



Aerial view of Durban harbour. © eThekweni Municipality

## Thinking Globally, Acting Locally: Institutionalising Climate Change within Durban's Local Government

Prepared for Cities Alliance by Debra Roberts of the Environmental Planning and Climate Protection Department of eThekweni Municipality.

### Overview

**D**urban (eThekweni) is unusual among cities worldwide in having a municipal government that has developed a locally rooted climate change adaptation strategy. This brief considers four institutional markers behind local government approaches to climate change:

1. The emergence of climate change advocates among local politicians and civil servants;
2. Climate change as a significant issue in municipal plans;
3. Staff and funds allocated to this issue; and
4. A serious consideration of climate change issues within local government decision-making.

Considerable progress has been achieved regarding the second and third markers but less so for the first and fourth. This brief 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. It also addresses the ecological changes and water supply constraints linked to climate change. International agencies pay too little attention to adaptation, as the reduction of greenhouse gas emissions (mitigation) has been prioritised. This brief stresses the importance of building local knowledge and capacity on climate change risks and adaptive responses. Without such knowledge and capacity, decision makers will see environmental issues as constraints rather than as essential underpinnings to development.

This is the third in a series of Notes on climate change and cities. The first Note considered what city governments must do regarding climate change. The second discussed the links between climate change adaptation and development, and the kind of support city governments need from national governments and international agencies to deal with these. The fourth will consider how to build a city vulnerability risk map for both disaster risk reduction and climate change adaptation.

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The CIVIS series shares knowledge and learning arising from Cities Alliance projects and other activities in slum upgrading and city development strategies. It also serves as a platform for policy dialogue and debate among city development stakeholders, including national and local governments, donors and slum dwellers to impact change in the lives of the urban poor and advance the urban development agenda.

## Introduction

With 3.7 million inhabitants, Durban is the largest port and city on the east coast of Africa and one of South Africa's most important urban centres. The local government structure responsible for managing the city is eThekweni Municipality, and it has become a leader in the field of local environmental management.

Prior to South Africa's 1994 democratic transition, environmental management at the local government level received very limited attention. Post-1994, the process of democratisation and new local government structures included a much revised development agenda that sought to right the wrongs of the country's apartheid past and address basic needs — for example, jobs, housing, and education — for all South Africans. Local government was, and is, a critical player in meeting these objectives, given its direct interface with local communities and its pivotal role in service provision. A new environmental management mandate was also included.

This commitment to environmental and development agendas created a growing tension between urgent development priorities and the need to integrate environmental concerns into planning and decision-making processes, often for the first time. For many, environmental concerns are thought to be less significant than development priorities. Thus, the environmental management agendas of cities such as Durban focused initially on issues that were relevant to local development pressures, such as addressing air pollution. Environmental matters that could not be related directly to the development agenda, or that were of less local and political significance, such as biodiversity, garnered little attention.

## Attention to Climate Change

The first serious discussions on climate change took place as part of the forward planning of the Environmental Branch. This became the Environmental Management Department in 2003. The feasibility of establishing a climate protection programme was considered in 1999, but it did not progress because of a lack of resources and the need to deal with other "higher priority" development matters.

In 2000, the Environmental Branch received approval from eThekweni Municipality's executive committee to take part in a USAID-funded Cities for Climate Protection campaign, working with ICLEI—Local Governments for Sustainability. This led to the municipality's first greenhouse gas emissions inventory, which recorded emissions attributed to local government activities. A greenhouse gas inventory in 2007 extended the scope to cover all emissions. It also led to an energy efficiency pilot project auditing energy usage in two municipal buildings. The project showed that low-cost and no-cost energy interventions could cut energy use by more than 15 per cent, with the costs repaid in under five months and with an annual CO<sub>2</sub> savings of some 340 tonnes. Nine additional municipal buildings were audited, and a range of low-cost and no-cost interventions were identified and implemented.

## The Need to Build Institutional Understanding

However, these activities generated little interest within government, in part because they did not contribute to an understanding of climate change and what it means for Durban and its surrounding areas. The highly technical nature of the work meant that it was undertaken primarily by consultants and overseen by municipal staff with little understanding of why this action was required.

Various other climate change initiatives were implemented between 2002 and 2005, including a landfill gas-to-electricity initiative in three landfill sites. While these initiatives engaged some of the city's lead decision makers in climate change issues for the first time, their highly technical nature and the lack of clear links to Durban's needs and its development agenda meant that little discussion occurred on the need for a municipal climate change plan.

## Mainstreaming the Climate Change Debate

From a local government perspective, the extent to which an issue such as climate change becomes successfully institutionalised in day-to-day operations, planning and decision making can be evaluated by using four institutional markers.

### 1) The emergence of an identifiable political/administrative champion(s) for climate change issues.

This was helped by the participation of the head of the Environmental Management Department in an advanced environmental management programme in 2004. The programme was designed for professionals in leadership positions in the global south, the nations of Africa, Central and Latin America, and much of Asia. Most are characterised by less developed or severely limited resources and high levels of poverty. The programme helped provide the knowledge base needed to initiate and develop the Municipal Climate Protection Programme (MCPP), and underscored the importance of capacity building at the local government level in institutionalising complex environmental issues such as climate change. It also became evident that local government would not take climate change seriously if it was seen only as a global issue without clarifying the local level impacts.

To address these issues, the Environmental Management Department initiated the MCPP. In its first phase, the MCPP worked with the Council for Scientific and Industrial Research to translate global and regional climate change science into an understanding of local level impacts. This effort highlighted how Durban was likely to experience an increase in the number of hot days with temperatures exceeding 30°C (86°F); how the distribution of rainfall might change, causing impacts on water availability, agricultural productivity and food security; and how damage could be expected from extreme events such as flooding. It also outlined the possibility that migration of people from other, drier areas in the country would increase, placing a greater burden on already stressed resources.

The second phase resulted in the development of the Headline Climate Change Adaptation Strategy. Once the range and extent of the local impacts of climate change were better understood, it became apparent that adaptation, rather than mitigation, was likely to be the immediate priority, as discussions within the Municipal Council's Economic Development and Planning Committee made clear. A "headline adaptation strategy" was developed for a range of key sectors, clarifying the relevance of climate change issues for virtually all departments and agencies within the municipality. The strategy also outlined the kind of adaptation actions that might be appropriate in these sectors. This work has subsequently been deepened through the development of specific adaptation plans for the water, health and disaster management sectors.

- **Health**

Some impacts are direct, such as heat waves and extreme weather disasters. Others arise through disturbances to ecological processes, for example the distribution of infectious diseases, freshwater supplies and food availability. Certain groups – including the elderly, children, and low-



*There is a need for better data on how Durban's biodiversity is affected by climate change.*  
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income and immuno-compromised individuals – are particularly vulnerable to these impacts, and the municipality would have to respond to the greater risks they bring. A number of steps need to be taken, including educating the public, developing community response programmes, ensuring continued electricity supplies in all conditions, promoting the provision of more shade and increased water efficiency, developing an extreme climate public early warning system, and undertaking research that improves understanding of the linkage between health and climate change in Durban.

- **Water and sanitation**

Durban already faces constraints on its water supplies, with water resources under threat both in terms of quantity and quality. Climate variability affects water resources through periodic droughts and local short-term water shortages. Changes in rainfall distribution and increased temperatures will also reduce the capability of existing infrastructure (reservoirs, for instance) to store sufficient water. Management techniques, particularly those of integrated water resource management, can be applied to adapt to the hydrological impacts of climate change and thus reduce vulnerabilities. Adaptive responses include

approaches to both the supply side (such as changes in water supply) and the demand side (differential pricing, public awareness campaigns and statutory requirements, for example). 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. There is also a need to understand future demands.

- **Coastal zone**

Coastal environments, settlements and infrastructure are exposed to storms, associated waves and storm surges, river flooding, shoreline erosion and an influx of biohazards – algal blooms, for example. These risk factors may intensify with climate change and are of particular concern to Durban, given the city's naturally erosive coastline. The municipality is investing heavily in developing the city's coastline for tourism, and it should take into account likely climate change impacts. Extreme weather events in 2007 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 approach is expected to continue. It includes mapping of 1:50 and 1:100 year flood lines for rivers, with an associated programme to inform citizens. New developments need stormwater management plans to ensure that excess runoff is contained on site. In addition, development setback lines and potential erosion lines have been identified along the coast. Such mapping can show sites at risk and be used to develop plans to manage flood risks, identify the most vulnerable communities, and avoid future development in flood-prone areas.



*Durban's coastline is vulnerable to erosion. © eThekweni Municipality*

- **Biodiversity**

Increased temperatures and the resulting impact on water resources, water temperatures and river flows could have adverse effects on biodiversity through increased evaporation from water bodies, loss of important habitats and changes in species' migratory patterns, for instance. The challenges faced by wetlands – development pressures, drainage and groundwater abstraction, to name a few – could be exacerbated by changes in precipitation and its implications for water availability. The first step is to develop better data on how the many effects of climate change are likely to impact biodiversity.

- **Key infrastructure at risk**

Infrastructure design is generally based on past climatic conditions. However, they are no longer accurate indicators for planning, maintenance and upgrading. New guidelines are needed to ensure safety and quality of life and to reduce long-term costs. It may be necessary to revise road construction standards and avoid routes at high risk of flooding.

- **Food security and agriculture**

Support is needed for local agriculture, and attention should be paid to the impacts of climate change on commercial agriculture. Half of the food consumed by the rural poor is produced locally, so adaptation within this sector is critical if food security is to be ensured in the future.



*Planning new development in less vulnerable areas is one way to reduce disaster risks from climate change.*  
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- **Disaster risk reduction**

Durban's disaster management strategies have focused on technological disasters (the city is an important industrial centre) and natural disasters such as flooding. They do not engage with developing the citywide health emergency plans required in response to climate change. There is also a need to shift the focus from response to disaster risk reduction, minimising hazards, reducing exposure and enhancing coping and adaptive capacities. More emphasis should also be placed on enhancing early warning systems, building more resistance into construction and infrastructure, relocating people and infrastructure away from high risk areas, and planning new development in less vulnerable areas.

The third phase of the MCPP involved developing an urban integrated assessment framework, a computer-based model that facilitates evaluation and comparison of strategic development plans and policies within the context of climate change. Such a model provides strategic input into a city's Integrated Development Plan (IDP), thus allowing climate change considerations to be factored into long-term planning and budgeting and the development of appropriate adaptation and mitigation responses. Since little work was available to show how this could be done, the eThekweni Municipality team established research collaboration with the Tyndall Climate Change

Research Centre in the UK, which also helped to build further the capacity of staff within the Environmental Management Department in the areas of climate change science and impact assessment.

## 2) **The appearance of climate change as a significant issue in mainstream municipal plans.**

As a result of the work outlined above, climate change concerns are increasingly influencing strategic planning. This is reflected in the need for the development of an MCPP within the Integrated Development Plan. The city's open space system plan is in the process of being re-mapped, and research is being undertaken to determine how best to "climate proof" the biodiversity resources that the system protects. It might also include the following: planning for the creation of corridors that will facilitate the southern and altitudinal migration of species; enlarging existing core conservation areas to increase the size and range of protected altitudinal gradients; and identifying areas for improved matrix management, for example, where improved management of the more formal urban landscapes can help improve the ecological viability of core conservation areas. Given that the open space system already covers some 74,000 hectares, any change to its spatial footprint will have a significant impact on land acquisition, development planning and natural area management within the municipality.



*Durban is an important industrial centre.*  
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With regard to longer-term planning, climate change has begun to feature significantly in the stakeholder discussions that are taking place within the *Imagine Durban* campaign. A municipality-led project that focuses on integrated, long-term planning, the campaign is mobilising stakeholders – including government, non-government and civil society organisations, faith-based groups, tertiary institutions, business organisations and residents – to imagine where they would like to be in the future. It emphasises that the planning choices made today will affect generations still to come.

### **3) The allocation of dedicated resources (human and financial) to climate change issues.**

Implementing the MCPP clearly requires more staff and resources. This necessitated institutional change, as no formal climate change mandate existed within the municipal structures. As a result, a new branch, approved in 2007 was created within the Environmental Management Department to deal with climate change and climate protection. As a first step, funds were secured to fill the management position in the climate protection branch. The name of the department was also changed in 2009 to the Environmental Planning and Climate Protection Department to reflect this new role.

### **4) Incorporating climate change considerations into political and administrative decision making.**

While the response to climate change does not yet affect day-to-day decision making in the municipality, local government leaders are beginning to acknowledge its significance. The storms and high tides in Durban during 2007 and afterwards caused extensive infrastructural damage and helped raise awareness of the kind of impacts that may be experienced in a climatically changed future. Of course, the integration of

climate protection considerations into political and administrative decision making is unlikely to be a smooth process. Anything that affects budget lines and the city's current desired development path will be contested.

## **Conclusions**

Reasonable progress has been made in Durban to mainstream climate change concerns within local government, given the pressing development challenges and resource constraints. The key to unlocking this process was capacity building of key local government personnel who, in turn, could build local interest and identify local resources – making the likelihood of sustainable climate protection interventions greater. Such an approach required the support of strong climate change political champions. Where these champions have begun to emerge, however, there have been suggestions that they will not receive the support of political colleagues who favour a stronger development agenda. This in turn may cause a new level of political tension going forward.

In Durban, climate change concerns were mainstreamed within various municipal short-term and long-term planning processes. They also acted as a catalyst for the development of a new assessment tool to facilitate the incorporation of climate change concerns into the city's long-term planning. This will help reduce the tensions between development and environmental priorities by allowing decision makers to better understand long-term development.

The need for local government to prioritise adaptation over mitigation emerged very early on in the development of the MCPP. This suggests that in cities of the global south, donor funding is better spent on capacitating people – especially around issues of climate change adaptation – rather

than on supporting often ad hoc climate change mitigation projects. Durban's experience also shows that embedding responses to climate change within local government activities requires not only that the global debate is made relevant locally, but that it is framed within a broader social/environmental justice framework. This would ensure that local government's development agenda and climate protection agenda are meaningfully 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; past experience has shown that municipal

innovation is often a key factor in catalysing meaningful activity by both provincial and national governments.

Based on the article by Debra Roberts titled "Thinking globally, acting locally – institutionalizing climate change at the local government level in Durban, South Africa"; *Environment and Urbanization*, October 2008, Vol. 20, No. 2, pages 521-538. Available at <http://eau.sagepub.com/content/vol20/issue2>