



# DURBAN CLIMATE CHANGE STRATEGY (DCCS)



# Mayor's Foreword

In June 2015, the eThekweni Municipal Council approved the Durban Climate Change Strategy. The Strategy combines Durban's climate change mitigation and adaptation response by putting people and healthy ecosystems at the centre of efforts to tackle climate change. With the approval of the Strategy, a political climate change committee was established to oversee its implementation. The eThekweni Municipality Climate Change Committee, led by Mayor James Nxumalo and Deputy Mayor Nomvuzo Shabalala, met for the first time on 25 September 2015.

In December 2015, the world's leaders convened in Paris for the Twenty-First United Nations Framework Convention on Climate Change Conference of the Parties (COP21). The city of Durban sent a delegation consisting of Mayor Nxumalo and five municipal councillors to participate in the event. With the historic achievement of the Paris Agreement, the international landscape has changed dramatically. For the first time, there is an inclusive, legally-binding agreement for countries to collectively address climate change.

Through the Paris Agreement, specifically the recognition of adaptation (Article 7) and the role of sub-national governments in addressing climate change, among other notable clauses, Durban now has a formal mandate to address climate change. Durban also has a legislated mandate to address climate change adaptation following recent amendments to the national Disaster Management Act (specifically requiring South African local governments to address climate change adaptation). It makes sense, therefore, that efforts to implement the Durban Climate Change Strategy should align with processes associated with the Paris Agreement and the Disaster Management Act. The Environmental Planning and Climate



Protection Department is currently reviewing its work programme to ensure that it is able to utilise the opportunities associated with this new mandate as efforts to implement the Durban Climate Change Strategy begin.

We can, for the first time, feel optimistic about our ability, as human beings, to counter the threat of climate change. In doing so, we need to address the development challenges that persist in Africa, ensuring that appropriate development pathways are pursued, maximising the opportunities inherent in the green economy and ensuring that nobody is left behind. The development of a transformative work programme, based on restoring ecosystems and empowering communities, and in association with our neighbouring local and district municipalities, should provide us with the best approach to dealing with climate change. Through consistent efforts to report on our climate change programme implementation, we should be able to develop a substantial amount of evidence to substantiate the mandate conferred upon cities by their national governments.

It will be important for all to play their part in addressing climate change. We all need to consider how we can reduce the amount of greenhouse gases that we produce, and how we can work together to adapt to climate change impacts. I look forward to walking this journey with you.

A handwritten signature in black ink, appearing to read 'J Nxumalo'. The signature is stylized and fluid.

**Councillor James Nxumalo**  
Mayor, eThekweni Municipality

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# Glossary

**Biodiversity:** The variety of all life forms on earth. This includes the different plants, animals and microorganisms as well as the ecosystems of which they are a part.

**Carbon Intensity:** The amount of emissions of carbon dioxide (CO<sub>2</sub>) released per unit of another variable such as Gross Domestic Product (GDP).

**Carbon Tax:** A levy on the carbon content of fossils fuels.

**Catchment Management:** A subset of environmental planning that approaches sustainable resource management from a catchment perspective.

**Climate Change Adaptation:** The process of preparing Durban, its residents and systems (ecological, social and economic) for the impacts of climate change.

**Climate Change Mitigation:** Human effort to reduce the emissions of greenhouse gases.

**Community Based Adaptation (CBA):** The management and reduction of vulnerability to climate change impacts within communities. An approach that allows for the development of adaptation measures that is location-specific and appropriate for the community.

**Decarbonisation:** The process by which countries aim to achieve a low carbon economy.

**Disaster Management:** The creation of plans through which communities reduce vulnerability to hazards and cope with disasters; it does not prevent or eliminate the threats; instead, it focuses on creating plans to decrease the impact of disasters.

**Disaster Risk Reduction:** A systematic approach to identifying, assessing and reducing the risks and damage caused by natural hazards (i.e. floods, droughts).

**Ecological Infrastructure:** Naturally functioning ecosystems that house biodiversity and deliver valuable ecosystem services to people.

**Ecosystem:** A community of living organisms (i.e. plants, animals) interacting with each other and their non-living environment (i.e. air, water, sunlight, soil, and temperature).

**Ecosystem Based Adaptation (EBA):** The conservation, sustainable management and restoration of natural ecosystems to help people adapt to climate change.

**Ecosystem Services:** The benefits that people obtain from ecosystems. These include provisioning services such as food and water, regulating services such as flood and disease control, supporting services such as nutrient cycling, and cultural and aesthetic benefits.

**Food Sovereignty:** The right and ability of people to access healthy and culturally appropriate food produced through ecologically sound and sustainable methods.

**Fossil Fuels:** Includes coal, natural gas and oil. When these fuels are burned, the carbon from plant deposits that had been stored underground over millennia is then released back into the atmosphere as carbon dioxide.

**Integrated Development Plan (IDP):** South Africa's Municipal Systems Act compels all municipalities to produce this strategic planning document to guide development in each municipality.

**Low Carbon Economy:** An economy that thrives but produces little carbon emissions.

**Renewable Energy:** Energy that is generated from renewable sources such as wind, sunlight or biomass.



# What is Climate Change?

Climate change refers to changes in the earth's average weather conditions (i.e. temperature, rainfall, or wind patterns), collectively called its climate, and measured over decades.

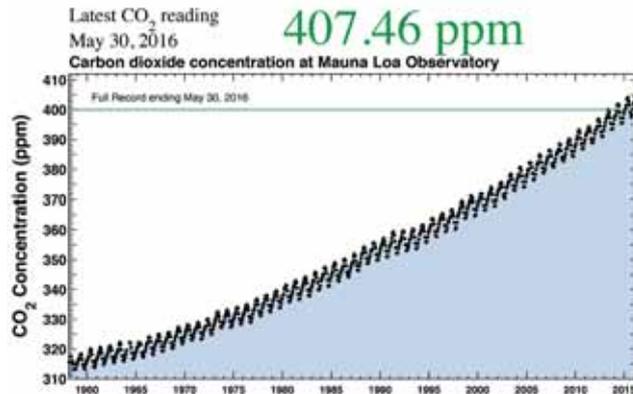
The earth's climate does change naturally over thousands and millions of years. However, there is overwhelming evidence that the rapid and substantial change in climate that is being measured this century is human-induced.

## Causes of Climate Change

There are natural and human factors that cause climate change. During the burning of fossil fuels, like coal and gasoline and the transformation of

natural lands through deforestation and conversion to agriculture, carbon is released back into the earth's atmosphere as carbon dioxide (CO<sub>2</sub>). This process is happening too rapidly for the earth's natural climate protection systems, which are not able to cope, and this is causing global warming.

These greenhouse gas emissions and heat from global warming are mostly stored within the world's oceans. This is causing changes in the acidity of seawater (which affects all marine life), changes in ocean current circulation patterns (affecting weather patterns globally) and the melting of the polar ice caps (contributing to sea level rise). Climate change is generally experienced as an increase in extreme weather events and a change in the reliability of seasonal weather patterns, causing serious flooding, drought and extreme heat spells (among other impacts).



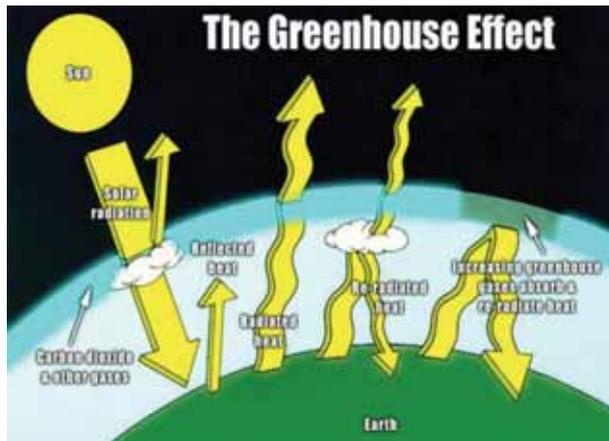
## A NOTE ON CO<sub>2</sub> CONCENTRATIONS

To keep the earth within safe limits, CO<sub>2</sub> concentrations should not exceed 350ppm of CO<sub>2</sub>. It is projected that by 2050, there will be about 700ppm of CO<sub>2</sub> in the atmosphere unless we mitigate successfully.

## Greenhouse Effect

Some of the greenhouse gases (GHGs) are naturally occurring and are essential to sustain life on earth. If it weren't for the GHGs, the earth would be colder than it is today. At night, all the radiation (heat) would escape into space and the earth would cool down radically. But GHGs absorb heat (infrared) radiation, keeping the atmosphere warm. The atmosphere, with its naturally occurring GHGs, functions like a warm blanket around the earth.

Earth's natural greenhouse effect makes life, as we know it, possible and CO<sub>2</sub> plays a significant role in providing for the relatively warm temperatures that the planet enjoys. CO<sub>2</sub> is believed to have played



an important role in regulating earth's temperature throughout its 4.7 billion-year history. Without the greenhouse effect, the earth's temperature would be about -18°C (-0.4°F). The average surface temperature would be 33°C below earth's actual surface temperature of approximately 14°C (57.2°F).

## Global Warming

Global warming refers to the recent and ongoing rise in global average temperature near earth's surface. It is caused mostly by increasing concentrations of greenhouse gases, which accumulate in the layer of the atmosphere closest to the earth's surface, the troposphere. However, global warming itself represents only one aspect of climate change.

The shortwave radiation from the sun (especially visible light) passes through this layer and warms the surface of the earth. The earth then re-radiates heat (longer wave infrared radiation) back into the atmosphere.

The current episode of global warming is attributed to increasing emissions of CO<sub>2</sub> and other greenhouse gases into the earth's atmosphere. The global annual mean concentration of CO<sub>2</sub> in the atmosphere has increased by more than 40% since the start of the Industrial Revolution, from 280ppm in the mid-18th century to 402ppm as of 2016. The present concentration is the highest in at least the past 800 000 years and is likely the highest in the past 20 million years.

An estimated 30-40% of the CO<sub>2</sub> released by humans into the atmosphere dissolves into oceans, rivers and lakes, which contribute to ocean acidification.

## Greenhouse Gases

Greenhouse gases (GHGs) are gases that entrap the heat energy in the atmosphere, causing the earth to warm up without allowing the heat to escape back into space. The most common GHGs are carbon dioxide (CO<sub>2</sub>), water vapour, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>) and hydro fluorocarbons (HFCs).

## Sources of GHGs

There are naturally occurring and human-induced GHGs. Man-made sources of carbon dioxide include the burning of fossil fuels – coal, natural gas and oil for heating, power generation and transport, as well as some industrial processes such as cement making.

## South Africa's GHG Emissions

South Africa is a large emitter of GHGs because coal is the main source of energy in the country. Coal is the most GHG emission-intensive fossil fuel energy source. For a developing economy, South Africa has very high GHG

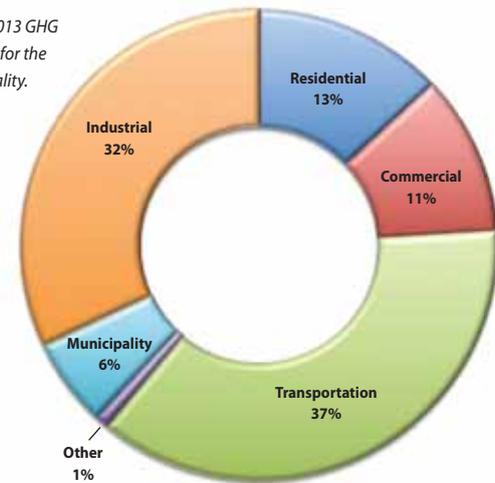


emissions per capita and per unit of Gross Domestic Product. This is largely due to the importance of mining and mineral processing in the economy and the use of coal to generate electricity and to produce liquid fuels.

## eThekweni's GHG Emissions

Planning for actions to reduce GHG emissions starts with developing a GHG inventory. The inventory enables the City and citizens to understand the amount of GHGs emitted due to different activities and sectors. In 2013, the total emissions in the City were 29 360 295 tons of carbon dioxide equivalent (tCO<sub>2</sub>e), which is around 8,4 tCO<sub>2</sub>e per person. This is more than double the global average of around 4tCO<sub>2</sub>e.

Alongside are the 2013 GHG emissions by sector for the eThekweni Municipality.



# Climate Change Mitigation in Durban

Climate change mitigation actions seek to reduce greenhouse gases in the atmosphere by permanently eliminating or reducing the long-term risks and hazards of climate change to human life, property and the environment. South Africa, as a responsible global citizen, is committed to global GHG mitigation efforts of stabilising the GHG concentration in the atmosphere.

The country is committed to reducing its GHG emissions compared to 'Business as Usual' by 34% by 2020 and by 42% by 2025 respectively. The climate change mitigation work in the eThekweni Municipality is informed by this national policy.

The main opportunities for mitigation are energy efficiency and increasing the use of renewable energy. The goal is to transition to a less emissions-intensive energy mix, with consequent economic benefits of improved efficiency and competitiveness as well as incentivising economic growth in sectors with lower energy intensities.

## Mitigation Projects in eThekweni Municipality

The main focus of mitigation in energy is to reduce the GHG emissions of electricity generation. The principle methods are energy efficiency and using renewable sources to generate electricity that do not emit GHGs such as wind and solar.

Projects in eThekweni Municipality include energy efficiency measures and campaigns, solar water heaters, and the installation of PV solar panels on municipal buildings. Projects to reduce GHG emissions in the transport sector include promotion of cycling and attractive public transport systems.



**ENERGY EFFICIENCY**  
Street lights



**NON-MOTORISED TRANSPORT**  
Cycling



**RENEWABLE ENERGY**  
Photovoltaic installation



**AWARENESS CAMPAIGNS**  
Mall activation

# Local Impacts of Climate Change

**D**urban, like many other African cities, may be exposed to catastrophic future climate impacts, including an increase in the frequency and intensity of extreme weather events, increasing incidents and severity of heat waves, flash floods, extended drought events, and coastal storms, which will be exacerbated by sea level rise. These changes in climate may affect the functioning of Durban's ecosystems, resulting in the loss of biodiversity and ecosystem services, like water provision and atmospheric cooling. Climate change will likely exacerbate existing water and food security challenges and increase existing socio-economic vulnerability within the City. Rising temperatures could increase heat stress related mortalities and incidences of vector-borne diseases such as malaria, and water-borne diseases, including cholera. Higher levels of energy consumption due to increased cooling needs are expected, placing additional stress on electricity supply capacity.

Poor communities within the municipal rural areas and those living in informal settlements are most vulnerable to climate change. These communities are often located in poorly serviced areas with a high risk of impact from extreme weather events, compounded by poor infrastructure, and thus are not resilient. These poor communities generally do not have access to financial resources and have minimal coping mechanisms to deal with the consequences from extreme events, thus escalating their vulnerability.

Households that are heavily reliant on urban agriculture and ecosystem services for their existence will be worst affected. A lack of social cohesion due to mistrust and a lack of accountable governance would hinder the implementation of adaptation measures, placing the poor at greater risk of climate change impacts.

## Projected Changes in Climate for Durban

- Annual temperature increases of between 1.5°C and 2.5°C by 2065 and by 3.0°C to 5.0°C by 2100;
- An increase in aggregated rainfall by 2065, with an increase of up to 30% by 2100;
- The northern parts of the Municipality are projected to experience increases in long duration (one day and longer) rainfall of up to 20%;
- The outer west areas are predicted to experience increases in short duration rainfall, which may lead to localised increases of up to 30% in short-term flooding;
- An increase in year-on-year rainfall variability from 30% to a possible doubling;
- More intense rainfall events with increased erosive capacity;
- Increasing numbers of heat waves; and
- A sea-level rise of greater than the current rate of 2.7 ( $\pm 0.05$ ) mm/year.



*Sea level rise and more intense coastal storms could impact Durban's tourism.*

# Climate Change Adaptation in Durban

Climate change is now an unavoidable reality. Even if GHG emissions were dramatically reduced today, the climate would continue to change due to time lags in the responses of earth's climatic system, hence adaptation to the impacts of climate change is essential.

Climate change adaptation is the "process of adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (IPCC 5<sup>th</sup> Assessment Report). Adaptation refers to actions taken to reduce the vulnerability of social and biological systems to climate change impacts. It involves taking practical actions to manage climate change related risks, while improving livelihoods and environmental sustainability. There is a limit to how much cities can adapt, so mitigation is essential. Delaying mitigation action now will substantially increase the cost of adaptation action in future.

Africa is identified as one of the most vulnerable continents due to high rates of poverty, low levels of development, aging or poorly maintained infrastructure, and a lack of capacity to deal with climate change impacts. The continent is projected to experience severe consequences from climate change and this would likely undermine the development efforts within the region and exacerbate poverty. However, with relatively high levels of biodiversity and the level of protection that ecosystems provide from climate change impacts, Africa still has an opportunity to continue to develop, but in ways that are appropriate in addressing climate change.

\* The Intergovernmental Panel on Climate Change produces an Assessment Report on Climate Change approximately every seven years to guide international policy development – [www.ipcc.ch](http://www.ipcc.ch)



*Recycled tyres can be used for a vertical food garden.*



*Municipal Green Roof Pilot Project.*

The use of Community and Ecosystem Based Adaptation (CEBA) approaches provides locally based solutions that not only reduce climate change vulnerability, but also address the socioeconomic challenges faced by residents in most African cities (i.e. in developing green jobs and improving people's livelihoods). While mitigation of climate change is considered most important at a global scale, adaptation to unavoidable climate change is of critical importance to African cities that are already experiencing climate change impacts.

eThekweni Municipality has adopted a 'no regrets' approach to its climate change adaptation work, which is based on CEBA. This is in order to ensure that projects are beneficial under a range of potential future climate change scenarios. The Environmental Planning and Climate Protection Department (EPCPD) in eThekweni Municipality initiated the Municipal Climate Protection Programme in 2004 and established the Climate Protection Branch in 2007. This led to the development of Municipal Adaptation Plans, each with a set of sector-specific adaptation actions for three high risk sectors, namely health, water and disaster management. The plans were superseded in 2015 with Council's approval of the Durban Climate Change Strategy. The Strategy seeks to build on the gains made in a number of innovative and award-winning projects like the Buffelsdraai Landfill Site Community Reforestation Project, as well as a number of eThekweni Water and Sanitation and Durban Solid Waste-managed projects.

A strong focus on developing across-sector multi-organisational partnerships enabled the establishment of the uMngeni Ecological Infrastructure Partnership in 2014. The Partnership addresses the role of ecological infrastructure in increasing water security and adaptive capacity within the uMngeni catchment. The catchment approach has also been used to improve understanding of the requirements for fine scale adaptation



action for the uMhlangane Catchment Management Programme and the Palmiet Catchment Rehabilitation Project.

The establishment of the City's Restoration Ecology Branch in 2011 helped to further shift management focus from 'preserve and protect' to one capable of managing novel and changing ecosystems. The use of natural ecosystems to enhance the adaptive capacity of cities offers the opportunity to address high levels of unemployment by creating green jobs involving ecosystem management. This is a key component of the CEBA approach that includes the reforestation and other expanded public works type projects. These projects typically demonstrate numerous adaptation, mitigation, employment and various other co-benefits.

In order to guide management decisions about climate change action in the City, the Environmental Planning and Climate Protection Department (EPCPD) and the University of KwaZulu-Natal have collaborated to develop the Durban Research Action Partnership (DRAP), which hosts a number of environmentally focused trans-disciplinary research programmes. The DRAP is central to the implementation of the biodiversity theme of the Durban Climate Change Strategy, where EPCPD staff identified the need for scientific underpinning of the objectives contained in the Strategy. The partnership promotes an ethos of trans-disciplinary research, while helping to bridge the science, policy, management and governance gaps inherent within the Municipality's structures and providing capacity building in the field.

**Further details on the EPCPD projects can be found on the Municipal website: URL: [http://www.durban.gov.za/City\\_Services/development\\_planning\\_management/environmental\\_planning\\_climate\\_protection/Projects/Pages/default.aspx](http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Projects/Pages/default.aspx)**



# Climate Change Policy Context

Until recently, there was no international agreement or national legislation prescribing how the Municipality should mitigate or adapt to the impacts of climate change. In response, the Municipality voluntarily committed to city-based global advocacy platforms, like the Mexico City Pact for mitigation and the Durban Adaptation Charter for adaptation.

In 2015, the United Nations Framework Convention on Climate Change's (UNFCCC) Twenty-First Conference of the Parties (COP21) concluded with the Paris Agreement, which provided a legally binding framework for all countries to take action on climate change. The Agreement, which was ratified by the South African National Government, provided a mandate for non-state actors like cities to take action against climate change. This included the global mitigation of greenhouse gases, the promotion of climate change adaptation, and acknowledgement of the loss and damage that some nations will experience. The aggregated climate change response of all countries and non-state actors needs to be sufficient to return emissions to within levels considered safe, that is, to restrict average global temperature increase to no more than 2°C but aiming for less than 1.5°C.

During 2015, amendments to the Disaster Management Act (2002) were promulgated. These amendments included direct reference to the need to plan for climate change adaptation, including community and ecosystem-based adaptation approaches. For the first time, municipalities in South Africa have a legislated responsibility to address climate change adaptation. This provides excellent leverage for local government practitioners to petition for

more support and capacity to deal with the impacts of climate change, and to develop and implement climate change strategies.

## Policy Context for the DCCS

### International

- Paris Agreement 2015
- Sustainable Development Goals 2015
- Compact of Mayors 2015
- Sendai Framework for Disaster Risk Reduction 2015
- Durban Adaptation Charter 2011
- Mexico City Pact 2010

### National

- Disaster Management Amendment Act 16 2015
- The Long Term Adaptation Scenarios Flagship Research Programme 2013
- The National Development Plan 2013
- SA National Government's National Climate Change Response White Paper 2011
- The Long-term Mitigation Scenarios 2009

### Local

- EThekweni Municipality's Integrated Development Plan 2016
- Durban Climate Change Strategy 2015
- The Economic Development and Job Creation Strategy 2013
- Municipal Adaptation Plans 2010
- EThekweni Municipality's Energy Strategy 2006

# Introduction to Durban

**D**urban is home to some 3.4 million people on the east coast of South Africa. An increase in migration from rural to urban areas, which has caused sprawling informal settlements, could be exacerbated by negative climate change impacts. The eThekweni Municipality governs an area of 2 297km<sup>2</sup>. The main languages are isiZulu and English.

## Some Key Statistics of Durban's Population:

- 23% live in informal settlements
- 91.6% of households have access to basic electricity
- 32.3% live in poverty
- 18.8% strict unemployment rate (KZN's expanded unemployment rate is 39.3%), as at 2nd quarter of 2016
- 0.65 Gini co-efficient (for 2011) – the gap between rich and poor is high
- 9.1% of the National GDP



# Durban Climate Change Strategy

The DCCS was developed as a guiding document for the eThekweni Municipality and its residents to respond to climate change. It addresses both mitigation and adaptation and is aligned with international and national climate change policies. The DCCS was developed in a consultative process with broad participation from municipal departments and the public through the establishment of a reference group and within the development of the themes of the Strategy. An expert prepared a position paper as a basis for public discussions for each of the Strategy's themes. These papers and the ensuing discussions informed the development of the themes' goals and objectives. The Durban Climate Change Strategy can be obtained using the contact details found on the back cover of this booklet. The eThekweni Municipality's Council approved the Strategy in June 2015.

## DCCS Vision

"To transform Durban's governance, social, development and economic systems in order to effectively respond to climate change."

## DCCS Mission

"By 2020 there must be a fundamental change in Durban's governance, social, development and economic systems in order to contribute to the goal of limiting global average temperature increase to less than 2°C, minimising dangerous climate change and adapting to climate change impacts. This will be achieved by increasing the adaptive capacity of the City, enhancing the integrity of the City's environment and building a low carbon economy that provides sustainable livelihood opportunities and ensures well-being for all. All organisations and residents of Durban should be empowered to respond to climate change causes and its impacts."

## Steps for Developing the DCCS



# DCCS Themes, Goals and Objectives

## Water

Climate change projections indicate that there will be a shift in rainfall patterns, including intensifying rainfall events and seasonal variability, threatening water security within the Municipality. These impacts could be exacerbated by catchment transformation, resulting in faster runoff, more erosion and siltation in the Province's dams. Increasing temperatures are also likely to negatively impact upon water quantity, with higher evaporation rates, worsening quality with more algal blooms, which will raise treatment costs. In light of this, the first objective of this theme focuses on safeguarding the supply of safe drinking water through cooperation between agencies, watershed and demand management, among other measures. Prioritisation of connections to poor communities and an acknowledgement of the role of ecosystems in protecting water resources is key. A second objective is to reduce vulnerability to flooding through risk averse planning and enhancement of ecological infrastructure.

## Goal

Durban's water resources and infrastructure are effectively managed to ensure optimal protection from climate change impacts.

## Objectives

- The impacts of climate change on the secure, clean and safe supply of water to Durban are minimised.
- The impact of amplified flooding and increased levels of storm water as a result of climate change is limited through risk-averse planning and appropriate infrastructure, building standards and enhancement of ecological infrastructure.



## Sea Level Rise

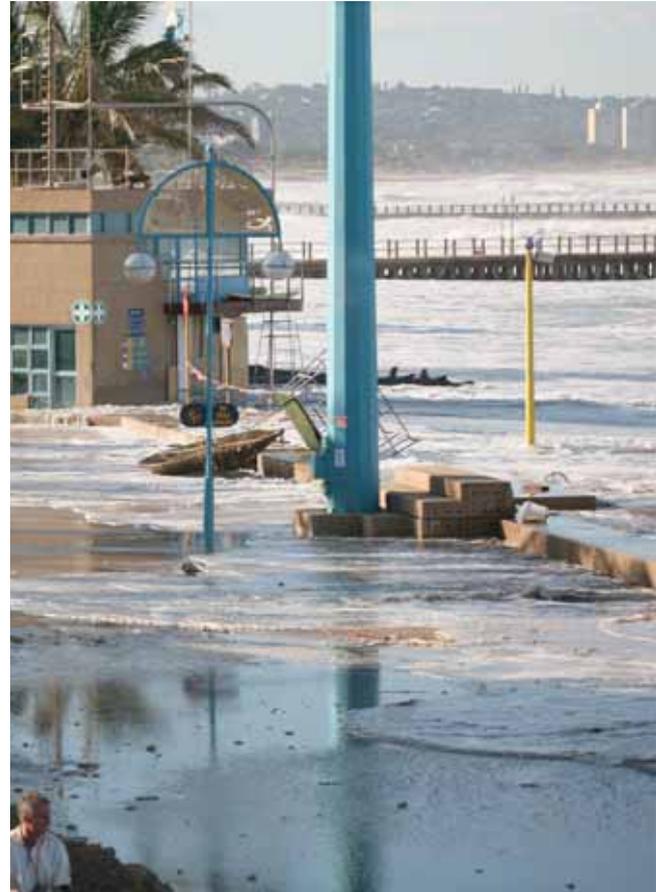
Climate change impacts related to sea level rise and increased coastal storms are a direct threat to the City's economy, infrastructure and coastal communities. Impacts could hinder the City's port expansion plans, affect the tourism industry (destruction of infrastructure and reduction in beach widths), lead to the loss of public and private property, and result in damage to prime and expensive seaside properties. The City plans to develop and enforce coastal management policies and adopt engineering approaches (both in soft and hard engineering) that adapt to the growing threats of climate change and coastal erosion.

### Goal

Durban's protective coastal ecological infrastructure is maintained, restored and enhanced where possible to provide a buffer against sea level rise and coastal storms. Durban's coastal built environment is protected where appropriate, and further development is discouraged in high-risk areas.

### Objectives

- The impact of sea level rise is limited through risk-averse planning and appropriate infrastructure, building standards and enhancement of ecological infrastructure.



## Biodiversity

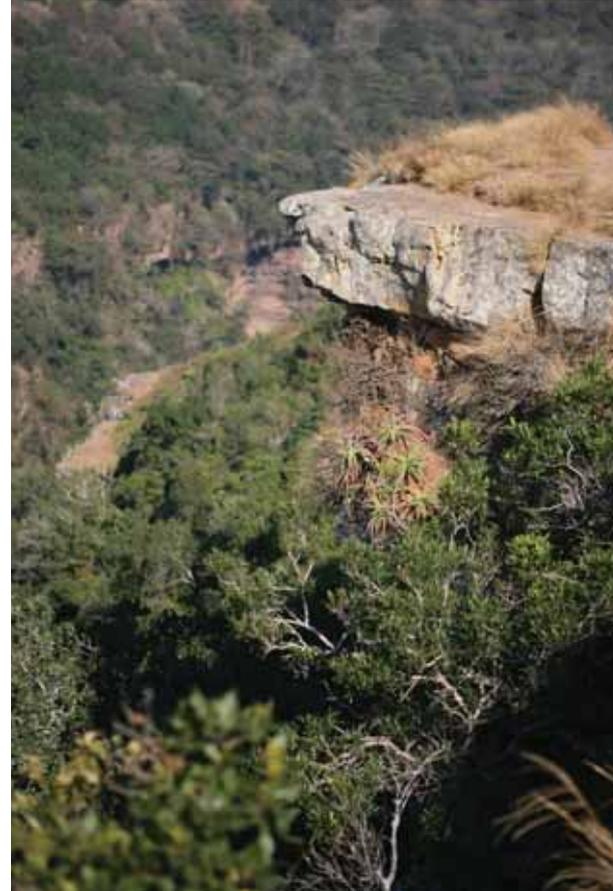
Durban is in the centre of a global hotspot for biodiversity. Climate change is expected to have substantial impacts on biodiversity, which range from effects on genetic resources to disturbing the viability of populations of species. Changes in biodiversity affect the flow of ecosystem services on which humans depend. The protection and management of biodiversity is an important and cost-effective way of protecting ourselves from many of the impacts of climate change. The key responses to be adopted by the Municipality include the promotion of Community Ecosystem Based Adaptation (CEBA) approaches, thus placing communities at the centre of efforts to adapt. The City plans to adopt and enforce planning approaches that protect ecosystems to ensure maximum supply of ecosystem services to withstand climate change impacts.

### Goal

Durban's biodiversity and associated natural capital are protected and enhanced to deliver ecosystem services that facilitate protection from and mitigation of climate change.

### Objectives

- Ecosystem functioning and connectivity are enhanced through integrated planning and effective action to reduce climate change impacts on biodiversity and maximise the delivery of ecosystem services.
- Current understanding of climate change impacts on biodiversity is improved through knowledge generation and stakeholder participation.



## Food Security

Climate change projections for Durban (e.g. increased temperatures and extreme weather events) will affect food security for Durban residents by posing a threat to both commercial and subsistent food production, as well as food distribution networks. This will disproportionately impact the poor as food prices increase and/or when access is threatened by storm events. In response, it is important for the Municipality to develop robust and resilient food security systems that promote sustainable local farming to increase regional food production and availability. The system should also support food distribution, economic access to food, and the dissemination of information that promotes optimal use of food.

### Goal

Durban has a robust and resilient food security system that ensures availability, equitable access to and efficient utilisation of food in the context of both climate variability and climate change.

### Objectives

- Durban has robust local food production systems that are able to withstand future climate threats and provide for the poor.
- Durban has adequate food distribution and marketing networks in place to adapt to climate change.
- Durban residents have economic access to food in the face of climate change.
- Durban residents are able to utilise food appropriate for a changed climate in the best possible manner.
- Durban is able to supply its residents with adequate food during climate related disasters or events.



## Health

Climate change is projected to have a direct impact on the well-being of the City's residents by increasing susceptibility to health risks. Impacts projected for Durban as a result of climate change include an increase in frequency and intensity of heat stress events, impacting mostly on the aged and frail. Besides causing damage, increased rainfall and flooding events may increase the prevalence of vector-borne diseases. The impacts will be felt most by the vulnerable sub-population groups that include young children, the elderly, people with pre-existing health conditions, and those of a disadvantaged socioeconomic background. Some of the key responses to be adopted by the Municipality include developing community emergency plans in response to climate related disasters, which include early warning systems and the capacitating (in terms of understanding, equipment and information) of local health facilities, clinics and government hospitals to handle climate related emergencies.

### Goal

Durban promotes public health and safety and the prevention of diseases in the face of a changing climate. Durban's public health system is resource efficient and climate smart.

### Objective

- Promote healthy communities, populations and living environments that are prepared for the full range of climate change impacts.
- Strengthen and promote emergency management services to

better handle emergency and disaster situations related to climate change and health.

- Surveillance and monitoring of climate related diseases and associated vectors.
- Climate change and climate change responses take into account air quality and human health.



# Energy

The main components of energy consumed in eThekweni Municipality are electricity and liquid fuels. Nearly all energy is imported to the City at very high cost to the economy and the residents. About 30% of households do not have access to formal electricity and rely on paraffin, wood and illegal electricity connections.

There is worldwide consensus that in order to limit climate change, most energy needs to be generated from renewable sources in the long term and that energy must be used much more efficiently. The transition to a more sustainable energy supply needs to benefit the local economy and residents of the Municipality.

## Goal

Durban has a thriving sustainable energy sector. Where appropriate, renewable energy supplies a significant proportion of Durban's energy needs, and energy is used efficiently by all sectors. All sectors have access to safe and affordable energy sources.

## Objectives

- Forty percent of Durban's electricity consumption is supplied from renewable energy by 2030 in line with the national long-term mitigation targets.
- Energy in Durban is used efficiently by all sectors.
- All Durban's energy users have safe access (physical and social access) to suitable energy forms to meet their needs.



## Waste and Pollution

Although emissions from the waste sector are small, there is potential to contribute to the reduction of GHG emissions on a large scale through the prevention, reuse and recycling of waste. In terms of air pollution, one of the greatest challenges is ensuring that climate change mitigation efforts do not increase air pollution at a local level.

### Goal

Durban has effective air, water, solid waste and waste water management systems in which resources are focused on reduction, reuse and recycling strategies that effectively reduce GHG emissions in all economic sectors, divert waste from landfills, and create employment opportunities. Waste infrastructure is also designed appropriately to adapt to the impacts of climate change.

### Objective

- GHG emissions from waste and pollution generated in Durban are minimised.



## Transport

The transport sector generates a large share of the CO<sub>2</sub> emissions in eThekweni Municipality. Despite the fact that only 36% of residents have access to a private motorcar, most residents rely on public transport and make many trips on foot.

Modal shifts towards rail and more public and non-motorised transport can substantially reduce transport emissions and contribute to a cleaner environment.

## Goal

Durban provides an integrated, climate smart, low-carbon transport system for passengers and freight.

## Objectives

- Durban's spatial planning is integrated with transport planning to reduce the need for travel.
- All Durban's transport users have access to safe, affordable, carbon efficient and climate resilient transportation.
- GHGs from transport in Durban are minimised and the energy efficiency of transport is improved.



## Economic Development

High levels of poverty, unemployment, high commuting costs and a lack of skills affect Durban's residents, and limit their income-generation capabilities. Global and local climate change introduces potential risks and opportunities for the Durban economy. The Municipality needs to use existing and new economic and legal instruments to address the additional pressures created by climate change and to transition from a carbon emission intensive economy to a sustainable green economy that responds to climate change risks.



### Goal

Durban transitions to a low-carbon economy that is socially responsible and environmentally sustainable, provides diverse economic opportunities and increases the capacity to adapt to the impacts of climate change.

### Objectives

- In the long term, Durban develops a low carbon economy that is socially responsible and environmentally sustainable.
- In the short term, Durban implements a range of existing, known interventions that can contribute to low-carbon economic development.



## Knowledge Generation and Understanding

Despite the fact that the United Nations has identified climate change as the key challenge of this century, the full scale of the likely impacts is not clearly understood. Many Durban residents indicate that they have little knowledge of climate change mitigation and adaptation. They are uncertain about how they contribute to the cause of climate change and what steps they can take to address it.

### Goal

Durban has an engaged climate change research sector that generates regionally and locally relevant knowledge that is widely disseminated to all sectors in Durban for informed decision-making and action.

### Objectives

- High quality, innovative local climate change research is conducted on an ongoing basis.
- People of Durban gain an improved understanding of climate change, its likely impacts and opportunities, as well as possible adaptation and mitigation measures relevant to their lives and their work areas.





# Disaster Management in Durban

The Municipality's Disaster Management Unit developed a draft of the eThekweni Municipality Disaster Management Plan. It is proposed that disaster management in eThekweni Municipality be aligned with international, national and provincial guidelines and conform to national legislation, specifically the Disaster Management Act (2002) and the Disaster Management Amendment Act 16 (2015).

The Sendai Framework for Disaster Risk Reduction 2015-2030 aims to achieve a substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years. The Framework was adopted at the Third UN World Conference on Disaster Risk Reduction in Sendai, Japan, on 18 March 2015. The Framework outlines four priorities for action to prevent new and reduce existing disaster risks:

- (i) Understanding disaster risk;
- (ii) Strengthening disaster risk governance to manage disaster risk;
- (iii) Investing in disaster reduction for resilience; and
- (iv) Enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation and reconstruction.

Disaster management is the responsibility of a wide and diverse range of roleplayers and stakeholders. The National Disaster Management Act emphasises the need for uniformity in the approach and application of the principles of co-operative governance. In this regard, it calls for an integrated and coordinated disaster management policy aligned with the National Disaster Management Framework (NDMF).

In terms of the Constitution of the Republic of South Africa, all spheres of government are required to 'secure the well-being of the people of the Republic'. In terms of the Municipal Systems Act of 2000, a municipality's Integrated Development Plan (IDP) must contain management planning and activities. Risk reduction projects, identified as part of disaster management planning, such as those identified in the draft eThekweni Disaster Management Plan (and the contingency plans and risk assessments developed), should be included within the Municipal IDP.

**Enquiries about the draft eThekweni Municipality Disaster Management Plan should be directed to the Disaster Management Unit on 031 367 0000.**

*Right: Grassland management in the Working on Fire Programme enhances biodiversity and reduces the risk of runaway fires alongside urban areas.*



# Mainstreaming the DCCS to Ensure Implementation

Integration of climate change requires firm political will and advocacy. Political oversight of municipal implementation of the DCCS should occur within the recently convened Municipal Climate Change Committee. The DCCS should inform service delivery in each sector of the eight-point plan contained within the Municipality's Integrated Development Plan (IDP). Oversight of implementation of the DCCS is planned through the eThekweni Municipality's Disaster Management Advisory Forum (DMAF). Headed by the City Manager, the DMAF convenes the Heads of Units within the Municipality. The DCCS Task Team reports on effort to implement the Strategy. The DMAF is currently the only platform with integrated institutional composition, where implementation of the DCCS can be addressed. Climate change action needs to be institutionalised throughout Municipal structures.

## To Ensure Implementation of the Strategy

These structure should play a major role in the integration of climate change into governance and operational structures, functions and consequentially, municipal day-to-day operations. The relevant line functions will be engaged in workshops to align their current work focus with the relevant theme of the DCCS, and to establish whether there are gaps in their current work focus that need to be addressed in fulfilment of the DCCS implementation. This process should guide line function officials on how to integrate the DCCS themes and objectives into their existing work programmes to improve Durban's response to climate change. Effected line functions will need to review/develop their strategic documents, action plans and sector plans. These documents should be aligned with the DCCS and be incorporated into the municipal IDP, and vulnerability assessments should be reviewed and updated to evaluate the impact of implementation.



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