CLIMATIC FUTURE FOR DURBAN

Why was the project undertaken?
Human induced climate change is defined as the serious disruption of the world's weather and climate patterns with impacts such as extreme weather events, significant rainfall variability and potentially sea level rise (Department of Environmental Affairs and Tourism 2004). The phenomenon of climate change presents possibly the greatest global environmental challenge to be addressed in this and future centuries.

At a national level the anticipated detrimental impacts associated with climate change will ultimately modify South Africa’s economy, as well as the health, livelihood and social structure of its populations, infrastructure and natural systems. From an environmental perspective, likely effects include increased flooding and storm damage, increased erosion of shorelines, decreased marine and coastal biodiversity, and contamination of drinking and irrigation water with saline water.

These effects are likely to be most extreme in coastal cities such as Durban where communities and urban infrastructure will be affected by changes in sea level and extreme weather events. Damage to buildings may be caused by both the depth of anticipated floodwaters and by the force of the water flow, which could contribute to structural fatigue. These consequences have the potential to inhibit progress towards sustainable development in the affected cities.

In response to these challenges, the South African National government released its National Climate Change Response Strategy in 2004 with the aim of integrating climate change response programmes across national and regional boundaries to maximise the utility of available resources (DEAT, 2004a). Although the Department of Environmental Affairs and Tourism (DEAT) has been designated as the lead agency for climate change response in South Africa, it is recognised that this crosscutting issue has ramifications for other departments and spheres of government.

The implications for local government were highlighted in a speech given by Marthinus van Schalkwyk, Minister of Environmental Affairs and Tourism in 2005, who stated that: “It is our provinces, municipalities, and local communities that will be worst-hit by the impacts of climate change (DEAT, 2005)”.

Given the likely impacts of climate change and in order to align with national priorities and commitments, the eThekwini Municipality, in collaboration with the CSIR, has embarked on a process to understand the implications of climate change for the city. This process is called “A Climatic Future for Durban”.
**Project Description**

Before describing the project, it is important to understand what is meant by climate change. The term “climate change” refers to changes in the Earth’s climate, over and above natural climatic variability. Although climate change is a natural phenomenon, there is increasing concern about the impact of human-induced climate change.

The greenhouse effect is a natural process that maintains life on Earth. Certain gases in the atmosphere trap heat and act as a blanket around the Earth. When the natural balance of these gases is disturbed by human activities, the greenhouse effect is enhanced, causing global warming and climate change. Various factors can contribute to changes in the climate, including increases in:

The concentrations of global greenhouse gases (carbon dioxide, methane and nitrous oxide) caused by human activities such as fossil fuel use for power generation and transport purposes.

Atmospheric aerosol (i.e. suspended solid or liquid particles) concentrations, which are able to scatter and absorb radiation in the atmosphere; and land use change (primarily deforestation, since plants and trees act as a sink for carbon dioxide) which refers to a change in the use or management of land e.g. when large areas of trees are cut down, the land generally turns into grasslands1 with considerably less capacity for storing carbon dioxide.

It is likely that climate change will affect all facets of human existence in South Africa including the country’s economy, the health and social structure of its populations, infrastructure provision and maintenance, and the viability of its natural systems.

Existing problems are likely to be exacerbated, with the poorest communities being worst affected and least likely to adapt and respond.

Against this understanding, the purpose of the “Climatic Future for Durban” project is to understand the implications of climate change for the eThekwini Municipality.

**The objectives of the project include:**

Synthesising the science of climate change such that it is clear and understandable, facilitating improved awareness and knowledge dissemination by providing information in a user-friendly format;

Providing a forum for scientific debate, to seek clarity on the issue of climate change and its impacts amongst local key stakeholders. The involvement of key stakeholders in the climate change discourse is considered critical, as they play an important role in adopting climate change strategies and policies;

Engaging the public in the climate change discourse by conducting a survey aimed at assessing public perceptions of the risks associated with climatic change to their living conditions as well as the likely solutions. To effectively involve the public in climate change discussions, it is essential to have an understanding of how the public relates to climate change and what might potentially coerce them to act.
Preparation of a range of potential images and scenarios that depict the implications of climate change for the city. Assessing the current Integrated Development Plan (IDP) of the municipality in terms of its responsiveness to the challenge of climate change. Understanding how the city can maximise opportunities presented through climate change adaptation and mitigation; and Developing elements of a response strategy, which the eThekwini Municipality could adopt in order to address the various challenges associated with climate change.

Climate change and development interact in a manner whereby alternative development pathways will affect future climatic changes differently. In other words, possible development pathway will give rise to different levels of Greenhouse Gases (GHGs), resulting in particular climatic changes. These impacts will persist well into the future and impose stresses on human and natural systems and affect socio-economic development.

Similarly, climate change could hinder prospects for achieving sustainable development. For example, the poor would suffer the most because they have fewer options for responding to climate change. They would find it more difficult to change over to new crops requiring less water, to pump water and irrigate, to extend their cultivatable land, or to adopt more intensive fishing methods. Enhancing the adaptive capacity of countries to climate change, therefore, has similar requirements to the promotion of sustainable development, that is:

- Improving access to resources;
- Reduction of poverty;
- Decreasing inequities in wealth and resources;
- Improved education and information;
- Improved infrastructure;
- Active participation by concerned parties; and
- Improved institutional capacity.

**What negatives have resulted from this project?**
At this stage, no negatives have been identified.

**What positives have resulted from this project?**
International and national data sets were used to outline the local level impacts of climate change for Durban. This information will be used to direct and influence the planning of the city through the development of an Integrative Assessment tool and has provided the basis for the development of a Headline Adaptation Strategy. What were the most important lessons learned from this project?

There is an urgent need to collect local level data that will allow the impacts of climate change to be assessed more accurately. The development of a fully fledged Climate Change adaptation programme for all key sectors should be prioritized. There is a need to increase the Climate Change mitigation activities undertaken and supported by local government

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