

# Water and Sanitation

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### **11.1 Introduction**

Zambia is endowed with relatively abundant water resources. The annual rainfall averages between 700 mm in the south and 1,400 mm in the north. There is an extensive river network consisting of the Zambezi, Kafue, Luangwa, Chambeshi, and Luapula Rivers. In addition, there are several large lakes, many small lakes, and a number of relatively productive aquifers in various parts of the country. Taken as a sum total for the whole country, the available water resources far exceed the consumptive use (including domestic and industrial water supplies, irrigation, and livestock) even in a drought year. However, there are significant variations across the country, and there is a strong seasonal distribution leading to water deficits in certain localities. Competition for available water resources is expected to increase with the economic development in the country.

Rural and urban households and communities with access to sustainable safe water supplies and sanitation have greater potential for engaging in economic activities to reduce poverty and improve their quality of life. Sustainable access and use of safe water supply and sanitation lead to improvements in health and releases scarce economic resources from curative health support to more productive activities. Time and energy savings from the drudgery of water fetching release women and children to participate in educational and socio-cultural activities.

A number of feasibility studies and surveys in rural and low income urban areas have revealed that safe water supply is a priority issue in many areas. It is also a priority need for agriculture and livestock especially in the drought prone southern and western parts of Zambia. Reliable access to water supply would be an important factor in improving agricultural production through irrigation as it reduces complete reliance on rain-fed agriculture, which is seasonal. Zambia has a favourable climate, which could support at least two crop harvests a year if water was made available throughout the year by both small- and large-scale irrigation schemes. This would not only improve food security and reduce the cost of food, but would also help reduce poverty particularly in rural communities.

Small-scale hydropower generation targeting rural growth centres would not only provide power for rural agricultural industries, enhancing employment for rural communities, but would also support educational and cultural activities to improve the quality of life in the presently deprived rural areas. Water is also important for sustaining natural eco-systems (such as wetlands), which are the basis of the tourism industry. It is also important for fishing (providing nutrition and livelihood for rural communities) and for rural transport on lakes and rivers.

### **11.2 Situation Analysis**

#### **11.2.1 Existing Policy Framework**

During the 1993-1994 period, government established a more comprehensive policy framework for the water sector. Firstly, in 1993 seven policy principles were adopted as a basis for restructuring the sector. These principles were:

- Separation of water resource management from water supply and sanitation provision.
- Separation of the functions of regulation and service provision.
- Devolution of authority to local authorities and private enterprises.
- Full cost recovery in the long run (with lifeline tariff and cross-subsidy).
- Human resource development resulting in more effective institutions.
- Technology appropriate to local conditions.
- Increased government priority and budget to the sector.

This was followed in 1994 by the adoption of the National Water Policy which covers water resources management, water use, and water quality aspects. The National Water Policy aims at promoting sustainable water resources development with a view to facilitating adequate, equitable, and good quality water for all users at acceptable costs and ensuring security of supply under varying conditions. The policy framework includes the following key policy strategies:

- Recognising the important role of the water sector in the overall socio-economic development of the country.
- Vesting control of water resources in the country under state control.
- Promoting water resources development through an integrated management approach.
- Providing adequate, safe, and cost-effective water supply and sanitation services with due regard to environmental protection.
- Defining clear institutional responsibilities of all stakeholders in the water sector for effective management and coordination.
- Recognising water as an economic good.

Within this policy framework, government successfully implemented a broad-based, collaborative, and consultative approach to elaborate strategies sufficiently specific to different sub-sectors with respect to water supply and sanitation (WSS). The existing WSS sector strategies include Strategy and Institutional Framework for the Water and Sanitation Sector, Environmental Sanitation Strategy, Peri-Urban Water Supply and Sanitation Strategy (which targets urban low income communities), and the Community Water Supply and Sanitation Strategy (targeting rural areas). The Community Water Supply and Sanitation Strategy is not yet formally adopted. The strategies and institutional arrangements for WSS service provision to urban areas, in particular, are elaborated in the Strategy and Institutional Framework for the Water and Sanitation Sector adopted in 1994. It establishes the framework for devolution of authority for service provision from central government to local authorities and private enterprises, and it has so far been the basis of the ongoing institutional reform of the WSS sector.

For rural areas, in 1996 the government adopted the WASHE (Water, Sanitation, and Health Education) concept as a national strategy for the improvement of WSS services. This strategy facilitates the involvement of the rural population in assessing priorities; determining affordable and sustainable technology; management, operation and maintenance; and improving the health and hygiene practices in rural communities. The strategy is being implemented through district level committees (D-WASHEs), which are part of the formal district level planning process. Communities are encouraged to establish lower level WASHE committees to ensure effective community planning and management of WSS facilities. D-WASHE committees have been established in almost all the districts.

The thrust of WSS strategies has a strong pro-poor focus, and if effectively implemented would significantly address the basic needs of poor communities in urban and rural areas and release their energies for productive socio-economic activities. Strategies for water resources management have not yet been formulated. The elaboration of strategies for water resources management will be carried out through the Water Resources Action Programme (WRAP)

whose implementation commenced in the second half of 2001. The overall goal of WRAP is to contribute to reduction of poverty, increased food security, and enhanced social and economic development by establishing a comprehensive framework that will promote effective development and management of the nation's water resources in an equitable and sustainable manner with strong stakeholder participation.

### 11.2.2 Legal and Institutional Framework

The primary legislation prescribing the development and management of water resources is the Water Act, Cap. 198, which was originally enacted in 1948. Other related statutes are the Environmental Protection and Pollution Control Act, Cap. 204, which is primarily concerned with control of water pollution; and the Zambezi River Authority Act (1986), which is concerned with the management of the water resources in the main stem of the Zambezi River for shared power generation at Kariba for Zambia and Zimbabwe. The Water Act is outdated, it does not adequately address the development and control of groundwater and international rivers, it does not also make sufficient provision for water quality control, or for institutional framework for regulating development of water resources, and it does not have provision for facilitating decentralised (sub-catchment) water resources management and stakeholder participation. The Water Act establishes the Water Board as the organisational unit responsible for administering water rights in the country. The Department of Water Affairs (DWA) in the Ministry of Energy and Water Development provides technical support to the Water Board. The DWA is responsible for water resources planning and management.

With respect to water supply and sanitation, the Water Supply and Sanitation Act number 28 of 1997, anchors the legal framework. According to the Act, local authorities (under the Ministry of Local Government and Housing (MLGH)), acting by themselves or through commercial utilities, or the private sector, are responsible for provision of water and sanitation services to all areas in the jurisdiction of the local authority. The Department of Infrastructure Support Services (DISS) in the Ministry of Local Government and Housing provides technical support to local authorities and assists in the mobilisation and coordination of financial resources for all infrastructure development in local authorities. The Act also establishes the National Water Supply and Sanitation Council (NWASCO) as the regulator for provision of WSS services throughout the country. NWASCO, which became operational in 2001, is responsible for developing policies, setting standards and guidelines, licensing water and sanitation utilities and monitoring their performance, and taking any necessary actions to ensure efficient and sustainable provision of WSS services.

### 11.2.3 Water Supply and Sanitation Coverage

Based on constructed water and sanitation facilities, access to safe water supplies in Zambia is estimated at 89 percent of the population in urban areas and 37 percent of the population in rural areas. For sanitation, the estimated coverage is 73 percent for urban areas and 68 percent for rural areas. Real coverage is much lower and varies considerably from one place to another due to non-functioning facilities (broken down, abandoned, seasonal), and poor usage (especially with respect to sanitation facilities). In the peri-urban areas, where 50-70 percent of the urban population live, water supply and sanitation services are poor, inadequate, and unreliable; at least 56 percent of the population do not have access to safe water supply, and as much as 90 percent do not have access to satisfactory sanitation facilities.

The *Living Conditions in Zambia 1998* report indicates that in most of the districts in Western Province, more than 80 percent of the population have no access to satisfactory sanitation facilities, and, in at least four districts in Northern Province, more than 86 percent of the population have no access to safe water supply. Thus, there is still a large unserved population, particularly in rural areas and low income urban communities. Any programmes for poverty reduction should target these segments of the population.

#### 11.2.4 Existing Programmes and Projects

In recent years, both urban and rural water supply have benefited from significant donor assistance. Bilateral and multilateral agencies have financed capital development and institutional strengthening projects all over the country. In addition, a number of NGOs have implemented projects with their own funds or resources from bilateral and multilateral agencies. Major ongoing rural water supply and sanitation projects include the Eastern Province Rural Water Supply Project; the Rural Water Development to Drought Prone Areas in Southern, Western, and Central Provinces; the Northern Province Rural Water Supply and Sanitation Programme; and the Central Province Water Supply and Sanitation Project.

There are also several donor-funded urban water supply projects mainly involving rehabilitation and improvement of water supply systems in a number of urban centres including Lusaka, Kitwe, Livingstone, Solwezi, several mine townships, and a number of townships in Northern Province. Most major urban projects deal with water supply, few or none deal with sanitation, and they target the conventional urban areas and not low income communities where the majority of the urban poor live. However, there are a small number of projects, mainly executed by NGOs, which are concentrating on service provision to low income communities in urban areas along the line of rail.

The government has been implementing water sector reforms since 1994. The management of WSS has been commercialised in urban areas (including peri-urban), and nine commercial utilities are currently operational. A study is currently under way for commercialisation of WSS services in Central Province; but funding is yet to be secured for the commercialisation process in Luapula, Northern, Eastern, and Lusaka Provinces. A Devolution Trust Fund (DTF) has been established through NWASCO to support the extension of WSS services to peri-urban areas and establishment of commercial utilities.

With respect to water resources development and management, WRAP is the largest programme being implemented by the government through the Department of Water Affairs. The 3-year programme, at an estimated cost of approximately \$1,400,000, is designed to address issues related to weak legal and institutional framework, limited human resource capacity, inadequate hydrological data and information systems, inadequate stakeholder participation, and weak provisions for addressing international waters. Besides WRAP, the ongoing water resources management activities are financed from the regular government budget and they have limited scope, and suffer from inadequate funding.

#### 11.2.5 Sector Issues and Constraints

The issues constraining effective development and management of the water sector in Zambia consist of:

- Weak or inadequate legal and institutional framework especially for water resources development and management, and for rural and low income urban WSS.
- Inadequate water resources and WSS data and information systems.
- Limited human resource capacity.
- Inadequate stakeholder participation particularly in water resources management.
- Lack of integrated water resources management.
- Inadequate and unpredictable sector funding, and relatively lower and declining share in budgetary allocation.
- Large population without WSS services in poor urban communities and rural areas.

The effect of a combination of these factors is most severe on the poor. Poor water supply and sanitation services in poor urban areas have been the cause of annual outbreaks of waterborne diseases during the rain season, which not only puts a heavy economic burden on the already impoverished communities, but also strains the public health services. Poor operation and maintenance of urban and rural water supply facilities not only restricts services

to a small number of consumers, but also leads to relatively high water charges for the urban poor. In the rural areas where communities rely on rain-fed agriculture, failure of the rain season is invariably followed by crop failures and decrease in livestock herds, and results in unaffordable food prices and starvation. Thus, any interventions which address these factors would significantly contribute to poverty reduction.

To the extent that unserved areas (including peri-urban areas) are within the service areas of commercial water utilities, the constraints and challenges facing the utilities as commercialised entities contribute to their inability to expand their services to these areas. Many water utilities are faced with operational difficulties caused by issues such as lack of working capital, organisational difficulties to achieve operational efficiencies, and billing and collection difficulties. Thus, they are not able to sustainably expand their service into unserved areas. Efforts will be made to ensure that necessary support is accorded to enable emerging water utilities to expand service to under-served areas especially in rural areas.

### **11.3 Water Sector Strategies for Poverty Reduction**

#### **11.3.1 Underlying Principles**

PRSP strategies will draw upon existing WSS strategies and any new strategies to be formulated for water resources development and management under the ongoing Water Resources Action Programme. However, the implementation of PRSP interventions will be guided by the following principles:

- Sustainability or continuous functioning and utilisation of facilities and services.
- Pro-poor focus (proposed interventions will target the rural and urban poor in the specific geographical areas with high incidences of poverty as revealed by latest CSO surveys and census data).
- Gender equity since the majority of the poor are female, and the improvement of their status has a much wider impact on the quality of life of the community as a whole.
- Stakeholder participation is an important step in planning pro-poor interventions.
- Emphasis on capacity building for planning, execution, and management of services.
- Continued emphasis on broad-based stakeholder collaboration so as to build linkages for addressing multi-facets of poverty, enhance economic growth, minimise mistrust and wastage of resources, and maximise learning and feedback.
- Facilitating the participation of private actors (businesses and NGOs) to complement government efforts.

#### **11.3.2 Summary of Strategies**

The National Water Policy, with its related strategies with respect to water resources management and water supply and sanitation (WSS), the WASHE concept, and the WSS strategies on Environmental Sanitation, Peri-Urban Water Supply and Sanitation, and Community Water Supply and Sanitation, will continue to anchor water sector activities. However, operational guidelines need to be elaborated taking into account the experiences so far obtained from ongoing programmes. In particular, the following strategies will be the cornerstone of PRSP activities in the water sector:

- Development and sustaining of human resource capacity within the sector (within government, the private sector, civil society, communities and community-based organisations) in parallel with infrastructure development, to facilitate or directly plan, design, implement, monitor, operate, maintain, and evaluate water projects.
- Strengthen the institutional capacity for addressing the water development needs of the poor in the two water sector ministries (MLGH and Ministry of Energy and Water Development).
- Promote effective community participation and stakeholder involvement, particularly women and children, in the design, execution, and management of water programmes and projects.

- Establish inter-ministerial, inter-sectoral, broad-based collaboration coordination and consultative mechanisms for the implementation of PRSP water sector activities.
- Develop water resources projects in coordination with other sectors, particularly agriculture, energy, and tourism.
- Extend provision of WSS services to approximately 2.5 million peri-urban residents and 2.5 million rural population who are currently not supplied with the minimum standards as defined in the Peri-Urban Water and Sanitation Strategy and Community Water Supply and Sanitation Draft Strategy.
- Promote low-cost, appropriate, and sustainable WSS technologies as alternatives to higher technologies with proven operation and maintenance shortcomings. In this respect, rainwater harvesting should be considered as an option for provision of water supplies in rural and poor urban areas.
- Provide ongoing maintenance and management support systems, auditing, monitoring, and evaluation services, in order to reinforce existing WSS services.
- PRSP interventions to be complemented and closely coordinated with interventions in environmental sanitation and health education.

#### **11.4 PRSP Water Sector Interventions**

The overall objective of the PRSP in the water sector is to ensure that Zambia's water resources are effectively developed to contribute to poverty reduction through increased access to safe water and sanitation and increased food security for low income rural and urban people. In the light of this, the PRSP water sector interventions are summarised below. A programme approach has been adopted in which the interventions are broadly defined and detailed projects will be elaborated as part of the annual planning cycle within the PRSP period. Cost estimates are given for new interventions only.

##### **11.4.1 Water Resources Management**

*Water Resources Action Programme:* Continued support and implementation of the ongoing WRAP through the Department of Water Affairs. The objective of WRAP is to establish a comprehensive framework for effective development and management of the nation's water resources in an equitable and sustainable manner with strong stakeholder participation, particularly poor rural communities. Outputs from this programme include an effective institutional and legal framework, stronger human resource capacity, models for planning and integrated water resources management, and improved data and information systems.

*Kafue River Basin Pilot Project:* To Formulate and implement a pilot project to facilitate the introduction of catchment-based management of water resources as a model for integrated water resources management in other river basins in Zambia.

*Dam Construction and Rehabilitation Programme:* Construction and rehabilitation of conservation dams and weirs especially in drought prone areas to support the development of new or old irrigation schemes. This intervention is to be carried out in close collaboration with the Ministry of Agriculture and Cooperatives, and should, to the extent possible, be a multi-purpose development of water resources for other uses, including tourism and domestic water supply.

*Groundwater Exploration and Mapping:* The Ministry of Energy and Water Development will undertake groundwater exploration and mapping in order to provide an objective basis for assessing groundwater potential and for monitoring its utilisation.

##### **11.4.2 Water Supply and Sanitation**

The proposed interventions should be seen as parts of a concerted effort over a period longer than the PRSP to provide access to WSS services to the large population currently without

services in rural and urban areas. These interventions will focus on institutional strengthening and infrastructure development. The interventions are summarised below.

*Rural Water Supply and Sanitation Interventions:* Establish effective institutional structures and strengthen human resource capacity at MLGH, at provincial and district levels to support planning, execution, management, and Operation and Maintenance (O&M) of rural water supply and sanitation. Complementary D-WASHE Support Programme for ongoing projects in Eastern, Southern, Western, Central, and Northern Provinces will support sanitation, hygiene and health education and community management components, which need strengthening in the ongoing projects. A new rural water supply and sanitation programme for poor rural areas without ongoing or committed rural water supply and sanitation projects will be established, such as southwestern parts of Western Province, and the axis from Kaputa District in Northern Province to Milengi District in Luapula Province. This will target rural population of half a million people.

*Urban Water Supply and Sanitation Interventions:* The commercialisation of WSS services under the ongoing water sector reforms, will continue in Central, Eastern, Luapula, Northern, and Lusaka Provinces to help establish institutional mechanisms which will in the long term support WSS service provision to the urban poor. There will be continuous support of the DTF through NWASCO to support commercial utilities with re-capitalisation and staff retrenchment programmes. Any potential conflict between NWASCO's role as the regulator for the provision of WSS services and its activity in the allocation of investment funds through the DTF will be addressed. Ongoing rehabilitation and improvement of water supply and sewerage services in urban centres will continue under the committed funding from bilateral and multilateral agencies. There will also be a WSS programme for the extension of services to more than 2.5 million people in peri-urban areas. These interventions will include complementary and integrated activities in environmental sanitation and health education, and will be implemented under a variety of schemes by NGOs and the private sector.

### **11.5 Implementation Arrangements**

Implementation arrangements with respect to the institutional responsibilities will be as presently defined by the policy and legal framework. For this purpose, and unless prior loan/grant agreements do not permit, the implementing institutions will be as follows:

- Ministry of Local Government and Housing, through the Department of Infrastructure Support Services will plan, design, and oversee the implementation of all WSS programmes and projects.
- Ministry of Energy and Water Development, through the Department of Water Affairs will carry out all projects for water resources development and management.
- The respective ministries, MLGH and MEWD, will carry out inter-sectoral consultation, collaboration, and coordination as well as monitoring performance of the water sector, and the PRSP in particular.