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Thinking globally, acting locally – institutionalizing climate change at the local government level in Durban, South Africa

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Dr Debra Roberts heads the Environmental Management Department of eThekweni Municipality (Durban, South Africa). Her key responsibilities include overseeing the planning and protection of the city's natural resource base; ensuring that environmental considerations influence all aspects of planning and development in the city; and directing and developing the Municipal Climate Protection Programme. Prior to joining the municipality in January 1994, Dr Roberts lectured for 10 years at the (then) University of Natal in the departments of Biology and Geographical and Environmental Sciences. Dr Roberts has written widely in the fields of open space design and environmental management and has received numerous awards for her work.

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This paper represents the views of the author and does not necessarily represent the views of eThekweni Municipality.

1. For the 2008/09 financial year; US\$1 = R7–R8.

ABSTRACT Durban is unusual among cities worldwide in having a municipal government that has developed a locally rooted climate change adaptation strategy. This paper considers how climate change came to be considered by local government against four institutional markers: the emergence of climate change advocates among local politicians and civil servants; climate change as a significant issue in municipal plans; staff and funds allocated to climate change issues; and a serious consideration of climate change issues within local government decision making. Considerable progress has been achieved on the second and third of these – but less so on the first and fourth. The paper highlights how climate change issues need to be rooted in local realities that centre on avoiding or limiting impacts from, for instance, heat waves, heavy rainfall and storm surges and sea-level rise, and also the ecological changes and water supply constraints brought about by climate change. To date, international agencies have paid little attention to adaptation, as the reduction of greenhouse gas emissions (mitigation) has been prioritized. This paper also stresses the importance of building local knowledge and capacity about climate change risks and adaptive responses. Without this, decision makers will continue seeing environmental issues as constraints on development rather than as essential underpinnings of and contributors to development.

KEYWORDS adaptation / climate change / Durban / local government / Municipal Climate Protection Programme

I. BACKGROUND

Durban is the largest port and city on the east coast of Africa, with a total municipal area of 2,300 square kilometres (Figure 1). With a population of 3.5 million people and a budget of R23.4 billion,⁽¹⁾ it is one of South Africa's most important urban and economic centres. The local government structure responsible for managing the city is known as eThekweni Municipality, and this municipality has become a leader in the field of local level environmental management.

Prior to the 1994 democratic transition in South Africa, environmental management at the local government level received very limited attention. After 1994, however, new local government structures began to emerge in response to the changing policy and legislative environment. Among these were structures with a specific environmental management mandate and focus. The process of democratization also resulted in a significantly revised development agenda. This was an agenda aimed at righting the

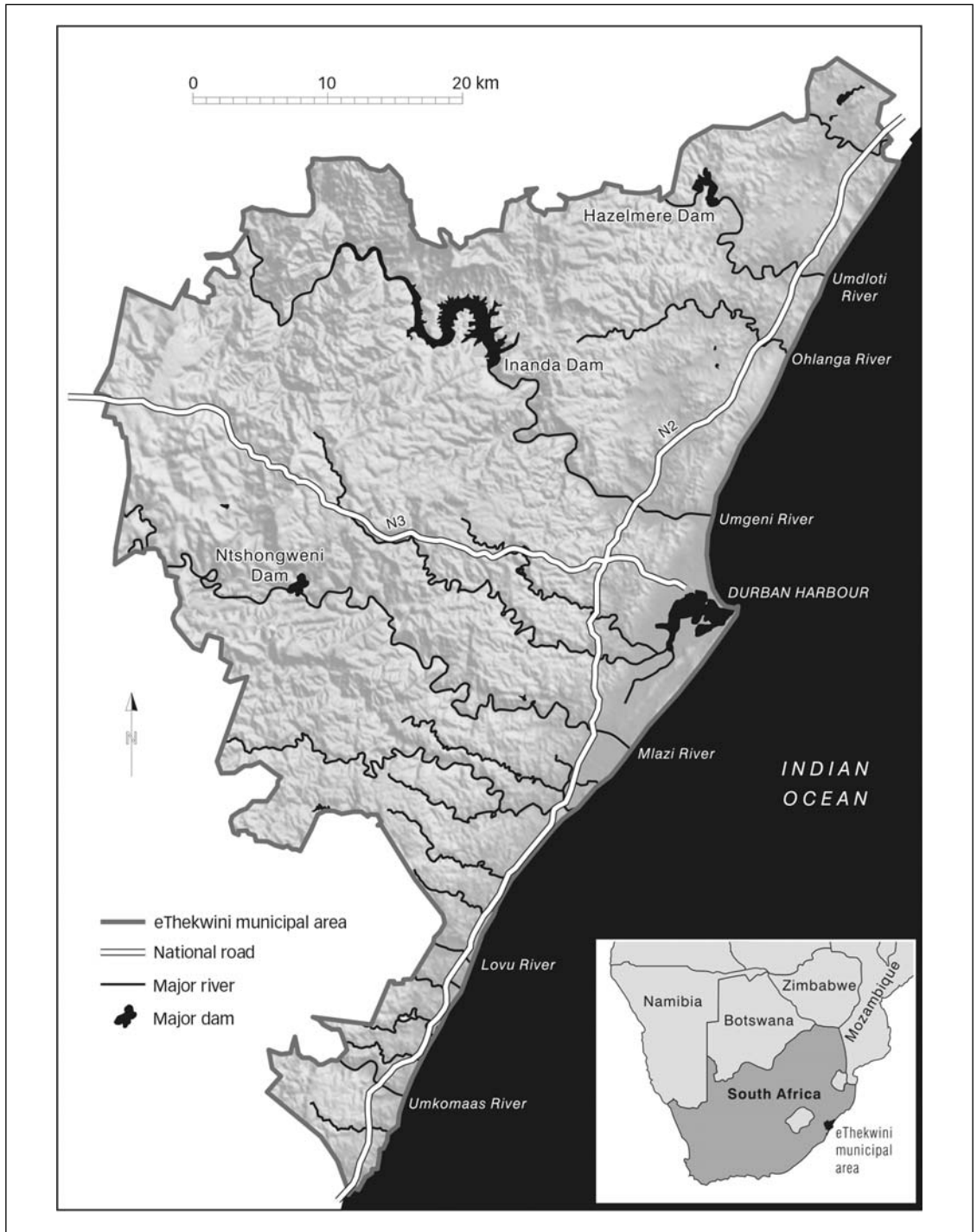


FIGURE 1
Location of eThekweni municipal area

SOURCE: Environmental Management Department, eThekweni Municipality.

wrongs of the country's apartheid past and ensuring that the basic needs (i.e. jobs, housing, education, etc.) of all South Africans, not just those of a select minority, were met in an equitable and just manner. Local government was, and is seen as, a critical player in meeting this objective, given its direct interface with local communities and its pivotal role in service provision.

In many ways, this simultaneous elevation and revision of both the environmental and development agendas has created a significant dilemma for local government. This has manifested itself in a growing tension between the need to introduce environmental issues and concerns into planning and decision-making processes (often for the first time) and the need to expedite development to address significant socioeconomic needs. This tension was exacerbated by the fact that environmental concerns are regarded as being of less significance than development priorities in South Africa. For these reasons, the emerging environmental management agendas of cities such as Durban were initially focused on issues that were relevant and related to local development pressures (such as addressing air pollution in strategic economic development nodes). Environmental matters that were of less immediate concern (i.e. could not be related directly to the development agenda of the day) or that were of less local and political significance (such as biodiversity) tended to take a back seat during this transition period.

In Durban, this tension between the environmental and development agendas has never effectively resolved itself. In many ways, it has intensified due to the growing (rather than declining) range of development challenges facing the city. For example, Durban currently experiences:

- 43 per cent unemployment;⁽²⁾
- a housing backlog of 190,000 housing units⁽³⁾; and
- high levels of HIV/Aids infection (e.g. one-third of pregnant women attending public antenatal clinics are HIV positive).

There is also a growing (rather than declining) range of environmental challenges faced by the city. For example, Durban:

- is located in a global biodiversity hotspot that is being negatively affected by urban growth;
- has a manufacturing base that has caused significant environmental health challenges in local communities; and
- has seen the negative impact of rapid development on riverine and coastal ecosystems.

These challenges are both immediate and severe, and it is hardly surprising that climate change (an issue that appears more remote and global in nature) has remained – until relatively recently – a low priority on the municipality's agenda. In order to understand how the issue of climate change has become embedded in the local government dialectic in Durban, it is necessary to understand how the environmental management function of the city has evolved since 1994.

II. CLIMATE CHANGE AND THE ENVIRONMENTAL MANAGEMENT FUNCTION

The environmental management function⁽⁴⁾ was first established in eThekweni Municipality⁽⁵⁾ in 1994. Although the staff servicing this

2. This figure does not include those employed in the informal sector.

3. The backlog is calculated as follows: informal settlement dwellings + informal backyard dwellings + rural dwellings (from the 2001 population census). A 1.5 per cent growth rate is applied to this total and the number of houses built since the census is subtracted. This excludes a figure for overcrowded formal dwellings, which is difficult to estimate given changes in the census since 1996.

4. This function has taken a variety of institutional forms over the years, first being known as the Environmental Branch (1995–2003) and subsequently becoming the Environmental Management Department (2003 onwards).

5. In a smaller, precursor entity known as Durban Municipality.

function were aware of the climate change debate, the significant post-apartheid development challenges faced by the city meant that several years were to pass before climate change emerged as a significant issue on the municipality's environmental agenda.

The first serious discussions related to climate change took place as part of the forward planning of the (then) Environmental Branch. In 1999, this led to the branch investigating the feasibility of establishing a climate protection programme. The lack of resources (human and financial) and technical skills, and the need to deal with other "higher priority" development matters, however, meant that the concept was temporarily shelved after initial investigation.

Renewed impetus was given to the idea as a result of a bilateral grant agreement signed between the national Department of Environmental Affairs and Tourism (DEAT) and USAID (US Agency for International Development). This agreement focused on the implementation of a South African programme to address global climate change. One component of the programme aimed to engage a group of South African cities in actions that would address both their own urban service priorities and those of the global climate change agenda. The vehicle for achieving this goal was participation in ICLEI's⁽⁶⁾ (International Council for Local Environmental Initiatives) international Cities for Climate Protection campaign (CCP).

As part of the CCP campaign, the participating South African cities were required to commit themselves to five performance milestones:

- conducting an energy and emissions inventory and forecast;
- establishing an emissions target;
- developing and obtaining approval for a local action plan;
- implementing policies and measures; and
- monitoring and verifying results.

In 2000, the Environmental Branch received approval from eThekweni Municipality's executive committee to proceed with the project.

The USAID-funded CCP campaign in South Africa effectively ended in 2006. The following outputs were achieved in Durban during the 2000–2006 period:

- The development of the municipality's first greenhouse gas emissions inventory. This recorded emissions that could be attributed to local government activities only and provided the catalyst for regular greenhouse gas emissions reporting within the municipality following the completion of the CCP campaign.⁽⁷⁾
- Based on the findings of the first greenhouse gas emissions inventory, a buildings energy efficiency pilot project was initiated. During the course of this project, the energy usage in two municipal buildings was audited. The findings of the audit indicated that the implementation of low-cost and no-cost energy saving interventions could result in annual savings in excess of 15 per cent of the combined energy usage in the buildings. The collective payback of the low-cost and no-cost options would be under five months and the annual carbon dioxide savings would be approximately 340 tonnes. As a result, the timer controls on the air conditioning plants in both buildings were trimmed. It is anticipated that that this will yield a total annual carbon dioxide saving of 128 tonnes and an estimated financial saving of R53,400 per annum.

6. Now renamed ICLEI–Local Governments for Sustainability.

7. The third greenhouse gas inventory was completed in 2007 and, for the first time, includes both municipal and community contributions to greenhouse gas emissions.

- Using the pilot project as a platform, nine additional municipal buildings were audited. During this roll-out phase, a number of energy efficiency opportunities were identified in the City Engineer's building. Two of the low-cost and no-cost interventions were subsequently implemented:
 - installation of timers on the fan-coil unit power supplies to eliminate out-of-hours usage of the air-conditioning plant. It was anticipated that this would yield a cost saving of R121,000 per annum and a carbon dioxide saving of more than 300 tonnes per annum; and
 - initiation of an energy efficiency awareness pilot project.

a. The need to build institutional understanding

Despite the municipality's involvement in ICLEI's CCP campaign and the resultant mitigation spin-offs in terms of the buildings energy efficiency project, very little internal institutional momentum and knowledge was built around the issue of climate change per se. This was the result, in part, of the fact that the CCP campaign in South Africa did not offer the participating municipalities any in-depth opportunities to develop an understanding of climate change science and its local relevance. Subsequent experience in Durban has shown that without developing a meaningful understanding of the science, climate change and its significance are unlikely to be effectively understood at the local government level.

The implementation projects undertaken in Durban (i.e. the development of the greenhouse gas inventory and the buildings energy efficiency project) also did not help advance this understanding. Involvement of municipal staff in the projects focused primarily on the delivery of the projects in terms of meeting funding and other administrative deadlines. In addition, the highly technical nature of the greenhouse gas inventory and the buildings energy efficiency project meant that the work was undertaken primarily by consultants hired to assist the Environmental Branch.⁸ In reality, work was being overseen by municipal staff with very little real understanding of why this action was required in the first place. This situation was aggravated by the fact that, due to high workloads, staff involved in the CCP campaign did not have time to develop this understanding independently.

The net result was that even after the completion of the CCP campaign, the understanding of climate change among local government staff in Durban had not advanced significantly. An interesting observation is that this did not prevent further roll-out of climate change-related work by the (now) Environmental Management Department.

As part of the evaluation of the buildings energy efficiency project, the lead consultant recommended that in order to develop and enhance energy efficiency interventions throughout municipal operations, the development of a municipal energy strategy was a critical next step. On the basis of this recommendation, funding for the development of an energy strategy was sourced via DANIDA's (Danish International Development Assistance) Urban Environmental Management Programme, initiated in South Africa in 2005. Given the focus of the project and the associated funding timelines, the development of the energy strategy has followed the same critical path as the buildings energy efficiency project, i.e. one

8. Later to become the Environmental Management Department, in 2003.

whereby the municipal team has been guided technically by the lead consultant, with little meaningful opportunity to develop a more detailed understanding of the relationship between climate change and energy management.

Running in parallel, but not directly related to the CCP campaign, was the development of the municipality's first Clean Development Mechanism (CDM) project (initiated in 2002). This involved the establishment of landfill gas-to-electricity installations at three of the city's landfill sites (Photo 1). Although the CDM project was initiated independently of the CCP campaign, given its significance in terms of mitigation impacts⁹⁾ it was cited as an implementation measure in meeting the CCP campaign performance milestones.

The project manager of the CDM project was both vocal and passionate about establishing the link between climate change and the project. He invested a significant amount of time in understanding the science of climate change and presented this information as an introduction to the CDM project. He repeatedly emphasized that while the project was of financial benefit to the city, the real benefit lay in the reduction of greenhouse gases and the ability to reduce climate change. The impact of this outreach within the municipal structures was, however, limited due to the highly technical and specialized nature of the project, which meant that only a relatively small group of city officials was involved in project development and management. Nevertheless, the project was still significant in that it engaged a number of the city's lead decision makers in the climate change debate for the first time.

9. In total, the project will achieve a reduction of 7.6 million tonnes of CO₂ and is currently the largest Clean Development Mechanism project in Africa.

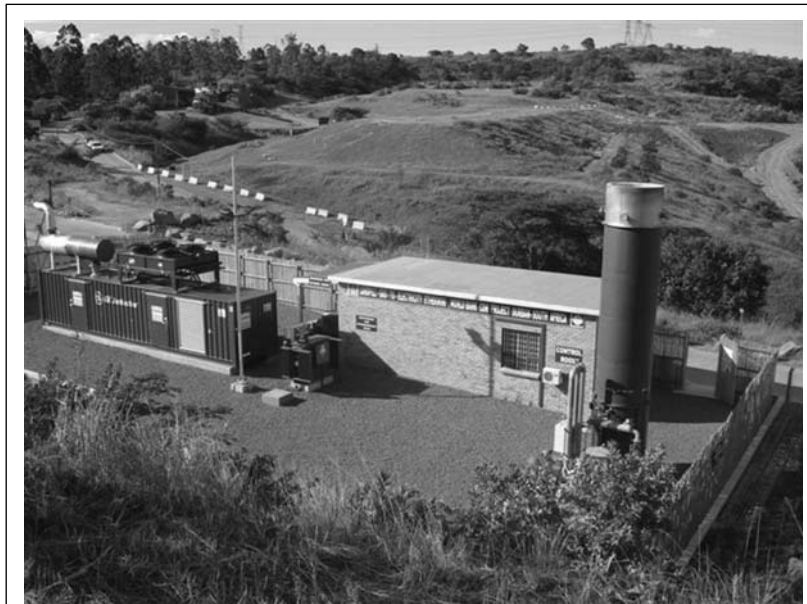


PHOTO 1
Landfill gas-to-electricity installation
© Durban Cleansing and Solid Waste Department,
eThekweni Municipality

III. MAINSTREAMING OF THE CLIMATE CHANGE DEBATE IN DURBAN

From a local government perspective, the extent to which an issue such as climate change becomes successfully institutionalized in day-to-day operations, planning and decision making can be evaluated by using institutional markers similar to the ones outlined below:

- the emergence of an identifiable political/administrative champion(s) for climate change issues;
- the appearance of climate change as a significant issue in mainstream municipal plans;
- the allocation of dedicated resources (human and financial) to climate change issues; and
- the incorporation of climate change considerations into political and administrative decision making.

The following is a discussion of the extent to which these markers have been achieved in eThekweni Municipality.

a. Institutional marker 1: the emergence of an identifiable political/administrative champion(s) for climate change issues

A key contribution to the mainstreaming of climate change within eThekweni Municipality occurred as a result of the participation of the head of the Environmental Management Department in an advanced, semester-long environmental management programme at Brown University in Rhode Island (USA) in 2004. The course is designed for professionals in leadership positions in the global South and provided the opportunity for an in-depth engagement with the science of climate change. This new understanding was to prove a critical factor in the subsequent initiation and development of the Municipal Climate Protection Programme (MCPP) and underscored the importance of capacity building at the local government level in institutionalizing complex environmental issues such as climate change.

The information and understanding developed as a result of participating in this course has been shared subsequently with other stakeholders in Durban through a still ongoing series of seminars and presentations. In informal discussions with a researcher at the Council for Scientific and Industrial Research⁽¹⁰⁾ at one of the early feedback sessions in 2004, questions were raised about what would be required to effectively mainstream the concept of climate change within local government's planning and decision-making processes. It was concluded that the biggest challenge was that the climate change debate was ostensibly a global debate, focusing on global level impacts, and that very little work had been done on determining and communicating an equivalent understanding of local level impacts.

Given the significant development pressures that exist at the local level, particularly in cities of the global South, local government planners and decision makers in many cases do not have the luxury of being concerned about global change. Realpolitik indicates that they are much more likely to be concerned about the local impacts of that change, particularly where those impacts affect or exacerbate local development

10. The Council for Scientific and Industrial Research is a parastatal research organization in South Africa.

needs and pressures. Therefore, key to any attempt to embed the climate change issue at the local government level is the ability to answer the question: "What does it mean for my city, town or village?"

In Durban, the need to answer this question resulted in the Environmental Management Department initiating the Municipality Climate Protection Programme (MCP). The development of this programme has been undertaken in a phased manner.

Phase 1: Climatic Future for Durban project. This initial phase of the programme saw a partnership established between the municipality and the Council for Scientific and Industrial Research, and the initiation of the Climatic Future for Durban project. This project focused on a review of global and regional climate change science and data sets and the translation of these into an understanding of the local level impacts that would affect Durban. According to the findings of this work:

"Local trends indicate that maximum and minimum temperatures are increasing, suggesting that Durban is getting warmer. It is predicted that for the period 2070 to 2100, Durban will experience an increase in the number of hot days with temperatures exceeding 30°C.

Durban's rainfall patterns are also likely to be affected. Although it is likely that rainfall will increase slightly, the distribution of that rainfall will change, with longer periods of no rainfall and shorter periods of intense rainfall. These changes in temperature and rainfall may lead to numerous impacts on water availability, agricultural productivity and food security.

Based on the analysis of Global Sea Level Observing System (GLOSS) data, results indicate that a number of economic and tourist areas may be affected by sea-level rise. Infrastructure, together with coastal vegetation, will be damaged. Damage can be expected from extreme events such as flooding, which may cause the high tide level to increase, thus resulting in potential impacts to infrastructure, increased flooding and coastal erosion, and ultimately placing a significant portion of the population at risk.

Climate change impacts are likely to increase the magnitude of existing problems linked to water availability, food security and health issues. Water availability in the Mgeni River catchment is predicted to decrease by 157.8 million cubic metres...for the period 2070–2100. This will lead to a reduction in the water available for human and industrial consumption in Durban. It is also possible that migration of people from other dryer areas in the country will increase, placing a greater burden on already stressed resources. Agricultural production in Durban is also likely to be affected, particularly in subsistence farming areas where production yields are likely to decrease due to changes in rainfall and temperature.

Temperature increases may also cause the spread of malaria to previously unaffected areas in Durban. Infrastructure damage is likely to increase along the coast, due to a higher mean sea level and an increase in extreme weather events (including sea storms). Major economic and tourist areas are likely to be negatively affected."⁽¹¹⁾

Phase 2: Headline Climate Change Adaptation Strategy project. Once the range and extent of the local impacts of climate change were better

11. Shamini Naidu, Rob Hounscome and Kogi Iyer (2006), *Climatic Future for Durban*, prepared by CSIR NRE, edited by Debra Roberts, Andrew Mather and Manisha Maganlal, April.

understood, it became clear that climate change adaptation, rather than mitigation, was likely to be the immediate priority in the further development of the MCPP. This focus was confirmed at the presentation of the Phase 1 work to the Economic Development and Planning Committee of the municipal council, where it became clear that political interest lay in reducing the impact of climate change on the city rather than in reducing greenhouse gas emissions. As a result, Phase 2 of the MCPP focused on the development of a "headline adaptation strategy" for key municipal sectors. This is at odds with the mitigation focus of the majority of climate change funding streams available to local government.

The headline adaptation strategy made clear the relevance of climate change issues for virtually all departments and agencies within the municipality, and listed the impacts of climate change on key sectors such as infrastructure, human health, food security and agriculture, water, tourism/business, and biodiversity and the coastal zone. The strategy also outlined the kind of adaptation actions that might be appropriate in these sectors. The headline adaptation strategy is currently being used as the basis for the development of a more detailed Municipal Adaptation Plan (MAP) in two high risk sectors i.e. water and health. The key findings of the headline adaptation strategy are summarized below.

Human health: some impacts in this sector are direct (e.g. heatwaves and extreme weather disasters), while others arise through disturbances to ecological processes (e.g. the distribution of infectious diseases, freshwater supplies and food availability). Certain groups (e.g. the elderly, children and low-income and immuno-compromised individuals) are more vulnerable to these impacts than others. The municipality would thus have to respond to greater risks of heat-related deaths and illnesses, extreme weather (e.g. the vulnerability of sewage networks and of informal settlements to flooding), potentially reduced air quality, and impacts of changes in precipitation, temperature, humidity and salinity on water quality (e.g. an increase in diarrhoeal disease) and vector-borne diseases. There is a need for public education, to develop community response programmes, to ensure continued electricity supplies in all conditions, to promote the provision of more shade and increased water efficiency, to develop an extreme climate public early warning system, and to undertake research that improves the understanding of the link between health and climate change in Durban.

Water and sanitation: Durban already faces constraints on water supplies, with water resources under threat at present both in terms of quantity and quality. Climate variability affects water resources through periodic droughts, resulting in short-term water shortages at the local level. In addition, changes in rainfall distribution and increased temperature will also reduce the capability of existing infrastructure (e.g. reservoirs) to store sufficient water. Management techniques, particularly those of integrated water resource management, can be applied to adapt to the hydro-logic impacts of climate change and thus lessen vulnerabilities. Adaptive responses include both supply-side (i.e. changes in water supply) and demand-side (e.g. differential pricing, public awareness campaigns and statutory requirements) approaches. The municipality is already implementing some adaptation options to reduce the volume of freshwater needed (e.g. recycling sewage to potable standards).

Arguably for Durban, adaptation to changes in water availability is the most important adaptation measure. There is a need to evaluate the

capacity of infrastructure to supply water within an uncertain climatic future so that it can cope with variable rainfall and increased flows during flooding events, and also to understand future demands. Adaptation measures that require further investigation include increasing the water-absorbing capacity of the urban landscape; improving the urban drainage system; increasing the height of natural shoreline stabilization measures; utilizing stormwater retention/detention ponds and constructed wetlands; and adjusting storm sewer design and land use planning and zoning to avoid locating structures/buildings in high risk areas.

Coastal zone: coastal environments, settlements and infrastructure are exposed to a range of marine and land-based hazards such as storms, associated waves and storm surges, river flooding, shoreline erosion and an influx of biohazards (e.g. algal blooms). It is possible that these existing impacts will intensify under climate change. This is of particular concern in Durban, given the city's naturally erosive coastline (Photo 2). The municipality is investing heavily in developing the city's coastline for tourism, with key developments planned for the next 10–20 years. Increases in sea level could affect these developments, if not taken into account properly. A series of extreme weather events in 2007 has already provoked discussions regarding the need to manage the strategic retreat of some existing coastal infrastructure from vulnerable areas.

Possible impacts of climate change on Durban's coastline, particularly with regard to sea-level rise, have already been incorporated into the municipality's work over the last two decades and this is expected to continue. Mapping of 1:50 and 1:100 flood lines⁽¹²⁾ for 90 per cent of rivers has been

12. These lines indicate the maximum level likely to be reached by floodwaters, on average, once every 50 or 100 years, respectively.

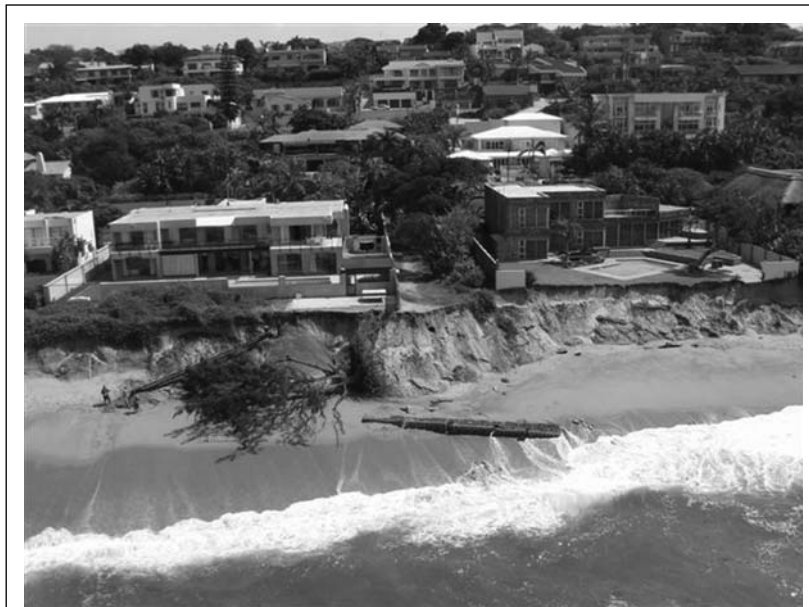


PHOTO 2
Erosion of Durban's coastal zone
 © Environmental Management Department,
 eThekweni Municipality

completed, with an associated programme to inform citizens. New developments need stormwater management plans to ensure that excess runoff is contained on site. Development setback lines and potential erosion lines have been identified that incorporate 1:50 sea storms and a 50-year sea-level rise prediction. There is a need to map the 1:50 flood lines that have changed as a result of climate change. This will show sites at risk and can be used to develop plans to manage flood risks, identify the most vulnerable communities and avoid future developments in flood-prone areas.

Initial modelling of the local impacts of two Intergovernmental Panel on Climate Change scenarios of ~0.5 metres and ~0.9 metres sea-level rise, respectively, over the next 100 years resulted in predictions of probable maximum seawater levels of about 2.4 metres and 2.8 metres mean sea level along Durban's coastline. While the accuracy of these figures needs to be refined, they do suggest that low-lying areas such as the South Durban Basin (the manufacturing centre and economic heartland of the city) and the central business district could be negatively impacted by sea-level rise in the future (Figure 2).

Biodiversity: there is an urgent need to understand how local biodiversity will be impacted by climate change and how these impacts could be managed and mitigated. Increased temperatures and the effect on water resources, water temperatures and river flows could have adverse effects on biodiversity through, for instance, increased evaporation from water bodies, loss of important habitats and changes in species' migratory patterns. Challenges faced by wetlands, such as development pressures, drainage and groundwater abstraction, could be exacerbated by changes in precipitation and its implications for water availability. The first step is to develop better data on the likely impacts on biodiversity of the many effects of climate change.

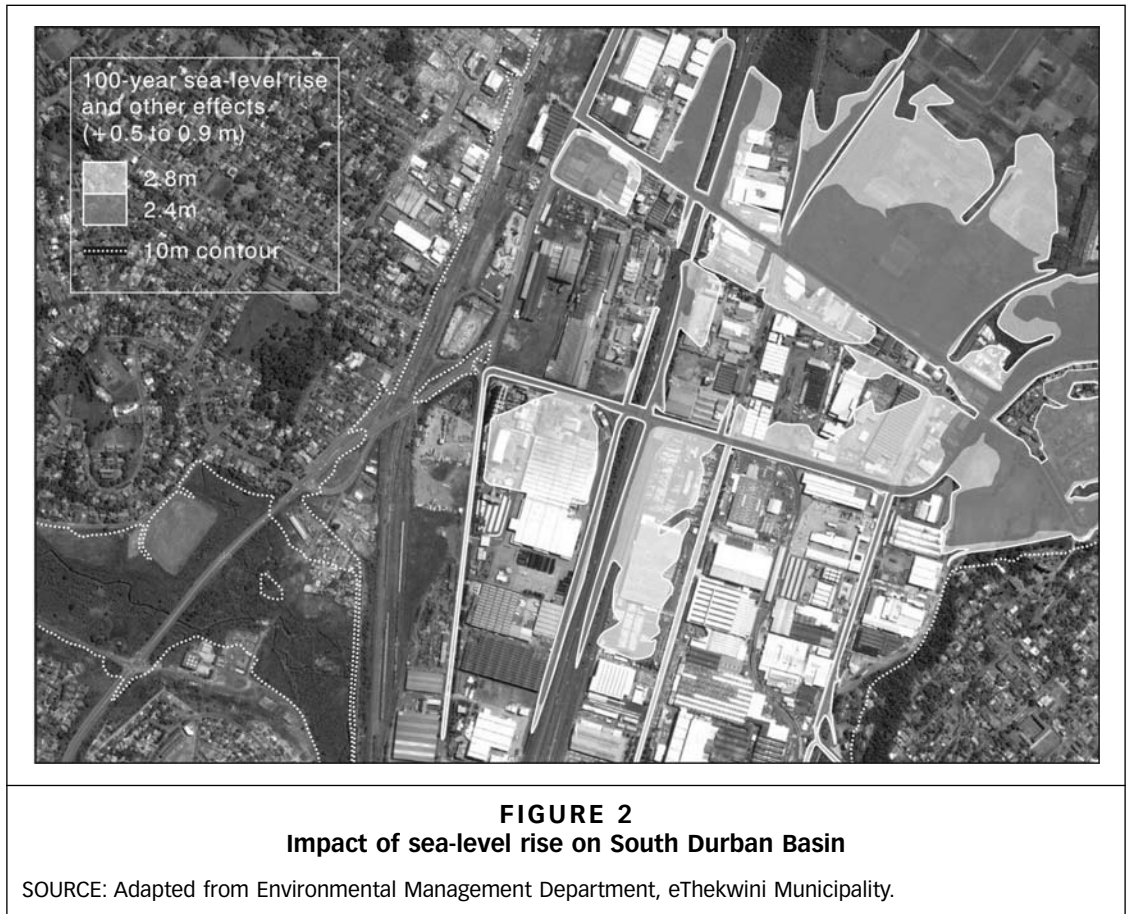
Key infrastructure at risk: built systems need to be able to endure greater exposure to extreme weather events, including extreme precipitation and windstorms. Infrastructure design is generally based on past climatic conditions, but these are no longer accurate indicators for planning, maintenance and upgrades. New guidelines are needed for municipal infrastructure, to ensure safety and quality of life and to reduce long-term costs.

Electricity supplies: gradual climate change does not pose a threat to electricity generation or supply for the municipality, but difficulties are likely in response to extreme events. There is a need to identify measures that ensure the availability of electricity in all conditions, especially in extreme climate situations. This is a sector where mitigation is an urgent need.

Transport: it may be necessary to revise road construction standards and avoid routes at high risk of flooding. There are also measures available to reduce emissions in the transport sector.

Food security and agriculture: support is needed for local agriculture, and attention should be given to the impacts of climate change on commercial agriculture. Preliminary research undertaken during Phase 3 of the MCPP suggests that 50 per cent of the food consumed by the rural poor is locally produced. Adaptation within this sector is therefore critical if food security is to be ensured in the future.

Disaster risk reduction: Durban has disaster management strategies but these have largely focused on technological disasters (the city is an



important industrial centre, including a nationally significant petrochemical sector) and natural disasters such as flooding. These strategies do not engage proactively with planning for extreme weather events or with developing the citywide health emergency plans required in response to climate change. There is also a need to shift from being responsive to disasters and towards being proactive in minimizing hazard, reducing exposure and susceptibility, and enhancing coping and adaptive capacity. There is a need for more attention to be given to enhancing early warning systems, building more resistance into construction and infrastructure, and relocating people and infrastructure away from high risk areas, as well as planning new development for less vulnerable areas.

Cross-sectoral municipal activities: there is a need to build awareness, encourage policy changes and develop strong public education and outreach. There should be support for local research and institutional capacity, and for community-based adaptation.

Phase 3: Urban Integrated Assessment Framework. The outcomes of Phases 1 and 2 of the MCPP highlighted the urgent need to incorporate climate change considerations into the municipality's various planning processes. The focus of Phase 3 of the MCPP is therefore on the development of an urban integrated assessment framework, that is, a computer-based

13. An Integrated Development Plan (IDP) is the product of a process by which South African municipalities prepare five-year strategic plans that are reviewed annually in consultation with communities and stakeholders. These plans seek to promote an integrated response by balancing social, economic and ecological pillars of sustainability without compromising the institutional capacity required in the implementation, and by coordinating actions across sectors and spheres of government.

14. Plan 1: Sustaining our built and natural environment; Programme 7: Develop and implement municipal pollution reduction and climate protection.

model that will facilitate the simulation, evaluation and comparison of strategic development plans and policies in the context of climate change.

Such an integrated assessment framework will provide strategic input into the ongoing development of the city's Integrated Development Plan (IDP),⁽¹³⁾ allowing the municipality to factor climate change considerations into its long-term planning and budgeting and to develop appropriate responses in terms of adaptation and mitigation plans. Because of the pioneering nature of the work being undertaken, the eThekweni municipal team has established research collaboration with the Tyndall Climate Change Research Centre in the United Kingdom. The Tyndall team is working independently on the development of a similar model for the City of London. This collaboration provides valuable opportunities for peer review for both teams, even though the priority sectors being modelled are different due to the differing development contexts of the two pilot cities. Involvement in the project is also helping to build further the capacity of staff within the Environmental Management Department in the areas of climate change science and climate change impact assessment.

b. Institutional marker 2: the appearance of climate change as a significant issue in mainstream municipal plans

As a result of the work done in Phases 1–3 of the MCPP, climate change concerns are influencing increasingly the strategic planning undertaken by the municipality. At the level of short- to medium-term plans, climate change appears as a strategic issue to be addressed in the municipality's Integrated Development Plan (IDP). This is reflected in the requirement for the development of a Municipal Climate Protection Programme within the IDP.⁽¹⁴⁾

Also at the short- to medium-term level, the city's open space system plan (known as the Durban Metropolitan Open Space System Plan (Figure 3) is currently being re-mapped. As part of this process, a first attempt is being made to "climate proof" the biodiversity resources that the system protects. This is being done through the application of a number of climate-specific design principles. For example, planning for the creation of corridors that will facilitate the southern and altitudinal migration of species; enlarging existing core conservation areas (to increase size and the range of altitudinal gradients protected); and identifying areas for improved matrix management (i.e. where improved management of the more formal urban landscapes can help improve the ecological viability of the core conservation areas). Given that the open space system already covers an area of approximately 64,000 hectares, it is clear that any change to the spatial footprint of this system will have a significant impact on land acquisition, development planning and natural area management within the municipality.

In terms of longer-term planning, the issue of climate change has also begun to feature significantly in the stakeholder discussions taking place within the context of the Imagine Durban campaign. Imagine Durban is a municipality-led project focusing on integrated, long-term planning. It is being implemented in conjunction with Sustainable Cities, an NGO from Vancouver, Canada, and the PLUS Network (a network of 35 cities sharing experiences in sustainability planning), which have received funding from the Canadian International Development Agency to support the project.

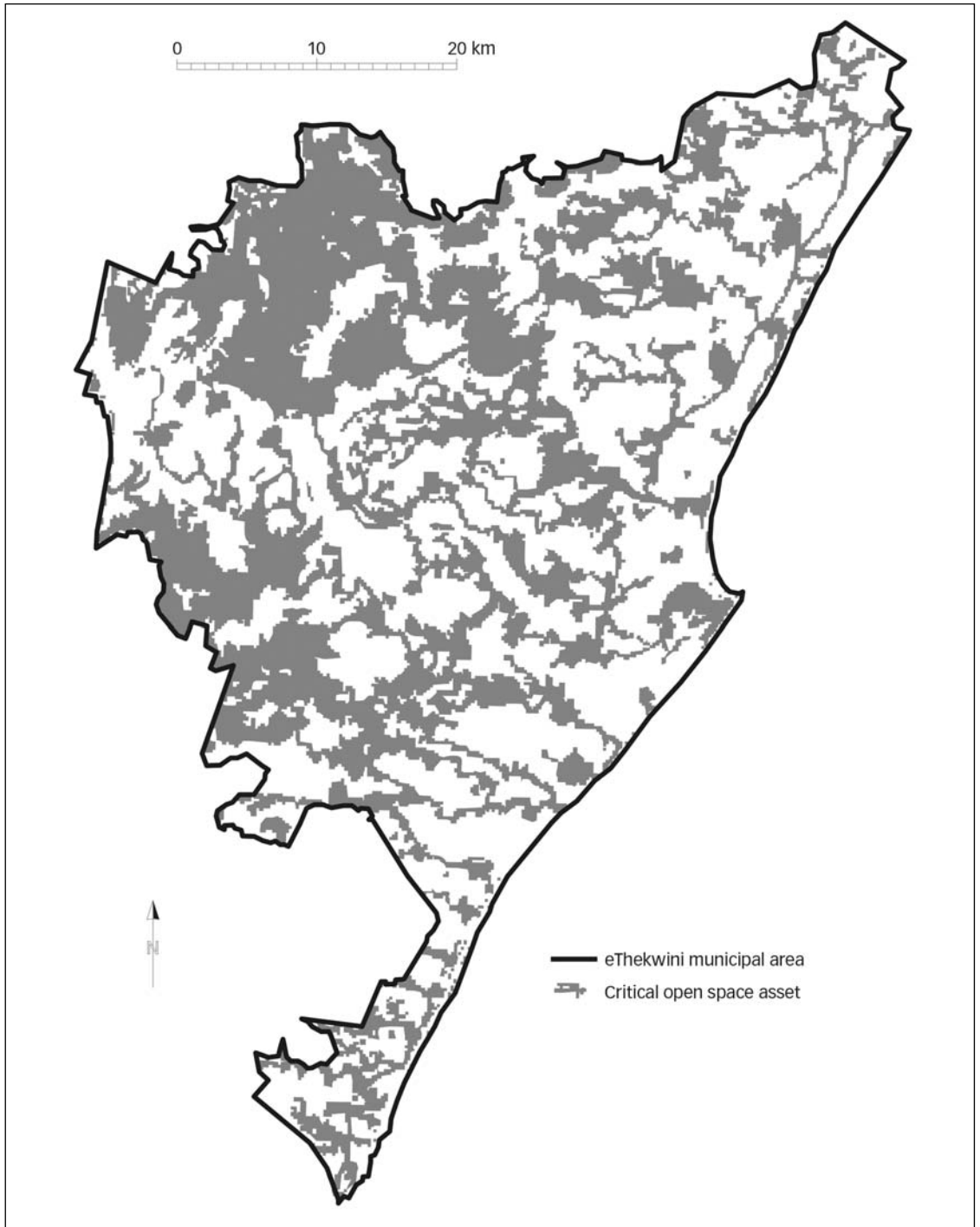


FIGURE 3
Durban Metropolitan Open Space System Plan

SOURCE: Environmental Management Department, eThekweni Municipality.

Imagine Durban is a process that is mobilizing stakeholders (including government, non-government and civil society organizations, faith-based groups, tertiary institutions, business organizations and ordinary residents) to imagine where they would like to be in the future. It emphasizes that planning choices made today will affect generations still to come. From this perspective, the current generation of Durban residents bears a unique responsibility in terms of climate protection planning. Climate protection is therefore a key consideration in the environmental work stream of the Imagine Durban campaign.

c. Institutional marker 3: the allocation of dedicated resources (human and financial) to climate change issues

A further outcome of the work undertaken during Phases 1–3 of the MCPP was the realization that successful development and roll-out of the MCPP would require that the task be appropriately resourced, both from a human and financial perspective. This required institutional change, as no formal climate change mandate existed anywhere within the prevailing municipal structures. As a result, a new branch has been created within the Environmental Management Department to deal specifically with the issues of climate change and climate protection. This change to the city’s institutional structures was approved in 2007 and funds have now been secured to fill the management position in the Climate Protection Branch, as a first step in establishing the branch.

d. Institutional marker 4: the incorporation of climate change considerations into political and administrative decision making

While the issue of climate change is not yet noticeably affecting day-to-day decision making in the municipality, it is clear that local government leaders in Durban are beginning to acknowledge the likely significance of the matter. In 2007, for example, the Executive Committee of the municipality responded to the call by the South African Local Government Association to address climate change issues, by requesting the city manager to compile a detailed report on the effects of climate change on the city. This provided an opportunity to profile the work being undertaken within the MCPP and to inform the politicians of its significance. Further weight was given to the need to prioritize the issue of climate change as a result of its inclusion in the statement made by the president of the African National Congress (ANC), Jacob Zuma, on 8 January 2008:

“As we work to grow and transform our economy, we must recognize that climate change is a new threat on a global scale that places an enormous burden on especially the poor. We must therefore proceed without delay to implement our resolutions on climate change, particularly with respect to the reduction of greenhouse gas emissions and the promotion of renewable energy sources.”

It is interesting to note that adaptation does not feature in this statement. This is a reflection of disjuncture that exists between national and local level policy makers in South Africa around the issue of climate change.

The interest of decision makers in climate change has also been enhanced in Durban as the result of a series of extreme weather events during 2007 (i.e. a series of storms and high tides), which resulted in extensive infrastructural damage due to flooding and coastal erosion. Although not directly attributable to climate change, these events have raised general awareness of the kind of impacts that may be experienced in a climatically changed future. As a result, there has been increased political and administrative support for climate change-related work in the municipality. One should not, however, be naïve and imagine that the integration of climate protection considerations into political and administrative decision making is likely to be a smooth process. Based on past experience, anything that affects budget lines and the city's current desired development path is likely to result in contestation between the various parties involved.

IV. CONCLUSION

Using the four institutional markers defined here, it can be concluded that reasonable progress (given the development challenges and resource constraints faced by the municipality) has been made in Durban in mainstreaming climate change concerns at the local government level. The key to unlocking this process was capacity building of key local government personnel. This kind of capacitation holds the potential to unlock endogenous resources and interest in climate change – ultimately making the likelihood of sustainable climate protection interventions greater. A significant drawback, however, is the fact that while strong climate change champions have emerged within the city's administration, no equivalent political champions have yet emerged. Plans are currently being developed to address this shortfall and to build capacity and political interest in the climate change issue.

In Durban, capacitation has also produced institutional change and the mainstreaming of climate change concerns within various municipal short- and long-term planning processes. Furthermore, it has been the catalyst for the development of a new assessment tool, which is intended to facilitate a more comprehensive incorporation of climate change concerns into the city's long-term planning. Such an approach should assist in reducing the prevailing tensions that exist between development and environmental priorities within the city by allowing decision makers to better understand the long-term development consequences of short-term decisions that exacerbate climate change risk.

It is interesting to note that the need for local government to prioritize adaptation over mitigation interventions, given the kind of development threats faced by the municipality as a result of unavoidable climate change, emerged very early on in the development of the MCCC.¹⁵ This suggests that in cities of the global South, donor monies may be better spent on capacitating people, especially around issues of climate change adaptation, rather than on supporting often ad hoc climate change mitigation projects.

Experience with the development of the MCPP has also indicated that embedding the concept of climate change within local government activities requires not only that the global debate is made relevant locally but that this information is framed within a broader social/environmental

15. It is, however, acknowledged that mitigation is the only successful long-term form of adaptation.

justice framework. This would ensure that the development agenda of local government and the climate protection agenda are meaningfully and sustainably linked. Only in this way will climate protection concerns affect decision making and resource allocation at the local level. In South Africa, this local level action is critical, as past experience has shown that municipal innovation is often a key factor in catalyzing meaningful activity by both provincial and national governments.

REFERENCE

Shamini Naidu, Rob Hounsome and Kogi Iyer (2006), *Climatic Future for Durban*, prepared by CSIR NRE, edited by Debra Roberts, Andrew Mather and Manisha Maganlal, April.