

# EXECUTIVE SUMMARY

## 1. INTRODUCTION

Zululand District Municipality (ZDM), as Water Services Authority (WSA), has a legal obligation to produce a long-term plan, including a five-year implementation strategy, for water services (water and sanitation) within its area of jurisdiction. ZAI was appointed to provide support to the ZDM in **converting the original Water Services Development Plan (WSDP) into a generic tabular format in accordance with the Department of Water Affairs and Forestry's (DWAf) WSDP preparation guide**. The WSDP forms the water sector plan of the Integrated Development Plan (IDP) and the IDP principles and visions have been incorporated into this document.

## 2. IDP AND WSDP GOALS

Based on the vision and mission “**Development and sustainability through water**” the aim is to address the water services backlogs at service levels that are economically viable and sustainable. This is in light of the fact that the current National Government funding available will not address the district backlog in the requisite five-years. **Alignment of the IDP and WSDP goals and objectives** was introduced into this review. Although no formal Council Resolution pertaining to **free basic water** exists, there is a decision that **four kilolitres per household per month in the rural areas** will be supplied free. No free basic sanitation policy currently exists. Ultimately the long-term vision is to **improve the level of service based on affordability**, and to provide house connections and waterborne sewerage systems to communities based on economic viability and sustainability.

## 3. PHYSICAL AND SOCIO-ECONOMIC PROFILE

The ZDM is situated in northern KwaZulu-Natal (KZN). It covers an area of 14,808 km<sup>2</sup> and is divided into five local municipalities (LMs), namely eDumbe (KZ261), uPhongolo (KZ262), Abaqulusi (KZ263), Nongoma (KZ265), and Ulundi (KZ266). The area has recently transferred Wards 16 and 18 from Ulundi LM to uMzinyathi DM. The district is predominantly rural with commercial farmland interspersed by protected areas, towns, and dense to scattered rural settlements within traditional authority areas. The majority of these rural settlements are small, making service delivery to these remote areas extremely costly. The ZDM comprises **1,022 settlements divided into 15 urban areas, 64 dense settlements, 290 villages, 547 scattered settlements and 106 farm settlements**.

A **major discrepancy in population numbers** exists between the two main data sets pertaining consumer profiles within the ZDM, namely the National database derived from the Census 2001 survey (Statistics South Africa) and a recent population survey by the ZDM. To alleviate this discrepancy, the ZDM and Statistics South Africa have recalculated the population for the area, less those persons residing in the area that has been transferred to uMzinyathi DM, to determine a population for the base year 2004. The 2004 base figures were obtained by projecting the growth factor between 1996 and 2001 onto the 2001 figures. It was agreed that the DBSA growth projections could then be applied. Therefore, at base year 2004 the population figures are as follows:

- **Population**           **943,715**
- **Households**       **165,564**

The area forms part of the Pongola, Mkuze and Mfolozi River Catchments of the Usuthu/Mhlathuze Water Management Area that extends from the high lying areas in the north and west to the Indian Ocean in the east within undulating topography. The district economy and employment is focused around **services, agriculture and trade** (including tourism). However, **the population within the Zululand district is generally poor**, with only 16% of the economically active population being employed and 50% of this population earning less than R800. Therefore, a vast majority of the population is unable to contribute meaningfully towards the provision of basic water services. There is a large percentage of youth (51%) and 54% of the population is female, both of which could impact future water services requirements and ability to pay. In addition, the illiteracy level is high (39%) that further impacts on the ability to improve the economy and income generation potential of the region. The government has, however, committed itself to providing free basic water and sanitation services to all citizens. **Strategic planning within the IDP is centred on the WSDP**, and the ability to provide water services to potential development nodes. Development is focused on tourism and conservation, with low volume water requirements.

#### 4. SERVICE LEVEL PROFILE

The ZDM is legally obliged to provide the consumers within their area of jurisdiction with access to basic water services. Basic services, or minimum supply standards, have been defined by National Government through a regulation, and it is to these **national standards** that the ZDM is planning on alleviating the water services backlogs. **Basic water supply** is 25l per capita per day, or 6kl per household per month, within a walking distance of 200m from the homestead (other technical data also applies). **Basic sanitation provision** is essentially a ventilated improved pit (VIP) latrine. The consumer units are divided per settlement type, however projections for the backlog alleviation per settlement type over the implementation period still need to be assessed. The objective is to ensure equitable access to water services for the population, however a consumer unit is a billable unit and therefore a **consumer unit is a household**. As at base year 2003/2004 there were 97,113 consumer units supplied with water and 44,768 consumer units provided with sanitation to the requisite standards. Therefore the **backlogs for water and sanitation are 41% and 72% respectively**. Further detail is required on the public, commercial and industrial consumers within the ZDM.

#### 5. WATER RESOURCE

All water supplied by the ZDM to the community is from sources within the DM's area of jurisdiction. With a household count of approximately 165,600 the **ZDM requires at least 993,600 kl per month or 11,923 MI per year** to supply the whole population with basic services. **This does not account for increased consumption in urban areas** or industrial requirements.

The ZDM has a wealth of surface water resources as a result of the high rainfall over the area. Most surface water is abstracted from the **Pongola or White Mfolozi Rivers**. There are currently at least **36 schemes that utilise surface water** as a resource. Urban areas treat this water prior to distribution, with continuous quality testing being conducted at the treatment plants. Groundwater is a useful resource and many communities rely on boreholes and springs for their water needs. Groundwater potential in the Zululand district is geologically controlled, with high yields and good quality water located within the fracture zones associated with intrusive rocks. There are currently at least **24 schemes that utilise groundwater** as a resource. In addition, a **survival (or rudimentary) service level** consists of boreholes equipped with hand-pumps or protected springs. This water is untreated, however boreholes are only equipped if the water quality is of an

acceptable standard. Owing to the extensive use of groundwater as a rural water source, it is important that groundwater levels and quality are monitored to ensure sustainability and SABS drinking water standards.

Further is detail is required on the wastewater discharge and return flow from wastewater treatment works (WWTW), and **pollution contingency measures need to be put in place.**

## 6. WATER CONSERVATION AND DEMAND MANAGEMENT

Water conservation is the **wise and efficient use of water** such that resources are protected from pollution and unnecessary abstraction, water loss, or wastage. Water conservation can be achieved through **two main mechanisms**: internally through **economic and environmentally efficient, sustainable, and legally compliant technology** and processes (primarily through an operation and maintenance programme), and externally (and directly) through a **reduction in consumer demand** by regulating and promoting an ethic of efficient water use through education or forced consumption reduction.

During the WSDP investigations it was found in many areas that **in-adequate metering** infrastructure existed and **no meter reading programme** was in place to accurately determine water losses. The ZDM is currently **investigating water losses** that will result in a **Metering Strategy** being implemented.

There is currently no set operation and maintenance programme for water services. All problems, in both the urban and rural areas, are fixed on demand rather than through preventative maintenance management. However, the ZDM is in the process of developing an **active database with a digital schematic layout of all schemes**. This dataset will assist with the implementation of planned and **routine operations and maintenance**.

## 7. WATER SERVICES INFRASTRUCTURE

Water services infrastructure is **more developed in the urban areas** supplying a higher level of service, as opposed to the rural areas. Each urban area generally has its own water and wastewater treatment facility. There are currently 38 water treatment works (WTW) and 20 WWTWs and their associated infrastructure across the district. The date of construction of some components is unknown, however **many are old and have been maintained on minimal budgets**. The ZDM is in the process of verifying a **detailed asset register that will form part of a spatial digital database** that will be used for operations and maintenance planning. Future reviews of the WSDP in terms of infrastructure will be accommodated through this active database.

## 8. WATER BALANCE

The water balance is linked to Section 5 and takes account of the amount of water abstracted, supplied to consumers, lost in processing and returned to the resource in order to ensure a balanced cycle for future sustainability. The overall idea is that what is taken out of the system must be returned to the system. The ZDM does not currently purchase bulk water from outside its area of jurisdiction. Although water is abstracted from both surface and groundwater, all urban and the majority of rural supply is from surface water. Unfortunately there is currently **insufficient information relating to abstraction and distribution in the ZDM to complete a comprehensive water balance.**

The ZDM recognises the importance of identifying the amount of water being supplied to consumers in order to quantify demand and system efficiency (e.g. water losses), as well as monitoring of the effect of free “basic” water and education programmes on consumption trends. To this end the ZDM is conducting a water loss programme with the aim to build a metering strategy to assist with the operations and maintenance programme.

## 9. INSTITUTIONAL ARRANGEMENTS

**As WSA, the ZDM has a duty to all consumers or potential consumers to progressively ensure efficient, affordable, economical, and sustainable access to water services through governing, regulating, planning and developing of water services.** The ZDM has developed Water Services By-laws for the district. Although not a formal policy, Council has decided on an appropriate free basic water volume to help the plight of indigent persons with lower levels of services in the rural areas. However, district strategies on conservation and demand management, as well as monitoring and performance management still need to be established. Through the Implementation of Sustainable Water Services Institutions Programme (ISWIP) the DM is assisted to attain the necessary capacity to perform these WSA functions.

**The Water Services Provider (WSP) is responsible for overall water services provision to consumers.** Functions include daily operations and repair; maintenance; customer management; credit control and debt collection; health and hygiene awareness; service provision; and provision of information. Although the ZDM plans and regulates water services, a number of options are available in terms of a WSP: the ZDM may perform this function itself (internally), or through an external mechanism. An internal assessment (otherwise known as a Section 78 assessment) of the water services delivery mechanisms in terms of costs; available skills and staffing capacity; ability to provide the required capacity through administrative re-organisation; and the impacts on job creation, employment and development is currently being conducted. Pending the outcome of the assessment the **ZDM has entered into management contracts with the LMs to continue to operate as bulk and reticulation (retail) WSP essentially within their respective urban areas.** The remaining schemes, predominantly rural, are being operated by the ZDM with the **support services of Alliance Water.**

## 10. CUSTOMER SERVICES PROFILE

Provision of water services covers not only the service-level provided but also the **quality of the service rendered.** The ZDM needs to establish a customer care policy with an associated database, to ensure consumer satisfaction as well as monitoring efficiency and effectiveness of water services. An operation and maintenance programme and **complaints control system need to be established**, as well as a procedure for responding to queries. Greater emphasis also needs to be placed on **education and awareness programmes** such as health and hygiene, water education and conservation, and pollution control.

Maintenance is conducted on demand, however in general the interruption of service is attended to within 24 hours, however detailed records on consumer complaints and service reliability will form part of the monthly reporting structure once the long-term WSP has been appointed. If interruptions in service that result in communities being without water for long periods, then the ZDM tries to alleviate this problem through the supply of tanker water where appropriate.

## 11. FINANCIAL PROFILE

To improve water services to the minimum national standards the ZDM will require capital funding for water supply of approximately R 1,350 Million and R 147 Million to provide sanitation services. **At current capital costs ±R 1,497 Million is required to alleviate the water services backlog and provide reliable communal reticulation and VIP latrines to the rural population of the district.** Over the five-year implementation period, R 355 Million will have been spent on capital infrastructure for water and R 37 Million on capital infrastructure for sanitation. The main sources of capital income are from DWAF and CMIP (now MIG). The plan is to utilise the capital income to the best advantage of the majority of the population, and to incrementally improve the quality of life.

Operating costs include all costs relating to water services supply, and necessitate ring-fencing (or isolating) water and sanitation functions within the ZDM budgets. These costs are funded through tariffs and the equitable share from national government. The projected operations and maintenance (O&M) costs for water and sanitation over the five-year implementation period still need to be assessed. This is dependent on the projected backlog rollout, as well as the long-term WSP appointed. Once the O&M costs have been determined, the tariff structure (fixed and variable charges) can be projected over the five-year implementation period. Nevertheless, a **major problem with generating income for operational expenditure is that a large portion of water is supplied as free basic services** and the costs should be recouped primarily from the equitable share. In addition, although most urban consumers do pay their accounts, there is a **growing trend of non-payment in certain areas that needs to be addressed if these schemes are to be sustainable.**

## 12. PROJECTS

Planning in the ZDM is based overall on an **improved quality of life**, with water services planning **targeting the alleviation of the water and sanitation backlogs whilst sustainably maintaining the existing water services infrastructure.** Cognisance is taken of the national policy of free basic water, ability (& willingness) of persons to pay for higher service levels, reliability of the water source, consumer quantity and density. The planning methodology to alleviate the water and sanitation backlogs is **phased into five-year implementation plans, based on regional schemes.** In addition, a survival level of service will be supplied through the rudimentary programme to ensure that, in the short-term, all households have access to potable water sources within 1,000 m of their homestead and thereby reduce the risk of waterborne diseases such as cholera.

The district was originally divided into seven regional schemes based on engineering principles, such as topography, water resources and catchments boundaries. However, in order to ensure that all settlements and consumers were included in the water services planning, the **number of regional schemes increased to 10 and the boundaries were changed such that the regions defined back-to-back service areas.** Each region was assigned to a consultant to prepare a regional master plan that identifies all the available options, scheme viability and associated costs in providing safe and reliable water services. Based on the recommendations from each of these master plans the ZDM decided on the most appropriate planning option to adopt, considering not only the capital cost but also the long-term O&M costs. The consultants were then commissioned by the ZDM to prepare a strategy of implementation for water services delivery based on priorities, technical considerations and available budget for capital expenditure, to ensure that sustainable solutions are presented.

**The DM recognises that urban infrastructure sustainability cannot be ignored and will require future upgrades to accommodate urban growth and to ensure urban supplies to consumers and industry remain reliable.**