

KWADUKUZA

KWADUKUZA LOCAL MUNICIPALITY

Low Emission Development Strategic Framework and Action Plan

Executive Summary



**Building on the Climate Change Response
Strategy (2013)**

**A direct input to the City Development
Strategy**

“ *What kind of development do we want to promote,
what kind of city do we want to be?* ”

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Foreword from the Mayor

Climate change is the most serious global challenge of our time. The impacts of climate change on communities around the world are increasingly evident with KwaDukuza being amongst other vulnerable municipalities to climate change in KwaZulu Natal, South Africa. Taking cognisance of these challenges, a KwaDukuza Climate Change Response Strategy was developed in 2013 to further understand the risks and required responses. To operationalize the Strategy and meet the municipal obligations to contribute in minimizing emissions, ensure access to energy and other basic services, the municipality partnered with ICLEI Africa to develop the Urban Low Emissions Development Strategy (2012-2015) and simultaneously became a member of ICLEI in 2013.

The Urban Low Emissions Development Strategy (Urban-LEDS) Planning process involved rigorous and transparent multi-stakeholder engagements with local business, Government Departments, neighbouring Municipalities, Non-Governmental Organisations and Communities. Urban-LEDS presents a wide range of economy-wide interventions to be implemented across the public and private sectors. The actions include concrete mitigation interventions and provide for the enabling conditions required for effectively responding to climate change as per departmental responsibility for 2015-2016 IDP

year and beyond; integrated in the 2016- 2021 IDP, SDBIP, and Organisational score card accompanied with budget requirements. Considering the ambitious nature of the Urban-LEDS Action Plan, support, partnerships, investments and technology innovations are required for the implementation of the actions and achievement of the goal of Low Carbon Pathway.

KwaDukuza Municipality Council resolved to be members of the Central KwaZulu Natal Climate Change Compact which is a regional partnership on climate change with central KwaZulu-Natal municipalities, KwaDukuza Municipality is also a signatory and a member of the Durban Adaptation Charter which saw the signing ceremony being held at the LOCS Congress 2015. In the same Congress KwaDukuza made a commitment to be a member of Compact of Mayors which gained 36 new cities and towns.

Being one of the local municipalities in the country to pitch for this status is a re-affirmation of our commitment in the fight against climate change. Our vision statement holds true of our successful interventions on climate challenges of the past. There is a clear indication that we are a progressive city in the making, on our path towards low carbon economy.

On behalf of Council, I therefore present to you the Low Carbon Emission Strategy and its action plan, which is a critical tool for KwaDukuza to realise its own vision and also meet the target set by the National Development Plan related to low carbon economy.

Together we can do more!

Mayor Mthembu

Messages from stakeholders

This framework and action plan has been collaboratively created with a diverse range of local stakeholders. The municipality has jointly-planned with them. Their views, insights and ideas have been invaluable in shaping KwaDukuza's 2030

vision and the steps it needs to take to get there.

Some of the stakeholders involved in the process share their insights below.

“ The participatory and consultative approach taken by KwaDukuza Municipality in developing their LED Strategic Framework and Action Plan is a good practical example of how neighbouring Municipalities can collaborate to tackle mutual challenges and opportunities, particularly around Climate Change. Mr Sikhumbuzo Hlongwane and his team have done a sterling piece of work. ”

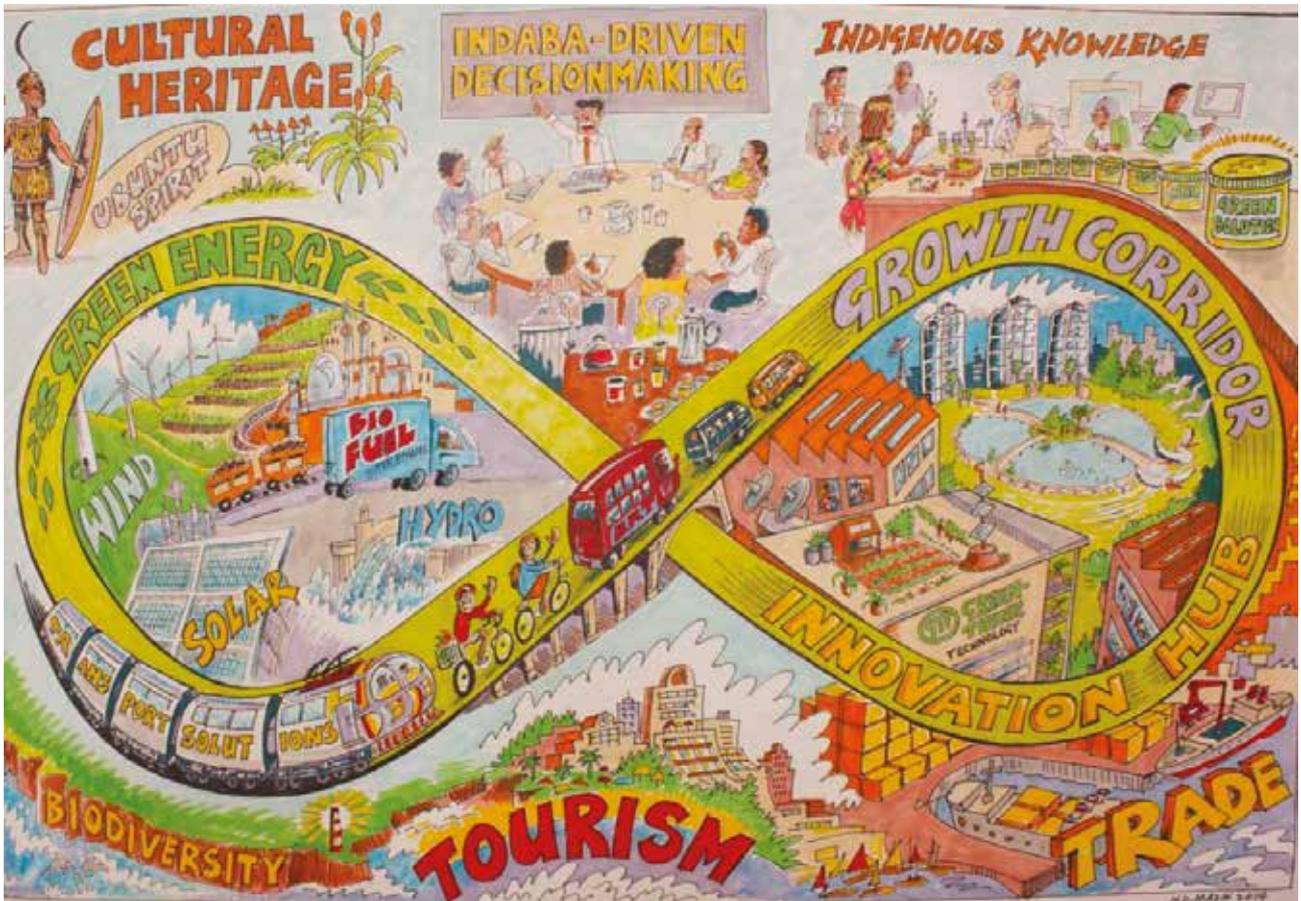
MAGASH NAIDOO EThekweni Municipality

“ SALGA congratulates the municipality for putting forward such a plan, ambitious and yet grounded into the local reality, with clear indicators...The document recognizes the SALGA EERE strategy for local government and aligned some of its action to it, which is great. ”

BRIGHT NKONTWANA SALGA

“ The iLembe District Municipality welcomes and supports the KwaDukuza Low Emission Development Strategic Framework and Action Plan and the formulation process has been consultative and ensured that all stakeholders played an integral role throughout. The recommendations contained herein will assist in ensuring we maximize on opportunities available by virtue of our region being designated the Renewable Energy Hub of the Province. On a strategic level, there is alignment between the KwaDukuza LED Strategic Framework and Action Plan and the iLembe Regional Spatial Development Plan (IRSDP-Vision 2030). Therefore, as a District, we support the Regional Enabling Strategies contained in this document. In this respect, it will be essential that the action plan developed is integrated into the 4th Generation Municipal IDPs, hence the iLembe District Growth and Development Plan, which will be adopted imminently, will also have to infuse the strategies contained in the KwaDukuza LED Strategic framework and action plan. ”

LINDA MNCUBE iLembe District Municipality



Umuzi wengcebo (House of Wealth)

Strategic framework at a glance

The low-carbon vision complements the overall municipal vision by describing the kind of city KwaDukuza can become:

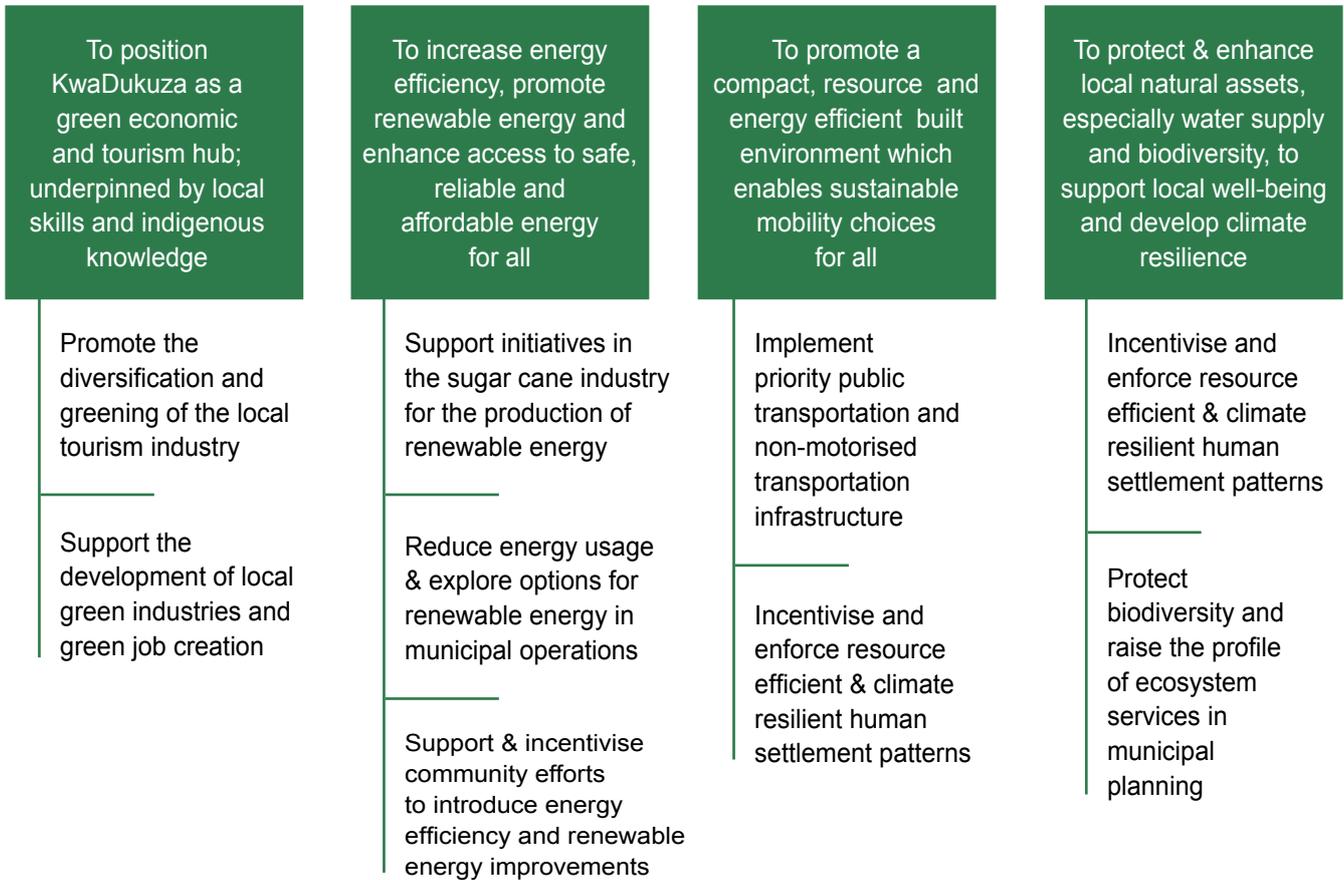
LOW-CARBON VISION

By 2030 Kwadukuza will have successfully managed its transition to low carbon development and will be:

- A distinctive urban launch pad for the Durban / Richards Bay Corridor
- A job-rich green manufacturing, renewable energy and logistics hub
- A model of integrated resource management and climate change adaptation
- A Shaka-inspired heartland and thriving tourism destination

“ By 2030, KwaDukuza shall be a vibrant city competing in the global village economically, socially, politically and in a sustainable manner. ”

STRATEGIC OBJECTIVES AND FLAGSHIP STRATEGIES



CROSS-CUTTING AND ENABLING STRATEGIES



Figure 1: KwaDukuza’s Strategic Framework Summary

1

Introduction

1.1 What is low emission development?

An Urban Low Emission Development Strategy defines a pathway to transition a city to a low-emission, green and inclusive urban economy, through its integration into city development plans and processes.

Low emission, or low carbon development, is about meeting the development needs of the municipality while minimising its contribution to climate change, and helping it prepare for its impacts. It is about exploiting opportunities for green and clean economic growth, and creating strong local communities and businesses that can be resilient to resource and climate shocks.

A low emission future for KwaDukuza is not a “nice to have” but a basic survival strategy in a world undergoing turbulent social, economic and technological change.

The relationship between this framework and the other strategies described can be seen below:

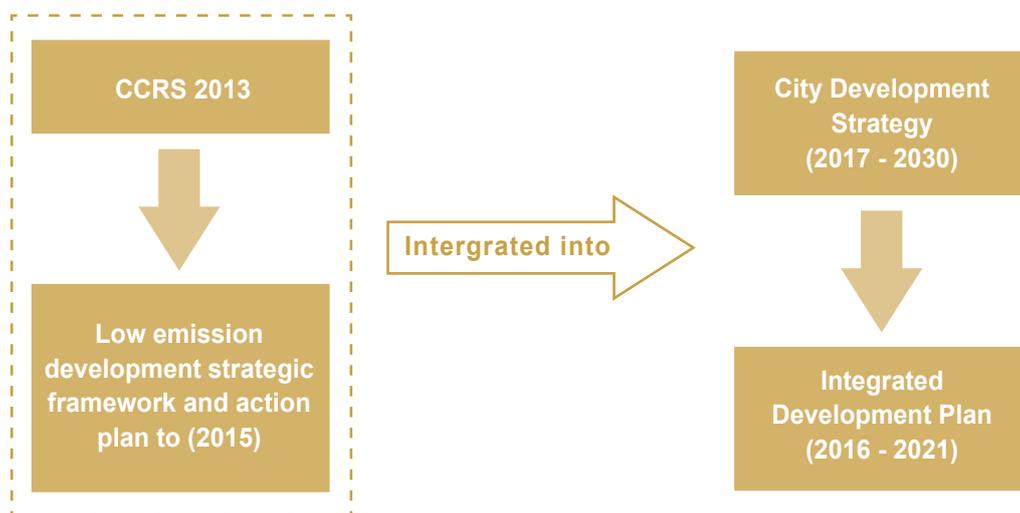
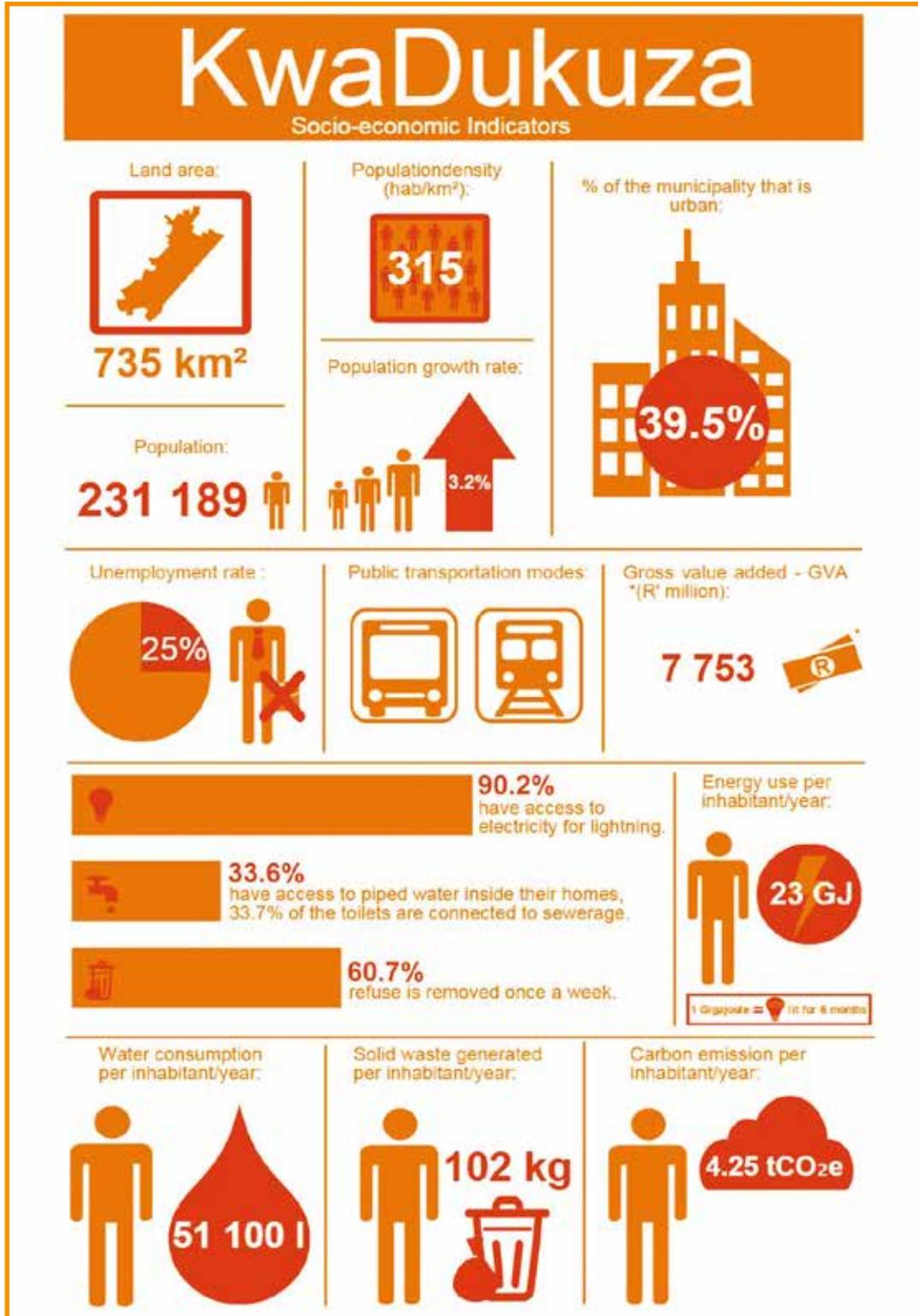


Figure 3: Relationship between the framework & other strategic documents

KwaDukuza at a glance



Data from work conducted by StatsSA (2011), KwaDukuza Local Municipality (2012) and the GHG inventory report by ICLEI Africa (2012). For more information about the Urban-LEDS project, please visit www.urban-leds.org or email urban-leds-southafrica@iclei.org. This document has been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.



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KwaDukuza's energy footprint & climate vulnerability

Energy use

Electricity is the dominant energy type used in KwaDukuza (43% of total 5.3 million GJ of energy consumed), a pattern that is consistent with other municipalities in South Africa.

The sectors consuming the greater proportion of energy in the area are the transportation (56%), residential (15%), Industrial (11%), and Commercial (11%) sectors.

91.2% was emitted by the community and **8.8%** emitted directly by the local authority (with the inclusion of electrical losses). The results show that everyone in KwaDukuza makes a contribution, and everyone has a responsibility to reduce their emissions.

The carbon and energy intensity in KwaDukuza is similar to that of like-sized municipalities, with similar economic activities, and demographics. More detailed statistics on the energy use and carbon emissions can be found in the detailed Greenhouse Gas Inventory Report, with high-level summary statistics in the infographic below.

Climate vulnerability

Climate Change Adaptation can be defined as making sure that existing development, activities and services are able to cope with the environment that will result as the climate changes. Within iLembe District, KwaDukuza Municipality is one of two coastal local municipalities and coastal vulnerability index findings indicated that KwaDukuza Municipality has many high risk areas (43%) – in particular the coastline areas. This coastal vulnerability is strongest in KwaDukuza, where the majority of human resources are located. Fishing hotspots, harvesting areas, bird sanctuaries and coastal public property are identified as being adjacent to or in areas of high risk. The CVI identifies Ballito, Salt Rock, Shaka's Rock, Sheffield Beach and Zinkwasi as areas of high risk.

In addition, KwaDukuza is projected to experience a slight increase in precipitation, apart from the months of June, July and August when it is projected to decrease. A projected 50% increase in sugarcane yields as a result of the combination of projected increases in both temperature and rainfall, but an increase in temperature also coincides with an increase in reproduction of sugarcane pests which means that yields can potentially be threatened.



URBAN ENERGY PROFILE INFOGRAPHIC: KWADUKUZA LOCAL MUNICIPALITY 2012

A member of the Urban-LEDS project



Municipality: KwaDukuza
Province: Natal
Country: South Africa

Where is KwaDukuza?
Click on the map to view in google maps



GENERAL INDICATORS



Data from work conducted by ICLEI Africa 2010, StatsSA (2011). Correct as of October 2012. For more information about the Urban-LEDS project, please visit www.urban-leds.org or email urban-leds-southafrica@iclei.org. This document has been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

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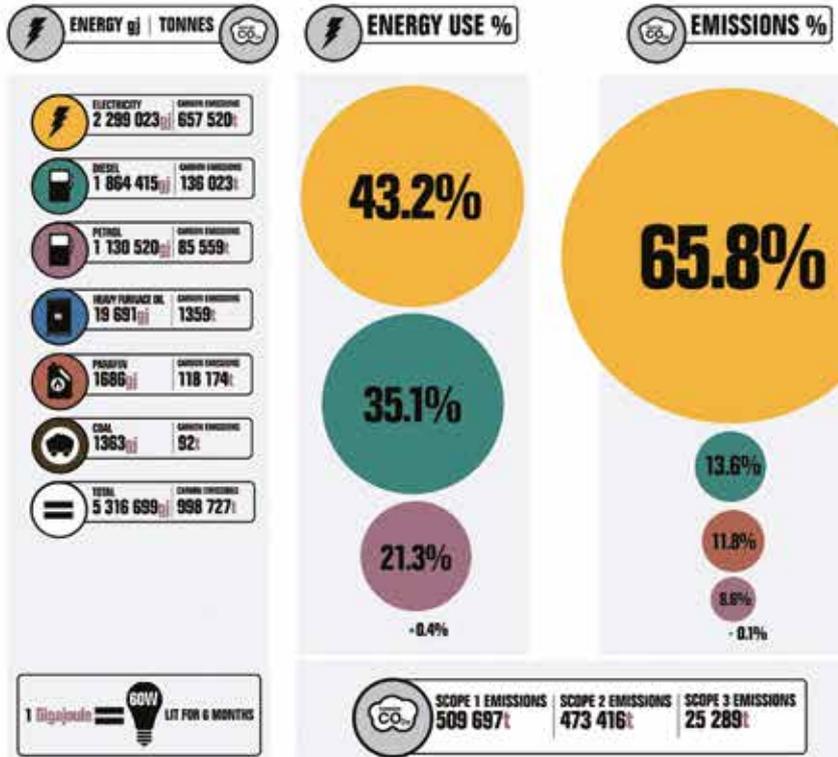
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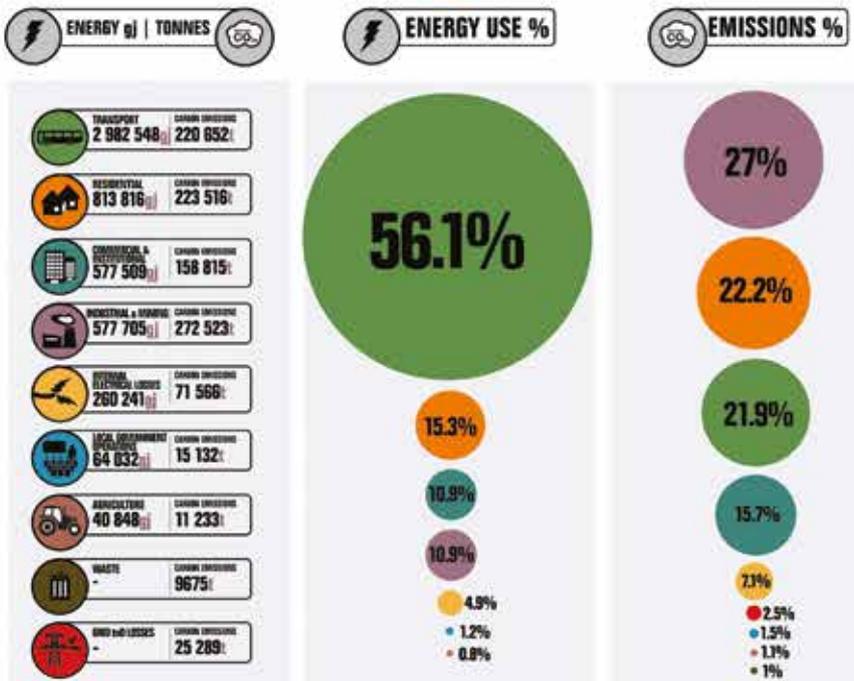
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ENERGY USE & EMISSIONS BY TYPE



ENERGY USE & EMISSIONS BY SECTOR



TOTAL ENERGY USE & EMISSIONS



4 Transitions to meet the vision

Six transitions have been identified that KwaDukuza will have to move through in order to achieve the House of Wealth scenario by 2030. To this end, KwaDukuza has also set an **aspirational target of a 42% reduction in community-wide greenhouse gas emissions** against the business

as usual projection for that year. This target will be met through a combination of specific measurable low emission development actions, and through fulfilling the various objectives outlines in each of the transition areas.

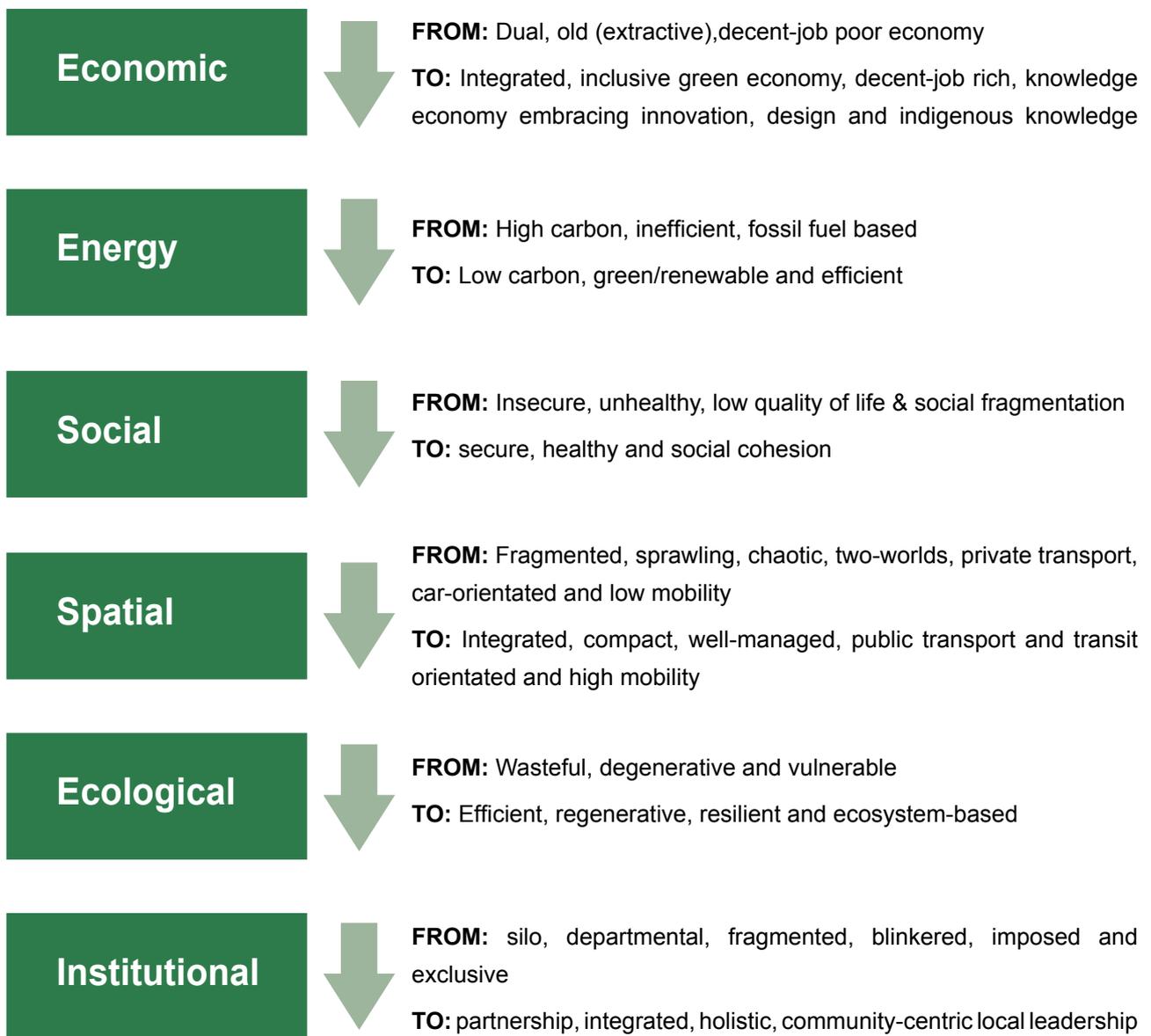


Figure 4: 6 transition areas to meet the 2030 vision

Objective 1 | **To position KwaDukuza as a green economic and tourism hub; underpinned by local skills and indigenous knowledge.**

The ultimate aim might be called a “green economy”. This improves human well-being and reduces inequalities over the long term, while not exposing future generations to significant environmental risks and ecological scarcities. This type of economy should take into account concerns over energy

costs, energy security, environmental risks, limited natural resources, declining ecosystem services and fears over economic slowdown and uncertainty. The types of economic activities and their environmental implications need to be rethought .

Flagship Strategy 1

Promote the diversification and greening of the local tourism industry.

KwaDukuza’s Zulu and Struggle history as well as its natural environment offer valuable cultural and ecological tourism opportunities. The municipality is also home to 7 estuaries and 3 nature reserves. These estuaries can be used as tourist attractions. This has the potential to create jobs & skills development in the cultural tourism centres, increase environmental tourism and increase employment & skills development in local communities near the estuaries

Flagship Strategy 2

Support the development of local green industries and green job creation

This strategy has the potential to lower the emissions of the municipality by attracting/ supporting local green business, provide these businesses comparative advantage over firms in other municipalities and to create green jobs. Procuring locally will create jobs in local industry and pursuing green procurement will help build green industries and create green jobs.

Example actions from the full action plan

- Line departments to request resource efficient products and services in their tender processes wherever possible, demonstrating that they have investigated resource efficient options
- Work with a tourism industry organisation/the local Chamber of Commerce to encourage responsible tourism principles
- Explore a partnership with eThekweni to promote responsible tourism in the greater Durban area

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Objective 2

To increase energy efficiency, promote renewable energy and enhance access to safe, reliable and affordable energy for all.

To meet its national CO2 reduction targets, the South African economy will have to undergo a rapid change in the way it produces and uses energy from fossil fuels to renewable energy. While local studies have identified the District as having significant biomass potential, and to a limited extent wind, solar and hydro, renewable energy

production remains low. With approximately 10% of households in KwaDukuza without access to electricity, and approximately 10% using paraffin or wood for cooking, reducing emissions will involve ensuring sustainable access for all, with simultaneous reductions in energy consumption by intensive users.

Flagship Strategy 1

Support initiatives in the sugar cane industry for the production of renewable energy.

Bagasse as a by-product of sugarcane production is a valuable renewable energy resource. The municipality sees the benefit of working with the sugar industry to encourage biomass to energy production – making the most of the most abundant renewable energy resource locally. A more detailed assessment of the options available to the both the municipality and the sugar cane industry can be found in the Energy Transition report (See Appendices).

Flagship Strategy 2

Reduce energy usage & explore options for renewable energy in municipal operations.

While the municipality is directly responsible for only a small amount of the emissions in KwaDukuza, investing in the efficiency of municipal services and operations is a first entry point to showing leadership on low emission development. Apart from saving GHG emissions, these activities also save operational costs that the municipality can invest into other activities and policies.

Flagship Strategy 3

Support & incentivise community efforts to introduce energy efficiency and renewable energy improvements.

The biggest users of energy in KwaDukuza are the industry, residential, commercial and transport sectors. The municipality can only support and encourage efforts by these groups to become more energy efficient, and adopt renewable energy. Businesses can take a lead through taking part in private sector schemes to encourage energy efficiency, or making use of the energy efficiency tax incentive – preparing for the introduction of a carbon tax in 2017. Residents can save money and reduce emissions, and increase the amount of electricity capacity available for new developments, by installing solar water heaters and other energy saving devices.

**Example actions
from the full action
plan**

Support Gledhow Sugar Mill's application for renewable energy co-generation project
All new street light installations to be LED
Community showcase: energy & sustainability retrofit of 20 orphanage homes

4.1 Spatial Transition¹

Background: What is a low-emission spatial transition?

The spatial structure of urban areas has been found to play an important role in their greenhouse gas emissions profiles. The level of compaction, land use integration and settlement densification achieved in cities affects both transport and public sector energy emissions, and is linked to the cost and financial sustainability of public infrastructure – especially public transport systems. Interventions to optimise efficiencies in infrastructure, mobility and land not only impact emissions. They also tend to be associated with lower costs, better economic returns and greater infrastructure life spans, which make the cities that can achieve these aims attractive places to live and invest.

The resilience and adaptability of cities to climate change is also directly linked to their spatial structure. Understanding the spatial patterns of social, economic

and ecological vulnerability to climate change can be used to inform risk-responsive spatial planning that protects people, infrastructure and investment from identified risks.

Status quo assessment

Despite a reported 21% growth in total municipal population in the 5 years between 2006 and 2011, the urban population grew by 54%, and the non-urban population decreased by 26%, indicating a rapidly urbanising local population.

Nevertheless, the KwaDukuza Local Municipality area remains a largely agricultural landscape (commercial sugar cane) with very low settlement densities. Major future development is planned between Umhlanga and Ballito as part of the Integrated Provincial Aerotropolis Strategy, and this is likely to be a key driver of change in spatial form in the KwaDukuza over the next 20 years. Continued pressure for coastal development is likely with this and the development of Dube Trade Port.

¹ The information in this section is edited from the "Specialist Paper on the Spatial Transition towards a Low Emissions City in KwaDukuza Local Municipality" paper prepared for KwaDukuza by FutureWorks, available from the municipality or from ICLEI – Africa



Figure 5: Map left: Ballito 2002. Map right – Ballito 2014. Showing rapid densification (Source: Google Earth)

There is currently no integrated public transport system in KwaDukuza. 60% of trips are made in private vehicles, with 3% being made by public transport. There is limited provision made for non-motorised transport within centres. Despite this, and a lack of delineated urban edge, the boundaries of major towns have historically been contained by the surrounding high value agricultural lands.

Given the large new developments on KwaDukuza’s doorstep, strong growth management will be required which promotes public transport and encourages appropriate densification. However, some of this development will not be under KwaDukuza’s direct control and so strong partnerships will be necessary.

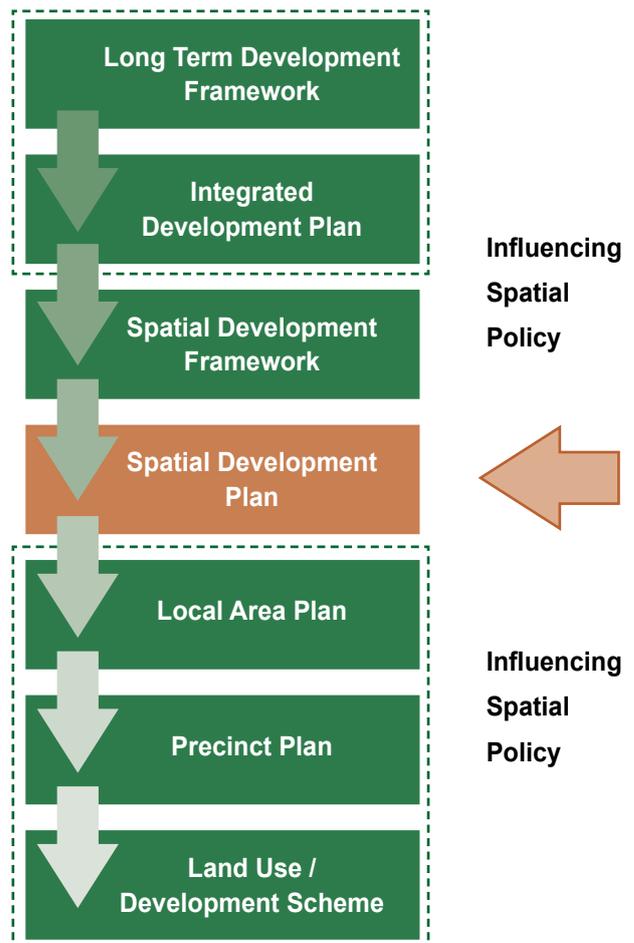


Figure 6: Hierarchy of spatial development policies in KwaDukuza



Objective 3 | Strategic approach for the future: To promote a compact, resource and energy efficient built environment which enables sustainable mobility choices for all

Flagship Strategy 1

Implement priority public transportation and non-motorised transportation infrastructure.

A long-term goal is for KwaDukuza to develop in-house strategic transport capacity. In the meantime, continuing with localised projects to construct inter-modal transport facilities, and incorporating non-motorised transport facilities & options into local planning, is to be prioritised. There are links to the tourism industry that can also be encouraged to provide lower carbon transport options for tourists travelling from King Shaka airport.

Flagship Strategy 2

Incentivise and enforce resource efficient & climate resilient human settlement patterns.

A flagship set of green building guidelines will be introduced and progressively incentivised and enforced. If adhered to, this will promote a resource efficient built environment in areas as diverse as water, food, waste, energy, sustainable transport options, biodiversity, green procurement & construction materials. The full implications of climate change vulnerability are to be integrated through the commissioning of a spatial-based vulnerability and disaster risk assessment which can then be integrated into the municipality's spatial plans.

Outcome indicators

1. Change in modal split between private & public transport use (No baseline)
2. Change in average residential density per square kilometre, within & without the urban edge

4.2 Ecological Transition²

Background: what is a low-emission ecological transition?

Human health depends upon living with healthy ecosystems that provide a wide range of natural goods and services such as producing food and water, mitigating urban heat islands and air pollution, managing urban stormwater, treating and diluting urban waste/water, and providing places for recreation. In addition, this “ecological infrastructure” has been shown to play a key role in mitigating greenhouse gas emissions through carbon sequestration, and improving the ability of cities, residents and business to adapt to climatic change. This is also an issue in rural areas; with the potential to use ecological techniques in agriculture to create jobs and preserve biodiversity at the same time.

In some cases, strategies to achieve low emissions development may conflict directly with the objective of maintaining functional ecological infrastructure. In particular, city densification and infill strategies can result in an intensification of the ‘urban outputs’ that the ecological infrastructure is expected to deal with (e.g. increased stormwater peaks, more polluted urban stormwater, more wastewater etc.), resulting in degradation. An integrated approach is therefore needed, where ecological infrastructure is recognised as an asset within the spatial fabric of the city. The ecological transition therefore requires proper management of both natural and built environments, in order to optimise the desired ecosystem services for human needs, and buffer climate change risks and vulnerabilities.

Status quo assessment

The KwaDukuza Local Municipal Area has been largely transformed from a natural state to agricultural and urban land uses. According to the Municipality’s Biodiversity and Open Space Plan (BOSMaP), only 24.4% of the municipal area remains untransformed. Important remaining areas of biodiversity are spatially fragmented. This makes management of the ecological systems difficult, and elevates the vulnerability of the ecosystems to climate change, development pressures and urban outputs.

Key issues that currently affect the coverage, condition and connectivity of natural ecosystems in the municipal area include cultivation / drainage of wetlands for commercial and subsistence agriculture, sand mining in watercourses, uncontrolled fires / burning, transformation of natural habitats and associated buffer areas for settlement (informal and formal), sedimentation and altered flow regimes in watercourses as a result of agricultural abstraction and management practices, damming of watercourses resulting altered flow patterns, and alien invasive plant infestations.

The concept of integrating ecological infrastructure, culturally important and agriculturally productive landscapes in spatial planning is articulated in the SDF (IYER, 2012). However, much of this thinking still needs to be translated into the municipal SDP’s, LAP’s and precinct plans. In addition, the BOSMaP evaluates and attempts to map ecosystem services in the municipal area, but does not yet include the important role of the agricultural and the built environment in this.

² The information in this section is edited from the “Specialist Paper on the Ecological Transition towards a Low Emissions City in KwaDukuza Local Municipality” prepared for KwaDukuza by FutureWorks, available from the municipality or from ICLEI Africa

Objective 4 | Strategic approach for the future: To protect and enhance local natural assets, especially water supply and biodiversity, to support local well-being and develop climate resilience.

Flagship Strategy 1

Promote responsible use of and rehabilitate local resources (especially water & waste) in urban and rural areas, especially in the context of climate change.

This strategy refers to a broad approach to manage local water and waste resources in line with efficiency, green economy principles, and in anticipation of local climatic changes. This broad strategy includes efforts by the municipality to ensure its own internal resource efficiency, as well as implementing its waste management strategy and capacitating itself to deal with the waste challenges in the area. Finally, there is an opportunity to create jobs through the creation of sustainable crop nurseries – of crops that can be sowed alongside sugar cane and helps mitigate soil erosion and conserve water. The DEA's land user incentive scheme could be investigated for this purpose. Job creation, reduced erosion and increased food security could be the benefits of this approach.

Flagship Strategy 2

Protect biodiversity and raise the profile of ecosystem services in municipal planning.

KwaDukuza's BOSMAP forms the backbone of efforts in this strategy – implementing it in full is the priority, while learning from neighbouring municipalities (eg eThekweni), and in the medium term expanding the understanding of local ecosystem processes and services and their spatial variability.

Outcome indicators

Change in hectares of ecological infrastructure under conservancy/stewardship, as a % of the total.

This is an aspirational indicator as the municipality does not currently have access to data to track this.

5

Summary: KwaDukuza’s Strategic Framework

Transition	1. Economic	2. Energy	3. Spatial	4. Ecological
Strategic objectives	To position KwaDukuza as a green economic and tourism hub; underpinned by local skills and indigenous knowledge	To increase energy efficiency, promote renewable energy and enhance access to safe, reliable and affordable energy for all	To promote a compact, resource and energy efficient built environment which enables sustainable mobility choices for all	To protect & enhance local natural assets, especially water supply and biodiversity, to support local well-being and develop climate resilience
Aspirational outcome indicator(s)	1. Total GHG emissions in KwaDukuza by sector (tonnes of CO ₂ equivalent per unit of GVA per unit of GDP per capita	2. Households using electricity for lighting (% of total) 3. Municipal energy consumption (GJ) 4. LED streetlights (% of total) 5. Proportion of renewables to total primary electricity supply (%) 6. Community electricity consumption (GJ) (excluding municipal operations)	7. Change in modal split between private & public transport use 8. Change in average residential density per square kilometre, within & without the urban edge (Dwelling units per hectare?) No data currently available	9. Change in hectares of ecological infrastructure under conservancy/ stewardship, as a % of the total No data currently available
Target (year) + baseline	No specific target written into policy/ KPI’s; tracked only to indicate overall progress 2012 Baseline: tCO ₂ -eq per capita: 4.36. Per unit of GVA: 130.1	1. 100% (2025) Baseline: 90.2% (2011) 2. 8 % reduction target (2018). Baseline: 51 645 Giga Joules (GJ) (2012) 3. No data yet as no streetlight asset inventory	No specific target written into policy/ KPI’s; tracked only to indicate overall progress	No specific target written into policy/ KPI’s; tracked only to indicate overall progress. No data

Transition	1. Economic	2. Energy	3. Spatial	4. Ecological
Flagship programmes / strategie	<ol style="list-style-type: none"> Promote the diversification and greening of the local tourism industry Support the development of local green industries and green job creation 	<ol style="list-style-type: none"> Support initiatives in the sugar cane industry for the production of renewable energy Reduce energy usage & explore options for renewable energy in municipal operations Support & incentivise community efforts to introduce energy efficiency and renewable energy improvements 	<ol style="list-style-type: none"> Implement priority public transportation and non-motorised transportation infrastructure Incentivise and enforce resource efficient & climate resilient human settlement patterns 	<ol style="list-style-type: none"> Promote responsible use of and rehabilitate local resources (especially water & waste) in urban and rural areas, especially in the context of climate change Protect biodiversity and raise the profile of ecosystem services in municipal planning
Flagship short-term action	<ol style="list-style-type: none"> Work with a tourism industry organisation/the local Chamber of Commerce to encourage responsible tourism principles Amend the supply chain management policy to incorporate resource efficiency criteria 	<ol style="list-style-type: none"> Support Gledhow Sugar Mill's application for renewable energy co-generation project All new street light installations to be LED Community showcase: energy & sustainability retrofit of 20 orphanage homes 	<ol style="list-style-type: none"> Construction of inter-modal transport facilities Develop and encourage adherence to green building guidelines Implement climate risk-responsive spatial planning & development control 	<ol style="list-style-type: none"> Develop a feasibility study for a waste-to-energy and/or comprehensive waste avoidance project Implement and enforce the Biodiversity Open Space Management Plan

CROSS-CUTTING & ENABLING STRATEGIES

Enabling Strategies	Institutional Capacity	Partnerships	Integration, Monitoring and Evaluation	Regional Enabling Strategies
	Fill identified skills gaps and up-skill existing municipal staff to effectively contribute to the implementation of this strategy	Promote a new culture of working together based on partnership between different tiers of government, business and community	Monitor & evaluate progress in delivery of the action plan; integrate into statutory documents & performance management systems & update institutional decision-making processes	These are those outside the direct control of the Municipality but action on these by neighbouring institutions would enable the low-emission transition in KwaDukuza to take place.



Further information

ICLEI - Local Governments for Sustainability is the world's leading network of over 1,000 cities, towns and metropolises committed to building a sustainable future. Part of our work in Africa involves working with local governments to promote sustainable development.

The KwaDukuza Low Emission Development Strategic Framework and Action Plan was developed together with the municipality under the Urban-LEDS project; visit www.africa.iclei.org and www.urban-leds.org



Implementing Partners



The project is funded by the European Union. The views expressed in this document can in no way be taken to reflect the official opinion of the European Union.