;
vi. 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;
vii. There shall be 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;
viii. Efforts to create wealth shall be reflected in all decisions made in relation to the use of water;
ix. Location of water resources on land shall not itself confer preferential rights to use it;
x. The basic management unit shall be the catchment in recognition of the unity of the hydrological cycle, and
xi. Zambia's water resources shall be managed to promote sustainable development and protect its territorial sovereignty.

3.4 Millennium Development Goals

Goal 7 of the MDGs is to ensure environmental sustainability. Target 10 under goal 7 is directly aimed at water supply and sanitation : "Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation"

3.5 Decentralisation

The **National Decentralisation Policy,** developed in 2002 and launched formally in August 2004, aims at decentralising government responsibilities and functions to lower level government through "devolution". The Decentralisation Policy reaffirms the local authorities as the institutions responsible for water supply and sanitation.

The formulation and implementation of NUWSSP will adhere to the principles of and benefit from the decentralisation which is envisaged to improve programme implementation and service delivery at the local level.

3.6 Sector-wide approach

NUWSSP shall represent a move towards a sector-wide approach (SWAp). It follows recognition of the disadvantages of implementing development activities through discrete projects, and the problems associated with co-ordinating a sector that is heavily dependent on external support. Previous activities were generally donor-driven, and were often piecemeal, with approaches varying depending on the actors involved. This caused duplication, inappropriate sequencing, and led to inefficiencies in the government system, thus reducing the benefits of investments and decreasing the sustainability of the water and sanitation services provided. The SWAp concept involves a change in the way the sector operates, and in the relationship between government and

its development partners. There are two key elements to SWAp: the replacement of current project based approaches with comprehensive sector-wide programmes; and a move to co-ordinated funding of water and sanitation provision through government budgets. SWAp will require strong leadership from the government, and a high level of trust by its development partners.
The development partners need to support the NUWSSP actively and flexibly. They should adapt their sector policies to the NUWSSP and support its implementation.

SWAp can be summarised as "pooling of resources to support a single sector policy and expenditure programme, under government leadership, by adopting common approaches across the sector and progressing towards relying on government procedures to disburse and account for funds." Progress in these areas will reduce the administrative load on the Zambian administration and diminish the transaction costs of aid

3.7 Project selection strategy

The following strategic approach will be used for selecting projects and activities for implementation under NUWSSP:

- The Service Provider shall identify development or any other activities requiring financial support under the NUWSSP.
- The Service Provider shall prepare and submit proposals for financial support to a NUWSSP management organisation.
- Proposals can cover one or several of the following activities and be phased as appropriate:
  Capacity building (HRD and/or organisational development)
  Investigations
  Master plan/Feasibility/Preliminary Design studies
  Detailed Design and Tender Documents
  Civil, Mechanical and Electric Works
  Project Management
  Any other activity in line with the NUWSSP
- Proposals prepared by the Service Providers shall be complete and of high professional quality so that they can be evaluated, prioritised and approved without further investigations. Only proposals with detailed cost estimates shall be considered.
- Transparent and objective criteria shall be used to evaluate and prioritise proposals.

4. WATER SUPPLY DEVELOPMENT PROGRAMME

Urban water supply is planned to be developed during the period 2011 to 2030 in accordance with the principles outlined in this chapter.

4.1 Policy, Objectives and Strategy

An overview of the relevant policy documents and the legislation has been given in chapter 2 and 3. Consolidation of policies, legislation, present status and key sector issues with regard to urban water supply and sanitation result in the following synthesis:

4.1.1 Policy

- to enable all urban residents, commerce, institutions and industry to have access to water and utilise it in an efficient and sustainable manner for wealth creation, well-being and improved livelihood by 2030.

4.1.2 Objectives

- to provide adequate, safe and cost-effective water supply services to all areas by 2030 with due regard to environmental protection.
- to charge a reasonable amount for use of water ensuring that it supports the effective management of water so that its utilisation is sustainable and equitable.
- to manage water resources and water supply facilities so as to reduce the incidence of water and vector-borne diseases and parasitic infestations.
- to promote legal and institutional framework capacity enhancement.
- to implement measures which enhance mainstreaming of cross-cutting issues.

4.1.3 Strategy

Development and provision of sustainable water service to more people in core urban and peri-urban areas through:

Policy measures

- promotion of a holistic approach to improve the health, wellbeing and livelihood of the urban population through the co-ordination of water supply, sanitation, solid waste management and drainage development activities.
- support to the national UWSS development that focuses on enhancing institutional capacities, policy, and legal frameworks, information management for planning and development at national, provincial, and district levels.
- promotion of the generation of revenue by adequate pricing of water on the concept of cost recovery for the effective management and development of water supply infrastructure.
- commercialisation, private sector participation and independent regulation.
- undertaking, supporting and promoting joint revenue collection for water. sanitation and drainage.
- promotion of effective water quality monitoring programmes based on enforceable water quality guidelines and standards.
- development of sector investment plans at scheme and national levels to promote financial sustainability, extension of services and equitable service provision.

- harmonising coverage concepts, and minimum and desired service levels.
- upgrading of 80 percent of unplanned urban settlements by 2030 to facilitate provision of adequate water supply there.

Planning measures

- improved co-ordination between Service Providers and Planning Authorities regarding residential and commercial land development.
- mapping water supply system through topographical survey and inventory of pipelines and other facilities.
- developing water supply master plans for districts and towns.
- developing contingency master plans for droughts and floods.
- conducting adequate feasibility studies before undertaking works.
- protection of underground and surface water sources.
- support to investment programmes that aim at increasing access to safe, adequate water supply to 80 percent of the urban and peri urban populations by 2015.

Management measures

- expansion of the system of regulation by incentives to boost CU management performance.
- promotion of community ownership and participation.
- education of key stakeholders on water supply and sanitation issues.
- promotion of measures to improve the costumer/provider relation and the user influence through Water Watch Groups and Part Time Inspectors.
- incorporation of provisions for environmental assessment, biological diversity impact assessment and management in all water development activities.
- strengthening coordination and management of environmental health at all levels of care.
- controlling the water demand through demand management.
- progressive water tariffs and measures to improve the collection efficiency.
- introducing penalties that will encourage the timely payment of the tariffs.
- improvement of operation and maintenance systems by increasing financial and management resources.
- promotion of the use of expertise to assist CUs and local authorities to improve management, planning, implementation and operation of urban WSS facilities.

Infrastructure development measures

- emergency measures to be undertaken between 2011 and 2015 in all existing urban systems to maintain coverage and improve the service level in already covered areas.
- support to measures to reduce non-revenue water and increasing the metering ratio.
- expansion of the coverage in all urban systems and provide at least minimum service level in all parts of the licensed service areas between 2011 and 2015.
- development of additional sources, transmission systems and water treatment facilities.
- encouraging the development of new water-efficient technologies and industrial processes that bear on the cost of water and encourage water conservation and improved water quality.

4.2 Water Resource Management

The water resource issues in Zambia are covered in "The Integrated Water Resource Management and Water Efficiency Implementation Plan" and in "The National Water Policy"
The following strategy issues have special relevance to urban water supply and sanitation:

- 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;
- 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 resource management (IWRM) system approach;
- establish a water resources management information system and monitoring network including information dissemination mechanism;
- develop water allocation plans with the participation of local communities;
- develop and maintain a water quality assessment system;

4.3 Water Supply System Development Standards

4.3.1 Population projection

Population projections shall be derived from the Central Statistics Office projection using the populations enumerated during the 1980, 1990, 2000 and 2010 censuses and future censuses considering other complementary studies such as the Baseline Study (2004) and detailed project studies.

4.3.1.1 Country and Provincial Populations

Published country and provincial populations and the CSO projections (the mostly likely scenario medium with AIDS as adopted by the FNDP) are summarized in table 4.1.

Table 4.1 CSO Projections up to 2030, showing All Zambia, Zambia Urban and Provincial Urban populations. Projections based on medium variant with AIDS

Population	2000	2001	2002	2003	2004	2005	2006	2007
All Zambia	9 791 981	10 089 492	10 409 441	10 744 380	11 089 691	11 441 461	11 798 678	12 160 516
Zambia Urban	3 432 805	3 518 301	3 616 126	3 719 385	3 824 465	3 928 042	4 029 517	4 126 114
Central Province	238 449	244 545	251 550	258 993	266 645	274 294	281 910	289 306
Copperbelt Province	1 254 935	1 292 149	1 331 803	1 372 225	1 412 864	1 453 135	1 492 924	1 531 661
Eastern Province	115 457	118 447	121 759	125 300	129 022	132 806	136 704	140 698
Luapula Province	118 791	122 380	126 192	130 090	134 113	138 099	142 064	145 943
Lusaka Province	1 120 428	1 148 520	1 179 875	1 212 061	1 244 187	1 275 314	1 305 210	1 333 082
Northern Province	169 713	174 086	179 238	184 841	190 657	196 519	202 361	208 051
North-Western Province	76 892	79 285	81 894	84 624	87 343	90 066	92 764	95 395
Southern Province	252 702	259 264	266 641	274 382	282 250	290 040	297 690	305 025
Western Province	84 576	86 013	87 901	90 017	92 222	94 396	96 499	98 432

Population	2008	2009	2010	2015	2020	2025	Extrapolated 2030
All Zambia	12 525 791	12 896 830	13 272 553	15 302 680	17 626 252	20 347 348	23 488 520
Zambia Urban	4 217 295	4 303 864	4 386 736	4 770 054	5 120 667	5 477 886	5 860 025
Central Province	296 463	303 412	310 113	342 547	373 753	406 626	442 390
Copperbelt Province	1 569 157	1 605 369	1 641 364	1 804 447	1 954 961	2 105 765	2 268 202
Eastern Province	144 693	148 803	153 037	176 139	203 362	235 441	272 580
Luapula Province	149 718	153 488	157 109	174 113	190 326	207 250	225 679
Lusaka Province	1 358 901	1 382 726	1 404 412	1 501 299	1 586 218	1 668 156	1 754 327
Northern Province	213 568	218 941	224 148	249 956	275 783	303 870	334 818
North-Western Province	97 947	100 425	102 821	114 415	125 296	136 226	148 109
Southern Province	312 021	318 696	325 007	354 222	379 025	403 560	429 683
Western Province	100 207	101 833	103 301	109 577	114 565	119 558	124 769

4.3.1.2 Town and Project Area Populations

Town and project area population projections shall be determined in the recommended steps as follows:

1. Obtain map/s of town/s or project area/s indicating district boundaries, ward boundaries, roads, and other key features from the Ministry of Lands or Local Authority.
2. Define or indicate on this map licensed area of operation.
3. Identify areas of over up between rural and peri-urban areas using baseline study results. Clarify roles and assign responsibility for all areas as appropriate to the area characteristics.
4. At this stage clear demarcation between rural and urban should be established.
5. Undertake representative field surveys to establish status of development, indicative developments (that will affect the immediate and medium term), area average house hold sizes and numbers (where possible), water uses and any other information considered important.
6. Using CSO latest report, in this instance 2000 report, the baseline study and the field results as a basis, estimate populations in each area.
7. These population projections obtained shall be used in the determination of water and sanitation requirements.

4.3.2 Water consumption

The Zambia Standard ZS 361:1997, “Zambia Standard for Water Supply Systems – Consumption figures for design – Guidelines” published on 30th April, 1997.

4.3.2.1 Domestic

According to Zambia Bureau of Standards (ZBS), ZS 361:1997, domestic water demand is dependent upon the cost classification of housing. Housing categories in Zambia are generally classified as 'high cost', 'Medium cost', 'Low cost' and 'Informal Housing'.

Table 4.2: Unit Consumption Figures for Highly Developed Provinces

Category	Unit Consumption (l/c/d)			
	ZBS ZS 361:1997	Lusaka Water Phase II Project, 1998, by GIBB Consultants	Copperbelt Consumer Assessment Survey for W &S in Council Townships: Phase 1 (2001) Summary Report, World Bank	Recommended for NUWSSP
High Cost Housing	280	280	593 (1503*)	280
Medium Cost Housing	150	150	281	150
Low Cost Housing	100	100	135	100
Informal Housing	40	40	Not available	40

*Higher figure includes an extreme case.
1. High and Medium Cost Housing based on main house occupants excluding servant's quarters.
2. For servants quarters, allow for 6 persons at 100 l/c/d, or 600 litres per dwelling per day.

Table 4.3: Unit Consumption Figures for Lowly Developed Provinces

Category	Unit Consumption (l/c/d)		
	Zambia Bureau of Standards ZS 361:1997	Design Criteria for Southern Province by GKW Consultants	Recommended for NUWSSP
High Cost Housing	280	190	190
Medium Cost Housing	150	135	135
Low Cost Housing	100	100	100
Informal Housing	40	30	30

1. High and Medium Cost Housing based on main house occupants excluding servant's quarters.
2. For servants quarters, allow for 6 persons at 100 l/c/d, or 600 litres per dwelling per day.

4.3.2.2 Education Institutions

Unit consumption figures shall be based on ZS 361:1997.

4.3.2.3 Health Institutions

Unit consumption figures shall be based on ZS 361:1997.

4.3.2.4 Water demand for hotels and recreational facilities

Unit consumption figures shall be based on ZS 361:1997.

4.3.2.5 Office, Industrial, Commercial, and Administrative Water Uses

Unit consumption figures shall be based on ZS 361:1997.

4.3.2.6 Peak day demand

Peak day demand by consumers shall normally be calculated as 1.1 times the average day demand.

4.3.2.7 Fire-fighting requirements

The design of the system for fire fighting for individual towns should be done in consultation with the local fire fighting authorities.

4.3.2.8 Water quality standards

Guidelines for Water Quality Standards of biological, physical and chemical quality applicable to water supplies have been developed by World Health Organisation (WHO). Zambia Bureau of Standards has also issued standards. The following criteria should be used:

Table.4.8 Water quality standards

Parameter	Criteria Limit
Taste	Unobjectionable to most consumers
Odour	Unobjectionable to most consumers
Colour	Unobjectionable to most consumers
Total Hardness	Generally less than 500mgl
pH	Less than 8 prior to disinfection
Nitrate	10mgl as N
Nitrite	0.9mgl as N
Fluoride	1.5mgl
Iron	1.0mgl
Manganese	0.2mgl
Faecal Coliforms	0 in any 100ml sample
Total Coliforms	10 in any 100ml sample

Regarding other inorganic chemicals, organic chemicals and pesticides drinking water quality should comply with WHO guidelines.

4.4 Water Supply Distribution Standards

In the long run, all consumers in the service area of a provider are to be serviced with an appropriate type of safe water supply (at least a water kiosk). Providers have to consider this obligation and have to take steps in order to fulfil this requirement.

4.4.1 Individual Connections

Individual connections (IC) will be provided for all residential houses, institutions, commercial establishments and industry after request by the proprietor when technically and economically feasible. ICs will be encouraged in all urban areas and all IC shall be metered.

4.4.2 Communal Taps

Communal taps are installations where access is restricted to a defined user group, which shares the cost, but are not open to the public

4.4.3 Public Taps

A public tap can be defined as an outlet structure with one or more taps which is open to the public. Public taps differ in the way they are organised, managed and operated.

- Kiosk: it is accessible to all, in general users pay according to consumption and is operated by a vendor selling on behalf of the service provider.
- Public stand pipe: it is accessible to all, in most cases water can be fetched free of charge or users pay a fixed contribution.

4.4.4 Point Supply

Service providers for urban water supply will not cover hand pumps. Hand pumps are not considered an appropriate technology for urban and peri-urban settings. Hand pumps found in such areas will be replaced by a network based system and are not to be considered for coverage.

4.5 Service Delivery Standards

The Water Supply and Sanitation Act No. 28 of 1997 (5.12 vi – A) requires providers to ensure efficient, affordable and sustainable water supply and sanitation services within the service areas.

This implies that the providers must guarantee a certain and defined level of services to the customer for a specified price ensuring therefore value for money.

The Regulator has developed service indicators with time-bound benchmarks to be adhered to by the licensed providers (NWASCO, Guidelines on Required Minimum Service Level, December 2000).

4.6 Operational Benchmarks

The Regulator has developed additional benchmarks that will help the providers and the Regulator assess the status and efficiency of the operation and encourage gradual improvement of performance (NWASCO, Urban and Peri-Urban Water Supply and Sanitation Sector Report 2005/2006).

4.7 Water Supply Coverage and Access Definitions

4.7.1 Water Supply User Coverage

This concept is used by CSO in statistics on sources of drinking water and for determining total access to drinking water from improved sources. Protected wells, boreholes, public taps, own taps and other taps are considered as improved sources whereas rivers, lakes and other sources are not.

This definition gives a very high access ratio e.g. 86 % of the urban population in 2005.

4.7.2 Installed Water Supply Coverage

This is the method used by the Regulator and Providers today. It gives a lower cover ratio than the CSO method as people using institutional, own supply and other peoples' house connections are not included. On the other hand it will give a higher ratio than the Sustainable Safe Water Supply Coverage as qualitative and quantitative aspects are not considered.

4.7.3 Sustainable Safe Water Supply Coverage

This is the method that gives the lowest coverage ratio as strict conditions will all have to be fulfilled and the supply has to be sustainable and safe from all technical, social-economic, financial, qualitative and quantitative perspectives.

4.8 Planned Water Supply Development

4.8.1 Framework for development

Major activities for the physical and managerial urban water supply development are shown in Table 4.11.

Table 4.11 Development framework

Physical and Managerial Urban Water Supply Development		
Activity No.	**Major Activities**	**Main Implementation Period**
1	Emergency measures and rehabilitation of all existing core urban water supply systems.	2011-2015
2	Reduction of non-revenue water through systematic survey and analyses, installation of sector meters, 100 % consumer meters and repair of leakages in all supply systems	2011-2015
3	Mapping WSS system areas through topographical survey and inventory of pipelines and other WSS facilities	2012-2020
4	Preparation of District Master Water Plans	2012-2020
5	Coverage increase of the water supply distribution into all peri-urban areas with at least communal and public taps. Minimum supply service to 80 % of the population by 2015.	2011-2020
6	Maintaining Installed coverage through rehabilitation and upgrading of distribution systems and service quality in already covered areas.	2011-2020
7	Further upgrading of water supply services in earlier unplanned but later planned and upgraded peri-urban areas constituting 80 % of all these areas.	2015-2030
8	Coverage increase in expanded and new developed urban areas.	2015-2030
9	Development of additional sources, transmission systems and water treatment facilities.	2015-2030
10	Securing of the financial sustainability through demand management, progressive tariffs covering all O&M and expansion costs, effective procurement and energy use and improved collection efficiency.	2011-2015
11	Protection of underground and surface water sources.	2011-2020
12	Improvement of service level and quality through e.g. Water Watch Groups involvement, PTIs, regulation by incentives, capacity building, staff changes and the use of the private sector.	2011-2020
13	Fully operationalise the recently established CUs in Luapula and Eastern.	2011-2015

4.8.2 On-going activities

Main ongoing activities are shown in Table 4.12. It should be noted that several projects comprise both water supply and sanitation although the water supply components dominate completely both activity-wise and cost-wise.

Table 4.12 On-going activities in urban water supply and sanitation

Project	Area	Financier	Start of project	Contract/Project costs million USD *
Rehabilitation and extension of WSS	Southern Province Central and Northern Region	KfW/GRZ	June 2005	13.6
Eight Centres WSS	Central Province	AfDB/GRZ	Nov 2006	28.2
Performance Improvement	Northern Province	DCI		1.2
Support to Peri-Urban and Low-Cost Housing WSS	Western Province WSC	Danida//GRZ	Jan 2006	8.4
Support to Peri-Urban and Low-Cost Housing through DTF		Danida//GTZ/GRZ	2007	2.0
Design and Supervision for WS in 6 small towns	Northern, Luapula and Copperbelt Province.	BADEA		6.8
PSRP. Retrenchment	Copperbelt Province	GRZ	2007	4.2
Formation of WS utilities	Eastern and Luapula Provinces	KfW/Danida	2007	1.0
Zambia UWSS infrastructure maintenance	Lusaka, Ndola, Kitwe	China		8.6
Water sector performance improvement programme	Lusaka	WB	2008	7.3
Operation and maintenance programmes	Focus on areas with absence of CUs	GRZ	2007	7.9
Lusaka Master Plan	Lusaka	JICA	2007	4.4
				Total 93.6

* Exchange rates used: 1 USD= ZK 4000 = Euro 0.66 = DKK 4.7 = Yuan 7.0

Adapted from MLGH, Urban Water Supply and Sanitation Section, Annual Report 2007 and Study on comprehensive Urban Development Plan for the City of Lusaka, Interim Report, July 2008, MLGH/LCC/JICA

4.8.3 Overview of Activity Framework and Time Schedule for Water Supply

Table 4.13: Overview of Activity Framework and Time Schedule for Water Supply

Activity	By whom	2011 2015 2030
Fully operationalise the latest established CUs in Luapula and Eastern.	UWSSS/LA	
Reduction of non-revenue water through systematic survey and analyses, installation of sector meters and meters for all consumer connections.	CU	
Emergency measures and rehabilitation of all existing core urban water supply systems.	CU	
Mapping WSS system areas through topographical survey and inventory of pipelines and other WSS facilities	CU/LA	
Coverage increase of the water supply distribution into all peri-urban areas with at least communal and public taps.	CU	
Maintaining physical coverage through rehabilitation and upgrading of distribution systems and service quality in already covered areas.	CU	
Upgrading of water supply services in earlier unplanned but later upgraded peri-urban areas	CU	
Coverage increase in expanded and new developed urban areas.	CU	
Development of additional sources, transmission systems and water treatment facilities.	CU	
Securing of the financial sustainability through improved management	CU	

Activity	By whom	2011 2015 2030
Protection of underground and surface water sources	CU/LA	
Enhancing quality of service through improved management	CU	
Preparation of District Master Water Plans	CU/LA	

Legend

5. SANITATION DEVELOPMENT PROGRAMME

Urban sanitation is planned to be developed during the period 2011 to 2030 in accordance with the principles outlined in this chapter.

5.1 Policy, Objectives and Strategy

An overview of the relevant policy documents and the legislation has been given in chapter 2 and 3. Consolidation of policies, legislation, present status and key sector issues with regard to urban sanitation result in the following synthesis:

5.1.1 Policy

- to enable all urban residents, commerce, institutions and industry to have access to sanitation and utilise it in an efficient and sustainable manner for improved health, well-being and livelihood by 2030.

5.1.2 Objectives

- to provide adequate, safe and cost-effective sanitation services to 77 percent by 2015 and 90 percent by 2030 of the urban population with due regard to environmental protection.
- to charge a reasonable amount for the development and use of sanitation facilities ensuring that it supports the infrastructure development and the effective management of the sanitation systems so that its utilisation is sustainable and equitable.
- to implement all projects in a manner that mitigates environmental degradation.
- to always consider safe disposal of the resultant wastewater when planning water supply.
- to manage water and sanitation facilities so as to reduce the incidence of water and vector-borne diseases and parasitic infestations.
- to promote legal and institutional framework capacity enhancement.
- to implement measures which enhance mainstreaming of cross-cutting issues.

5.1.3 Strategy

Development and provision of sustainable sanitation service to more people in core urban and peri-urban areas through:

Policy measures

- increased relative focus on enhanced sanitation coverage and service level in urban and peri-urban areas.
- promotion of a holistic approach to improve the health, wellbeing and livelihood of the urban population through the co-ordination of water supply, sanitation, solid waste management and drainage development activities.
- support to the national UWSS development that focuses on enhancing institutional capacities, policy, and legal frameworks, information management for planning and development at national, provincial, and district levels.

- commercialisation, private sector participation and independent regulation.
- undertaking, supporting and promoting joint revenue collection for water, sanitation and drainage.
- promotion of effective effluent monitoring programmes based on enforceable water quality guidelines and standards.
- development of sector investment plans at scheme and national levels to promote financial sustainability, extension of services and equitable service provision.
- harmonising coverage concepts, and minimum and desired service levels.
- promoting the establishment of new and strengthening of existing Water, Sanitation and Hygiene Education (WASHE) Committees at national, provincial, district, and subdistrict levels;
- integration of international environmental conventions in national laws and local programmes.
- promoting the concept of the polluter pays principle in waste water pricing strategies.

Planning measures

- improved co-ordination between Service Providers and Planning Authorities regarding residential and commercial land development.
- upgrading of 80 percent of unplanned urban settlements by 2030 to facilitate provision of adequate sanitation there.
- mapping sanitation system through topographical survey of sewers and other facilities.
- detailed inventory of the state of repair and functioning of existing sanitation facilities and faecal sludge management in all towns.
- developing sanitation master plans for districts and towns.
- developing sanitation contingency master plans for droughts and floods.
- conducting adequate feasibility studies before undertaking works.
- protection of effluent recipient water courses and groundwater from pollution.
- support to investment programmes that aim at increasing access to safe, adequate sanitation to 77 percent of the urban and peri urban populations by 2015.
- development of sector investment plans at scheme and national levels to promote financial sustainability, extension of services and equitable service provision.
- perform a field survey to investigate the percentage of existing acceptable improved pit latrines by 2012.

Management measures

- the generation of revenue by adequate pricing of sanitation services on the concept of cost recovery for the effective management and development of sanitation infrastructure.
- introducing penalties that will encourage the timely payment of the tariffs.
- incorporation of provisions for environmental assessment, biological diversity impact assessment and management in all economic and development activities;
- maintaining of a representation of ecosystems for the benefit of current and future generations.
- promoting effective water pollution monitoring and prevention programmes based on enforceable water quality guidelines and standards.

- promotion of community ownership and participation, community contributions, definition of basic service levels, and regulation of service provision in peri-urban areas.
- improvement of operation and maintenance of sanitation systems by increasing financial and personnel resources.
- promotion of the use of expertise to assist CUs and local authorities to improve management, planning, implementation and operation of urban sanitation facilities.

Infrastructure development measures

- emergency measures to rehabilitate existing sewerage infrastructure before 2015.
- encouraging the development of appropriate sanitation technologies and industrial processes that bear on waste water reduction and improved waste water quality.
- ensuring that 90 percent of polluting industrial facilities comply with environmental legislation by 2030.
- improving water borne sanitation systems and sludge disposal using appropriate technology as well as proper design, selection and disposal sites and transport.
- ensuring that all hospitals, clinics, public places and residential areas have appropriate sanitation and waste and effluent disposal systems.
- expansion of coverage with improved sanitation to 77 % by 2015.

5.2 Sanitation System Development Standards

5.2.1 Population projection

Population projections shall be derived from the Central Statistics Office projection using the populations enumerated during the 1980, 1990 and 2000 censuses and future censuses considering other complementary studies such as the Baseline Study (2004) and detailed project studies.
For further guidance see 4.3.1 – 4.3.3.

5.2.2 Waste Water Quantity

For water consumption quantities refer to 4.3.2.1 – 4.3.2.6.

Waste water quantities can be assumed to be a percentage of the consumed water as follows:

Public standpipes and communal taps:	0 %
Individual connections, low income:	75 %
Individual connection, high income:	60 %
Non-domestic connections:	90 %

5.2.3 Waste Water Quality

The requirements on effluent and waste water discharged into aquatic environments are stipulated in the Statutory Instrument No. 72 of 1993 which refer to The Environmental Protection and Pollution Control Act, 1990 and The Water Pollution Control (Effluent and Waste Water) Regulations,1993.
There are limits given of 58 parameter and the most commonly applied parameters are shown in Table 5.1.

Table 5.1 Commonly Applied Effluent Quality Parameters and limits

Parameter	Unit	Value
BOD	mg/l	50
COD	mg/l	90
Colour	Hazen units	20
Turbidity	NTU	15
Total Suspended Solids	mg/l	100
Settleable matter	mg/l	0.5
Total Coliforms	No./100 ml	25000
Faecal Coliforms	No./100 ml	5,000

Adapted from Statutory Instrument No.72, third schedule

5.3 Sanitation Standards

According to the Water Supply and Sanitation Act (1997) the service providers are obliged to deal with all sanitation.

5.3.1 Off-site sanitation

Off-site sanitation refers to sanitation systems in which excreta are collected from individual houses, commerce, institutions, industry and public toilet facilities and carried away disposal and treatment through pipes. Two main types are used:

- Sewer networks with a treatment plant;
- Sewer networks with a communal septic tank, which has to be emptied when full.

5.3.2 On-site sanitation

On-site sanitation facilities are sanitation systems which collect and dispose the waste at the same place where the toilet is installed.
On-site sanitation facilities are associated with individual household latrines, but also include facilities shared by several households living together on the same plot or in the immediate neighbourhood.

The following technology options are considered as appropriate:

- Connection to an individual septic tank;
- Pour flush latrine;
- Ventilated improved pit latrine (VIP);
- Ecosan (Urine-diversion latrine);
- Compost latrine;
- Improved single-pit latrine (provided with structurally safe squatting plate and superstructure).

5.3.3 Faecal Sludge Management

Safe collection, transport, treatment and disposal of faecal sludge from all septic tanks and those latrines from which the owner wants to remove the sludge shall be an intergral and mandatory part of the sanitation system in each town.

5.3.4 Service Levels

Definitions of service levels for sanitation are shown in Table 5.2.

Table 5.2 Sanitation Service Level

	Urban and Peri-Urban Areas			Peri-Urban Areas
	High Cost Housing	Medium Cost Housing	Low Cost Housing	
1. ON-SITE SANITATION				
Service Level 1 -MINIMUM	Septic tank and percolation	Septic tank and percolation	Ventilated improved (VIP) pit	Improved traditional or communal latrine
Service Level 2 -MEDIUM	Septic tank and percolation	Septic tank and percolation	Septic tank and percolation	Ventilated improved (VIP) pit
Service Level 3 -MAXIMUM	Septic tank and percolation	Septic tank and percolation	Septic tank and percolation	Compost or Ecosan latrine
2. OFF-SITE SANITATION				
Service Level 1 -MINIMUM	Sewer connection	Communal septic tank	Communal septic tank	Not generally available
Service Level 2 -MEDIUM	Sewer connection	Sewer connection	Communal septic tank	
Service Level 3 -MAXIMUM	Sewer connection	Sewer connection	Sewer connection	

5.4 Service Delivery Standards

The Water Supply and Sanitation Act No. 28 of 1997 (5.12 vi – A) requires providers to ensure efficient, affordable and sustainable water supply and sanitation services within the service areas. This implies that the providers must guarantee a certain and defined level of services to the customer for a specified price ensuring therefore value for money.

The Regulator has developed service indicators with time-bound benchmarks to be adhered to by the licensed providers (NWASCO, Guidelines on Required Minimum Service Level, December 2000).

5.5 Operational Benchmarks

See section 4.6.

5.6 Sanitation Coverage and Access Definitions

5.6.1 Sanitation User Coverage

This concept is used by CSO in their Living Condition Monitoring Report access to toilet facilities. Own flush toilet, Communal flush toilet, Own pit, Communal pit and Other are numerated. There is no definition of the concept improved sanitation
This definition gives a very high access ratio e.g. 99.6 % of the urban population in 2004.

5.6.2 Installed Sanitation Coverage

This is the method used by the Regulator and Providers today but their reports deal only with the category sanitation based on sewer networks. The reported coverage include sewerage connections which are not functioning adequately due to e.g. clogged sewers or flush toilets which can not be used because lack of water. As the Providers are obliged to deal with sanitation for all licensed areas they should on all sanitation facilities in all urban areas.
This method gives a lower coverage ratio than the CSO method as people using institutional, public and other peoples' sanitation facilities are not included. On the other hand it will give a higher ratio than the Sustainable Sanitation Coverage as qualitative and quantitative aspects are not considered.

5.6.3 Sustainable Safe Sanitation Coverage

This is the method that gives the lowest coverage ratio as strict conditions will all have to be fulfilled and the sanitation has to be sustainable and safe from all technical, social-economic, financial, qualitative and quantitative perspectives.

5.7 Planned Sanitation Development

5.7.1 Framework for development

Table 5.4 Development framework

Physical and Managerial Urban Sanitation Development		
Activity No.	**Major Activities**	**Main Implementation Period**
1	Detailed inventory of the state of repair and functioning of existing sanitation facilities and faecal sludge management in all towns	2011-2015
2	Mapping WSS system areas through topographical survey of pipelines and other WSS facilities	2012-2020
3	Emergency measures and rehabilitation of all existing urban sewerage systems, wastewater treatment works and faecal sludge management facilities.	2011-2013
4	Coverage increase of sanitation facilities in all peri-urban areas with at least improved sanitation. Minimum service level to 80 % of the population by 2015.	2011-2015
5	Maintaining Installed Sanitation Coverage through rehabilitation and upgrading of sanitation systems and service quality in already covered areas.	2011-2015
6	Upgrading all areas to sanitation service level 1 by 2015, level 2 by 2020 and level 3 by 2030.	2011-2030

7	Coverage increase in expanded and new developed urban areas.	2015-2030
8	Development of additional wastewater treatment and faecal sludge management facilities.	2015-2030
9	Securing of the financial sustainability through sanitation surcharges on progressive water tariffs covering all O&M and expansion costs.	2011-2015
10	Institutionalisation of wastewater and effluent quality monitoring programme and organisation.	2012-2015
11	Improvement of service level and quality through e.g. User Groups participation, regulation by incentives, capacity building, staff changes and the use of the private sector.	2011-2015
12	Preparation of District Master Sewerage and Sanitation Plans	2012- 2020
13	Implementation of Ecosan and Compost sanitation pilot projects	2012-2015

5.7.2 On-going activities

Main ongoing activities are shown in Table 5.3. It should be noted that several projects comprise both water supply and sanitation and that the water supply components dominate completely both activity-wise and cost-wise.

Table 5.5 On-going activities in urban sanitation

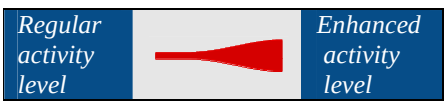
Project	Area	Financier	Start of project
Rehabilitation and extension of WSS	Southern Province Central and Northern Region	KfW/GRZ	June 2005
Eight Centres WSS	Central Province Nampundwe, Serenje	AfDB/GRZ	Nov 2006
Support to Peri-Urban and Low-Cost Housing WSS	Western Province WSC	Danida//GRZ	Jan 2006
PSRP. Retrenchment	Copperbelt Province	GRZ	2007
Formation of WS utilities	Eastern and Luapula Provinces	KfW/Danida	2007
Water sector performance improvement programme	Lusaka	WB	2008 (USD 1 million)
Operation and maintenance programmes	Focus on areas with absence of CUs	GRZ	2007
Lusaka Master Plan	Lusaka	JICA	2007

Adapted from MLGH, Urban Water Supply and Sanitation Section, Annual Report 2007 and Study on comprehensive Urban Development Plan for the City of Lusaka, Interim Report, July 2008, MLGH/LCC/JICA

5.7.3 Overview of Activity Framework and Time Schedule for Sanitation

Table 5.4. Overview of Activity Framework and Time Schedule for Sanitation

Activity	By Whom	2011 – 2015 – 2030
Inventory and topographical survey of sewerage systems and sanitation facilities	CU	
Emergency measures and rehabilitation of all existing core urban sewerage systems and treatment works.	CU	
Coverage increase in all peri-urban areas with improved sanitation.	CU	
Maintaining Installed coverage through rehabilitation and upgrading of sewerage systems and service quality in already covered areas.	CU	
Pilot projects testing new on-site sanitation solutions	CU	
Upgrading of sewerage services in earlier unplanned but now planned and upgraded peri-urban areas	CU	
Coverage increase in expanded and new developed urban areas.	CU	
Development of additional sewerage treatment facilities.	CU	
Developing faecal sludge removal, treatment and management systems	CU	
Institutionalisation of wastewater quality monitoring programme and organisation.	CU/ECZ	
Enhancing level and quality of service through improved management and O&M	CU	
Preparation of District Master Sewerage and Sanitation Plans	CU/LA	



6. SOLID WASTE DEVELOPMENT PROGRAMME

6.1 Policy, Objectives and Strategy

An overview of the relevant policy documents and the legislation has been given in chapter 2 and 3. Consolidation of policies, legislation, present status and key sector issues with regard to urban solid waste management result in the following synthesis:

6.1.1 Policy

- to enable all urban residents, commerce, institutions and industry to have a solid waste collection and transportation system and utilise it in an efficient and sustainable manner for improved health, well-being and livelihood by 2030.

6.1.2 Objectives

- to provide adequate and cost-effective solid waste collection, transportation, treatment and deposition with due regard to environmental protection.
- to ensure that 80 percent of the waste is collected and transported by 2030.
- to charge a reasonable amount for solid waste management services ensuring that it supports the effective management so that it is sustainable and equitable.
- to keep the residential areas clean so as to reduce the incidence of diseases and parasitic infestations.
- to prevent blockage of sewers and drains by waste.
- to promote legal and institutional framework capacity enhancement.
- to implement measures which enhance mainstreaming of cross-cutting issues.

6.1.3 Strategy

Development and provision of sustainable solid waste management service to more people in urban areas through:

- reviewing current SWM achievements regarding implementation of the strategies outlined in the National Solid Waste Management Strategy (NSWMS) and the Private Sector Participation in Solid Waste Management.
- application of the strategic concepts expounded in the NSWMS regarding minimization of waste generation, storage, improved co-ordination among stakeholders, levies and incentives, re-use and recycling, database and establishment of classification system.
- development and adoption of a Waste Framework Law to harmonize various acts and to clarify roles and responsibilities.
- development of Specific Regulations for solid waste generation.
- creation of an environment for recycling and re-use.
- capacitating local authorities to develop and manage municipal waste systems including land fill sites.
- developing solid waste master plans.

- formation of commercial utilities or independent solid waste management units under the jurisdiction of Local Authorities depending on the specific situations.
- mobilisation of funds for assisting management of disposal sites.
- mobilisation of resources for capacity building of Local Authorities.
- undertaking, supporting and promoting joint revenue collection for water, sanitation and solid waste management by CUs.
- ensuring that all hospitals, clinics, public places and residential areas have appropriate waste disposal systems.

6.2 Solid Waste Development Standards

6.2.1 Population Projection

Population projections shall be derived from the Central Statistics Office projection using the populations enumerated during the 1980, 1990 and 2000 censuses and future censuses considering other complementary studies such as the Baseline Study (2004) and detailed project studies.

For further guidance see 4.3.1 – 4.3.3.

6.2.2 Solid Waste Quantities

6.2.2.1 Waste Factors

There is limited reliable information available on waste generation in Zambia but the waste factors in Table 6.5 can be used to estimate waste generation.

Table 6.5 Waste Factors assumed for use in NUWSSP

Areas	Waste factors (range) kg/capita/day	Waste factors (best estimate) kg/capita/day
Conventional urban areas, including high, medium and low-density housing	0.35 – 0.6	0.45
Peri-urban areas	0.2 – 0.5	0.35
Rural areas	0.1 – 0.4	0.25

6.2.2.2 Estimated Waste Generation

Planning can be based on Table 6.7 *that* provides estimates for selected cities and towns.

Table 6.7 Estimated Waste Generation from selected municipalities in Provinces in Zambia (2004)

Cities and Sample Municipalities in the Provinces	Estimated population (2004)	Waste generation tonnes/ year	Waste generation tonnes/ year	Waste generation tonnes/ year
	(x1000)	Conventional Urban Areas	Peri-urban Areas	Total
Central:				
Chibombo	264	21,703	16,880	38,583
Kabwe	187	15,335	11,928	27,263
Copperbelt:				
Kitwe	411	33,720	26,227	59,946
Ndola	410	33,630	26,157	59,787
Eastern:				
Chipata	402	33,002	25,669	58,671
Luapula:				
Mansa	197	16,142	12,555	28,698
Lusaka:				
Lusaka	1,185	58,382	105,953	164,335
Kafue	164	13,452	10,463	23,915
Northern:				
Kasama	187	15,335	11,928	27,263
North-western:				
Solwezi	223	18,295	14,229	32,524
Southern:				
Choma	224	18,385	14,299	32,684
Mazabuka	222	18,205	14,160	32,365
Livingstone(1)	112	9,237	7,184	16,421
Western:				
Kaoma	178	14,618	11,369	25,987
Mongu	177	14,528	11,300	25,828

(1) Waste from tourists and tourist hotels has not been included.

6.2.2.3 Implications for a Typical Town

In the short-term councils should aim to provide a basic minimum level of service with, for example, a few well-maintained tractor-trailer / basic truck type vehicles for conventional urban areas and skip lifting vehicles for markets and peri-urban areas.

6.2.2.4 Future Waste Generation

Following general trends of similar countries to Zambia, the solid waste generation in Zambian municipalities is expected to increase by about 30% by the year 2015 from about 600,000 tonnes/year to nearly 800,000 tonnes/year. The strategy for private sector participation should take into account the projected increases in waste generation.

6.3 Solid Waste Management

Regulation, Policy and Guidance

The solid waste management shall be regulated by the Environmental Council of Zambia. The Ministry of Local Government shall provide Policy direction, guidelines and procedures in the solid waste management sector.

Establishment of Solid Waste Management Units or Companies

Two options for the Solid Waste Management exist; one in which Local Authorities forms a separate Unit and the other where they form SWM Company.

6.4 Planned Solid Waste Development

6.4.1 Framework for Development

Major activities for the urban solid waste management development are shown in Table 6.8___

Table 6.8 Solid Waste Management Development

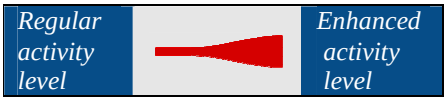
Activity No.	Component	Major Activity	Implementation Period
1.0	Component 1 - Strengthen the Financial and Cost Recovery Framework	Activity 1.1 - Identify the existing costs of SWM services at Local Authorities	2011 - 2012
		Activity 1.2 - Improve financial systems related to SWM at Local Authorities	2011 - 2013
		Activity 1.3 - Plan and implement systems for charging SWM fees	2012 - 2015
		Activity 1.4 - Increase grant allocation to Local Authorities on SWM	2012 - 2014
		Activity 1.5 - TA project on wider financial improvements at Local Authorities	2012 - 2014
2.0	Component 2 - Strengthen the Institutional Framework	Activity 2.1 – Assign responsibility for strategy implementation	2011
		Activity 2.2 - Restructure local roles in relation to monitoring and enforcement	2012 - 2014
3.0	Component 3 - Planning of affordable and sustainable SWM	Activity 3.1 – Develop and implement SWM Plans by Local Authorities	2013 - 2015

	systems	Activity 3.2 – Plan longer-term system of waste collection by Local Authorities	2012 - 2020
		Activity 3.3 – Clean-up of illegal dump sites	2011 – 2015
		Activity 3.4 – Plan sanitary landfill sites in longer-term	2015 – 2030
		Activity 3.5 – Plan recycling initiatives in longer-term	2013 – 2030
4.0	Component 4 - Strengthen the Capacity of MLGH and Local Authorities	Activity 4.1 –Framework for Strengthening long-term capacity on SWM	2012 – 2014
		Activity 4.2 - TA on capacity building at MLGH/Local Authorities in SWM	2012 – 2015
5.0	Component 5 - Legal and Other Instruments	Activity 5.1 – Development and Implementation of Waste Framework Law	2012 – 2015
		Activity 5.2 – Use of Guidelines on SWM for Local Authorities	2013 on wards
6.0	Component 6 - Strengthening Monitoring and Enforcement	Activity 6.1 – Strengthen Resources/ Systems for Monitoring and Enforcement	2012 – 2015
7.0	Component 7 - Strengthening Private Sector Capacity	Activity 7.1 – Amend national policy in areas that will encourage PSP in SWM	2012 – 2015
		Activity 7.2 –Initiatives at local level to build capacity of small operators	2012 – 2020
8.0	Component 8 - Raising Stakeholder Awareness	Activity 8.1 – Involve local communities in planning SWM at Local Authorities	2013 – 2020
		Activity 8.2 –National strategy, etc, on raising awareness/ education on SWM	2011 - 2030
9.0	Component 9 - Pilot Projects	Activity 9.1 – Annual plan for pilot projects	2012 – 2030

6.4.3 Overview of Activity Framework and Time Schedule for Solid Waste Management

Table 6.9: Overview of Activity Framework and Time Schedule for SWM

Activity	ByWhom	2011 – 2015 – 2030
Develop local SWM plans by Local Authorities	LA	
Establish SWM Units or Companies	LA/UWSSS	
Clean-up of illegal dump sites	LA	
Plan and establish landfill sites	LA	
Plan and establish safe system for collection and destruction of hazardous waste from clinics/hospitals and industry	LA	
Enhance level and quality of service through improved management and O&M	LA/SWMC	
Improve financial systems related to SWM	LA/SWMC	
Stakeholder awareness creation and communication activities	LA/SWMC	



7. DRAINAGE DEVELOPMENT PROGRAMME

7.1 Sector context

7.1.1 Stormwater Drainage

Stormwater infrastructure and management in urban areas varies depending on the level of investment in roads: drainage systems tend to be constructed in tandem with road drainage.

In peri-urban areas, where population density is high and the layout of habitation is not formally planned, dwellings and other buildings have generally been built without any integrated plan and the pressure on available land often means that drainage requirements are neglected.

7.1.2 Greywater Drainage

Greywater is the sullage produced from domestic and commercial activities such as cooking, cleaning, washing clothes, bathing etc. It differs from blackwater, in that it does not contain human excreta and the level of pollutant is generally relatively small.
Greywater comprises the largest fraction of wastewater flow from dwellings.

In many domestic situations, greywater is discarded directly onto the ground or onto a convenient waste area or vegetation or roadside storm drain; basically whatever is convenient.
Greywater from clinics and markets is potentially more polluting, with higher organic and chemical content. Such greywater may even be toxic or hazardous, for instance, containing pathological elements from clinics.

7.1.3 Environmental health situation

Deficient or non-existent drainage systems for greywater and storm water contributes substantially to the unhealthy living conditions in all seasons.

7.2 Policy, Objectives and Strategy

An overview of the relevant policy documents and the legislation has been given in chapter 2 and 3. Consolidation of policies, legislation, present status and key sector issues with regard to stormwater and greywater drainage result in the following synthesis:

7.2.1 Policy

- to enable all urban residents, commerce, institutions and industry to have a sustainable stormwater and greywater drainage system for improved health, well-being and convenience by 2030.

7.2.2 Objectives

- to provide adequate and cost-effective stormwater and greywater drainage for protection of residential, commercial, institutional and industrial areas and the environment.
- to keep the core urban and peri-urban areas clean so as to reduce the incidence of diseases and parasitic infestations.
- to prevent the damaging of water supply and sanitation facilities and the pollution of drinking water and raw water resources by flooding and water-logging.

7.2.3 Strategy

Development and provision of sustainable stormwater and greywater drainage in core urban and peri-urban areas through:

Policy

- promotion of a holistic approach to improve the health, wellbeing and livelihood of the urban population and the co-ordination between town planning and the planning of water supply, sanitation, solid waste management and drainage.
- upgrading of 80 percent of unplanned urban settlements by 2030 to facilitate provision of adequate drainage there.
- development and adoption of a Stormater and Greywater Framework Law to harmonize various acts and to clarify roles and responsibilities.
- development of Specific Regulations for drainage systems.
- promoting the generation of revenue by adding a surcharge for ‘sanitation and drainage’ in the water tariffs.

Planning

- applying the Sustainable Drainage Systems (SUD) concept for planning and development of the drainage infrastructure by dealing with runoff close to where the rain falls, managing pollution at its source and protecting water resources.
- development of investment plans for drainage at scheme and national levels to promote extension of equitable provision of drainage systems.
- perform field surveys to investigate the location of areas prone to flooding and developing contingency plans for floods.
- developing of drainage master plans in all towns comprising inventory of the existing drainage infrastructure, topographical survey showing road topography, catchment areas and watercourses, identification of trouble spots and areas prone to flooding, plan for undrained areas and rehabilitation of existing systems.

Management

- to prevent blockage of drains through proper maintenance before, during and after the rainy season by improving management and increasing financial and personnel resources.
- improvement of maintenance systems promotion of the use of expertise to assist Local Authorities to improve management, planning, implementation and maintenance of urban drainage systems.
- promoting the establishment of new and strengthening of existing Water, Sanitation and Hygiene Education (WASHE) Committees at national, provincial, district, and subdistrict levels;

- strengthening coordination and management of environmental health at all levels of care and increasing extension services of the service provider through an Environmental Health Technologist.
- capacitating local authorities to develop and manage municipal drainage systems
- promotion of community participation, and definition of basic service levels, and regulation of service provision in peri-urban areas.
- support to the national UWSS development that focuses on enhancing institutional capacities, policy, and legal frameworks, information management for planning and development at national, provincial, and district levels.

Implementation development

- rehabilitation of existing drainage systems in all town and cities.
- develop and implement drainage pilot projects.
- ensuring that all hospitals, clinics and public places have appropriate greywater disposal and stormwater systems.
- roll out full-scale drainage development projects in core urban and peri-urban areas

7.3 Development Standards

7.3.1 Stormwater

The Sustainable Drainage Systems (SUD) concept should be applied for planning and development of the drainage infrastructure by dealing with runoff close to where the rain falls, managing pollution at its source and protecting water resources.

7.3.2 Greywater

Greywater comprises the largest fraction of wastewater flow from dwellings.

7.3.3 Service Levels

Definitions of service levels for drainage are shown in Table 7.2, 7.3 and 7.4 below.

Table 7.2 Stormwater Drainage Service Level

	Urban Areas			Per-Urban Areas
	High Cost	Medium Cost	Low Cost	
1. ROOF and PLOT DRAINAGE				
Service Level 1 -MINIMUM	soak-a-way	soak-a-way	soak-a-way	Re-use and ad hoc
Service Level 2 -MEDIUM	soak-a-way	soak-a-way	soak-a-way	Re-use and soak-a-way
Service Level 3 -MAXIMUM	soak-a-way	soak-a-way	soak-a-way	Re-use and soak-a-way
2. CATCHMENT DRAINAGE				
Service Level 1 -MINIMUM	engineered	basic engineered	basic engineered	

Service Level 2 -MEDIUM	engineered + SUDS	engineered + SUDS	engineered + SUDS	basic engineered (+ SUD)
Service Level 3 -MAXIMUM	engineered + SUDS	engineered + SUDS	engineered + SUDS	

Table 7.3 Greywater Drainage Service Levels – Domestic

	Urban Areas			Per-Urban Areas
	High Cost	Medium Cost	Low Cost	
1. ON-SITE DISPOSAL				
Service Level 1 -MINIMUM	septic tank	soak-a-way	soak-a-way	Re-use and ad hoc
Service Level 2 -MEDIUM	septic tank	septic tank	soak-a-way	Re-use and soak-a-way
Service Level 3 -MAXIMUM	septic tank	septic tank	septic tank	Re-use and soak-a-way (septic tank for solitary houses with water connection)
2. OFF-SITE DISPOSAL				
Service Level 1 -MINIMUM	sewer connection	n/a	n/a	n/a
Service Level 2 -MEDIUM	sewer connection	sewer connection	n/a	
Service Level 3 -MAXIMUM	sewer connection	sewer connection	sewer connection	

Table 7.4 Greywater Drainage Service Levels – Public Facilities

	Urban and Peri-Urban Areas		
	Clinics	Markets	Schools
1. ON-SITE DISPOSAL			
Service Level 1 -MINIMUM	septic tank	soak-a-way	soak-a-way
Service Level 2 -MEDIUM	septic tank	septic tank	soak-a-way
Service Level 3 -MAXIMUM	septic tank	septic tank	septic tank
2. OFF-SITE DISPOSAL			

Service Level 1 -MINIMUM	sewer connection	n/a	n/a
Service Level 2 -MEDIUM	sewer connection	sewer connection	n/a
Service Level 3 -MAXIMUM	sewer connection	sewer connection	sewer connection

7.3.4 Maintenance Levels

Maintenance activities should be carried out before, during and after each rainy reason in accordance with a detailed work programme.

7.4 Planned Drainage Development

7.4.1 Framework for development

Major activities for the physical and managerial urban drainage development are shown in Table 7.5.

Table 7.5 Development framework for drainage

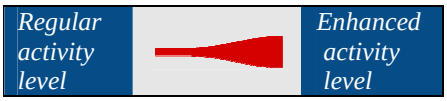
Physical and Managerial Urban Drainage Development		
Activity No.	**Major Activities**	**Main Implemen-tation Period**
1	Develop Master Drainage Plans for towns showing topography and primary draining system	2012-2020
2	Improve the effectiveness of existing drainage systems through systematic programmes for maintenance before, during and after rains	2011-2030
3	Priority activities to alleviate areas worst prone to flooding by construction and rehabilitation of drains; construction of drainage features e.g. diversion channels, stormwater overflow and pumping facilities.	2011-2015
4	Systematic rehabilitation of all physical assets in existing serviced areas.	2012-2020
5	Introduction of SUDs approach to urban drainage design; study of SUDs potential; university research into SUDs systems; SUDs pilot projects; SUDs technology development etc.	2012-2015
6	Research study on condition, practice and re-use of storm and grey water for irrigation to include assessment of availability of water for agriculture; identification of geographical areas where re-use is feasible	2012-2020
7	Upgrading of serviced areas and expansions to additional urban areas where economically viable with priority in peri-urban areas where the problems are most severe.	2015-2030
8	Upgrading all areas to drainage service level 1 by 2015, level 2 by 2020 and level 3 by 2030.	2011-2030
9	Securing of the financial sustainability through the introduction of drainage surcharge on the water bills and fund transfer from Roads.	2012-2015
10	Improve management and budgeting related to drainage at Local Authorities	2011-2015
11	Town Planning introducing planning methodologies to prevent settlements in flood-prone areas and areas dedicated for major drains	2011-2015
12	Stakeholder awareness creation and communication activities	2011- 2030

7.4.2 Overview of Activity Framework and Time Schedule for Drainage

Table 7.6: Overview of Activity Framework and Time Schedule for Drainage

Activity	By Whom	2011 2015 2030
Local Authorities develop Master Drainage Plans for towns showing topography and primary draining system	LA/UWSSS	
Town Planning taking measures to prevent settlements in flood-prone areas and areas dedicated for major drains	LA	
Maintenance of drainage systems through systematic programmes for activities before, during and after rains	LA	
Application of the SUDs approach to urban drainage policy, regulation, design and implementation	LA/UWSSS	
Emergency measures to alleviate areas worst prone to flooding by construction and rehabilitation of drains	LA	
Research on conditions, practice and re-use of greywater	Ed.inst./UWSSS	
Pre-feasibility studies and pilot projects regarding stormwater and greywater drainage	LA	
Improve management, budgeting and revenue collection related to drainage at Local Authorities	LA/NWASCO	
Stakeholder awareness creation and communication activities	LA/UWSSS	

Legend



8. POLICY DEVELOPMENT PROGRAMME

8.1 Context

The sector policies and legal framework as described in section 2.1 contain policy measures with respect to UWSS. Though generally sound in terms of basic principles, there are a number of shortcomings, including: definitions of roles and responsibilities for UWSS ; inadequate provisions for sector coordination; community ownership of facilities is unclear; community contributions are not explicit, leaving room for differences from project to project; no explicit definition of basic service levels for UWSS; and the policy is also silent regarding investment support for individual or household sanitation facilities, customer capital contributions, cost coverage of capital and operation & maintenance costs, cross subsidisation between customer categories and depreciation principles.

8.2 Objective

- to develop a comprehensive Water Supply and Sanitation Policy and Legal Framework that facilitates effective development and management of the WSS sector in Zambia.

8.3 Strategy

- a consultative approach will be adopted to elaborate a comprehensive WSS policy and legislation, jointly for urban and rural WSS including components addressing urban water supply and sanitation.
- particular focus will be placed on elaborating policy on sanitation and definitions of roles and responsibilities for UWSS.
- national and international consultants will be engaged to facilitate a consultative process involving a broad range of stakeholders at national and district levels, including NGOs and the private sector.

8.4 Planned policy development

8.4.1 Output and activities

A comprehensive Water Supply and Sanitation Policy and Legal Framework with clear definition of responsibilities for UWSS, sector coordination and regulation, and participation by communities and CBOs. Following the adoption of the NWP policy, the formulation of the legal revisions to the current legislation for the UWSS sector will follow.

8.4.2 On-going activities

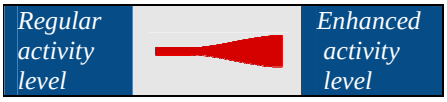
The revised National Water Policy (NWP) undertaken under the auspices of MEWD was recently (2010) approved by the Government. The revised NWP focuses on water resource issues and is very general in terms of UWSS related issues. Detailed policies and regulations will therefore have to be developed for water supply and sanitation.

8.4.3 Overview of Activity Framework and Time Schedule for Policy Development

Table 8.1: Overview of Activity Framework and Time Schedule for Policy Development

Activity	By Whom	2011	2015	2030
Policy review study to identify need and develop proposals for changes, complementary additions and clarifications of policies, regulations and legislation pertaining to UWSS	UWSS			
Formal adoption of revised Water Policy and other policies, regulations and laws pertaining to UWSS	MLGH/GRZ			
Follow up and development of policies, regulations and legislation pertaining to UWSS	UWSS/NWASCO			

Legend



9. CAPACITY DEVELOPMENT PROGRAMME

9.1 Sector Context

It is generally recognised that the capacity to plan and implement programmes and projects in the sector, as in other sectors, is weak and needs to be addressed. Capacity constraints are experienced both at central government level and at district level. The private sector is critical for the potential to improve water supply and sanitation systems as expected. However, the sector faces competition for qualified staff from a growing mining industry and from other countries in the region.

9.2 Objectives

- to improve the quality, efficiency, cost-effectiveness and delivery of urban water supply and sanitation services
- to develop the capacity required for the implementation of the NUWSSP.

9.3 Strategy

The FNDP structural policies include enhancement of the efficiency of the public service delivery system through the Public Service Reform Programme (PSRP). The PSRP focuses on three main areas as described below.

Public Expenditure Management and Financial Accountability Reforms (PEMFA)
Public Service Management (PSM) Project
Decentralisation
The DIP has not yet been approved officially by the Cabinet.

9.4 Planned capacity development

9.4.1 Output and activities

The focus will be on facilitation and support of the Service Providers and in the environment they operate.

Output	Activities
1. Improved operational capability of Service Providers to give water supply and sanitations services	Develop and implement HRD plan based on training needs assessment for the CUs and LAs
	Train peri-urban WSS units in the CUs
	Assess current management and O&M routines and implement improvements
	Train water quality and surveillance staff
	Assess needs and establishment of Thematic Capacity Building Network for Service Providers
	Develop capacity to facilitate construction of on-site sanitation

	Develop capacity to use participatory methods in WSS projects
2. Improved capability of Government Institutions support the Service Providers	Assess organisational, management and training needs at the UWSSS at MLGH for the purpose of handling policy reform process and co-ordination of project support.
	Assess organisational, management and training needs at NWASCO and implement improvements
	Assess organisational, management and training needs at DTF and implement improvements
	Inform and train stakeholder regarding the Financing Mechanism for NUWSSP
	Develop standard forms for contracts between Financiers and Service Providers
	Develop guidelines and criteria for project selection and financing
	Develop guidelines for procurement of consultancy services for Service Providers
	Develop Water Supply, Sanitation, SWM and Drainage planning and design guidelines for Peri-Urban and Urban Areas for Service Providers
	Develop Water Supply, Sanitation, SWM and Drainage standard specifications for Service Providers
	Roll out fully to all CUs the regulation by Incentive Performance Mechanism for Service Providers
	Develop communication, information and advocacy materials for Government and Service Providers
3. Improved capability of Educational Institutions to offer training and education required by the WSS sector	Curricula development in WSS subjects at diploma, graduate and post-graduate levels at the University of Zambia, Copperbelt University and the Natural Resources Development College.
	Financial assistance to UNZA and NRDC to enhance the quantity and quality of the WSS education
	Support of faculty exchanges between universities and colleges in Zambia and other countries.
	On-the-job training of students studying WSS subjects.
4. Improved capability of the Private Sector and NGOs to give service to the WSS sector	Develop and implement HRD plan based on training needs assessment for consultants active in the WSS sector
	Develop and implement HRD plan based on training needs assessment for contractors and artisans active in the WSS sector
	Develop and implement HRD plan based on training needs assessment for NGOs active in the WSS sector

9.4.2 On-going activities

JICA is through the Capacity Development Programme for Provision of Decentralised Services (CDPPDS) supporting several components of the DIP. This includes capacity building of District Councils regarding organisational structure and staffing; development planning/budgeting as well as monitoring and evaluation; financial management and audit capacity; and of Central Government to train, monitor and supervise Councils.
JICA is also supporting MLGH targeting CU middle management staff concerning P-U WSS.

Danida supports capacity building through its Water Sector Programme Support (2006 – 2011). In the Peri-Urban and Low-cost housing component direct UWSS capacity building support is provided to MLGH through assistance to DHID, the CUs, donor coordination and HRD.
Capacity building support is also specifically given to NWASCO, DTF, Western Water and Sewerage Company and to Luapula Province.
Indirect support to UWSS is also given through the Rural Water Supply and Sanitation and the Integrated Water Resources Management components of the Danida project.

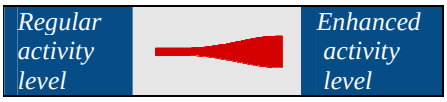
9.4.3 Overview of Activity Framework and Time Schedule for Capacity Development

Table 9.1: Overview of Activity Framework and Time Schedule for Capacity Development

Target	Activity	By whom	2011 2015 2030
Service Providers	Develop and implement HRD plan for Service Providers comprising management, O&M, facilitation, participatory methods and surveillance	CU	
	Assess the needs and establish for a Thematic Capacity Building Network for Service Providers	UWSSS/CU	
	Recurrent HRD for Service Providers	CU	
Government Institutions	Develop and implement organisational and HRD needs for the MLGH, UWSSS, NWASCO and DTF	UWSSS	
	Inform and train UWSS stakeholder regarding the functioning of the Financial Mechanism	UWSSS	
	Develop criteria and guidelines for project selection, procurement of services, planning and design of WSS, drainage and SWM,	UWSSS	
	Develop EIC and advocacy materials for Government and Service Providers	UWSSS	
	Stakeholder awareness creation and communication activities	UWSSS	

Target	Activity	By whom	2011 – 2015 – 2030
Educational Institutions	Development of curricula in WSS subjects at universities and colleges, and student on-the-job training	UWSSS/ Ed.Inst.	
	Enhancement of quantity and quality of WSS education at universities and colleges	Ed.Inst.	
	Faculty exchange between Zambian and universities and colleges abroad	Ed.Inst.	
Private Sector	Develop and implement HRD plans for consultants, contractors, artisans and NGOs active in the UWSS sector	UWSSS/Priv. Sect.	

Legend



10. INFORMATION MANAGEMENT DEVELOPMENT PROGRAMME

10.1 Context

There is no coherent and reliable information system on all policy areas of the water and sanitation sector which is relevant to management and planning needs as well as to FNDP and MDG reporting.
The stake-holding institutions tend to focus their data collection on isolated issues not taking into account related information demands even within their own area of competence. There is very limited regular inter-institutional exchange of data for policy purposes.

10.2 Objectives

- establishment of a harmonised and comprehensive information system on urban and rural water supply and sanitation together with streamlined reporting procedures and encompassing all concerned ministries and organizations.
- harmonisation of definitions in line with planning and development, regulation, FNDP and MDG monitoring requirements.

10.3 Strategy

Development of an Information system through:

- establishment of common reporting standards and harmonised definitions by a joint task force.
- integration of the standards and definitions into the work plan of the CSO.
- observation at collection points and at district level of the common reporting standards and definitions.
- development of the information collection, recording and transmitting capacities in a cross-sectional way.
- institutionalisation of the present information flow among line ministries and the CSO.
- delineation of roles and responsibilities between different ministries and local administrations.
- inclusion of Geographical Information Systems (GIS) in the urban and rural information systems.
- disaggregation of data and reports on towns, systems and different settlement areas.
- increased monitoring and evaluation of the information management activities done by CUs/LAs.
- increased capacity development of IM organisations and staff.
- setting up a decentralised comprehensive and standardised information system which integrates information from all concerned line ministries in MLGH.

10.4 Planned information management development

10.4.1 Output and activities

Table 10.1: Output and activities

Output	Activities
1.Definitions of coverage and indicators agreed	Agreement on indicators within the WSS sector conforming to international and regional indicators and National programmes.
	Drafting and presentation of definitions to CSO
	Workshop or meeting CSO to harmonise indicators
	Incorporating indicators in the WSS monitoring mechanisms.
2. Starting point for measurement (Where we are, including MDGs assessments)	Information sharing on agreed indicators with all sector actors, including also commercial utilities.
	NWASCO and Commercial Utilities submit WSS status reports to MLGH for compilation
	DHIDemination meeting with for establishing of WSS status
	Finalisation of WSS status report
3. WSS Information System developed	Development of specifications of system by stakeholders in terms compatibility/ linking/ interfacing requirements regarding other systems such as NWASCO, RWSSP Information system, WRM,, CSO, Ministry of Health, etc.
	Selection of technical specifications that allows (1) easy updating, (2) data consistence (3) allows several user levels to be defined by the Sector Manager (MLGH) to provide security and only authorised personnel shall have access to features such as Add/ Edit/ Delete etc. (4) Allows updating of data obtained from areas without internet access (5) the weight factor, access is a heavy data base and might not be suitable (6) Allows extraction of information for different uses and flexibility to changing information requirements (which change from time to time) without much difficulty. (7) Relational data base allowing generation of reports covering a wide range of data fields (8) Allowing secure backup arrangements for employed in different locations and enables users 24 hours access. (9) Simple menu for easy to use and navigate, etc
	Project profile information development to consist of (1) project objectives (2) Target beneficiaries (3) Impact on MDGs and National goals (4) Total cost of project and (5) project time frame. This is to include planned projects for short term (up to 2010), medium term (up to 2015) and long term (up to 2030) *These projects could be further categorised according to national, provincial, district and community levels.*
	Service categorisation development consisting of (1) water supply (2) Sanitation with sub categories of on-site sanitation, off-site sanitation, faecal sludge, drainage and solid waste management
	Development of donor involvement categorisation
	Monitoring and Evaluation development consisting of (1) MDGs monitoring (2) National level monitoring (3) Operational monitoring such as NWASCO.
	Designing of information updating system such as (1) MDGs. National and Operational information done annually and (2) CUs/ LAs level updating done quarterly
	Creation of Information Centre. (1) This could be either at MLGH, NWASCO, other institutions or private sector. The information should managed by a body agreed upon by all stakeholders such NWASCO, MLGH, MEWD and MFNP (2) The information centre should share information as agreed and according to schedules (3) Access to special information shall be made available to key stakeholders according to procedures. This is information that is not public.
4. Implementation	Pilot project using selected districts
	Monitor and evaluate for six months
	Make improvements and develop an action plan for implementation to the rest of the districts
	Monitor and evaluate every (1) six months and (2) annually

10.4.2 On-going information management activities

A Rural Water and Sanitation Information Management System is being rolled out indistricts and centrally by MLGH.

The NWASCO Information System is in full operation since 2004 and yearly reports are compiled and widely circulated within the Government andto other actors in the UWSS sector.

MoH also has a system in operation.

10.4.3 Overview of Activity Framework and Time Schedule for Information Management

Table 10.2: Overview of Activity Framework and Time Schedule for Information Management

Activity	By Whom	2011	2015	2030
Selection and agreement among UWSS actors and CSO on indicators conforming to international and regional indicators and National programmes.	UWSSS/NWASCO/CSO			
Collection, compilation and analysis of UWSS base data for tracking, planning and advocacy	NWASCO/CU			
Expanding and developing the NIS to comprise GIS, peri-urban areas and additional data on sanitation	NWASCO			
Development and implement a common UWSS IMS for NWASCO, MLGH, MEWD, MoH and other stakeholders by linking systems.	UWSSS			
Recurrent UWSS IM activities by NWASCO, MLGH, MEWD, MoH, CSO and other stakeholders	UWSSS/NWASCO			

Regular activity level — *Enhanced activity level*

11. RESEARCH AND DEVELOPMENT PROGRAMME

11.1 Context

Academic and research institutions' participation in the water sector is mainly in the area of training personnel and in various researches. The University of Zambia is the premier training institution for water and related professions at both the under and post-graduate levels offering Bachelors, Masters and PhD. Those offering direct water sector courses are Civil and Environmental Department (Hydrology and Water Resources) and Geology (Hydrogeology). Other departments offer related disciplines that are applicable to water such as chemistry, irrigation in agriculture and biological sciences.

11.2 Objectives

The objective of this component is to develop a sound scientific and socio-cultural framework for implementing UWSS in Zambia. Technical design standards, affordability, socially and culturally appropriate options, as well as financial viability need to be evaluated before wide scale adoption of a particular technical solution in any given setting.

11.3 Strategy

The overall strategy is to ensure the choice of technologies that are technically, financially, and socially acceptable to the community and sustainable in the long term. This calls for development of sound designs, models of operation, and approaches to management of facilities based on objective criteria borne out of sound research programmes. Detailed formulation of this component will be carried out later.

11.4 Planned policy development

11.4.1 Output and activities

The component is expected to have a number of outcomes. These could be: the establishment of a knowledge sharing and facilitating centre or facility to be repository of urban as well as rural water supply and sanitation sector information as well as the focal point for R&D in the sector. The facility could be instrumental in carrying out applied research in WSS technologies, financing options, socio-cultural issues pertaining to water supply and sanitation in Zambia.
The research should comprise technical as well as management and socio-economical subjects.

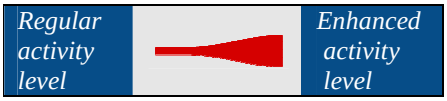
11.4.2 On-going research activities

At present the University of Zambia School of Engineering, Civil and Environmental Engineering conduct research.

11.4.3 Overview of Activity Framework and Time Schedule for Research

Table 11.1: Overview of Activity Framework and Time Schedule for Research

Activity	By Whom	2011 2015 2030
Development of a UWSS Research programme comprising technology, management and socio-economy	Ed. Inst./UWSSS	
Implementation of the UWSS Research programme	Ed.Inst.	



12. COST, FINANCING AND PROJECT SELECTION

12.1 Context

There existed no updated national medium or long-term investment plan for urban water supply and sanitation in Zambia when the NUWSSP preparation commenced in 2007. Estimates had been done project wise and most commonly for emergency and short-term investments. The latest comprehensive study of investment needs (NIR/98-WA) was made in 1998 for Water Sector Reform Support Unit was based on a general model and assumptions that have been overtaken by events.

The insufficient availability of capital for investment in urban water supply and sanitation has resulted in a situation where necessary expansion and replacement of facilities have become difficult or impossible and the revenues have barely covered the direct operational costs.

12.2 Objectives

- to develop sector investment plans at scheme and national levels to promote financial sustainability, extension of services and equitable service provision.
- to develop sector investment plans to attract financial support from the Government, Co-operating Partners and other financiers.
- to reach medium and long-term agreements with financiers regarding the programme financing.
- to develop modalities for regular updating of investment and financing plans.

12.3 Strategy

Investment estimates

- provision of guidelines and models for medium and long-term investment planning at scheme and national level.
- compilation of unit rates for all hardware and software components of water supply and sanitation systems.
- providing support of the Service Providers for their preparation of the investment plans.
- viability analyses of different levels of service with regard to provision of water supply and sanitation
- promotion of a holistic approach to improve the health, wellbeing and livelihood of the urban population through joint investment planning of water supply, sanitation, solid waste management and drainage.
- including all costs from programme management through capacity building and infrastructure development in the investment plans.
- include costs for the use of expertise to assist CUs and local authorities to improve management, planning, implementation and operation of urban WSS facilities
- mandating the NUWSSP management the task of regular review and updating of investment and financing plans.

Financing

- close dialogue between the Government and Co-operating Partners regarding financing of different components of the programme.
- commercial and private sector financiers will be actively encouraged to enter into loan agreements directly with the Service Providers.

- implement tariffs and a system for investment cost sharing based on the principle of fairness and equity which entail allocating costs among consumers according to the burden they impose on a delivery system.
- charging minimum tariffs to persons who are unable to afford the full cost.
- for consumptive uses of water such as domestic and non-domestic use, the pricing formula for setting out tariffs that should increasingly take into account the replacement and development cost, operational costs, reliability and environmental standards aiming at full cost recovery in the long term.

Project selection

- the Service Provider shall identify development or any other activities requiring financial support under the NUWSSP.
- Service Provider shall prepare and submit proposals for financial support to NUWSSP management.
- ensuring that proposals prepared by the Service Providers are complete and of high professional quality and include detailed cost estimates.
- use of transparent and objective criteria to evaluate and prioritise project and activity proposals.

12.4 Programme Investment Planning

12.4.1 Cost estimates

The NUWSSP comprises a large number of specific components and activities which should be considered when estimating and budgeting for the programme costs. The most important are:

Programme Management
Organisational Development
Human resources Development
Master planning
Feasibility/Preliminary Design studies
Special Investigations and Studies
Detailed Design
Preparation of Tender Documents
Standardisation
Civil, Mechanical and Electric Works
Supervision
Development Project Management
Operation and maintenance
Communication activities
Community participation
Hygiene promotion
Regulation
Monitoring
Information Management
Evaluation
Research and Education
Any other activity in line with the NUWSSP

Beside the above costs the programme will entail general management and administration costs by the different levels of the Government administration, Service Providers, Co-operating Partners, users and by other stakeholder. These costs are not generally considered in the programme cost calculations.

12.4.2 Costing Methodology

The following methodology has been used for estimation of the NUWSSP costs:

1. Application of an advanced investment model, named the Zambia Urban Water Supply and Sanitation Model (ZUWSSM) that has been developed and tested as part of the NUWSSP preparation process. The model has been used by all the CUs in 2009 and 2010 in a process comprising training workshops and guidance by MLGH.
2. Detailed traditional project formulation and cost estimates for short and medium term investments in the period 2011 - 2015 by all CUs. A large number of concrete and urgent rehabilitation, development and capacity building projects have been identified and assessed.
3. Drainage system infrastructure costs based on per capita costs presented in the Sanitation Pre-Feasibility Study.
4. Detailed calculations with regard to management and other soft-ware costs.
5. GRZ budget provisions for solid waste management costs.

Thus, whereas the costs of the water supply and sanitation components have been estimated using elaborate methodology the drainage and solid waste management investment costs are, at this stage, based on relatively rough estimates. This reflects the difference of development levels and maturity of the components. More elaborate methods should be used in future revisions of the estimates of drainage and solid waste management costs as these components then will have developed further.

12.4.2.1 Overview of the ZUWSSM

The model is based on Microsoft Excel and is intended as a strategic planning tool, assisting the Government and the Service Providers with long-range decisions regarding the way in which services are to be provided and the way in which they are to be financed. The model can be applied to a municipality or province, or indeed to model the country as a whole. The ZUWSSM provides, also by international standard, a uniquely versatile and useful tool.

12.4.2.2 Assumptions for using the ZUWSS model

Assumptions made for using the model are based on the policies and strategies described in the NUWSSP, interpreted by the MLGH officials and CUs and applied on the specific situation, status and needs of each individual water supply and sanitation system.

The service levels are crucial parameters. The CUs have assumed different present and future service levels as a consequence of the wide variation of the conditions in the field.

Another crucial parameter is the prevailing backlog of infrastructure replacement. The CUs have estimated applied replacement backlogs in the range of 5 % to 43 % (average 23 %) for water supply and 0 to 50 % (average 32 %) for sanitation infrastructure in their WSS systems.

Population estimates have been based consistently on the CSO projections from the year 2000 census. The investment needs should be updated when new population figures from the 2010 census become available.

12.4.2.3 Assumptions regarding drainage

A per capita cost of US$ 27 is assumed in Peri-Urban areas. It tallies with the GRZ budget allocation for 2010 and it is assumed to increase annually with the growth of the population. Drainage development costs in connection with road construction are not included.

12.4.2.4 Assumptions regarding solid waste management

The GRZ budget allocation for 2010 which has been assumed as a basis is increased annually with the growth of the population. Only limited investment costs are covered by this budget as it is generally assumed that plant and vehicles will be provided and operated by the private sector.

12.4.2.5 Assumptions regarding programme and project management and soft-ware activities

Detailed estimates have been made based on the various activities outlined in Chapter 4 to 17. Costs for master planning, feasibility studies, other special studies, design, and preparation of tender documents and procurement of services are assumed at 10 % and project management including supervision 5 % of the investment in infrastructure. These costs are built into the unit rates and are therefore included in the estimates of the investment needs.

12.4.2.6 Assumptions regarding O&M and regulation

These costs are based on current actual costs and are assumed to increase proportionally with the increase of water demand over the period.

12.4.3 Public Investment Needs

12.4.3.1 Water Supply and Sanitation

The total costs for water supply and sanitation disaggregated on new and refurbished infrastructure can be seen in Table 12.1.

Figure 12.5 illustrates the fact that in the first ten years the bulk of the investments are required for replacement of existing infrastructure.

The investment needs for individual CUs are shown in Table 12.2 and further illustrated in Figure 12.6 and 12.7. The striking peaks in the beginning of the period reflect the need to the serious replacement backlog.

Table 12.3 shows the short and medium term investment needs that have been calculated using traditional detailed planning and budgeting. The same table shows the same needs computed by the ZUWSSM. It can be observed that the results tally reasonably well.

Table 12.1 Total National Water Supply and Sanitation Investment Needs (Computed by the ZUWSSM)

National Urban Water Supply and Sanitation Investment needs									
Component	Cost, US$ million								
Year	2011	2012	2013	2014	2015	2011-2015	2016-2020	2021-2030	2011-2030
Water Supply, new	73	95	110	93	68	438	288	932	1659
Water Supply, repl.	88	109	135	151	148	631	444	576	1652
Water Supply, total	161	204	245	244	216	1070	732	1508	3310
Sanitation, new	13	15	17	14	11	70	59	216	345
Sanitation, repl.	13	16	20	25	28	101	100	93	295
Sanitation, total	26	31	36	39	39	171	160	309	640
Other	6	8	5	5	8	32	29	70	131
Total	193	243	286	288	263	1272	921	1888	4081

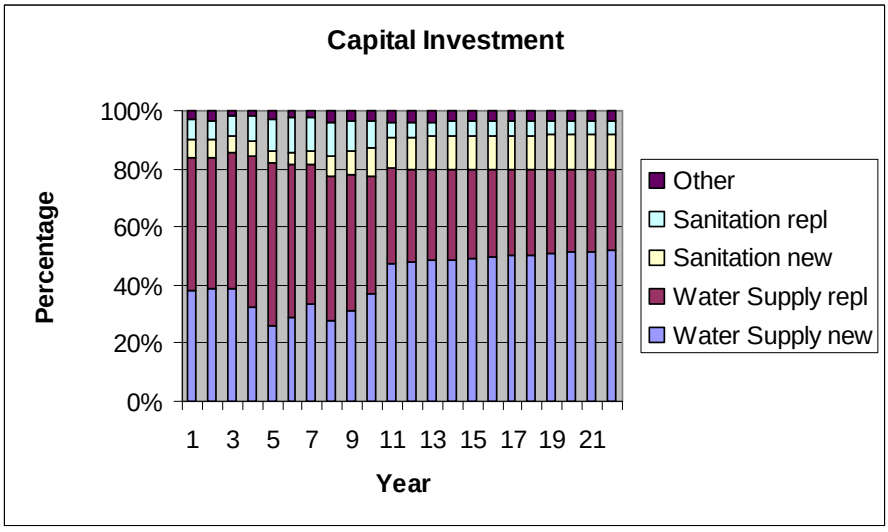


Figure 12.5 Capital investment divided on new and replaced structures

Table 12.2 Water Supply and Sanitation investment needs for CUs (Computed by the ZUWSSM)

Urban Water Supply and Sanitation Investment needs for CUs									
Component	Cost, US$ million								
Year	2011	2012	2013	2014	2015	2011-2015	2016-2020	2021-2030	2011-2030
Lusaka	55	63	72	80	81	351	267	646	1264
Kafubu	34	48	59	52	35	227	126	256	609
Mulonga	25	29	35	41	43	174	145	263	581
Nkana	35	39	41	43	43	202	160	256	618
North Western	3	4	4	4	4	18	13	31	62
Lukanga	8	9	9	10	11	48	48	123	218
Southern	10	19	23	19	15	87	47	107	241
Western	4	6	9	9	8	35	35	63	133
Chambeshi	7	9	12	13	12	54	44	67	165
Eastern	6	7	8	8	8	37	30	58	125
Luapula	3	10	14	9	3	39	7	18	64
Total	193	243	286	288	263	1272	921	1888	4081

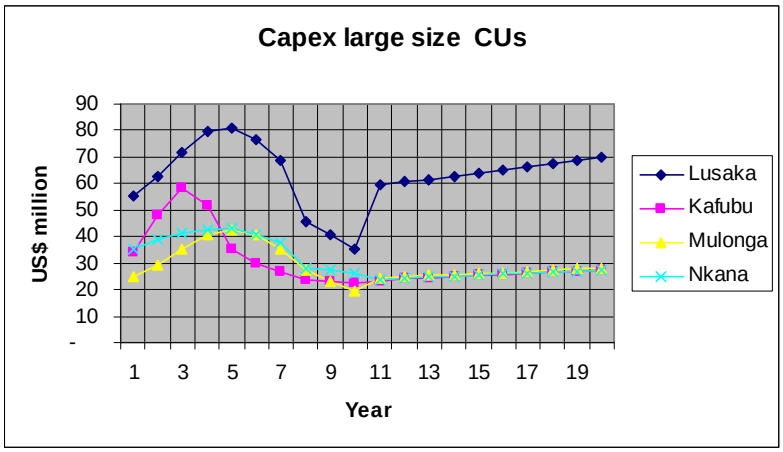


Figure 12.6 Yearly investment needs for large size CUs

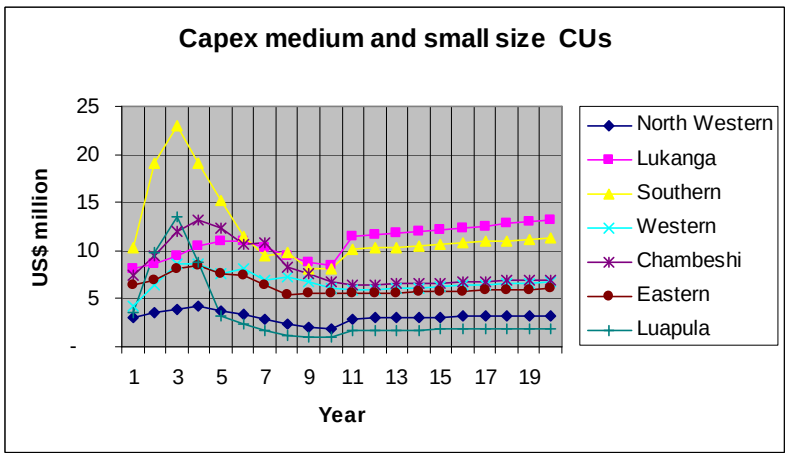


Figure 12.7 Yearly investment needs for medium and small size CUs

Table 12.3 Comparison of WSS investment needs for CUs estimated by traditional detailed planning and computed by the ZUWSSM)

CU Short/Medium-Term Investment Needs for CUs		
	Detailed planning	ZUWSSM
Component	Cost, US$ million	
Year	ca 2011-2015	2011-2015
Lusaka	291	351
Kafubu	374	227
Mulonga	131	174
Nkana	131	202
North Western	25	18
Lukanga	25	48
Southern	74	87
Western	9	35
Chambeshi	57	54
Eastern	39	37
Luapula	50	39
Total	1206	1272

12.4.3.2 Solid Waste Management and Drainage

The needs for solid waste management and drainage investments are shown in Table 12.4.

Table 12.4 Solid waste management and drainage infrastructure investment needs

Solid Waste and Drainage Investment needs US$ million									
Programme Component	2011	2012	2013	2014	2015	2011-2015	2016-2020	2021-30	2011-2030
Solid Waste Management	2.2	2.2	2.3	2.3	2.4	11.4	12.0	24.0	47.4
Drainage Infrastructure	3.7	3.0	3.8	3.9	4.0	18.4	20.0	40.0	78.4
Total	5.9	5.2	6.1	6.2	6.4	29.8	32.0	64.0	125.8

12.4.3.3 Summary Public NUWSSP Investment Needs

A summary of all infrastructure investment costs, programme management and other software costs at the Local Authority and National levels are shown in Table 12.5.
Note that general management costs at LA/CU and all government levels are not included. Nor are the investment needs of households and non-domestic consumers.

Table 12.5 Summary Public NUWSSP budget

Summary NUWSSP Investment needs US$ million									
Programme Component	2011	2012	2013	2014	2015	2011-2015	2016-2020	2021-30	2011-2030
LOCAL AUTHORITY LEVEL									
Water Supply, new	73	95	110	93	68	438	288	932	1659
Water Supply, repl.	88	109	135	151	148	631	444	576	1652
Water, total	161	204	245	244	216	1070	732	1508	3310
Sanitation, new	13	15	17	14	11	70	59	216	345
Sanitation, repl.	13	16	20	25	28	101	100	93	295
Sanitation, total	26	31	36	39	39	171	160	309	640
Other CU investments	6	8	5	5	8	32	29	70	131
UWSS Sub-Total 1)	193	243	286	288	263	1272	921	1888	4081
Solid Waste Management	2.2	2.2	2.3	2.3	2.4	11.4	12.0	24.0	47.4
Drainage Infrastructure	3.7	3.0	3.8	3.9	4.0	18.4	20.0	40.0	78.4
Capacity Building	0.3	0.3	0.3	0.3	0.3	1.5	1.5	3.0	6.0
Communication Activities	0.5	0.5	0.5	0.5	0.5	2.5	2.5	5.0	10.0
Sub-Total	199	249	293	295	270	1306	957	1960	4223
NATIONAL LEVEL									
NUWSSP management	1.0	1.0	1.0	1.0	1.0	5.0	5.0	10.0	20.0
Regulation of UWSS	1.1	1.2	1.2	1.3	1.4	6.2	7.4	17.9	31.5
Information management	0.3	0.3	0.3	0.3	0.3	1.5	1.5	3	6.0
Capacity Building	0.1	0.3	0.3	0.1	0.1	0.9	0.9	1.8	3.6
Research and Education	0.6	0.7	0.7	0.6	0.6	3.2	3.2	6.4	12.8
Communication Activities	0.5	0.5	0.5	0.5	0.5	2.5	2.5	5	10.0
Sub-Total	3.6	4.0	4.0	3.8	3.9	19.3	20.5	44.1	83.9
Total	203	253	297	299	274	1325	978	2004	4307

1) Includes 10 % for planning & design and 5 % for project management

12.4.3.4 Updating of Investment Plans

The long-term Investment Needs projections should be updated two year after the launching of the NUWSSP and then regularly at least every five years or as required for planning and budget purposes.
The short/medium term investment plans should be updated every year.

12.4.4 Operational costs

12.4.4.1 Operational costs Water Supply and Sanitation

The estimates are based on the actual costs of US$ 75.2 reported by NWASCO for the year 2009/2010 projected by means of the ZUWSSM for the coming years.
See Table 12.6.

Table 12.6 Operation and maintenance of water supply and sanitation (CUs)

National Urban Water Supply and Sanitation, CU Operational Costs									
Component	Cost, US$ million								
Year	2011	2012	2013	2014	2015	2011-2015	2016-2020	2021-2030	2011-2030
Operation	82	89	95	101	106	472	595	1676	2742

12.4.5 Investment Needs by Households and Non-Domestic Consumers

Besides the public investment needs households and con-domestic consumers will also be required to make investments in internal piping, service connections, latrines, septic tanks and contributions to cover the infrastructure development costs. The non-public investments are often not considered or estimated in programmes but the ZUWSSM allows the costs to be calculated. Figure 12.8 illustrates that households and non-domestic consumers will have to invest approximately an additional 25 % of the public investments mainly on sanitation infrastructure.

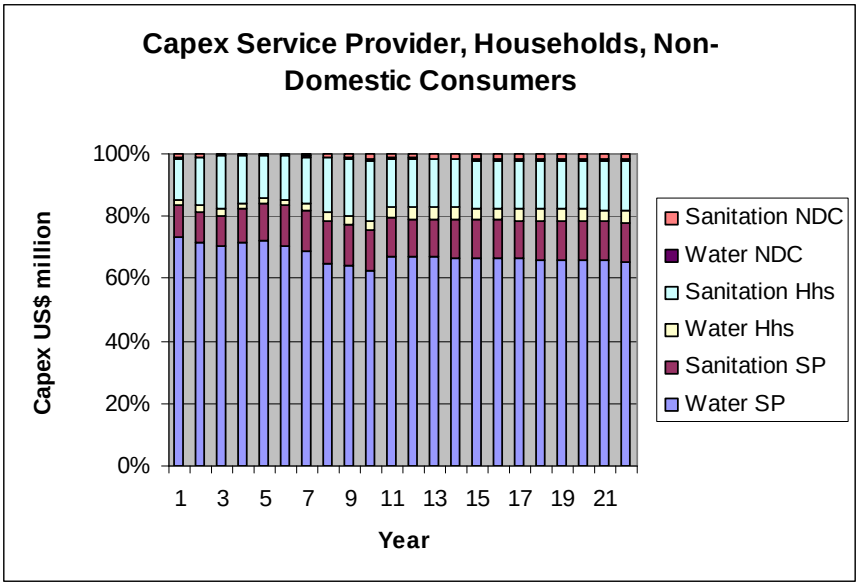


Figure 12.8 Investment needs of Service Providers, Households and Non-Domestic Consumers as a percentage of total investments in Water Supply and Sanitation.

12.5 Programme Financing Planning

12.5.1 Financing by users through Service Providers

The users of the services shall cover at least the direct operational costs ten years from the establishment of a CU. The users shall thereafter cover an increased portion of the investment costs aiming at covering at least half of the investment costs by year 2030.

12.5.2 Financing by the Government

The Government will supplement the funds provided by the CPs.

12.5.3 Financing by Co-operating Partners

The CPs will be expected to provide the bulk of the development funds for the NUWSSP within the foreseeable future.

12.5.4 Financing by the Commercial and Private sectors

Commercial and private sector financiers will be encouraged to engage directly with Service Providers for the financing of NUWSSP development.

12.5.5 Financing Plans

The financing plans will be prepared after dialogue between the Government and the CPs. Table 12.7 summaries the situation in 2010.

Table 12.7 Financing Commitments by CPs and GRZ as at October 2010

Component	Invest-ment needs	CP commitments				GRZ	Balance
		CP	Agreed	Antici-pated	Total		
	US$ million for the period 2011 - 2015						
National level NUWSSP management and activities	**19**						
Lusaka WSC	**351**						
Kafubu WSC	**227**						
Mulonga WSC	**174**						
Nkana WSC	**202**						
North Western WSC	**18**						
Lukanga WSC	**48**						
Sothern WSC	**87**						
Western WSC	**35**						
Chambeshi WSC	**54**						
Eastern WSC	**37**						
Luapula WSC	**39**						
Other /Not earmarked	**5**						
Solid Waste Managt.	**11**						
Drainage	**18**						
Total	**1325**						

It is the intention that the commitments gradually shall change from ear-marked to not earmarked contributions to the NUWSSP.

12.5.6 Updating of Programme Financing Plans

The Financing Plans will be updated yearly after dialogue between the Government and the CPs

12.6 Sensitivity and Viability Analysis

An analysis was performed in December 2009 when the ZUWSSM-based investment plans were available from each CU and nationally.

12.6.1 The Zambia Urban Water Supply and Sanitation Model (ZUWSSM)

The ZUWSSM provides a uniquely versatile and useful tool that can be used for sensitivity and viability analyses aiming at identifying crucial parameters and investigating the implications of different scenarios.

The main Model works with approximately 60 main input parameters, most of which consist of several sub-parameters. In addition a complex pre-model provides unit-rate input for costing of selected infrastructure systems.

12.6.2 Parameters affecting the capital investment cost

22 parameters were tested for Low, Base and High values.
The parameters were divided into *internal* that can be controlled by the water supply and sanitation policies or the management and *external* that depend on the development of the society as a whole and are not controlled by the WSS sector.

Parameters affecting investment costs borne by SP most (in the order of magnitude, span between Low and High).

1. W&S material unit price levels (37%), *External*
2. Water losses (32%) *Management*
3. Economic development (26%), *External*
4. Domestic water consumption (23%), *Policy and Management*
5. Contribution by sanitation users to capital costs (20%), *Policy*
6. Access to water distribution (20%), *Policy and Management*

The wide variability of SP investment cost due to all and internal factors respectively is illustrated in Figure 12.9. The external factors affect the costs more than the internal.

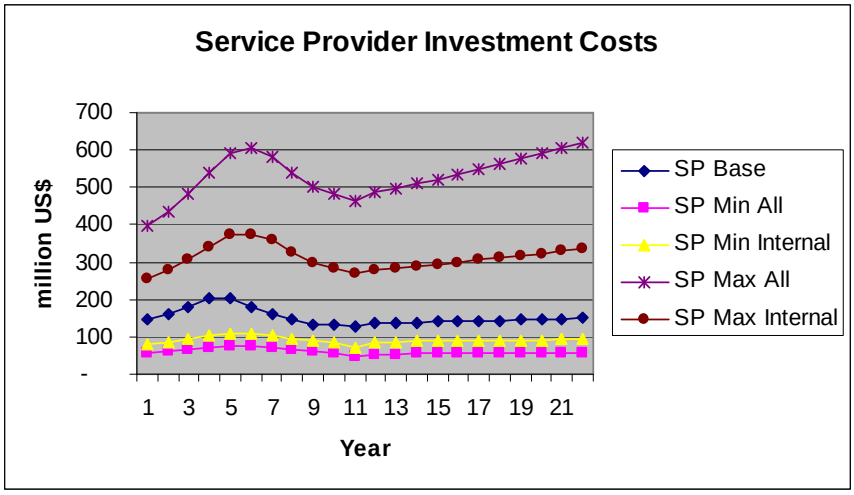


Figure 12.9 Variability of Service Providers' investment costs as an effect of parameter selection (Based on prel. estimates Dec. 2009)

12.6.3 Parameters affecting the operational cost

Parameters affecting SP operational expenditures most (in the order of magnitude, span between Low and High).
1.Depreciation (22%), *Policy*
2.Water losses (18%), *Management*
3.Economic development (17%), *External*
4.Bad debts (15%), *Management*
5.O&M cost level (12%), *Management*

Parameters affecting SP revenues most.
1.Surcharges to high income consumers (60%), *Policy*
2.Economic development (27%), *External*
3.Depreciation (22%), *Policy*
4.Water losses (17%), *Management*

Parameters affecting water rates most
1.Surcharges to high income consumers (92%), *Policy*
2.Economic development (70%), *External*
3.Water losses (37%), *Management*
4.Depreciation (26%), *Policy*
5.Maximum affordable bills for low inc HH (23%), *External and Policy*

Parameters affecting coverage of operational costs most.
1. Surcharges to high income consumers (58%), *Policy*
2. Bad debts (13%), *Management*

Surcharges are defined as charges that will cover costs above the direct operational costs of the infrastructure developed for serving the high income and non-domestic consumers respectively.

12.6.4 Analysis of financial viability with regard to expenditures by the Service Providers

Selection of scenarios

Low, Base and High main scenarios have been used in the finance viability analysis. In addition the Base and High scenarios are combined with 100% surcharge for high income consumers.

As has been seen in the operations analysis the only effective way of increasing the coverage beyond coverage of the operational expenditures is to apply higher charges on those who use more water which mainly are the high income consumers. This is the universally used method and it also already recommended in the NWASCO Guideline.

Distribution on source of finance

The financing can be through internal revenue, grants and loans distributed through the following methodology:

- The Model is designed to allocate internal revenue to finance the capital expenditures in the first hand.
- When the revenue is not adequate to meet the needs the requirement of grants are calculated up to a chosen limit and on specified expenditures as selected as input into the model.
- Lastly, the balance between the total capital expenditures and what is financed through internal revenue and grants is covered by loans.

12.6.5 Viability criteria

A scenario is classified as sustainable:

A. If the Internal revenue covers more than 10% of the capital expenditures; and
B. Grants or Loans then cover the balance (less than 90%); and
C. If the interest payment constitutes less than 10% of the internal revenue; and
D. If the average water rates are less than ZKW 2100 for low income consumers; and
E. If the average water rates are less than ZKW 4000 for high income consumers.

It is assumed that the financial sustainability will be more solid the more of the operational and capital expenditures are covered by internal resources (revenue) and the lower the average water rates. The sustainability is also assumed to become more solid the less the Zambian WSS sector depends on grants from the Co-operating Partners in absolute and relative terms.

The sources of finance for each year over the period 2010 and 2031 of one of the many possible viable scenarios is shown in Figure 12.10.

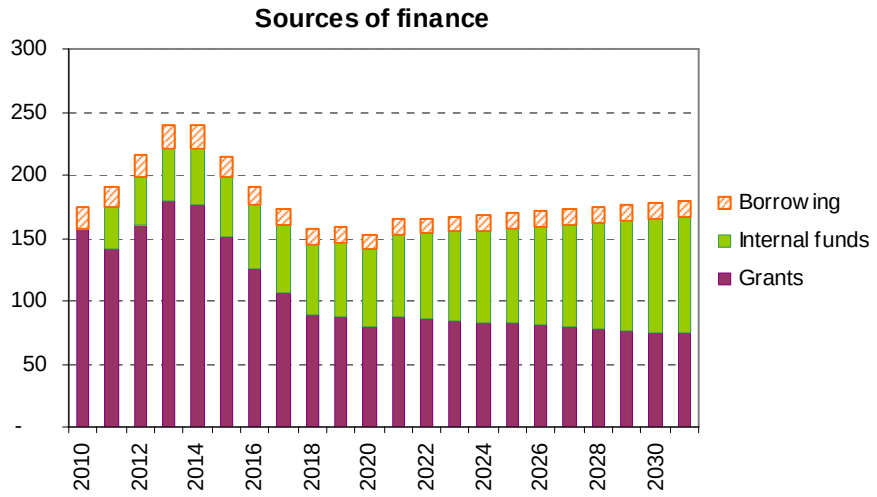


Figure 12.10 Scenario Base Cost and Operation. 100% surcharge on High income and Non-Domestic consumers. Grants for Low income and maximum 93% of expenditure gap for other infrastructure. (US$ million)

12.6.6 Conclusion regarding the financial viability

1. Financial viability is achieved within a band of different Base and Low Cost scenarios.
2. Within the viability band the internal financing varies from 34% to 59%, the grants from 0 % to 59% and the loans from 4% to 32% as averages over the planning period 2010 to 2031.
3. The need of external funding is high in the beginning and peters out towards the end of the planning period when the internal funds can cover more of the investments.
4. The High Cost scenarios are not viable unless much higher external grants and funds become available and if high water rates are accepted by high income consumers.

12.7 Identification and selection of projects and activities for financial support.

12.7. 1 Guiding principles

The selection process will be described in detail in "*Guidelines on the Use of NUWSSP Funds*". Main features of the process are outlined here:

The Guidelines will be based on the following main principles:

- Decentralisation of NUWSSP project identification, formulation, planning, management, implementation and service delivery to lower level government and Service Providers.
- Financing of major NUWSSP components through a Financing Mechanism administered through MLGH.
- NUWSSP Partners shall be invited to submit project proposals under the Financing Mechanism through a "Call for Proposals" procedure.
- Proposals can cover one or several of the following activities and be phased as appropriate: Investigations; Master plan/Feasibility/Preliminary Design/Special

studies; Detailed Design and Tender Documents; Works; Project Management; Capacity building; R&D; Education; Any other activity in line with the NUWSSP.

- Proposals prepared by the NUWSSP Partners shall be complete and of high professional quality so that they can be evaluated, prioritised and approved without further investigations.
- Transparent and objective criteria shall be used to evaluate and prioritise proposals.
- It is assumed that DTF will retain its function as a separate entity under the Financing Mechanism.
- Available and already tested funding guidelines for DTF will be used as a frame for the Funding Guidelines structure modified as appropriate. However, because of the increased magnitude of the NUWSSP it is assumed that the NUWSSP Partners will be required to take much more responsibility for managing the project implementation process themselves, with professional assistance, than is the case under the DTF mechanism.

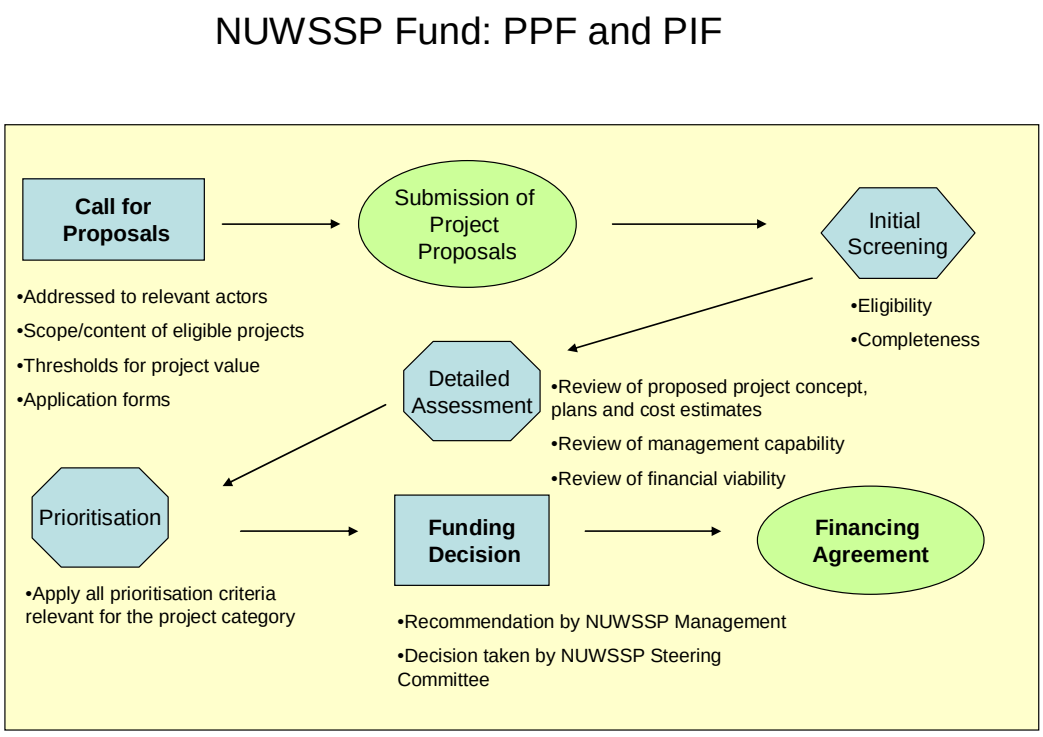
12.7. 2 Project selection widows

There are three selection windows under the NUWSSP fund:

- the Planning and Performance Fund (PPF)
- the Project Implementation Fund (PIF)
- the Devolution Trust Fund (DTF), (refer to the Guidelines on the Use of DTF Funds, February 2007, for all details)

The application and selection process for PPF and PIF is shown in Figure 12.14

Figure 12.14 Application Procedure for NUWSSP Fund components PPF and PIF



12.7.2.1 The Planning and Performance Fund (PPF)

Main objectives

The main objectives of the PPF is (i) to assist the NUWSSP Partners financing long and short term planning of sustainable water supply and sanitation facilities in a broad sense; (ii) to assist Service Providers enhance their management performance; and (iii) to assist in financing organisations involved in managing funds, providing project support, broadening of the knowledge base and training for implementing the NUWSSP.

In line with these objectives, the purpose of the Planning and Performance Fund (PPF) is:

- to assist with the funding master plans; special investigations and studies; feasibility studies; and preliminary and detailed design for the development of effective, efficient and sustainable service facilities in the urban and peri-urban areas.
- to assist with the funding of education, training and research & development aimed at increased availability of well trained staff at all levels; appropriate technologies; and, appropriate operation and management systems for improved service provision in the urban areas.
- to assist with establishing sustainable, effective and efficient management systems for Service Providers.
- to assist with funding the overall NUWSSP management and development including monitoring, evaluation, policy development, regulation, capacity building and information management.

Eligible to apply for funding under the Planning and Performance Fund are:

- Local Authority
- Commercial Utility (CU) or other company established in line with the provisions of the WSS Act No.28 of 1997 or as amended by subsequent legislation, duly licensed by NWASCO,
- Solid Waste Management unit or company, duly regulated by ECZ.
- Ministerial co-ordinating or regulatory unit or statutory institution dealing with NUWSSP related activities.
- University and Government or private educational and training institution.

Eligible Projects

A project proposal may contain <u>any one or any combination of the programme and project components</u> shown in the matrix in Table 12.11 unless the CfP specifies otherwise.

Table 12.11 Matrix of eligible projects for Planning and Performance Fund (PPF)

National Urban Water Supply and Sanitation Programme Component	Eligible project components for the Planning and Performance Fund									
	Master Plan	Investigation	Feasibility study	Preliminary design	Detailed design +Tender Doc.	Special study	Research	Training and Education	Capacity building	Management system
Water supply	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sanitation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solid waste management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Drainage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Policy development						✓				
Capacity development						✓		✓	✓	
Information management						✓			✓	✓
Research & Development						✓	✓	✓		
NUWSSP management						✓			✓	✓

Selection

Based on the detailed assessment, project proposals will be prioritised on the basis of the factors shown in Table 12.12.

Table 12.12 Factors for prioritisation of application for support under the Planning and Performance Fund

Prioritisation factor		Weight and classification of factor		
		High score	Average sc.	Low score
1. Documen-tation	1.1 Compliance with form requirements	5	4	3
		Full compliance	Acceptable	Incomplete
	1.2 Comprehensiveness of project documents	15	12	7
		Comprehensive and detailed	Adequate	Sketchy or inconsistent
	1.3 Plausibility of cost estimates	15	12	4
		High	Average	Low
	Subtotal	**35**	**28**	**14**
2. Project	N/A			
3. Manage-ment	3.1 Applicant's general management performance	5	4	3
		Above average	Average	Below average
	3.2 Applicant's past performance in managing project grants and loans	15	12	5
		Good	Acceptable	Poor
	3.3 Involvement, competence and capacity of consultants and other expertise deployed to assist applicant	15	12	6
		High	Average	Low
	Subtotal	**35**	**28**	**14**
4. Finance	4.2 Grants received by applicants over the last 3 years for same fund component	30	24	12
		Below average	Average	Above average
		30	**24**	**12**
Total		**100**	**80**	**40**

12.7.2.2 The Project Implementation Fund (PIF)

Main objectives

The main objective of the Project Implementation Fund is to assist Service Providers in implementing water supply, sanitation, solid waste management and drainage development projects in urban areas.

In line with this objective, the purpose of the Project Implementation Fund (PIF) is:

- to facilitate funding for investment in water supply, sanitation, solid waste management and drainage works and equipment for urban areas, and
- to facilitate funding of professional services for supervision, project management and capacity building for these installations/facilities.

Eligible to apply for funding under the PIF are:

- Local Authority
- Commercial Utility (CU) or other company established in line with the provisions of the WSS Act No.28 of 1997 or as amended by subsequent legislation, duly licensed by NWASCO,
- Solid Waste Management unit or company, duly regulated by ECZ.

Eligible Projects
A project proposal may contain any one or a combination of the Programme components each normally containing all project components shown in the matrix in Table 12.13 unless the call for proposals specifies otherwise:

Table 12.13 Matrix of eligible projects for Project Implementation Fund

National Urban Water Supply and Sanitation Programme component	Eligible project components for the Project Implementation Fund				
	Project management	Site supervision	Works	Equipment	Capacity building for project
Water supply	✓	✓	✓	✓	✓
Sanitation	✓	✓	✓	✓	✓
Solid waste management	✓	✓	✓	✓	✓
Drainage	✓	✓	✓	✓	✓

Selection

Based on the detailed assessment, project proposals will be prioritised on the basis of the factors shown in Table 12.14.

Table 12.14 Factors for prioritisation of application for support under the Project Implementation Fund

Prioritisation factor		Weight and classification of factor		
		High score	Average sc.	Low score
1. Documen-tation	1.1 Compliance with form requirements	5	4	3
		Full compliance	Acceptable	Incomplete
	1.2 Comprehensiveness of project documents	10	8	4
		Comprehensive and detailed	Adequate	Sketchy or inconsistent
	1.3 Plausibility of cost estimates	10	8	3
		High	Average	Low
	Subtotal	**25**	**20**	**10**
2. Project	2.1 Current service level	10	8	4
		No existing service	Poor	Acceptable service level
	2.2 Potential for improvement of health condition and livelihood	5	4	3
		High health hazards	Medium health hazards	Low health hazards
	2.3 Cost per beneficiary 1)	10	8	3
		Low	Medium	High
	Subtotal	**25**	**20**	**10**
3. Manage-ment	3.1 Applicant's general management performance 2)	5	4	3
		Above average	Average	Below average
	3.2 Applicant's past performance in managing project grants and loans	10	8	3
		Good	Acceptable	Poor
	3.3 Involvement, competence and capacity of consultants and other expertise deployed to assist applicant	10	8	4
		High	Average	Low
	Subtotal	**25**	**20**	**10**
4. Finance	4.1 Financial viability of total scheme after implementation of project	15	11	4
		Full cost coverage	O&M cost coverage	O&M not fully covered
	4.2 Grants received by applicants over the last 10 years for same fund component 3)	10	9	6
		Below average	Average	Above average
	Subtotal	**25**	**20**	**10**
Total		**100**	**80**	**40**

1) Factor applied for prioritisation of projects with similar technical content only

2) NWASCO ranking when applicable 3) Calculated per beneficiary when applicable

Decision on Project Selection by Programme Steering Committee

NUWSSP Fund Management submits funding recommendations to the Programme Steering Committee for approval.

12.8 Overview of Activity Framework and Time Schedule for Investment Planning and Financing

Table 12.25 Overview of Activity Framework and Time Schedule for Investment Planning and Financing

Activity	By Whom	2011	2015	2030
Dialogue and negotiation between GRZ and Cooperating Partners about the financing of the NUWSSP	UWSSS/GRZ/CP	◆	◆ ◆ ◆ ◆	◆
Finalisation of "Guidelines on the Use of NUWSSP Funds"	UWSSS	◆		
Updating of Investment Plans and financial analyses for the Medium Term Strategic Plans and Expenditure Framework	UWSSS/CU	◆	◆ ◆ ◆ ◆	◆

Regular activity level — *Enhanced activity level*

13. MANAGEMENT AND ORGANISATION

13.1 Context, Strategy and Organisational Framework

13.1.1 Context

There are five core institutional functions that must be performed in the delivery of public services in Zambia. These are:

- Public policy formulation.
- Regulation.
- Mobilisation of financial resources
- Corporate governance.
- Service delivery.

It is generally accepted that if these roles are to be performed efficiently and effectively they should be carried out by different institutions.

The foundation for the Water Sector Reform was laid down in 1994 in the "Proposed Strategy and Institutional Framework for Water Supply and Sanitation Sector" and later approved by the Cabinet. The Strategy follows the principle of decentralisation and accordingly few executive functions would remain at the national level, and they would be executed by MLGH. They are concerned mostly with the transfer of national funds made available in support of GRZ social objectives in the sector, and co-ordination of external borrowings and grants.

13.1.2 Strategy

The overriding principles applied for the management of NUWSSP are:

- Continuation of the implementation of the institutional arrangements laid down in Strategy 1994, the National Water Policy and other related national policies and strategies.
- Sector-wide approach for development of urban water supply, sanitation, solid waste management and drainage
- Gradual decentralisation of government responsibilities and functions (including financing of development and operations) to lower level government and service providers
- Inter-sector co-ordination in executive committees and advisory groups
- Professional, transparent, efficient and cost effective management in lean government and when required statutory institutions with separate financing
- Separation of executive and regulatory functions
- Utilisation of existing organisations, competences and experiences through gradual integration and institutional development into new structures
- Transfer of investment funds between the Government/CPs and the Executive institutions (LAs/CUs) shall be as direct as possible in the long term
- While generally aiming at SWAp alternative financing routs can be used for special purposes as agreed between MoFNP, MLGH and CPs in exceptional cases.

Alternative frameworks have been considered and discussed during the NUWSSP preparation process. The organisation and management will inter-depend on the finally selected financial management system discussed in Chapter 14. A special consultancy study was commissioned to come up with recommendations on a joint NUWSSP/NRWSSP financing mechanism (FM). The study had not yet been completed in October 2010

The framework for organisational and management described in section 13.1.3 below may therefore have to be modified after the completion of the study and a decision on the final structure of the FM has been taken by the Government.

13.1.3 Framework for Organisation and Management

After analysing a number of alternatives the framework shown in Figure 13.1. outlines the main principles that will form the basis for further refinement.

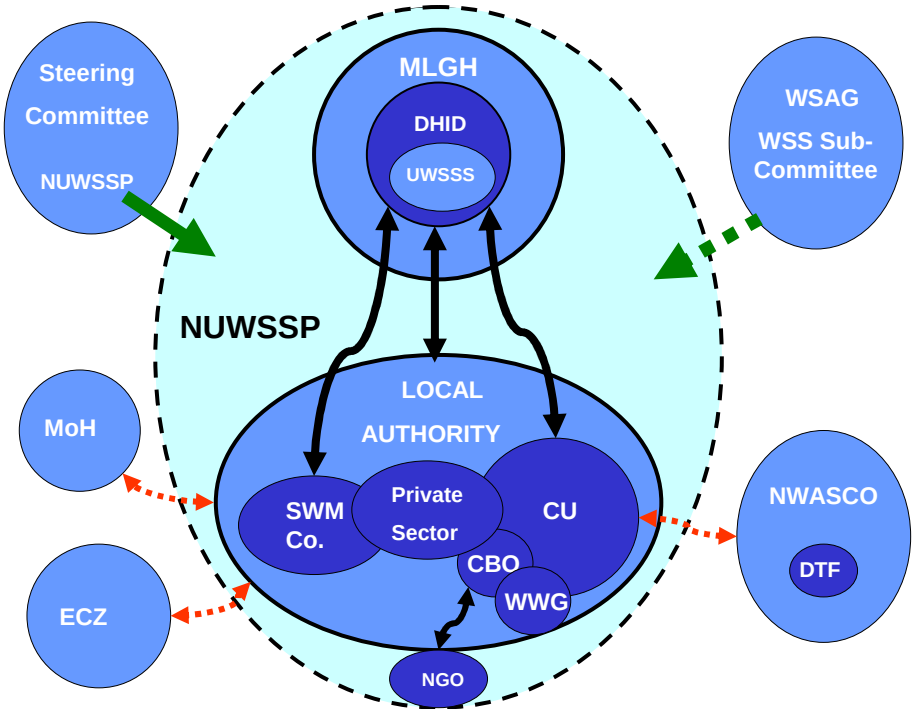


Figure 13.1 Framework for Organisation and Management of NUWSSP
Green arrows – Steering and advice
Black arrows – Co-ordination and support
Red arrows – Regulation

13.2 Steering Committee for Water Supply and Sanitation

13.2.1 Programme Steering Committee

The functions of the Programme Steering Committee (PSC) are to provide overall guidance and monitor the implementation of the programme. The PSC will mainly

concern itself with matters related to policy and overall implementation of the NUWSSP. The scope of work of the PSC will include the following:

- Review and approve the work plans and budgets for the NUWSSP as a whole and, where required, individual parts;
- Review overall progress in fulfilling the aims of the NUWSSP;
- Review issues of policy concern, overall strategy/goals of the NUWSSP and problems with the implementation of NUWSSP and, where necessary, recommend remedial actions.
- Provide recommendations for the design of any future activity(s) or revision of existing components;
- Review proposals for use of unallocated funds for consideration of the financiers;
- Plan for and recommend specific issues that should be considered in the joint annual sector reviews (JASR);
- Recommend where technical assessments are required for activities on specific themes that affect the NUWSSP as a whole;
- Follow up on the implementation of the JASR Agreement including any adjustments that need to be made to the NUWSSP;
- Where necessary, address changes to the management, organisation and procedures of the NUWSSP.
- To appoint and constitute technical working committees as and when required.

The Programme Steering Committee comprises of:

(i) Permanent Secretary - MLGH
(ii) Permanent Secretary - Policy (Cabinet Office)
(iii) Permanent Secretary - MEWD
(iv) Permanent Secretary - MoE
(v) Permanent Secretary - MoH
(vi) Permanent Secretary - MCDSS
(vii) Permanent Secretary – MoFNP
(viii) Provincial Permanent Secretaries (2 No.)
(ix) Director NWASCO
(x) Lead CP for Water Supply and Sanitation
(xi) Director DHID
(xii) Head of UWSSS

The Permanent Secretary - MLGH shall be the chairperson of the PSC, and the PSC will elect the deputy chairperson. DHID in MLGH will provide secretariat for the PSC, and operational expenses for the PSC will be budgeted for under DHID.

13.2.2 NUWSSP Technical Committee

The experience from the existing PSC is that a Sub-sector Technical Committee (TC) may not provide benefits that outweigh the additional time and efforts necessary for making it function. Effective steering can be achieved direct from the PSC. It is therefore not suggested to establish a NUWSSP TC.

13.3 Advisory Groups

13.3.1 Water Sector Advisory Group (WSAG) and Donor Co-ordination

During the formulation of the Fifth National Development Programme (FNDP) Government established sector advisory groups consisting of multi-sector stakeholders to advise each sector in the formulation of each sector plan.

13.3.2 Water SAG, Water Supply and Sanitation Sub-Committee

The purpose of the already existing **Water SAG, Water Supply and Sanitation Sub-Committee** is to provide a competent forum to advise GRZ and collaborating partners in the water sector on coordination, delivery and implementation of development assistance to the water supply and sanitation sub-sector in Zambia and to promote a sector wide approach (SWAp) for its delivery and implementation.

The **Water SAG, Water Supply and Sanitation Sub-Committee** will have the following structure:

- Chair
- Ordinary/Full Members
- Affiliated Members
- Resource Persons
- Secretariat

The **Chair** will be held by the Permanent Secretary, Ministry of Local Government and Housing.

Ordinary/Full Members are the Permanent Secretaries of relevant ministries and with their appointed officers as well as representatives of the Lead Collaborating Partners.

Affiliated Members are directors and assistant directors of relevant ministries, research and educational institutions, representatives of the private sector, collaborating partners, and non-government organisations, all of which must be active in the water sector.

Resource Persons are prominent sector specialists, advisers and consultants appointed on long-term basis by the Chair or Lead Cooperating Partners or invited on a case-by-case basis by members.

The Chair is responsible to provide **secretariat** services from within their ministry.

13.4 Government Line Ministries

13.4.1 Ministry of Local Government and Housing (MLGH)

MLGH is the programme executing agency through its Department of Housing and Infrastructure Development (DHID). The existing Urban Water Supply and Sanitation Section (UWSSS) in DHID is responsible for day to day execution of urban water supply and sanitation activities.

13.4.1.1 The Urban Water Supply and Sanitation Section (UWSSS) at MLGH

The specific functions of the UWSSS will be:

Overall management of the NUWSSP

- initiating the planned NUWSSP activities in co-operation with other actors in the UWSS sector.
- regular follow up and analysis of the NUWSSP objectives, strategies, activities and documents with regard to their adequacy and effectiveness.
- policy development and processing of approval by Government
- development of standards for the design and construction of water supply, sanitation, solid waste and drainage facilities
- preparing proposals for updating of the NUWSSP objectives, strategies, activities and documents for decision of the Programme Steering Committee.
- participation in meetings of the Programme Steering Committee and WSAG- Water and Sanitation Sub-committee.
- implementing actions as directed by the Programme Steering Committee.
- management of the UWSSS technical assistance personnel and procurement of consultancy services.
- day-to-day management of personnel, offices and logistics.

Planning and co-ordination

- assessing and updating infrastructure development needs.
- call for proposals from Service Providers and other actors for financing of activities.
- screening and quality assurance of received proposals from Service Providers
- co-ordination of support activities with the DTF.
- liaison with Service Providers, NWASCO, CSO and other ministries regarding determination and definition of indicators.
- provision of timely responses to district local authorities and CUs on issues arising out of implementing of a decentralised UWSS programme.

Project prioritisation and assessment

- developing transparent and objective criteria for prioritisation and selection of projects for support under NUWSSP.
- determining priority for investment on the basis of established investment and priority criteria.
- developing detailed guidelines for preparation and processing of support applications.
- receiving and assessing project proposals from Service Providers and other actors for internal and external financing, in conformity with established sector policies and standards and the NUWSSP.
- recommending support of activities and projects for decision by DHID or the Programme Steering Committee.

Finance, budgeting and disbursement

- budget revisions and provision of annual, MTEF and NDP budget estimates to the MLGH and MoFNP.

- mobilisation of financial resources in consultation with local authorities, Service Providers and Co-operating partners (CPs).
- authorising the release of funds from MoFNP and MLGH to Service Providers and other actors supported through the NUWSSP.
- keeping accounts for all received, used and disbursed funds in the NUWSSP.

Capacity building and support

- assisting local authorities and CUs in assuming decentralised functions with advice and through funding of necessary assistance through the NUWSSP.
- preparation and dissemination of sector guidelines and standard documents for planning, design, specifications, tendering, procurement of consultancy services, supervision and project management.
- initiating needs assessments and preparing implementation plans for capacity-building and research for actors in the UWSS sector.
- management of national-level UWSS capacity-building activities.
- facilitate learning and sharing of experiences from NUWSSP across the country
- formulating research and training programmes in liaison with research and educational institutes.

Monitoring, information management and reporting

- monitoring the implementation of development projects and other activities under NUWSSP and taking any necessary corrective action.
- reporting of physical and financial progress to GRZ and CPs.
- setting up an Information Management System (IMS) and updating it regularly.
- development and implementation of a sector performance measurement system,

Communication

- developing and implementing a detailed NUWSSP communication plan.
- production of NUWSSP documents and other information materials.
- production and updating of NUWSSP information for the websites of MLGH, MOFNP, MWED, NWASCO
- assisting Service Providers in developing their communication strategies.
- developing and distribution of information materials for the national level and to assist Service Providers with their communication with consumers.
- developing educational and information programmes and broadcast on radio and TV
- provide information on national and international courses, conferences and research
- issuing Press releases and hold press briefings on the NUWSSP and its implementation progress

The capacity of the UWSSS shall be flexible and adjusted to the over time varying needs. It shall be high in the initial stages and lower as the management modalities and tools for the NUWSSP have been developed and the CUs have increased their own capacity to handle the programme activities.

The UWSSS will initially (at least for 3 years) comprise of:

- Principal WSS Officer Urban (existing post)
- Senior WSS Officers Urban (existing post)
- Senior WSS Officer Peri-Urban (existing post)

- Technical Assistant (Engineer, water supply and sanitation), International Component Management Advisor
- Technical Assistant (Engineer, solid waste and drainage)
- Technical Assistant (Economist/Engineer, planning and budgeting)
- Technical Assistant (Communication and HRD)
- Accountant(NUWSSP)
- Office Assistants, Drivers and Messenger.

Outsourcing of services will be done for preparation of various guidelines, for designing and implementing an IMS and as required from time to time.

Adequate office space and logistics for the UWSS shall be arranged at the outset of the NUWSSP.

13.4.1.2 Devolution Trust Fund (DTF)

The foundation for the creation of the Devolution Trust Fund was laid down in 1994 in the "Proposed Strategy and Institutional Framework for Water Supply and Sanitation Sector" which was approved by the Cabinet.
Under the 1994 proposal the Devolution Trust Fund (DTF) was to be administered by MIPFU and *established to finance measures designed to assist local authorities in the assumption of responsibilities devolved to them.*
However, NWASCO was given the power to establish a Devolution Trust Fund from money appropriated by Parliament for the purpose of assisting utilities established by Local Authorities through the Water Supply and Sanitation Act, (Act No. 28, First Schedule, Part I, Section 10). Regulations for the establishment and operation of the Trust Fund were issued through Statutory Instruments No.65 of 2001 and No.50 of 2004.

DTF's primary aim is the management of basket funding for water supply and sanitation improvements that benefit the urban poor. A secondary aim is to channel funds that help establish the sustainability of the newly and potentially formed commercial utilities.

Status and development of DTF

After the creation of the fund it later developed into a financing mechanism whose primary aim is the management of basket funding for water supply and sanitation improvements that benefit the urban poor in peri-urban and low-cost housing areas with a secondary aim to channel funds that help establish the sustainability of commercial utilities.

13.4.2 Other Ministries

In line with the Water and Sanitation Act(1997) Ministry of Energy and Water Development (MEWD) is responsible and will handle water resources aspects, Ministry of Health (MOH) will be involved in issues related to public health and the Environmental Council of Zambia will deal with issues related to discharge of effluents and management and disposal of refuse.

13.5 Local Government Levels

13.5.1 Provincial Level

The provincial administration will have very limited executive functions regarding NUWSSP at least in the short and mediuim terms. However they will have a role to monitor the implementation of the NUWSSP and individual projects done by the local autorities and the CUs.

13.5.2 District Level

In accordance with the Local Government Act of 1991, UWSS service provision for water supply, sanitation, drainage and refuse collection within their areas of jurisdiction is the responsibility of city, municipal and district councils.

There are 4 City, 14 Municipal and 54 District Councils in Zambia.

Most councils do not have departments or units for all the functions and most district based government departments report to line ministries and not the councils.

13.5.2.1 Commercial Utility (CU) for provision of water supply and sanitation services

As stated in the Water Supply and Sanitation Act [No.28 of 1997] a local authority may resolve to establish a water supply and sanitation utility as a company under the Companies Act.
At present (2010) 11 CUs have been formed, namely: Lusaka, Nkana, Kafubu, Mulonga, Southern, Lukanga, Chambeshi, Eastern, North Western, Western and Luapula Water and Sewerage Companies.

Luapula WSC and Eastern WSC, which is an expansion of the former Chipata WSC are still in the process of establishing themselves in their respective areas.

The management capacity in all CUs is to be enhanced so that each CU will be able to provide the required sustainable services directly by its own organisational resources and through the procurement of external services and expertise.

Peri-Urban Units (PUU) with a budget and well trained human resources will be established in all CU to strengthen the service delivery in peri-urban areas. The PUU will work closely with the communities regarding planning, construction, operation, maintenance, tariffs and education relevant to all aspects of WSS provision in the PU areas.

13.5.2.2 Solid Waste Management Companies

In line with the formation of a CU for providing water supply and sanitation services a local authority may resolve to establish a Solid Waste Management Company under the Companies Act to assist the Council.
Experience of this solution already exists from Lusaka and the Copperbelt.

13.5.2.3 Community Based Organisations (CBOs)

There are many community-based institutions playing different roles in the provision of Water Supply and Sanitation in per urban areas and informal settlements. Many of these have weak institutional and legal arrangements and sometimes work at cross purposes.

Memoranda of Understanding (MoU) should be agreed between service providers (Local Authorities and CUs) and community institutions to clearly spell out responsibilities of all parties involved in service provision. The MoU should be discussed and negotiated to mutually acceptable terms by the concerned parties and not imposed by any one party.

13.5.2.4 Private Sector

The private sector will be encouraged to participate in all components of the UWSS sector. With the enhanced rate of implementation of UWSS the participation of the private sector will increase considerably and become more complex. Hence, both the quantitative and the qualitative input by the national and international private sector need to be raised through capacity building and joint venture between local and foreign firms.

13.6 Regulatory Institutions

In the context of the water resource sector the regulatory institution needs to have responsibility for four aspects of the sector:

- Consumer protection.
- Economic regulation.
- Water quality.
- Water environment.

The regulatory bodies in Zambia include:

- **NWASCO**, responsible for consumer protection and economic regulation.
- The **Ministry of Health** responsible for water quality regulation.
- The **Water Resources Management Authority** and the **Environment Council of Zambia** (ECZ), responsible respectively for quantity and quality aspects of environmental regulation.

13.6.1 National Water and Sanitation Council (NWASCO)

NWASCO was established by the Water Supply and Sanitation Act No. 28 of 1997. NWASCO is governed by a statutory body with 7 board members from public and private institutions appointed for a three-year term by the Minister, MEWD and NWASCO reports to Parliament through MEWD.
Appeals against decisions of NWASCO can be channelled through the Minister, MEWD to the High Courts of Zambia.

The activities of NWASCO are mainly (84 % in 2009) funded from licence fees of 2 % of the CUs' turnover and to some degree from grants, donor support and other income. There are 10 professional and 6 support staff members (2010) lead by the Director as chief executive officer appointed by the Council. The structure is complimented by 15 part-time inspectors spread across the country.

13.6.1.1 Technical Advisory Committee to NWASCO

The Act Clause 6 provides for a Technical Advisory Committee to be constituted.

13.6.1.2 Water Watch Groups

NWASCO has appointed 12 (2010) non-statutory Water Watch Groups (WWGs) to help in its consumer protection role.
The functions of the WWGs are to:

- improve communication between providers and consumers
- create awareness among consumers on their rights and responsibilities
- handle unresolved consumer complaints
- give feedback to NWASCO

13.6.2 Ministry of Health (MoH)

The Public Health Act effectively places the responsibility for monitoring water quality on Local Authorities. The water quality surveillance organisation and its functions will be further studies and developed as part of the NUWSSP.

13.6.3 Environmental Council of Zambia (ECZ)

Under the Environmental Protection and Pollution Control Act of 1990, there is an Environmental Council set up to monitor and enforce standards in relation to all activities relating to water quality, discharge, effluents and emissions. ECZ is required under legislation to monitor and control the activities of companies including utility companies, and to that extent, it has a fundamental responsibility and duty in relation to a service provider's activities.

13.6.4 The Water Resources Management Authority

The Water Resources Management Authority is planned to be established shortly under the Water Resources Management Bill, 2007.

The Authority, in accordance with this Act, will have the power to:

(a) exercise control over all water resources in Zambia;

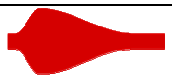
(b) plan, review and approve management plans in a catchment or subcatchment, including inter-catchment and intra-catchment diversions;

(c) issue water entitlements and allocate water for various uses

(d) grant water permits and licences

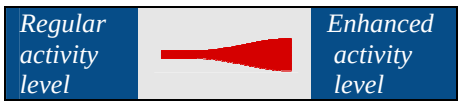
13.7 Overview of Activity Framework and Time Schedule for Management and Organisation

Table 13.5 : Overview of Activity Framework and Time Schedule for Management and Organisation

Target	Activity	By Whom	2011 2015 2030
Government and CPs	Deliberation of the NUWSSP in the Water Sector Advisory Group (WSAG)	DHID/CP	
	Adoption of NUWSSP and signing of Memorandum of Understanding by Government of Zambia and Cooperating Partners	DHID/GRZ/CP	
	WSAG(sub-com.) and NUWSSP Steering Committee meet regularly	DHID	
Government Institutions	Assign UWSSS responsibility and lay down the modalities for the management of NUWSSP	DHID	
	Strengthening of the UWSSS with TAs, accountant, support staff and provide office space and logistics	DHID	
	Commissioning of consultancies to prepare guidelines and standard documents for Service Providers	UWSSS	
	Implement any organisational changes resulting from the Policy Development Programme	UWSSS	
	Increase the number of and improve the performance of Part Time Inspectors and WWGs	NWASCO	
	Co-ordination between town planning authorities and service providers	MLGH/GRZ	

Target	Activity	By Whom	2011 — 2015 — 2030
Service Providers	Operationalise fully the newly formed CUs Luapula WSC and Eastern WSC	CU/NWASCO	
	Increase the number of and improve performance of Peri-Urban Units and Quality Surveillance Units	CU/NWASCO/MoH	
	Formation of Solid Waste Management Companies	LA/UWSSS	
Private S.ector	Strengthen organisation, competence and capacity for increased participation in the UWSS sector	Priv.Sect./UWSSS	

Legend



14 FINANCIAL MANAGEMENT

14.1 Principles

The financial management of the programme is based on two fundamental principles:

- A Sector Wide Approach (SWAp).
- Decentralisation of responsibility to local government

This requires the establishment of a single account at national level for the programme and the transfer of funds to service providers based on an agreed set of rules.

Overall, there are four main sources of finance for the direct costs of the programme: Government, CPs, LAs and communities. The way these costs are shared is central to the success of the programme if it is to be sustainable. The proposed arrangement for the relative contributions to be made by each of these four groups is shown below.

The SWAp requires that the Government and CPs make the following commitments:

- To have the programme managed through a single management system guided by a single set of principles and standards.
- The control of the programme to be delegated to an agreed agency.
- To work with the multi-year budget framework and adapt to government classifications
- To work with the sector policy framework
- To use Joint Monitoring and Reporting Procedures
- To participate in Policy Dialogue

14.2 Objectives

The overriding purpose of the Financial Management is to provide expedient, efficient and effective support to the local Service Providers in their endeavour to improve the WSS service delivery to the public. The financing mechanism shall:

- ***Facilitate the provision of adequate financing of the water supply and sanitation sector in Zambia***

Despite the sound policy reform measures that have been implemented since 1994, sector budgets from Government have remained very low and so too has sector finance from the private sector. Furthermore the principle of full cost recovery has not been achieved as most water utilities and service providers are unable to meet operational costs due to unsatisfactory sector investments, rundown water infrastructure and inefficiencies in operating procedures. The financing mechanism is therefore expected to assist the sector to attract additional financial resources in the water and sanitation sector from the government, external support agencies, the private sector as well as through enhanced ability of water providers to invest in the sector through cost recovery and efficient operations.

- ***Promote the effective and equitable distribution of financial resources***

In the past, financial resources for UWSS have not been distributed effectively and equitably for various reasons. These include for example preferences or whims of the financiers, geographical location, political connections or chance. In addition, there is a distinction between the formal urban and peri-urban water supply and sanitation facilities and systems because of their planned or unplanned development. Effective financing will therefore, require that the real needs are taken into account to ensure both efficiency and more importantly equitable distribution of resources to all NUWSSP sub-sectors. The financial management must therefore take account of this and strengthen financing of service delivery through the devolved local government system.

- ***Provide for sound management of financial resources in the water supply and sanitation sector***

The Paris Declaration on Aid Effectiveness and the new aid architecture for Zambia recognize the need to improve interventions in development assistance towards programme based approaches for the purpose of strengthening national government institutional arrangements and promoting harmonization and alignment. This calls for effective organizations, financing systems and management arrangements that can provide sufficient confidence to all potential sector financiers (Government; external support agencies, Private sector etc) to use national institutional arrangements. Such systems would have to embrace a high degree of transparency and accountability. The FM therefore requires the development and application of sound financing mechanisms to support effective service delivery.

14.3 Funding Options

14.3.1 Overview of existing and potential FMs for the Water Sector in Zambia

The funding of the NUWSSP is expected to be through a number of options e.g.:

- Government Grant Budget via Treasury to Sector Ministry at HQ, Province and District Level
- SWAp , basket funding and Sector Budget Support
- Official Loans from bi- and multilateral donors
- Commercial loans
- Public Private Partnership arrangements
- Suppliers Credit
- Grant Subsidy Schemes for special consumer groups or special services provision
- Self Supply finance by consumers themselves
- User Fees
- Long Term Investment Capital

14.3.2 Funding Modalities

The funding modalities from external financial sources to be accommodated under the NUWSSP are outlined below:

National revenues – Government will provide funding to the sector through its normal budget process in line with its medium term expenditure framework (MTEF). Negotiation on funding levels by Government will be subject to sector wide policy dialogue under the national program and Government's budgetary process.

General and Sector Budget Support - This funding modality will be formalised by Government and those CPs willing to provide funding through this approach. As a first step it is expected that Government will include key water sector indicators as part of the Poverty Assessment Framework (PAF) under the on going poverty reduction budget support initiative (PRBS).

Pooled Funding - Government will establish and maintain a basket fund for the sub sector. CPs will be encouraged to provide their support through this approach. Parts of the programme that are to be supported by the basket fund will be negotiated annually under the programs annual implementation planning process. It is expected that substantial parts of sector development components of the NUWSSP will be supported by pooled funding arrangements.

Project Funding – The national programme will be supported through projects which will from part of the basket of activities of the NUWSSP. For a transitional period NUWSSP will continue to be supported by Area Based Projects (ABP) as described in Chapter 4.8. and 5.7 . The CP assisted ABPs, mostly formulated before the NUWSSP, are largely consistent with the NUWSSP's objectives and strategies.

CPs that may not or cannot align themselves with pooled funding modalities or budget support may continue to support the sector and the NUWSSP through activity based funding as long as the approaches and strategies of the NUWSSP are followed and the input is coordinated by the management of the NUWSSP.

CPs may enter into bilateral agreements in support of the NUWSSP. These agreements, must as far as possible be in line with SWAp as described above or the Joint Government/CP agreement on the NUWSSP.

The funding modalities from local financial sources to be accommodated under the programme are:
User fees
Re-invested profits
Local taxes
Public Private Partner arrangements

Figure 14.1 shows the mobilisation and disbursement process.

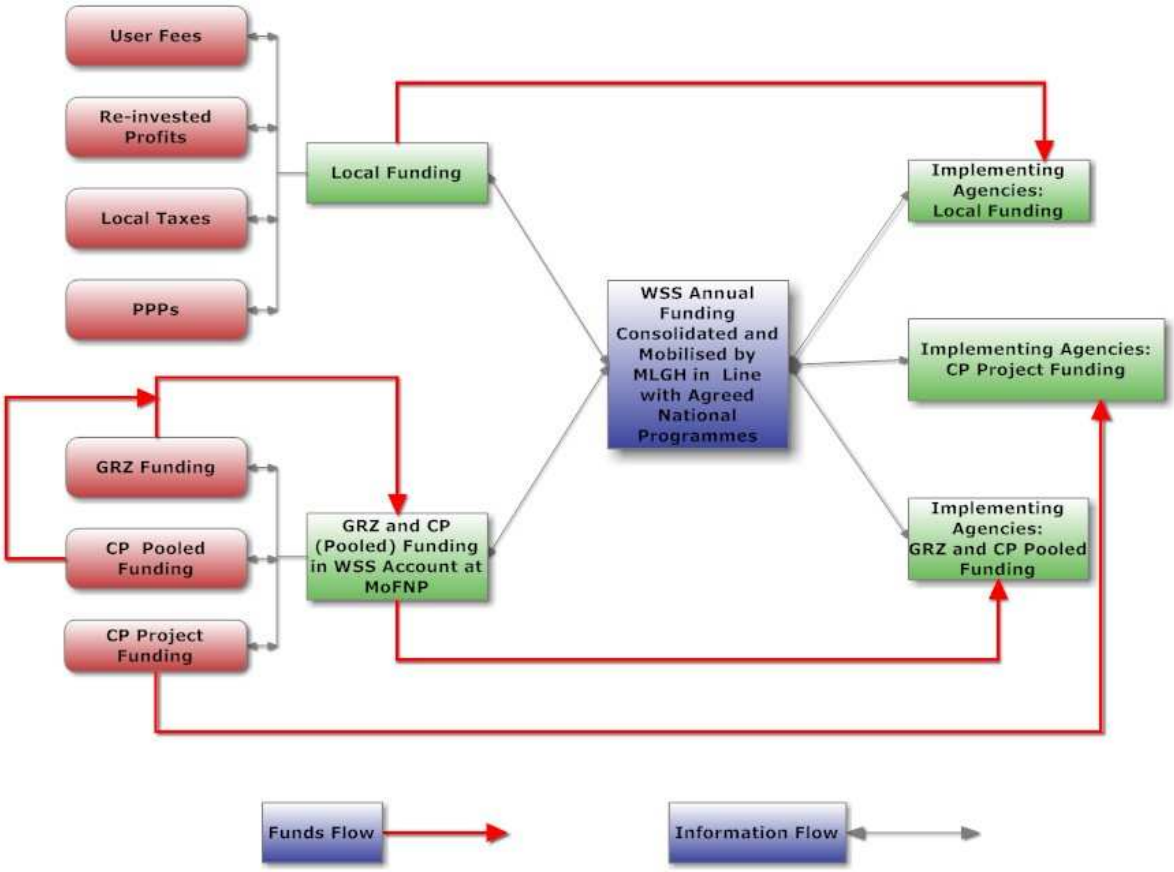


Figure 14.1 Mobilisation and Disbursement Process (PEMConsult August 2010)

14.4 Financial Management Strategy

The NUWSSP will only succeed if the financial management arrangements are sound and transparent. This requires:

- Up-front commitment of funds from Government and CPs with actual disbursement of funds, on time, to match these commitments.
- Commitment to the system of transferring funds to implementing local agencies such as district councils and commercial utilities.
- The necessary accounting and auditing procedures are in place.

The funding commitments from CPs will be included in MoUs and Intergovernment Agreements with Government and these contracts must describe the relative contribution of both parties and the arrangements for payment into a basket fund. Both parties need to have the option of withdrawal from the programme if the agreed contributions into the national account are not made.

Commitments to implementing agencies are made by Government for three years corresponding to an MTEF period. Commitments are conditional on history of management of previously implemented projects, updated information systems and other elements of the MOU with MLGH.

Alternative financial management strategies have been considered and discussed during the NUWSSP preparation process. The organisation and management will inter-depend on the finally selected framework for organisation management discussed in Chapter 13. A special consultancy study was commissioned for the purpose of coming up with recommendations on a joint NUWSSP and NRWSSP financing mechanism (FM). Preliminary recommendations are available. (September 2010).

Prior to receipt of the final recommendations and decisions by the Government, a tentative principle FM framework is shown in Figure 14.2.

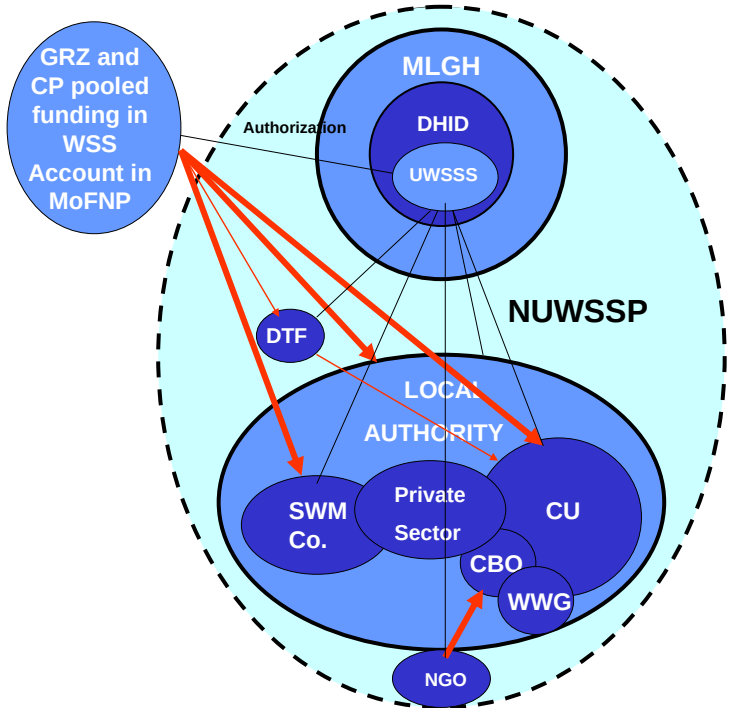


Figure 14.2 Principle Framework for Financing Mechanism
Red arrows – Funds Flow
Black lines – Information Flow

14.5 Expenditure / Procurement

All expenditure in the public sector is guided by the Public Procurement Act, 2008 administered by the Zambia Public Procurement Authority (ZPPA) formerly the Zambia National Tender Board. This even applies to CUs, which are considered part of the Public Sector as outlined for instance by the Public Audit Act since they are funded in part by the public through GRZ. Section 3 of the Public Procurement Act provides for this.

The ZPPA has developed guidelines that are publicly available.

14.6 Accounting

At national level
The WSS account will be opened and operated by MoFNP. This account will be subject to the accounting systems of MoFNP, who must provide the CPs and Government with an up-to-date financial status and present timely financial reports. The system shall provide efficient control and monitoring of UWSS funds. The systems shall follow international standard accounting rules. The MoFNP must prepare reports on a quarterly basis for Government and CPs on utilizations of funds. The CPs reserve the right to withhold payment of funds until sufficient documentation has been received on previous expenditures.

A separate account for national level activities will be established by the MLGH. This account will be subject to the accounting systems of MLGH, who must provide the Government with an up-to-date financial status and present timely financial reports. The system shall provide efficient control and monitoring of UWSS funds. The systems shall follow international standard accounting rules. The MLGH must prepare reports on a quarterly basis for Government on utilizations of funds. The PSC reserves the right to withhold payment of funds until sufficient documentation has been received on previous expenditures.

NWASCO will follow the provisions of the Constitution of Zambia, Public Finance Act No.15 of 2004.

DTF will keep accounts in accordance with the Companies Act, 1994.

At district level
District councils must open separate bank accounts for the UWSS funds they receive as a transfer from the WSS account.

The standard accounting practice for district councils will be followed. The systems shall follow international standard accounting rules. The adequacy of the system will be assessed before funds are transferred into any district account. The assessment will include an assessment of the use of the system and of the procurement, tendering and contracting procedures of the agency. The PSC must approve the accounting system and procedures. District treasurers must submit quarterly financial reports relating to this account. The PSC reserves the right to withhold payment of funds until sufficient documentation has been received on previous expenditures.

At Commercial Utilities level
CUs will keep accounts in accordance with the Companies Act, 1994.

14.7 Auditing

At national level
The Auditor General (AG) is the national body that is responsible for ensuring that government funds are utilized for the prescribed purposes, that funds are managed as per the financial manual, and that they are utilized effectively. The audit of the NUWSSP

account shall be carried out at least once every year. Reporting by AG will consist of an audit report with auditor's comments including an attachment on fixed assets for each component. The audit reports shall be submitted to the MoFNP, CPs and the PSC within six months after the expiry of the Government fiscal year or expiry of the agreement. Any expenses disallowed by audit including audit recoveries shall be returned to the programme. The PSC reserves the right, at any time to field a special audit, to conduct financial and physical audits.

The CPs reserves the right to, at any given time, to field audits, at national level, of e.g. to evaluate the degree to which 'value for money' has been achieved, for example by comparing to standard unit prices at any given time during the implementation. CPs will conduct such audits alone or together and the CP will cover the cost of the audit. No CP can conduct an audit without informing the Lead CP and Government.

NWASCO will be audited in accordance with Article 121 of the Constitution of Zambia, Public Finance Act No. 15, Public Audit Act o 1980, CAP 378.

DTF will follow the principles for external auditing provided for in the Companies Act, 1994.

At district level

The WSS accounts kept by district councils will be subject to standard auditing practice for these councils, with oversight of the Auditor General. In addition these accounts will be audited by a private firm of auditors who will carry out audits of the district UWSS accounts on the following basis:

- All districts will have an audit within two years of first receiving a transfer of UWSS funds.
- Thereafter, audits will be carried out on a random basis with the aim of getting every district account checked at least every 3 years.

The PSC reserves the right, at any time to field a special audit, to conduct financial and physical audits. The costs of these audits are to be included under the National UWSS operating account

The CPs reserve the right to, at any given time, to field audits at district level, of e.g. to evaluate the degree to which 'value for money' has been achieved, for example by comparing to standard unit prices at any given time during the implementation. CPs will conduct such audit alone or together and the CP will cover the cost of the audit. No CP can conduct an audit without informing the Lead CP and Government.

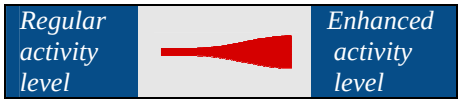
At Commercial Utilities level

CUs will follow the principles for external auditing provided for in the Companies Act, 1994.

14.6 Overview of Activity Framework and Time Schedule for Financial Management

Table 14.2 : Overview of Activity Framework and Time Schedule for Financial Management

Activity	By Whom	2011 2015 2030
Decision on Financial Mechanism for NUWSSP	MLGH/ GRZ	
Create and operationalise Pooled WSS Fund	MFNP/ MLGH	
Phasing out of Areas-based Project support	UWSS/ CP	
Phasing in and use of Pooled WSS Fund by GTZ and CPs	UWSS/ CP	
Development and use of alternative financing mechanisms incresingly based on loans and direct budget allocations from GTZ	UWSS/ GRZ	



15. MONITORING, REPORTING, REVIEWS AND EVALUATION

15.1 Monitoring

The monitoring system for the NUWSSP is based on the following key principles:

- Sustainability – the regular checking, documentation and reporting of progress is integrated in regular operations of the sector institutions so as not to impose extra burden on the operations of the respective institutions.
- Participatory – involving a decentralized approach to data collection where the programme implementing institutions as well as the beneficiaries participate in the monitoring system. This should enhance accountability and transparency since the beneficiaries of programme interventions take responsibility for reporting on the progress. In particular the monitoring system is anchored in the local authority at district level and utilising the defined structures as per the Decentralisation Policy.
- Use of a single unified monitoring system for the programme as a whole (inputs, outputs, results, impacts) so that sectoral performance can be efficiently and timely ascertained as well as its contribution to overall national development.

15.2 Indicators

The indicators for achieving the objectives of the programme are shown in Table 15.1 Other indictors to be used include programme and sector performance indicators as well as component factor indicators. Refer to the Background and Analysis Volume.

Table 15.1: Indicator for achieving the Objectives of NUWSSP

Programme Objective	Verifiable Indicators	Sources of Verification
Overall Objective: To provide sustainable and equitable access to safe water supply and proper sanitation to meet needs for improved health and poverty alleviation for Zambia's urban population. and contribute to achievement of Millennium Development and Vision 2030 Goals.	- UWSS coverage statistics - Official poverty and health statistics	- CSO socio-economic and health reports. - UWSS IMS
Water supply • to provide adequate, safe and cost-effective water supply services to all areas by 2030 with due regard to environmental protection. • to charge a reasonable amount for use of water ensuring that it supports the effective management of water so that its utilisation is sustainable and equitable. • to manage water resources and water supply facilities so as to reduce the incidence of water and vector-borne diseases and parasitic infestations. • to promote legal and institutional	- UWSS coverage statistics - Official health statistics - Socio-economic statistics - UWSS budgets and expenditures - UWSS Investment statistics - District water supply plans	- CSO reports - UWSS IMS Reports - NWASCO reports - District UWSS Investment Plans - District UWSS annual reports - District water supply plans

Programme Objective	Verifiable Indicators	Sources of Verification
framework capacity enhancement. • to implement measures which enhance mainstreaming of cross-cutting issues.		
Sanitation • to provide adequate, safe and cost-effective sanitation services to 68 percent by 2015 and 90 percent by 2030 of the urban population with due regard to environmental protection. • to charge a reasonable amount for use of sanitation facilities ensuring that it supports the effective management of the sanitation systems so that its utilisation is sustainable and equitable. • to manage water and sanitation facilities so as to reduce the incidence of water and vector-borne diseases and parasitic infestations. • to promote legal and institutional framework capacity enhancement. • to implement measures which enhance mainstreaming of cross-cutting issues.	- UWSS coverage statistics - Official health statistics - Socio-economic statistics - UWSS budgets and expenditures - UWSS Investment statistics - District sanitation plan	- CSO reports - UWSS IMS Reports - NWASCO reports - ECZ reports - District UWSS Investment Plans - District UWSS annual reports - District sanitation plans
Solid Waste Management • to provide adequate and cost-effective solid waste collection, transportation, treatment and deposition with due regard to environmental protection. • to ensure that 80 percent of the waste is collected and transported by 2030. • to charge a reasonable amount for solid waste management services ensuring that it supports the effective management so that it is sustainable and equitable. • to keep the residential areas clean so as to reduce the incidence of diseases and parasitic infestations. • to prevent blockage of sewers and drains by waste. • to promote legal and institutional framework capacity enhancement. • to implement measures which enhance mainstreaming of cross-cutting issues.	- SWM coverage statistics - Official health statistics - Socio-economic statistics - SWM budgets and expenditures - SWM Investment statistics - District SWM plans	- CSO reports - UWSS IMS Reports - ECZ reports - District SWM Investment Plans - District SWM annual reports - District SWM plans
Drainage • to provide adequate and cost-effective stormwater and greywater drainage for protection of residential, commercial, institutional and	- UWSS coverage statistics - Official health statistics - Socio-economic statistics - Drainage budgets and expenditures	- CSO reports - Drainage IMS Reports - ECZ reports - District drainage

Programme Objective	Verifiable Indicators	Sources of Verification
industrial areas and the environment. • to keep the core urban and peri-urban areas clean so as to reduce the incidence of diseases and parasitic infestations. • to prevent the damaging of water supply and sanitation facilities and the pollution of drinking water and raw water resources by flooding and water-logging.	- Drainage Investment statistics - District drainage plans	Investment Plans - District annual reports - District drainage plans
Policy • to develop a comprehensive Water Supply and Sanitation Policy and Legal Framework that facilitates effective development and management of the WSS sector in Zambia. • to implement adopted policies, legislation and regulations	- Revised National WSS Policy - Revised UWSS legislation and regulations - Advocacy and Communication Strategy	- National WSS Policy - Revised WSS legislation and regulations - NWASCO reports - ECZ reports
Capacity Development • to improve the quality, efficiency, cost-effectiveness and delivery of urban water supply and sanitation services • to develop the capacity required for the implementation of the NUWSSP.	- PEMFA reforms - PSM reforms - Decentralisation of decision making and administration - Private sector involvement - Organisational improvements - Budgets and expenditures for capacity building - Courses and training activities - Human Resources Development Plans	- PSRP reports - UWSS IMS Reports - NWASCO reports - ECZ reports - District UWSS Investment Plans - District UWSS annual reports - Human Resources Development Plans
Information Management Development • establishment of a harmonised and comprehensive information system on urban and rural water supply and sanitation together with streamlined reporting procedures and encompassing all concerned ministries and organizations. • harmonisation of definitions in line with planning and development, regulation, FNDP and MDG monitoring requirements.	- Information Management System (IMS) - CSO definitions and standards for UWSS	- CSO reports - UWSS IMS Reports - NWASCO reports - ECZ reports - MOH reports - District UWSS annual reports
Research and Development • to develop a sound scientific and socio-cultural framework for implementing UWSS in Zambia. • to develop technical design standards, affordability, socially and culturally appropriate options.	- WSS research institutions and facilitation centre - New recommended technical and social standards - Research budgets and	- Research reports - NWASCO reports - Institutional annual reports

Programme Objective	Verifiable Indicators	Sources of Verification
• to evaluate financial viability before wide scale adoption of a particular technical solution in any given setting.	expenditures	

15.3 Reporting

The MLGH/UWSSS will be responsible for preparation of consolidated progress reports, covering both physical progress as well as financial progress based on formats to be elaborated between Government and CP.

15.3.1 Physical progress Reporting

Physical Progress will be monitored according to detailed work plans and budget for each component. UWSSS will rely on the reports from the implementing agencies and NWASCO. The reports will emphasize achievement of targets, analysis of variation between target results and what has been achieved, and recommendations for overcoming the constraining factors.

15.3.2 Financial Progress Reporting

The financial reporting will follow the guidelines elaborated in Chapter 14. Details of the financial reporting will be elaborated on after the Financial Mechanism study has been completed and decisions taken by the Government.

15.4 Reviews

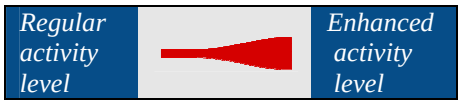
The NUWSSP will be subject to annual reviews jointly carried out by Government and the CPs. The annual reviews will not necessarily involve all activities or components of the programme. The PSC may decide to carry out technical assessments on specific issues at any time during the Programme period. However, every three years a full scale review of all programme activities will be undertaken.

15.5 Overview of Activity Framework and Time Schedule for Monitoring, Reporting and Evaluation

Table 15.1 : Overview of Activity Framework and Time Schedule for Monitoring, Reporting and Evaluation

Activity	By Whom	2011 – 2015 – 2030
Development of detailed formats and timeschedule for reporting on status and; physical and finacial progress to PSC, GRZ and CPs	UWSSS	
Preparation of inception report 6 months after start of NUWSSP	UWSSS	
Regular monitoring of progress of the NUWSSP	UWSSS	
Regular monitoring of and reporting of progress of NUWSSP activities by implementing agencies	CU/LA/Ed.SInst./ NWASCO/Priv.Sect.	
Annual and semi-annual reporting to PSC, GRZ and CPs.	UWSSS	
Review of NUWSSP	UWSSS/ GRZ/CP	
Selection and agreement among UWSS actors and CSO on indicators conforming to international and regional indicators and National programmes. (See also under Chapter 10 IM)	UWSSS/NWASCO/ CU/LA/CSO	

Legend



16. COMMUNICATION STRATEGY FRAMEWORK

16.1 Sector context

The Communication Plan for the NUWSSP has been developed as a guide to the DHIDemination of the Programme. It has been recognised that there are many actors at all levels (from state up to community and individual level) involved in UWSS sector and thus a need for a Sector-Wide approach to undertake the activities in an effective and efficient manner.

16.2 Objectives

- To provide information, raise awareness and build support for implementation of the NUWSSP at all levels of the society.
- To increase the efficiency and effectiveness of the NUWSSP through education and sharing of information between stakeholders.
- To improve co-operation and understanding between customers and Service Providers through the development of a customer-centred culture in service delivery.
- To enhance the efficiency and effectiveness among Service Providers through internal communication between departments, branches and all staff in the organisation.
-

16.3 Target Stakeholders

The target will be stakeholders who have a role to play in the NUWSSP specifically in the implementation of the programme as outlined in the eight focus areas of water supply, sanitation, solid waste management, drainage, policy development, capacity building, information management and research&development and capacity building. These will include:

i) Ministries
ii) Provincial Administration
iii) Local Authorities
iv) Commercial Utilities
v) Legislators
vi) Regulatory bodies
vii) NGOs
viii) Private sector
ix) Educational and research institutions
x) Traditional uthorities
xi) Customers and users
xii) G
xiii) eneral Public
xiv) Print, radio and TV media
xv) Cooperating partners

16.4 Activities

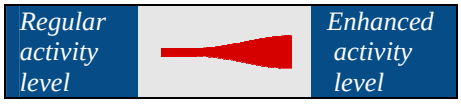
Activity	Target stakeholders	Responsible
Hold official Launch of the NUWSSP	All	MLGH
Produce 2000 and 500 hard copies of the Main respectively the Background and Analysis reports and 500 CDs of the NUWSSP	All	UWSSS
Hold 3 regional seminars to DHIDeminate the programme	Provincial Administration, Local Authorities, Traditional authorities, stakeholder user groups	MLGH
Upload the plan on the websites of MLGH, MOFNP, MWED, NWASCO	All	MLGH, MOFNP, MWED, NWASCO
Distribute by mail hardcopies and CDs of the plan to various stakeholders	All	UWSSS
E-mail the NUWSSP to stakeholders and provide regular updates	All	UWSSS
Hold regular press briefings on NUWSSP and its implementation progress	Print, radio and TV media	MLGH
Issue Press releases on the NUWSSP and its implementation progress	All	MLGH
Develop and maintain local institutions and modalities for regular consumer/provider contacts	UWSS users	LAs, CUs, NWASCO
Develop and distribute information materials for WSS users	UWSS users, General Public	LAs, CUs, UWSSS
Develop educational and information programmes and broadcast on radio and TV	General Public	UWSSS
Provide yearly updates of the detailed status of the NUWSSP	Ministries, LAs, CUs, Water SAG, CPs	MLGH, NWASCO
Provide information on courses and research in Zambia	Ministries, LAs, CUs, Private sector, NGOs	Educational and research institutions
Provide information on international courses, conferences and research	Ministries, LAs, CUs, Private sector, NGOs, Educ.Inst.	Cooperating Partners

16.5 Overview of Activity Framework and Time Schedule for Communication Strategy

Table 16.1 : Overview of Activity Framework and Time Schedule for Communication Strategy

Activity	By whom	2011 – 2015 – 2030
Launch of the NUWSSP	MLGH	
Regional seminars to disseminate the programme	UWSSS	
Distribution of NUWSSP documents	UWSSS	
Regular press briefings on NUWSSP and its implementation progress	UWSSS	
Develop detailed national level external and internal communication strategy	UWSSS	
Develop detailed external and internal communication strategy for each CU and LA	CU	
Develop and maintain local institutions and modalities for regular consumer/provider contacts	CU	
Develop and distribute information materials for UWSS customers and users	CUUWSSS	
Distribute yearly updates of the detailed status of the NUWSSP	CU	
Develop educational and information programmes and broadcast on radio and TV	CU/UWSSS	
Sharing of information on courses, conferences and research	UWSSS	

Legend



17. NUWSSP IMPLEMENTATION FRAMEWORK

When GRZ and other stakeholders have reached a general agreement to adopt and implement the NUWSSP the following process should be followed broadly:

17.1 Preliminary Activities – Month 0 to Month 3

- Official launch of the NUWSSP
- Preparation and signing of Memorandum of Understanding by GRZ and CPs.
- Pledging of financial support od NUWSSP by GRZ and CPs.
- DHIDemination of information to stakeholder.

17.2 Establishment of NUWSSP management unit – Month 1 to Month 6

- Assign UWSSS the responsibility of managing the NUWSSP.
- Deploy UWSSS core Government staff and duties.
- Arrange office space and logistics for UWSSS.
- Deploy support staff in the UWSSS.
- Start recruiting key Technical Assistance personnel to UWSSS.

17.3 Establishment of internal working modalities – Month 2 to Month 9

- Arrange Programme Steering Committee and the WAG-sub committee meetings.
- Adopt detailed modalities for the Financing Mechanism and establish NUWSSP account.
- Work out and implement modalities for close co-ordination between UWSSS and DTF.
- Adopt UWSSS Work Plan for the first year.
- Increase UWSSS's involvement in ongoing Area Based Projects.
- Deploy key Technical Assistance personnel.
- Start recruiting additional Technical Assistance personnel and consultants.

17.4 Establishment of external working modalities – Month 3 – to Month 12

- Co-ordination of all ongoing Areas-Based and other UWSS supported projects.
- Developing transparent and objective criteria for prioritisation and selection of projects for support under NUWSSP.
- Developing detailed guidelines for preparation and processing of support applications.
- Receiving and analysing updated investment needs estimates from CUs.
- Preparation of UWSS investment budget for the first year of NUWSSP.
- Implement communication strategy

17.5 Rolling out of the NUWSSP in full – Month 12

- Invite and process applications for project support and undertake all other NUWSSP activities

17.6 Overview of Activity Framework and Time Schedule for Implementation of NUWSSP

Table 17.1 : Overview of Activity Framework and Time Schedule for Implementation of NUWSSP

Activity	By Whom	Month																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Preliminary Activities																			
Official launch of the NUWSSP	MLGH																		
Preparation and signing of MoU by GRZ and CPs.	GRZ/CP																		
Pledging of financial support to the NUWSSP	GRZ/CP																		
DHIDemination of information to stakeholder.	DHID																		
Establishment of NUWSSP management unit																			
Assign UWSSS the responsibility and deploy core Government staff.	DHID																		
Arrange office space and logistics for UWSSS.	DHID																		
Recruiting process for key Technical Assistance personnel to UWSSS.	UWSSS																		
Establishment of internal working modalities																			
Arrange Programme Steering Committee and the WAG-sub committee meetings.	UWSSS																		
Adopt detailed modalities for the Financing Mechanism and establish NUWSSP account.	DHID/UWSSS																		
Prepare and follow detailed UWSSS Work Plan for first year	UWSSS																		
Deploy key Technical Assistance personnel and start recruiting additional Technical Assistance personnel and consultants.	UWSSS																		

Activity	By Whom	Month 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Establishment of external working modalities																			
Co-ordination of all ongoing Areas-Based and other UWSS supported projects.	UWSSS/CP																		
Developing transparent and objective criteria for prioritisation and selection of projects for support under NUWSSP.	UWSSS																		
Receiving and analysing updated investment needs estimates from CUs.	UWSSS																		
Preparation of investment budget for the first year of NUWSSP.	UWSSS																		
Developing detailed guidelines for preparation and processing of support applications.	UWSSS																		
Start implementation of communication strategy	UWSSS																		
Rolling out of the NUWSSP																			
Invite and process applications for projectssupport + all other NUWSSP activities																			

Legend

Regular activity level		*Enhanced activity level*

18. ASSUMPTIONS AND RISKS

Assumptions and risks re: Overall institutional arrangements

- It is assumed that Government will fully implement the National Decentralization Policy and empower and develop the Local Authorities to fulfil the roles entailed in the policy.
- It is assumed that key stakeholder will understand the decentralisation of responsibility and overcome the resistance for change.
- It is a risk that CPs are not willing to align with NUWSSP to the approach and principle of the Programme. The risk is assessment low to medium and will be mitigated through the formalising the donor coordination mechanism, the learning processes and the reviews included in the Programme
- It is a risk that Government will not reinforce the NUWSSP with the staff and logistics required before the start of the Programme. Experience indicates that it takes time for Government to create new positions and temporary mitigation might be needed. The risk is assessed to be medium and mitigation measures will be worked out between Government and CPs.
- It is a risk that the implementing agencies will not adhere to the financial reporting procedures agrees. This risk is assessed to be low to medium and the capacity building activities and the accounting procedures has been designed to minimize this risk.

Assumptions and risks re: Overall financial arrangements

- It is an assumption that Government and CPs will be able to raise the funds necessary to implement the Programme.
- It is a risk that some Councils do not have sufficient financial capacity to manage Programme funds and to procure services. The risk is assessed low to medium and the capacity development component is designed to minimise this risk.
- Corruption at all levels is a risk. This risk is assessed medium to high and it will be mitigated rigid use of the Government and CP procedures for anti-corruption.

Assumptions and risks re: Approach and strategy

- It is assumed that it is possible to mobilise adequate technical and human resources for large scale implementation.
- It is assumed that the NUWSSP approach and framework, and the decentralization policy can be sufficiently anchored at the district level to avoid a situation where stakeholders are operating in an institutional “vacuum” or where institutional sector responsibilities are not clarified and sufficiently met.
- It is assumed that the NUWSSP framework and key elements of the decentralization policy at the level of Councils will be institutionalized, and that the roles and responsibilities of MFNP, MLGH, MOH, MEWD and ECZ regarding regulation, supervision and monitoring of district planning and budgeting procedures will be clarified.
- It is assumed that conditions of service will not deteriorate so much for government and council workers participating in the component that this will affect the implementation.
- It is assumed that there will be improved coordination of government and donor interventions in NUWSSP.
- It is assumed that Government policies, programmes and political interventions will not contradict or cause confusion among the implementers and the beneficiaries.