

Chapter 5:

ENVIRONMENTAL SUSTAINABILITY AND CLIMATE CHANGE IN THE LOCAL GOVERNMENT SECTOR

5.1 Introduction

The impact of climate change on world economies is fast taking centre stage in global and political debates and policies. The severity and frequency of associated natural disasters have made climatic change one of the major threats to global economies in the 21st century. The hazards of climate change have manifested themselves in, *inter alia*, wide temperature variations, changes in rainfall patterns, rises in sea levels, unprecedented levels of air pollution, frequent floods and droughts, and increased water- and vector-borne diseases (World Bank, 2010). Although every economy is vulnerable to climatic change, their vulnerability is unequal and disproportionately distributed across continents and regions. The developed world generates most of the negative externalities associated with climate change, while the poorest global populations bear the greatest risks. This is because developing countries have weak and inadequate adaptation and mitigation infrastructure and limited resources to withstand the hazards of climate change. While disproportionate impacts of climate change are seen in urban areas across the globe, the same urban areas are also the biggest contributors to the problem. As highlighted in Chapter 4, as principal drivers of economic growth, development and innovation, these cities and towns need to recognise the challenges posed by climate change.

In the South African government's 12 agreed Medium Term Strategic Framework, the issue of environmental sustainability is prioritised in outcome ten, which deals with the protection and enhancement of environmental assets and natural resources. The government has also recognised that climate change is one of the critical factors influencing the environmental sustainability and vibrancy of cities, and that appropriate responses to climate change have fiscal implications. The structure of intergovernmental fiscal relations (e.g. grants) can create incentives or disincentives for proactive climate change responses by municipalities.

The Commission is concerned with the impact of climate change because of its potential to strain public finances and so undermine any gains in intergovernmental fiscal relations that the Commission is constitutionally mandated to promote. The Commission is also concerned by the potential of climate change to undermine development and economic growth, imposing costs on society and government through expenditure related to the amelioration of climatic effects.

This chapter highlights the results of empirical work in the local government sphere on the impact of climate change. It also recommends possible, appropriate fiscal and economic policies and instruments that will enable municipalities to respond timeously to the threats and opportunities that accompany climate change. The focus is on how climate change will affect water and energy security, as these two sectors play a central role in the development and growth of local governments.

5.2 Climate Change Impacts in the Local Government Sector

The section reports on the findings of research into the implications of climate change for water and energy (electricity) security in the local government sphere. The research found that increased rainfall variability (a proxy for climate change) is significantly associated with increases in municipality's water and electricity expenditures, which can be interpreted as rainfall variability increases municipal water and energy demand.⁶⁵ This result suggests that climate change leads to greater spending on water and electricity-related infrastructure. Thus, climate change will mean higher

⁶⁵ It should be pointed out that these measures can be applied to other sectors and services as well.

(and more often than not) unplanned expenditures for municipalities, which will have to forego the provision of some essential services, as budgets are stretched to cater for the consequences of climate change.

South African municipalities already face a number of persistent problems with respect to water and electricity provision. These include water and electricity losses due to ageing infrastructure, illegal connections, inappropriate pricing and poor water quality. Climate change adds another volatile variable to this mix of challenges facing municipalities. As central drivers of local government growth and development, it is critical that water and energy resources are used efficiently.

Water is a scarce resource that must be used efficiently by eliminating water losses. Table 13 shows the water distribution in the different categories of municipalities and shows that South Africa loses a significant amount of water (about 30%). With the added burden of climate change, it is imperative that local authorities manage water resources capably and in particular minimise water losses. Water losses of this magnitude may be a result of ageing infrastructure. Yet, in many municipalities repair and maintenance of infrastructure is not prioritised, and budgets for repair and maintenance are remarkably low. Therefore, mechanisms and adequate budgets need to be put in place to minimise incidences of poor maintenance, especially for water-related infrastructure.

Table 13. Distribution of water

(Ml pa)	A	B1	LW	DW	Total
Water sold	1,299,702	498,567	342,738	499,999	2,641,004
Residential customers	907,989	386,523	299,392	440,156	2,034,060
Non-residential customers	391,713	112,044	43,346	59,842	606,945
Unaccounted for water	557,015	213,671	146,888	214,285	1,131,859
Bulk water requirement	1,856,716	712,238	489,625	714,284	3,772,863

Source: Palmer Development Group, 2010

Municipalities need to become champions of energy-efficient ⁶⁶ initiatives and to promote the development of energy-efficient sectors, such as renewable (wind, geothermal, and solar) energy and bio-fuels. They should encourage energy efficiency in building and construction, agriculture and forestry, as well as alternative energy-efficient transportation, recycling and proper waste management, (The Thirteenth Finance Commission, 2009).

Municipalities need to deal proactively with the consequences of climate change, which can be tackled through a number of instruments, including the budget, by mainstreaming clean environmental objectives into the budget (what has become to be known as “greening” budgets). The intergovernmental fiscal relations framework can be used to “incentivise more innovative approaches to environmental management and to reward good environmental performance” (The Thirteenth Finance Commission, 2009). For example, local authorities can use taxes and subsidies to influence sustainable energy production and consumption.

5.2.1 Environment-friendly instruments

Below are some of the instruments that could be used to promote environment-friendly forms of water and energy consumption and production. ⁶⁷

(a) Subsidies

Subsidies are an important mechanism for achieving environmental goals. Subsidies can be used to encourage the production of eco-friendly goods and services or discourage the production of goods that harm the environment. In the case of South Africa, green initiatives could be encouraged through subsidising, researching and developing eco-friendly technologies. The cost of such subsidies can even be recouped through taxing competing technologies that are not environment-friendly.

(b) Transfers

Grants are also a potent mechanism for driving the eco-friendly agenda. Lessons from the Thirteenth Finance Commis-

⁶⁶ Energy efficiency means minimising energy wastage, using less energy to perform the same activities and shifting to cleaner energy sources.

⁶⁷ It should be pointed out that these measures can be applied to other sectors and services as well.

sion (2009) are useful for the South African local government sector. In India grants have been used to reward good environmental performance and environmentally sound programmes. In South Africa, the government should consider establishing a separate special purpose conditional environmental grant that would seek to achieve the following:

- Reward and incentivise environment friendly actions and performances in the local government sphere.
- Provide for repair and maintenance, and rehabilitation of water and energy infrastructure.
- Build capacity to address climate change management in local governments,
- Provide minimum environmental protection services
- Fund research into best adaptation and mitigation practices and new environment-friendly technologies (especially water and energy-efficient technologies), waste management, green building, etc.

When establishing a separate special purpose environmental grant, special attention should be paid to its design, as the grant should be sensitive to factors such as the municipality's size, topography, vulnerability and riskiness to climate-related hazards.

(c) Green public procurement

Another effective avenue for achieving environmental goals is through "Green Public Procurement". As municipalities are the main buyers of goods and services in their areas, mainstreaming environmental concerns in their procurement policies can go a long way in promoting a clean environment. In green procurement (also known as sustainable procurement or green tendering), public authorities deliberately and strategically procure eco-friendly goods and services from a selection of environmentally conscious suppliers or contractors. Public officials can also set environmental requirements in procurement contracts. Cities can be turned into "green" zones through easing the development of, and sustaining, environmentally sensitive markets.

(d) Adaptation and mitigation

The burden imposed by climate change means that municipalities need to minimise the impact, by putting in place appropriate adaptation and mitigation plans and mechanisms. Some municipalities already have functional climate change adaptation and mitigation strategies in place, for example Cape Town and eThekweni (McKenzie, 2011). In developing adaptation and mitigation mechanisms, municipalities need to take into account the following.

- *Sound analysis of climate change at municipality level.* Rigorous municipality level analysis of the climate change impacts is required. Municipalities should endeavor to come up with their own municipal level risk analysis, which includes identifying primary and secondary hazards, assessing relative exposure and vulnerability of the population, and analysing institutional capacities. This analysis will then support their adaptation and mitigation plans and strategies. An understanding of the individual impacts is important for crafting municipal level adaptation and mitigation strategies.
- *Adequate financing of adaptation and mitigation.* Successful and sustainable adaptation and mitigation depend on sustainable financing. Elsewhere in the world, "Climate Change" grants have been used to fund adaptation and mitigation strategies and programmes. Climate or environmental grants can also be considered in the case of the South African local government sector. In addition, municipalities themselves need to seriously consider budgeting for adaptation and mitigation programmes, as the climate change disasters are becoming more frequent and intensive. Collective financing could be considered in cases of budgetary or capacity constraint.⁶⁸
- *Timely and adequate information, communication and awareness.* Successful adaptation and mitigation also depends on timely and adequate information, communication and awareness about the vulnerability and impacts of climate change. The short- and long-term impacts of climate change must be understood and communicated to

⁶⁸ This simply means pooling resources to finance a common activity.

individuals and organisations that are likely to be affected by climate change. Adequate information will minimise uncertainties that often surround climate change issues.

- *Community involvement.* Local communities should be involved in mitigation and adaptation programmes and projects, so that the sustenance of the projects and programmes will be guaranteed.

5.3 Recommendations

Climate change is a real threat to municipalities in South Africa, especially to water and energy security at the local government level. Therefore, local governments need to be proactively involved in local, national and global efforts to adapt to and mitigate climate change impacts. Individual municipalities need to understand and establish their specific climate change impact assessments that take into account their specific conditions and circumstances. This will give rise to the crafting and implementation of effective, efficient and well targeted policy measures and programmes.

With respect to environmental sustainability and climatic change in the local government sector, it is recommended that:

- The government should ensure that municipalities develop their own climate change mitigation and adaptation strategies and plans for climate change as part of the Integrated Development Planning process. Government should provide support in this respect to municipalities over the next three years, distinguishing between different types of municipalities by both location and capacity in terms of the mandatory requirements placed on them.
- The government should consider providing municipalities with a performance-based conditional grant, which rewards or incentivises actions that are environmentally efficient and responsive to the adaptation and mitigation challenges of climate change. The design of the proposed grant should pay attention to municipality specific factors, such as the area, topography, coastal/or otherwise, and vulnerability to climate change. Specific focus areas for this grant should include:
 - a. Efficient water management practices, including the minimisation of water losses, effective asset management or rehabilitation programmes, and demand management;
 - b. Efficient energy management practices, including the minimisation of electricity losses (unaccounted for electricity), the elimination of illegal connections and energy savings by both households and industry; and
 - c. The implementation of green procurement principles.