



Vuthela SPARK

IGNITING INCLUSIVE ECONOMIC DEVELOPMENT IN ILEMBE

Options flow from water concession seminar

Benefits and challenges of the Siza Water concession highlighted at a recent seminar in light of the 30-year contract expiry in six years



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Editorial: Sustaining economic growth and improving quality of life

The first issue of the *Vuthela Spark* in 2023 takes place in the context of growing concern about South Africa's ability to invest in and maintain critical public infrastructure required to sustain economic growth and improve the quality of life of its citizens.

This is most sharply reflected in the current deepening electricity crisis, the decline in rail and port facilities and ongoing water supply challenges.

South Africa's economic growth has been constrained by low levels of investment in infrastructure. The extent of infrastructure spend in an economy is reflected in the level of gross fixed capital formation (GFCF) as a percentage of gross domestic product (GDP).

Gross domestic fixed investment declined to about 14% of GDP at the end of the second quarter 2022 from its peak of 22.7% of GDP in the final three months of 2008 according to Absa economists Peter Worthington, Miyelani Maluleke and Sello Sekele (Bloomberg, 3 Oct 2022). Studies indicate that an acceptable norm in a developing country such as South Africa would be in the region of 30-35% of GDP.

Since 2018, spending by private firms has accounted for 71% of all capital expenditure, with government and state-owned companies' expenditure making up 18% and 11% respectively, the data shows.

According to Stats SA, real gross fixed capital formation

by the public sector, both public corporations and general government, has contracted since 2016 due to underspending on the infrastructure budgets, delays in the awarding of contracts and completion of infrastructure projects, the lack of financial sustainability of some state-owned companies as well as governance issues.

Consequently, capital spending by the public sector relative to nominal GDP declined from 7.3% in 2015 to only 5.4% in 2019, according to Stats SA (Public Sector: Shy on Infrastructure Investment, 2 November 2022).

In the iLembe district, the interface between the state of municipal finances and the capacity to invest in and maintain municipal infrastructure is a key consideration for an enabling business environment. For that reason, the Vuthela Programme has committed significant resources to assist strengthen the financial management of the iLembe District Municipality and the Local Municipalities of KwaDukuza and Mandeni to provide better capacity to plan, finance and manage infrastructure investments.

As our *Vuthela Spark 8* article on the 2021/2022 municipal audits reveal, there have been some key successes in improving certain aspects of the financial management of municipalities in iLembe, with less success in other aspects.

This issue of *Vuthela Spark* gives close attention to the role of municipal finances and municipal infrastructure, particularly the role that technology can provide in

This issue focuses on the role of municipal finances, infrastructure and the role of technology

resolving both financial and infrastructure management issues. Hydrocomp's Nicolas Savva, explains the capabilities of the EDAMS (Engineering Design and Management System) that will be installed and operationalised in the next few months at the iLembe District Municipality through the Vuthela Programme to assist the organisation

to better manage its water infrastructure assets, improve maintenance operations and reduce non-revenue water. Vuthela's Public Finance Management Key Expert, Zama Soji, explains the benefits that an automated Indigent Register will bring to the iLembe family of municipalities, contributing towards better revenue and debt management.

This issue also reports on a recent seminar hosted by the Vuthela Programme to review the lessons learnt from the past 24 years of the Siza Water Public-Private Partnership concession, and the challenges and opportunities offered by private participation in municipal water delivery.

The Vuthela Programme is currently supporting the iLembe District Municipality to better manage the concession through a service contract with SMEC. Finally, Vuthela's Private Sector Development (PSD) Key Expert, Shannon Moffett explains the initiative to establish a district-wide Business Directory to be hosted by Enterprise iLembe to improve government-to-business, business-to-business and business-to-consumer networking and communication.



Options flow from water concession seminar

The Vuthela iLembe LED Support Programme recently held a policy and practice dialogue on Public-Private Partnerships with a focus on Siza Water.

In discussing the benefits and challenges of the concession, public and private sector participants reflected on lessons learnt to better manage the concession in the remaining six years and to reflect on the options available and implications of those options beyond the concession expiry.

One of South Africa's first Public-Private Partnerships (PPP), (the other in Mbombela Local Municipality), signed between the Borough of Dolphin Coast and private company Siza Water 24 years ago, has brought many benefits for the affluent KwaZulu-Natal coastal areas of Ballito, Shakasrock and Salt Rock to the east of the N2 highway.

But critics contend that the PPP has not responded to challenges in the poorer and more populous black peri-urban areas of the concession area, such as Etete, Nkobongo, Shayamoya, and Shakaskraal to the west of the N2 highway.

The benefits and challenges related to the PPP concession and its management by the iLembe District Municipality were discussed by public and private sector stakeholders at a seminar held by the Vuthela iLembe LED Support Programme on 2 February 2023.

The Siza Water concession is due to expire in six years (2029) and is being managed by the iLembe District Municipality.



Richard Clacey, Programme Manager, Vuthela iLembe LED Support Programme; Shyam Misra, Managing Director at Siza Water; and Sazi Mbhele, Municipal Manager of iLembe District Municipality

Opportunity for decision makers

Vuthela Programme Manager Richard Clacey stressed that the seminar was not a decision-making forum, but an opportunity for decision makers and those advising decision makers to develop a better understanding of the issues and lessons learnt since the inception of the concession, allowing them to better manage the concession for the remaining six years and to reflect on the options available beyond the concession expiry.

"The seminar succeeded in its aim of airing and sharing the views and perspectives of all stakeholders," said Clacey.

"Discussions were frank and robust, and all stakeholders were committed to resolving the various issues that have emerged.

"Whatever decisions are made, it is critical that the process is started now to ensure the continuity of water services in this rapidly growing region," said Clacey.

While there was overall agreement that the PPP had provided efficient and effective water and sanitation services in the concession area's coastal belt east of the N2 freeway, municipal officials and community representatives expressed concern over the standard of services provided to communities in the under-developed

part of the municipality which lies mainly on the west of the N2.

The disparate level of services highlighted the developmental tension between the iLembe District Municipality's mandate to provide access to water services to all its residents and the private sector's need to generate profits by serving customers who can afford to pay for them.



Linda Mncube, chief executive officer of Enterprise iLembe Economic Development Agency; Gerhard Pienaar, Deputy Head of the Swiss State Secretariat for Economic Affairs (SECO) and Kirsch Bezuidenhout, Acting Chief Director of the Public-Private Partnership Unit at KZN Provincial Treasury

Siza Water officials said the company had provided water services in both areas according to the terms and standards specified in the contract. It was not in a position to provide services in areas which did not fall under the original contract, even though these areas are now part of the KwaDukuza Local Municipality.

Innovative technology

Siza Water Managing Director Shyam Misra told the seminar that the company had deployed innovative technology over the years, making it highly efficient. It had received Blue Drop and Green Drop certification for the high quality of its water services. The concessionaire further emphasised the importance of capacity building and ongoing training to meet new challenges and make use of opportunities in the sector.

Seven reservoirs, six sewer pump stations and two sewer treatment works were upgraded, and the company had invested about R500 million in water infrastructure. Water losses in the system were reduced from 33% in 1999 to 8% in 2021.

Municipal officials and ward representatives acknowledged Siza Water's efficiencies and technical expertise, but expressed grave concern that low-income areas were still being served by shared standpipes spaced far apart and unsatisfactory toilet facilities.

Councillor Collen Mdletshe, who represents Ward 28 in the KwaDukuza Local Municipality and had also been requested to represent the views of two other wards, told the seminar that Siza Water was a very reliable service provider, and the water quality was of a high standard. Faults and complaints were attended to promptly.

Other benefits included bursaries provided by Siza Water to residents of the district, sponsorships to local NGOs and opportunities for young people to gain technical knowledge.

The main challenges were the limited number of standpipes and the long distance between them, posing difficulties for the elderly and people with special needs; inadequate water pressure in some areas; and criminals vandalising standpipes to sell the metal components as scrap.

Expensive for indigent households

The cost of household water meter connections needed to be reviewed, as it was very expensive for disadvantaged communities, said the Councillor. It is expected that the household pay the full amount of such meters and there is no distinction between indigent and non-indigent households.

"Frankly, it makes little sense that Siza Water would charge the same amount of money to connect water to a house at an affluent estate and to a house at Nkobongo or Etete," said Mdletshe.

"Lowering the cost would mean more houses connected, more revenue for the company and, ultimately, better service to residents of KwaDukuza."

Executive Director for Economic Development and Planning at KwaDukuza Local Municipality, Sikhumbuzo Hlongwane, said that indigent and affluent communities were not receiving equitable services.

"PPPs perpetuate inequality and under-development," said Hlongwane.

"Private sector investment tends to go into areas where the company will make money, but we have indigent areas which are a legacy of apartheid. How we address this legacy is a big issue for us," he said.

Linda Mncube, CEO of the district's economic development agency, Enterprise iLembe, said PPPs had great potential to provide efficient service delivery. Contracts should set specific targets for capital investment to unlock development.

Equitable profit-sharing models should be created, and the concession's tariff structure and finance model should cater for redistribution (cross-subsidisation) and the provision of a higher level of service in historically



Sibusiso Mahlangu, Manager: Planning and IDP at iLembe District Municipality; Andy Horton, President of iLembe Chamber of Commerce, Industry and Tourism; and Councillor Collen Mdletshe, KwaDukuza Municipality

underserved areas, he added.

Cingisa Mbola, Director: Technical Services at iLembe District Municipality, said Siza Water provided bulk infrastructure that contributed to the development of Ballito, maintained a good collection rate, and kept customers satisfied with good communication.

But Siza Water provided a sub-standard service to the "township" areas within the concession area, and there was no water borne sewerage system in these areas.

The tariff structure was too high for indigent residents and Siza Water did not offer free services, as required by current legislation.

Siza Water was not investing its own funds in critical infrastructure required for future growth but was using developers' contributions to pay for new infrastructure.

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Indigent management

Without a credible register of people in need, municipalities will be spending on free basic services that they cannot account for or producing bills for accounts that will never be paid. Zama Soji, Key Expert for Vuthela's Public Finance Management (PFM) Component writes that the Vuthela Programme has helped the iLembe District Municipality acquire a credible indigent register to help it budget accurately for revenue, free basic services and associated expenses.

By the nature of its developmental mandate, local government must be concerned with the problem of poverty. Municipalities are expected to look after those households who battle to make ends meet by providing them with free basic services as determined by the Municipal Indigent Policy Framework.

These services are rendered by different spheres of government and in this case, we will focus on those basic services rendered by local government (municipalities).

Broad definition

In terms of the indigent management framework, the term "indigent" means "lacking the necessities of life". In interpreting this for the purpose of this policy, a position has to be taken on the "necessities of life" in the South African context. The Constitution provides a guide in this regard, leading to the view that the following goods and services are considered as necessities for an individual to survive:

- Sufficient water
- Basic sanitation
- Refuse removal in denser settlements
- Environmental health
- Basic energy
- Health care
- Housing
- Food and clothing



Anyone who does not have access to these goods and services is considered indigent.

While it is argued that there is nothing for free as someone in the entire value chain will have paid for it, it is for this reason that National Treasury, when allocating equitable share to municipalities, will reflect a portion as a free basic services grant. It is expected that the greater the number of indigent beneficiaries within the municipality's boundaries, the more equitable share will be allocated. However, this is not the case since most municipalities in the country are unable to produce a credible indigent register after beneficiaries' status has been certified and verified through relevant vetting.

Municipalities offer different kinds of relief ranging from 50 kW of free basic electricity and 6 kl of free water.

Vuthela initiatives

Phase One

Upon the execution of the Vuthela PFM component programme plan, two projects were identified. Phase One involved the alignment of indigent policies and registers across the district. Phase Two involves the automation

of these registers to produce a credible indigent register for each municipality. We have observed that district municipalities often battle to develop such registers as they depend on the information shared by the local municipality, yet in terms of powers and function, they provide water as a basic service across the district. Therefore, if the local municipalities do not have registers or do not share with the district, it becomes difficult for the district to provide qualifying indigent communities with 6 kl of water. The iLembe district was not an exception during the execution of phase one because upon review of their indigent register, the beneficiaries were far less than the beneficiaries in most districts in the country who are battling to produce an indigent register that is informed by its population.

Upon completion of the Phase One project, a consolidated indigent register, after being verified in different vetting platforms, reported that the iLembe District Municipality indigent register should have 28 900 beneficiaries as opposed to the 2 000 which were on record. The verification of the registers from municipalities uncovered several discrepancies which included people who were in the service of the state, deceased, employed and those who do not meet the criteria in terms of the council adopted policy for relief.

Shared service model

An indigent management system to be used will be used by all municipalities in the district for uniform purposes. All municipalities in the district have agreed to the use of this system, and a Memorandum of Agreement (MOA) was drafted by the Vuthela Programme, which has been signed by all municipalities. The detailed shared service MOA, which clearly defines the role, responsibilities and liabilities of each municipality, will last for three years, providing municipalities the opportunity to understand the system and produce a system-generated credible indigent management register.

Ultimate goal

Phase Two

The Vuthela Programme will procure the system and donate it to iLembe District Municipality which will then manage the shared services MOA. Vuthela will also pay for the licensing and maintenance in the first year of implementation of the system, while the municipalities will pay for the remainder of the years.

Phase Two of the indigent project will then automate the indigent register for each local municipality within the iLembe district with the view of feeding into the district indigent register. The envisaged process flow is shown below, where a process of registering indigent beneficiaries will be done on the system and no longer on paper – and will follow an automated process of verification and approval and produce the credible register. The system will be aligned with the indigent management policy – this is important especially when



Zama Soji, key expert of the Vuthela Public Finance Management Component

it comes to exiting the system and to wean beneficiaries off the indigent benefits. Municipalities may consider innovative ways through their local economic policies and strategies in prioritising indigent beneficiaries on poverty alleviation projects.

Often, programmes of this nature come and go, leaving no impact. It is, therefore, the intention of the programme to improve, develop, capacitate and add value to the manner in which municipalities conduct their businesses, and this flagship project will be something that is hoped will leave a lasting legacy in the iLembe district.

The ideal system is perceived to simplify the entire application process up to approval, while keeping the applicant in the loop. There will be seamless communication with the district in terms of updating the register, since ideally the local municipalities indigent register must inform the district one. Moreover, municipalities will be able to understand the population of indigent beneficiaries per ward, and this may be considered when planning for projects and also in demonstrating convincingly the number of communities living below the poverty line.

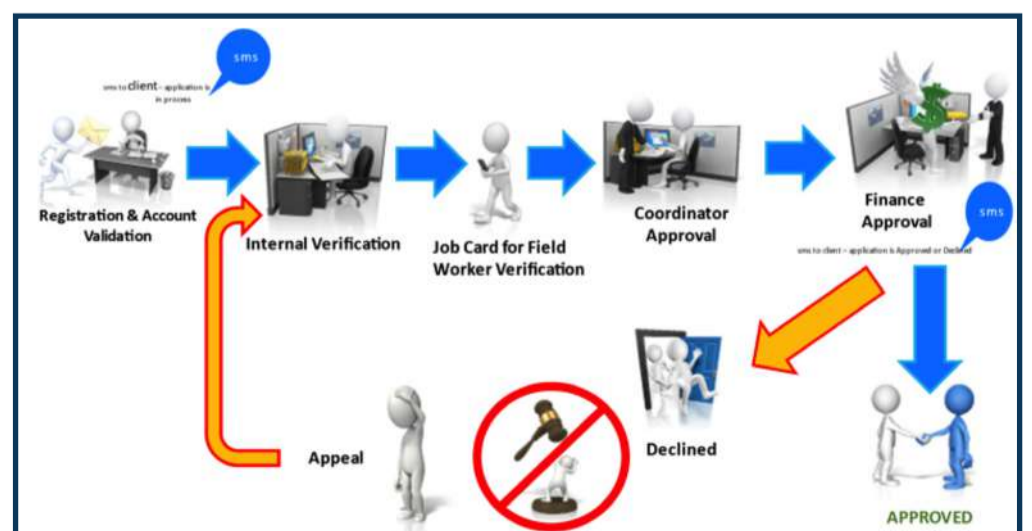
System procurement

Vuthela has finalised the process of appointing the service provider for the system, and the project is set to commence this month (February 2023).

Benefits to the municipalities

Some municipalities are spending on free basic services, either water or electricity or other services for households, that they cannot account for. Municipalities are continuously producing bills for accounts that will never be honoured for payment and the debtors' books are increasing on a monthly basis for debts that will not be recovered.

The production of credible indigent registers will assist municipalities to budget accurately for revenue, free basic services and associated expenses. It will also give a better picture of whether the municipality will be able to collect long outstanding debts or not. Since applicants will be vetted, only those who qualify will benefit from the indigent system. With frequency of verification, municipalities will be able to identify those beneficiaries whose situation changes during the year and remove them from the system should they not volunteer to do so.



Overall Generic Process



Business growth opportunities through iLembe business directory

Local residents and businesses will soon have access to up-to-date and verified information on businesses within the district through the iLembe business directory. The directory is set to promote local business growth, contribute to networking opportunities and promote the district tourist offerings write Shannon Moffett, Key Expert for Vuthela's Private Sector Development (PSD) and Building Inclusive Growth (BIG) Components, and Pradeep Lutchman, Director of Geo Afrika Technologies.



iLembe businesses have had to deal with multiple crises over the last few years, from floods to the pandemic and social unrest. In each one, iLembe municipalities wanted to reach out to these businesses to assess impacts and offer relief. The challenge was that none of these municipalities keep comprehensive business databases.

Most, including the district's development agency, Enterprise iLembe, do have SMME and in some cases, cooperative databases. These databases are however skewed towards micro and more informal businesses.

The iLembe Chamber of Commerce, Tourism and Industry has an extensive database of members and non-members that they successfully survey twice a year to gauge local business confidence. Invaluable information was found when survey questions about the impact of Covid-19 on businesses were asked through the business confidence survey.

In addition to there being limited current government-to-business communication avenues, the lack of a district business directory limits the opportunities for local business-to-business and business-to-consumer connections. Opportunities that can be found through creating a platform for business and consumer-to-business linkages are lost through such a directory not being in place. As an example, iLembe, one of the key tourist destinations in South Africa, does not have a directory for tourism accommodation, and an email requesting this list needs to be sent to Enterprise iLembe. A competitive advantage is potentially lost by information not being readily available to potential tourists.

To address this, the Vuthela Programme in support of Enterprise iLembe and the iLembe family of municipalities, approved a new project to build a verified business directory housed on the Enterprise iLembe website. GeoAfrika, a Durban based company, has been appointed to develop this directory which is expected to go 'live' in March 2023. This database will focus on formal companies in the first phase and will have a verification process to ensure that the businesses being advertised are credible. The directory will have information about the company, their contact details, and importantly, their location to

enable residents and tourists to search for businesses within a specific area.

The development of a district business directory is expected to have the following benefits:

- Enhance the ability of residents and visitors to find verified local businesses, thus potentially decreasing costs and building local economies.
- Assist local businesses with marketing their products and services at no cost, thus assisting in business growth.
- Enable municipalities to make use of the latest information and communication technology to enhance the delivery of government information to local businesses.
- Assist in business-to-business networking through information sharing.



The business directory is being designed to be easily accessible from mobile devices, tablets and computers, making it convenient for potential customers to discover and connect with local businesses. Registering on the platform will be simple, requiring only minimal information to get started. Business owners will also be able to define their exact location on the platform via Google Maps and to upload photographs.

With 24-hour access to their profiles, business owners will be able to update and tweak their listing to keep it up-to-date and ensure it reflects their latest offerings. They will also be able to use the business directory to gain valuable insight into their target audience through detailed analytics such as the total and monthly views of their listing.

Social network integration

The platform will integrate with popular social networks such as Facebook, Twitter, and LinkedIn, providing an opportunity for businesses to expand their online presence and reach a larger audience. The listings will be search engine optimised to increase visibility in search results and attract more potential customers.

In addition to the searchable directory, the municipalities in iLembe will be provided with a database of the businesses within their municipality to enable them to have government-to-business communication.

Great care will be taken when building this directory and the subsequent sharing of information to ensure



Shannon Moffett, key expert for Vuthela's Private Sector Development (PSD) and Building Inclusive Growth (BIG) Components



Pradeep Lutchman, Director of Geo Afrika Technologies

that the requirements of the Protection of Personal Information Act (POPI Act) are adhered to. The service provider has a legal expert on board to advise on whether existing databases can be used to build the directory and whether Enterprise iLembe will be permitted to share the directory with municipalities after the necessary approvals are obtained.

Critical to the success of a directory like this is the updating and maintenance thereof. The project has been designed so that it is user-friendly and can be managed by an administrator with limited ICT skills. The administrator will be based at Enterprise iLembe and will be involved with the project from its inception and be provided with the necessary tools and a user manual on how to maintain and update the database.

To register on the business directory, users will need to set up a profile which will be available through a link from the Enterprise iLembe website <https://www.enterpriseilembe.co.za>. They will then be able to enter information on their business which will be verified and displayed on the live business directory.

Major step forward

The development of the iLembe business directory will be a major step forward for iLembe and its local businesses and will present a great opportunity for businesses to grow and expand their customer base. With advanced features, such as detailed analytics, search engine optimisation, and integration with popular social networks, businesses will be able to leverage the business directory to expand their online presence and reach a larger audience. An awareness campaign will be undertaken prior to the launch of the business directory in March 2023 and business owners are urged to keep an eye out for this and to take advantage of this great initiative.

Critical to the success of a directory like this is the updating and maintenance thereof.



Vuthela helping to address Auditor-General concerns

The Vuthela iLembe LED Support Programme is implementing several initiatives which will help to address concerns raised by the Auditor-General of South Africa in the iLembe district and the family of local municipalities' most recent audit.

The iLembe District Municipality and the local municipalities of KwaDukuza and Mandeni received an unqualified audit opinion in the Auditor-General's 2021/22 audit reports.

But the reports also raise concerns, by way of emphasis of matters, on several challenges related to revenue losses from electricity and water and irregular expenditure. Some of these challenges are being addressed by the Vuthela Programme.

Richard Clacey, Vuthela Programme Manager, said, "The Vuthela Programme interventions, particularly the Public Finance Management (PFM) and Municipal Infrastructure (MI) Components, are designed to assist resolve many of the key issues raised in the Auditor-General's reports. While some results have been forthcoming, particularly relating to Unauthorised, Irregular, Fruitless and Wasteful Expenditure (UIFWE), others will require a longer period to "move the dial", particularly non-revenue water (NRW) and non-revenue electricity (NRE) where the actual implementation projects are currently being transferred to the respective municipalities for direct implementation over the next 18 months."

According to the AG's report, the distribution losses on water in the district decreased by 2,76% compared to the 2020/21 financial year but was still a concern that had to be addressed.

Losses due to NRW have decreased in the iLembe District Municipality over the last three years from R120,41 million in 2019/20 (59,2% of total water purchased) to R111,71 in 2020/21 (48,87% of total water purchased) to R106 million in 2021/22 (46,11% of total water purchased).

The losses are due largely to illegal connections, leaks in the infrastructure, reservoir overflows and service connection leaks.

Irregular expenditure of R101,41 million was incurred, indicating a decrease of R6,45 million from R107,86 million in 2020/21. Irregular expenditure incurred in the current year has been reduced over the past three years. In 2019/20 it was recorded at R95,07 million and for 2021/22 it is R41,48 million.

Vuthela strategy for NRE

Electricity losses in the KwaDukuza Local Municipality have increased by R56,12 million from 2020/21, to a total of R237,73 million in 2021/2022, due mainly to illegal connections and distribution losses.

The Vuthela Programme has developed consolidated strategies to address NRE for the KwaDukuza and Mandeni Local Municipalities. If the interventions are implemented as planned, the municipalities should see results in the 2022/23 financial year.

The Vuthela Programme also launched the Non-Revenue Electricity Strategies and Programmes (NRESP) to assist the KwaDukuza and Mandeni Local Municipalities to reduce losses due to NRE.

An in-depth analysis was conducted to gain a thorough understanding of each municipality's situation.

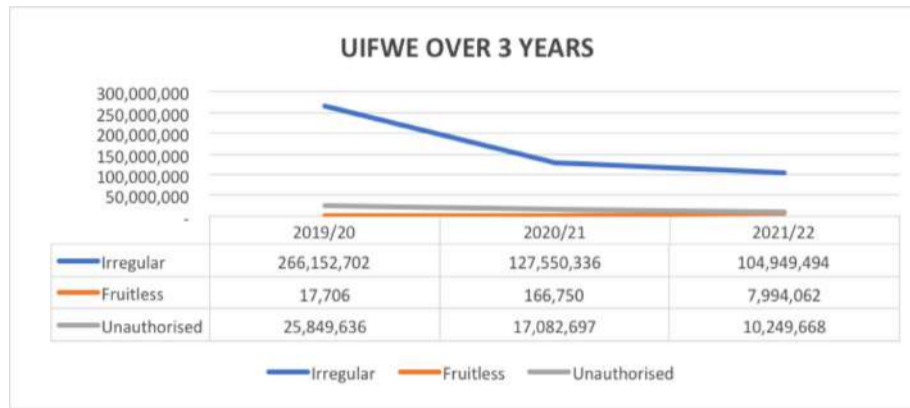
Four aspects of the electricity supply process were analysed:

- Existing infrastructure
- Technical losses assessment
- Non-technical losses assessment
- Community engagement and end-user campaigns

Vuthela strategy for UIFWE

Over the past three years total UIFWE has decreased in all three municipalities.

But fruitless and wasteful expenditure has increased due to issues around construction contracts.



UIFWE for all three municipalities over the past three years.

The reduction of UIFWE over the past three years follows a strategy developed by the Vuthela Programme and implemented by municipalities to address non-compliant expenditure in the iLembe district.

Community engagement

The community engagement campaign was aimed at making the community aware of their responsibility to pay for the services they receive, the dangers and consequences of tampering with or stealing electricity, and where members of the community can report faulty meters, incidents of electricity theft or other criminal activity which undermines revenue collection.

Strategies were identified to curb losses and reduce them to international standards, while improving the revenue from electricity sales for the municipalities. Existing initiatives from each municipality were incorporated to represent consolidated strategies, programmes and management plans for each municipality.

Specific strategies were developed to suit the unique needs identified in each of the two local municipalities.

SCADA initiative

The Vuthela Programme developed a functional specification for the establishment of a Supervisory Control and Data Acquisition (SCADA) system and Control Room to manage electrical services in the KwaDukuza Local Municipality.

The SCADA system will allow for remote monitoring of the electricity supply infrastructure and provide critical information about the performance of the electrical system in real time. It will also assist the KwaDukuza Local



Like other parts of South Africa, electricity theft undermines revenue collection in the KwaDukuza and Mandeni Local Municipalities

Some of the concerns raised by the report on several challenges related to revenue losses from electricity and water and irregular expenditure, are being addressed by the Vuthela Programme.

Municipality to better manage the electricity distribution and load in the network during times of power outages.

The Vuthela Programme assisted the KwaDukuza Local Municipality to secure funding through the National Treasury/ EU General Budget Support Programme to finance the acquisition and installation of the SCADA and Control Room.

Vuthela's initiatives to address NRE include the formulation of asset management plans, training staff in asset management and updating the electricity master plans. Vuthela is currently engaging the Mandeni Local Municipality to assist with the implementation of NRE strategies.

Vuthela initiatives for NRW

Vuthela has also implemented several initiatives on NRW which refers to the water supplied by the water utility but for which it receives no income.

NRW incorporates unbilled (metered or unmetered) authorised consumption, apparent, commercial losses and physical losses.

The Vuthela Programme will be transferring a budget of R30,2 million to complete two implementation projects, the first focusing on metering and water balance and other issues in six geographic areas, and the second focusing on bulk and consumer meter population management.

A pilot project to improve revenue from water was rolled out in June 2019.

The project investigated operational practices around the management of water services and collection of revenue for water services in the Sundumbili urban area.

The study focused on the meter reading cycle and data transfer errors during the process of meter reading, meter data management, transfer of the data to the billing system and the billing process. Consumers are metered through conventional as well as prepaid metering systems, resulting in two separate metering and billing systems run by the iLembe district.

The study also evaluated the actual billing and sales volumes against the volume of metered water which had been supplied, leading to the analysis of NRW.

The study found that R7 000 000 of additional income could be generated every month if all prepaid meters were replaced by conventional meters and read on a regular basis.

The iLembe District Municipality is in the process of rolling out a smart metering programme which includes meter reading hand-held devices that can also capture the GPS coordinates of meters.

The study in Sundumbili has produced several recommendations for the iLembe District Municipality to improve operations and procedures for billing and metering.

This list of practical steps to improve revenue collection can be applied by all municipalities providing water services. The strategies to address NRW are supported by asset management plans and training provided by the Vuthela Programme.

Vuthela has also assisted the iLembe District Municipality to review and update the district's Operations and Maintenance Plan and to develop an Asset Management Strategy.

Vuthela has undertaken a study on energy efficiencies and energy management at the Sundumbili Water Treatment Works. Many of the findings in the study will be relevant to water management facilities throughout the district and the country.

Asset management information system for water and sanitation in the iLembe District Municipality

iLembe District Municipality has acquired an asset management information system for water and sanitation to identify shortcomings and continuously improve the status in the field for better control of the bulk operations and distribution to end users writes **Nicolas Savva, Asset Management Expert, EDAMS Technology, a division of Hydro-Comp.**

The iLembe District Municipality is the designated Water Services Authority (WSA) and is also a Water Services Provider (WSP) for areas not served by the water concession in the district (see article on page 2 concerning the Siza Water concession).

Having a customer base of more than 60 000 households of various income levels and serving a large, varied geographic area, proves challenging for the district.

The main challenges faced by iLembe District Municipality in the water and sanitation sector have been identified as follows:

- Ageing Infrastructure and related funding requirements.
- High non-revenue water (NRW) levels resulting in additional production and distribution costs as well as lost revenues.
- Low productivity in terms of its operations and maintenance.

An appropriate, accurate Infrastructure asset register which is spatially enabled, where the data can be updated and maintained, was identified as key to addressing these challenges.

Project objectives

The iLembe District Municipality identified the need to improve systems, processes and operations to improve asset management in water and sanitation services and sourced assistance from the Vuthela iLembe LED Support Programme which developed terms of reference for procurement of an asset management information system during 2022.

The budget allowed for a system that would assist in operations, maintenance and planning for maintenance activities; facilitate job card management; and assist in addressing NRW management. The system must also have capacity for the use of mobile technologies to assist field workers with data management instead of relying on hard copies and manual data entries.

The EDAMS System

<https://edams.com/products>

The EDAMS System is a comprehensive Utility Enterprise Management system covering all commercial and technical functions. It is integrated with the organisation's financial, GIS, fixed asset management and Supervisory Control and Data Acquisition (SCADA) systems and provides a coherent enterprise system solution for the modern utility.

The EDAMS data model is structured in such a way that it constitutes the organisation's technical (fixed) asset register and can further be used for all relevant applications such as mapping, maintenance, engineering analysis (modelling), demand management (e.g., NRW), asset valuation, rehabilitation planning and customer care, and provide summarised input to the financial asset register. It can also be used for the financial billing and revenue management of a utility.

Project implementation

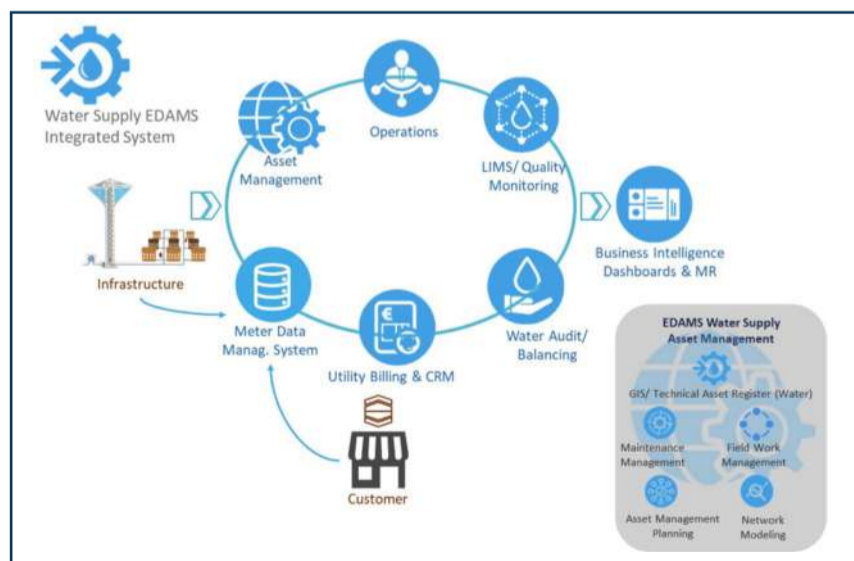
The project will be implemented in five months and the software will be licensed and supported for a further 24 months. Work involves infrastructure data conversion and evaluation which includes a gap analysis and recommendations for improvement, system setup and configuration, and extensive training through workshops and formalised training courses. A proven methodology for success is followed by Hydro-Comp, ensuring quick and effective deployment with the client, in this case the iLembe District Municipality and its sector departments.

Data management

Data conversion: EDAMS' powerful data conversion and structuring facilities make it easy to convert data from various sources and attach engineering intelligence to network data to improve engineering integrity. The EDAMS software includes extensive data models and element libraries for all the water and sanitation infrastructure assets and also has built-in hierarchical structures to allow for inheritance and functional dependencies.

Network data analysis and evaluation: Data cleaning is streamlined and automated, with missing attribute data, connectivity or topological violations and suspect engineering zones highlighted as exceptions. The system ensures that the exceptions are classified intelligently to allow the user to focus on investigating critical problems.

Procedures will be put in place for properly maintaining the technical asset register and in interfacing with the financial asset register. Users will be trained on how to both convert data to the EDAMS software and maintain it, whether changes arise from in-house field work or contractor works.



Maintenance management

Maintenance activities and resources deployed (human resources, vehicles and equipment, stores) will be defined and configured in the system. The system will enable complaints management (in the form of a call centre); scheduling, workflows, and business processes; work order management; scheduling of preventative, proactive and routine maintenance programmes; and analysis and management of maintenance records.



Nicolas Savva, Asset Management Expert, EDAMS Technology, a division of Hydro-Comp



Operations and NRW management

The EDAMS operations module will provide users with the ability to manage readings/ instantaneous measurements and/or period logs taken from any asset. Instantaneous or period logs/ readings can be kept for assets in any fixed installation, i.e. bulk meters, pump station, treatment plant, etc. The collected data can include counter readings, operating times, energy consumption and user definable indicators such as temperature and pressure.

Amongst others, the system will enable the efficient monitoring and control of bulk meter operation for prompt response to problems; evaluation and verification of bulk meter readings; and flexible estimation of problematic meter readings. All the metering and financial billing information can then be used to provide the water balance in the International Water Association (IWA) format which is also the format adopted and required by the Department of Water and Sanitation from Water Services Authorities, such as the iLembe District Municipality.

The EDAMS NRW management module will manage water demand zones/ district metered areas (DMA) to reduce inefficiencies; ensure proper service delivery (water quantity and pressure); formulate water conservation plans with the main objective of reducing NRW; and ensure

procedures and required reporting for compliance with regulations. Its main functions include real-time leak detection; water balancing per DMA; water audit per DMA and overall water scheme; and detailed leakage analysis.

The effectiveness of the system largely depends on the current zoning and bulk metering in the system. Utilities usually use the system to identify their shortcomings and continuously improve the status in the field for better control of the bulk operations and distribution to end users.

Water concessions seminar

▶ continued from page 02

Financial model needs review

Mbola said the financial model should be reviewed and the profit generated by the concession should be shared equally between Siza Water and the iLembe District Municipality. The Vuthela Programme is currently supporting the municipality with a review of this financial model.

A representative of the Dolphin Coast Residents and Ratepayers' Association, Stephan Marais, said the PPP's strengths included good maintenance of infrastructure, a simple price structure, cost savings due to efficiencies and the honouring of service level agreements.

The lack of new infrastructure development, illegal connections and non-paying customers posed the main threats. There were opportunities to renegotiate contributions for new infrastructure in the form of developers charges and to expand the reach and scope of services, said Marais.

With many municipalities facing pressure to expand basic services with diminishing resources, new options for service delivery will need to be considered.

Standardised national programmes

The national Department of Water and Sanitation has established an office in partnership with the Development Bank of Southern Africa and the South African Local Government Association to improve the participation of the private sector in providing water services.

The Water Partnerships Office (WPO) is developing standardised national programmes that will make it easier, quicker and cheaper for municipalities to enter into partnerships with the private sector to provide services.

The WPO will support municipalities to prepare bankable projects, undertake feasibility studies and seek funding.

Johann Lubbe, head of the WPO, told the seminar that many municipalities faced financial and technical constraints. But South Africa's private sector had substantial expertise, and that furthermore banks and

pension funds were now eager to invest in public water and sanitation infrastructure.

"The project must be bankable," said Lubbe.

"There must be a focus on projects with sufficiently large and sustainable revenue streams. The larger the revenue stream in relation to the investment and the more sustainable the revenue stream, the greater the likelihood that the project will be bankable."

The KwaZulu-Natal government is also poised to assist municipalities to form PPPs to provide water services.

The Acting Chief Director of the PPP Unit in the KwaZulu-Natal Provincial Treasury, Kirsch Bezuidenhout, told the seminar that South Africa faced a "brewing crisis" over water services.

The PPP contract between the iLembe District Municipality and Siza Water was a ground-breaking agreement that demonstrated how collaboration between the public and private sectors could provide basic water services and waste management to communities.

"It remains a shining example of how a well-managed PPP agreement should be, in spite of the difficulties arising along the way, as with any relationship," said Bezuidenhout.

"This contract has generally been managed quite well and performed at levels that have ensured exceptional services to households within the concession area.

Siza Water PPP a blueprint

"This PPP agreement could serve as a blueprint for water and sanitation services across the country and it is a contract that KwaZulu-Natal should take pride in," said Bezuidenhout.

While the private sector was better placed to provide services efficiently, the municipality cannot divorce itself from the management of the contract.

"Public-Private Partnerships remain a cogent vehicle to ensure that government at all levels is able to achieve the development required in our country.

"In more recent times, South Africa, generally, has



Seminar participants

seen an economic downturn, which has meant that the financial resources available to government are evermore dwindling.

"There is a growing need for government to turn to the private sector and leverage its borrowing power to fund the large-scale developmental projects needed to provide real change in the life of the communities we serve, and to jump start the economy."

The KZN Provincial Treasury provides technical, legal and financial advice on PPPs to municipalities.

The seminar identified issues which required urgent interaction between Siza Water and the iLembe District Municipality, and stakeholders acknowledged the need to start preparing immediately for the end of the contract in six years.

Vuthela is summarising the presentations, perspectives and discussions at the seminar into a case study, which will be available to all stakeholders and other municipalities.

The seminar and the case study, along with the overall support which Vuthela offers the iLembe District Municipality, will help to ensure that the secure delivery of water services will continue to underpin economic development in this region.

The perspectives of stakeholders and the learnings derived from the PPP over the past 24 years will also serve as a valuable guide for other municipalities who are seeking effective solutions to the challenges of delivering water services efficiently.



Asset management information system

▶ continued from page 06

Asset valuation and rehabilitation planning

Three main functions are basically enabled as follows:

- The EDAMS condition assessment module handles various assets differently: (a) assets such as treatment plants and pump stations are inspected individually and evaluated on a regular basis; (b) network above ground assets such as hydrants, isolating valves and manholes are inspected individually and evaluated only if their age exceeds a certain number of years; and (c) water and sewer pipes are evaluated on a range of parameters, such as failure frequency, material, age, soil conditions and other.

- The EDAMS asset valuation module (a) determines the current price and maintenance (total cost) of ownership; (b) evaluates the remaining useful life of assets; and (c) evaluates the actual cost performance of the assets. In addition, the EDAMS asset valuation module exports summarised asset valuation information according to the utility's accounting system requirements (following the Municipal Standard Chart of Accounts and National Treasury regulations in this case).

- The EDAMS rehabilitation planning model is a decision support tool for establishing infrastructure rehabilitation

and investment plans. Functionality includes (a) importance and risk assessment; (b) asset categorisation; (c) assessment of useful lives; (d) rating and ranking assets; and (e) budgeting. The main output of the model is a preventive maintenance plan and a rehabilitation plan based on available budgets.

For the system to be fully effective, financial data must be provided regarding the purchase/ replacement value of assets, and condition assessment criteria and environmental data must be set up. Appropriate training and worked examples will be presented so that users can improve the results from the system as such data becomes available.

Field work management

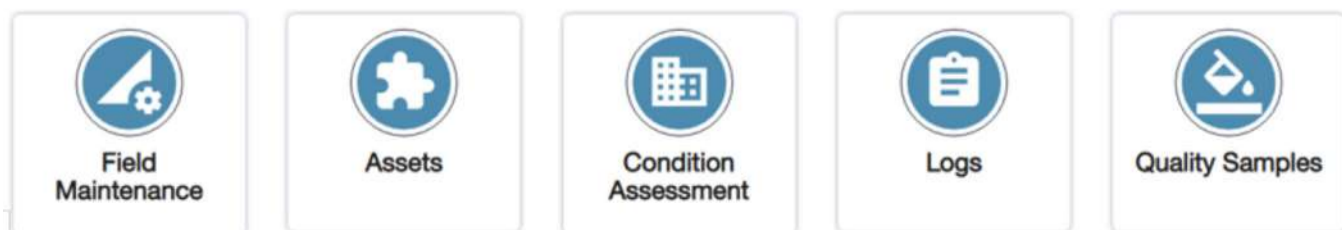
The EDAMS field work management software can be deployed in the future by the iLembe District Municipality to further improve productivity. The software utilises industry-specific predefined templates to assist mobile field workers carry out (a) data capture, (b) asset condition assessment, (c) maintenance, and (d) recording of readings/ logs/ events. An illustration of the field work management various modules is shown below:

Hydro-Comp's experience in asset management for water and sanitation

The EDAMS system is developed by EDAMS Technology, a division of Hydro-Comp. Hydro-Comp, though an international company active in over 20 countries, has its roots in South Africa, where it keeps offices in Sandton and Port Elizabeth. Hydro-Comp has extensive experience in implementing asset management solutions in the water and sanitation industry. Funding for projects carried out varies from simple internal funding to funding by donors, such as USAID, World Bank and GIZ (German). Currently there are more than 50 organisations using the EDAMS asset management software for water and sanitation with more than 1 000 users. In South Africa, Nelson Mandela Bay Municipality, Silulumanzi and Siza Water make extensive use of the software.

Benefits realised include:

- An accurate technical asset register, well maintained and interfaced with the financial asset register.
- More effective emergency and crisis management.
- Effective proactive and preventive maintenance.
- Improved productivity and efficiency in operations and maintenance.
- Increased asset effective life.
- Improved service delivery (pressures, quality, less breakdown time, response);
- Reduction of losses.
- Higher organisation creditworthiness.
- Enhanced compliance and transparency.



WHAT IT IS ABOUT

The Vuthela iLembe LED Programme responds directly to the urgent need to address unemployment, poverty and inequality by accelerating inclusive local economic development and growth in line with the National Development Plan, the KZN Provincial Growth and Development Plan, iLembe District Municipality Growth and Development Plan as well as the Integrated Development Plans of the family of local municipalities in the district.

OBJECTIVES

The overarching objective and expected impact of the programme is to contribute to the improvement of the economic future of the iLembe District and the quality of life of its inhabitants, through sustainable growth of the local economy, and the creation of higher, better and more inclusive employment and income generating opportunities.

STATUS OF PROJECTS

Of the 43 contracts, 21 have been completed, 15 are in implementation, one is still to commence, two are subject to transfer to municipalities and four have been formally withdrawn.



WHO ARE THE PARTNERS?

The Vuthela iLembe LED Programme, is a joint initiative of the State Secretariat of Economic Affairs of the Swiss Confederation, the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs, the iLembe District Municipality, and the KwaDukuza and Mandeni Local Municipalities. The programme includes participation of the Ndwedwe and Maphumulo Local Municipalities.

THE FIVE INTER-RELATED COMPONENTS OF THE PROGRAMME

- ▶ **Public Finance Management** - strengthening the financial position of municipalities through better capacity to plan, finance and manage infrastructure investments and the provision of public services. skills development; greater investment in and growth of Small and Medium Enterprises, leading to increased employment.
- ▶ **Municipal Infrastructure** - improved planning and access to infrastructure services for development investment, effective and efficient service delivery, and sustainable growth.
- ▶ **Private Sector Development Component** - Address obstacles to doing business in the district by improving the regulatory environment and supporting
- ▶ **Building Inclusive Growth Component** - inclusive and sustainable growth and employment interventions to support SMEs in growth sectors.
- ▶ **Programme Management, Partnership and Co-ordination Component** - sustained partnerships and capacity for local economic development in the iLembe District, and the replication of the approach in policy elsewhere in South Africa.

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