

# Main Title

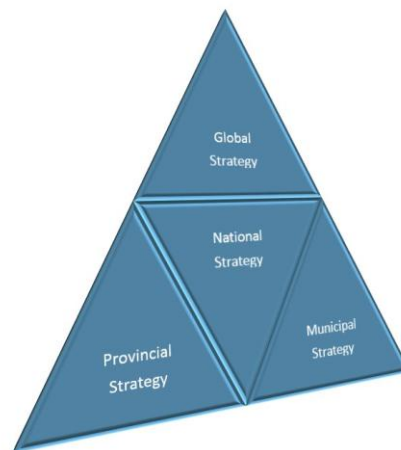
## The Impact of Climate Change on Spatial Planning, the case of Durban, eThekweni Municipality.

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### 1. Introduction

It is said that by 2050, 6.5 billion people, or two thirds of the world's population, are expected to live in sprawling metropolises. To safeguard this future urban way of life new forward-thinking strategies for mitigation and adaptation to the impacts of climate change need to be integrated into conventional concepts of urban development. To that end eThekweni Municipality has developed a Spatial Development Framework which outlines a development trajectory for short, medium, and long-term planning scenarios. The Spatial Development Framework presents a long-term (20+ years) vision and plan of the desired spatial form of our Municipality, and thus, is critical for infrastructure planning.

The Spatial Development Framework guides the desirable spatial distribution of land uses within a Municipality to give effect to the spatial vision, goals, and objectives of the Municipality. It prioritises areas for spatial interventions and is aligned with National and Provincial strategies to achieved both horizontal and vertical alignment. When completed, the Spatial Development Framework is adopted by the Municipal Council. Our Spatial Development Framework has been informed by key international, national, provincial, and local influences, as shown in the following diagram. Each of the strategies discussed later in this paper should not be seen in isolation, but as integrated components of an overall framework for sustainable development of the city.



*Figure 1: Key Spatial Development Framework informants*

The plans for the development of our Municipality and its built environment are underpinned by global, national, and regional policy. The objectives of these policies have influenced the strategic and spatial direction of our Municipality. The most recent and relevant international developmental policies that informed our Spatial Development Framework are listed and described below.

- The **New Urban Agenda** officially adopted in Quito, Ecuador in November 2016. This agenda provides a 20-year “roadmap” to guide global sustainable urban

development. The 2030 agenda is built around a series of Sustainable Development Goals. Most relevant to the New Urban Agenda is Sustainable Development Goal 11, which aims to “make cities and human settlements inclusive, safe, resilient and sustainable”.

- The **Sustainable Development Goals**’ intention is to be a universally shared common and globally accepted vision to progress to a just, safe, and sustainable space for all inhabitants.



*Figure 2: An image of the Sustainable Development Goals*

- **Sendai Framework for Disaster Risk Reduction 2015-2030:** The Sendai Framework is a 15-year voluntary, non-binding agreement which recognizes that the State has the primary role to reduce disaster risk, but also finds that this responsibility should be shared with other stakeholders including local government, the private sector, and other stakeholders. It aims for the following outcome: “The 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”.
- **The Addis Ababa Agreement** -The Addis Ababa Action Agenda provides a foundation for implementing the New Urban Agenda. The agreement was reached by the 193 United Nations Member States attending the United Nations Third International Conference on Financing for Development.
- **Paris Agreement** -The Paris Agreement is universally regarded as a seminal point in the development of the international climate change regime under the United Nations Framework Convention on Climate Change (UNFCCC). The Paris Agreement was adopted on 12 December 2015 at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change Conference of the Parties 21. The Agreement was the result of four years of intense negotiations mandated by the United Nations Framework Convention on Climate Change Conference of the Parties, held in Durban in 2011.

The Agreement is a comprehensive framework which guides international efforts to limit greenhouse gas emissions and to meet all the associated challenges posed by climate change. The main objective of the Agreement is to limit the global

temperature increase to well below 2 degrees Celsius, while pursuing efforts to limit the increase to 1.5 degrees. South Africa is a signatory to the Paris Agreement and has an obligation to limit temperature increases to 1.5°C, above pre-industrial levels.

We have customised the above global documents to suit the prevailing conditions in Durban and their key outcomes informed the development of our Spatial Development Framework. For example, the Spatial Development Framework contains strategic responses to climate change, including the Durban Climate Change Strategy, which is part of the Municipal Climate Protection Programme. This programme defines a city-wide approach to adapting to climate change and mitigating Durban's contribution to climate change. It covers 10 themes: water; sea level rise; biodiversity; food security; transport; energy; waste and pollution; health; and economic development as well as recognizing knowledge generation and understanding as cross-cutting fields.

The vision of the Durban Climate Change Strategy is: "To transform Durban's governance, social, development and economic systems in order to effectively respond to climate change". It guides the implementation of climate related work done within the Municipality, its governance framework and the subsequent development of implementation plans, supported through the C40 2020 Climate Action Planning Programme. It enables better co-ordination between municipal sectors and structures helping to build a climate smart city.

## 2. Governance structure that responds to Climate Change within eThekweni Municipality

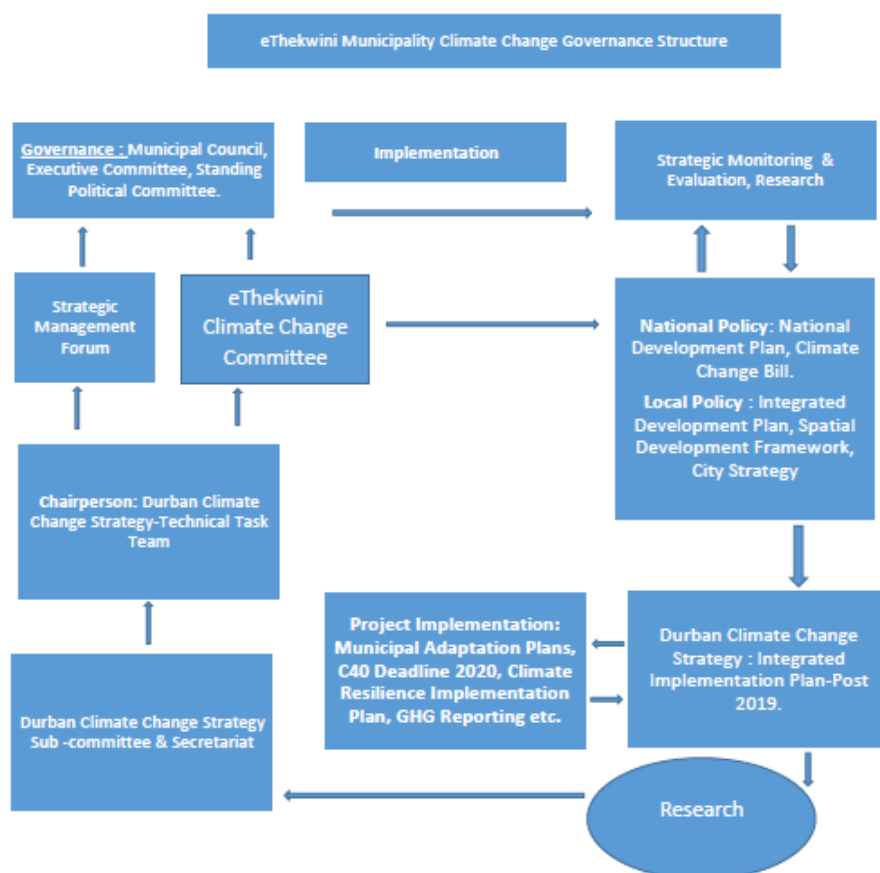


Figure 3: An image of the eThekweni Municipality Governance Structure that deals with Climate Change

### **Governance of local climate action**

As outlined in figure 3 above, the eThekweni Municipality Climate Change Governance is led by Her Worship the Mayor of the City of Durban, and she is the C40 Vice Chairperson for Africa. The Mayor has delegated the responsibility of climate change political oversight role to the eThekweni Municipality Climate Change Committee. The Strategic Management Forum plays the administrative oversight role on the Durban Climate Change Strategy implementation. The Durban Climate Change Strategy Technical Task Team comprises of Heads of Departments and fulfils a coordination and implementation of the Durban Climate Change Strategy between line functions and reports to the eThekweni Municipality Climate Change Committee. The Task Team is supported by the Sub Committee which comprise largely of Senior Managers from different line functions, the Sub Committee also oversees the implementation of various climate change projects working with network partners such as C40 Climate Change Leadership Group, Cities Fit for Climate Change, as well as other projects with their respective steering committees.

There are intentions to review the Durban Climate Change Strategy in 2020 which will be informed by the Monitoring and Evaluation Framework to be completed by mid-2019. This governance structure is supported by officials who serve on a number of climate change networks or partnerships. The knowledge derived from all climate change work streams is fed into the Governance Structure with the intended outcome being integrated and effective climate change response by the eThekweni Municipality. The concept of Network Density becomes applicable if this structure is viewed as a Network Map. Density refers to the number of interconnections between members in the network map. Effectiveness is increased by density, because the more the interconnections there are, the better the communication of new ideas between network members. Everybody is talking to each other, and nobody with potentially useful information is isolated.

### ***3. Cities as actors of sustainable development***

Our plans have also been influenced by the participation of the Municipality in international partnerships and learning exchanges. These events have informed our spatial planning response to climate change and mitigation. The following section describes one such partnership we have entered to mainstream our climate change response work.

#### **3.1 Global Project Cities Fit for Climate Change Project:**

The global project 'Cities Fit for Climate Change' implemented by GIZ on behalf of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) cooperates with various international partners, in Germany, and with its three partner cities. The partner cities, Santiago (Chile), Chennai (India), and Durban (South Africa) were selected in agreement with the relevant national ministries and authorities. The decisive selection factors were the commitment of the mayors and city councils, and the cities' level of climate change vulnerability. Each city determines their project priorities, which might be, for example, the climate-proofing instruments, strategies, regulations, the implementation of participatory city development strategies, or the development of financing options for realising available climate protection and adaptation concepts. Each partner cities exchanges knowledge with each other and with other cities within the framework of the exchange workshops.



*Figure 4: A global map illustrating the location of Cities Fit for Climate Change Partner Cities*

Cities Fit for Climate Change aims to strengthen cities as actors of sustainable development, and to assist cities in the development of integrated, resilient, and low carbon instruments for sustainable urban development. The development of these instruments will facilitate a Climate Proof Urban Development Model, which promotes a new urban design vision. With this model, the project supports innovative approaches for urban planning and makes cities “fit for climate change”. A fundamental question is how can cities, as drivers and victims of climate change, cope with the risks and become custodians of a livable climate? This project is focused on finding answers to this question. Because there are no universally applicable solutions, existing concepts for resilient low carbon urban development are being analysed and compiled in a sourcebook. Selected cities develop case-specific, climate-friendly, locally adapted strategies which are derived from this knowledge base. This work was guided by the 'Leipzig Charter on Sustainable European Cities' and the BMUB Memorandum 'Urban Energies-Urban Challenges'.

It is the intent of the program to share the collected knowledge at international conferences, such as the International Society of City and Regional Planners (ISOCARP) Congress, and to support the United Nations Framework Convention on Climate Change process. The Program also contributes to the implementation of the 'New Urban Agenda', the international agreement of the Habitat III process.

### **3.2 International Learning Exchange Workshop of the Cities Fit for Climate Change project in partnership with Connective Cities. Durban, South Africa, February 2017.**

Three ‘inter-connected’ workshops were planned in each of the participating partner cities. At each workshop new elements of climate-sensitive urban planning would be incrementally developed into a new urban development model that draw on real city-level case studies. The first was held in Durban in February 2017. It hosted urban practitioners from the partner cities together with representatives from the German cities of Hagen, Nuremberg and Stuttgart, the Swedish City of Malmö, the South African Local Government Association (SALGA) and members from GIZ SA (Climate Support Program).





Figure 5: An image of the City of Durban.  
Source: Letebele, K.E. (2018) Photographic Image.

These exchange sessions were intended to enable and facilitate peer-to-peer knowledge sharing, support and collaboration, the joint generation of new knowledge, and the promotion of innovation with regards to the planning of low-carbon and resilient urban development. The workshop discussions were centred on analysis tools, city development strategies, planning approaches, implementation frameworks etc. revised to reflect climate change considerations with the resultant outcome - to make cities low-carbon and resilient to the impacts of climate change.

The workshop objectives were:

- To establish the status quo regarding the integration of climate change issues in urban development instruments and strategies of the partner cities;
- To learn from existing practices and innovations in climate sensitive urban development;
- To identify synergies between the existing urban development instruments and strategies;
- To develop a roadmap for the workshop series with the intermediate steps needed for conceptualizing a new climate-sensitive urban development model.

To generate workable solutions for the next workshop, the primary aim of the Durban workshop was to discuss lessons from successful efforts that can be replicated on the various projects and programmes presented by the participating cities. A key outcome of the Durban workshop was the realization that for climate change adaptation and mitigation strategies to gain traction in cities, they need to be main-streamed into urban planning development and not viewed as a separate discipline or add-on.

After the Durban workshop, the eThekweni Municipality developed a meaningful implementation plan for the Durban Climate Change Strategy, which mainstreams climate

adaptation and climate resilience into the planning processes, such as the Spatial Development Framework and lower order spatial plans. The Climate Resilience Implementation Plan is an outcome of the Cities Fit for Climate Change (CFCC), a global programme implemented by GIZ on behalf of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) of the Federal Republic of Germany.

In general, our implementation plan aims to assist in the development of integrated, resilient, and low carbon instruments for sustainable urban development. The development of these instruments will promote a new urban design vision, which supports innovative approaches for urban planning and makes cities “fit for climate change”. Furthermore, our approach ensures that the implementation of the Climate Resilience Implementation Plan is undertaken through agreed municipal procedures and integrated into relevant municipal planning and decision-making processes.

The integration of the Climate Resilience Implementation Plan outcomes will feed into the Non-Motorized Transportation and active mobility strategy for eThekweni amongst others. Efforts are underway to lobby support from all municipal departments to prioritize and incorporate climate change responses into their mid-term budget review in line with their respective mandates. This stems from the fact that the Spatial Development Framework is a multi-sectoral plan, and therefore when each sector implements an action linked to climate change then the outcome of the Climate Resilience Implementation Plan will be seen through to implementation as part of that process.

We also recognized that we need to think globally, but act local, to take meaningful steps towards climate change mitigation and adaptation. Furthermore, we learned that cities should not work in isolation of each other, their nation-states, or the global community. We recognized that solutions for climate changes need to address a multiplicity of issues for a city and cannot merely be about climate change protection and or mitigation alone.

### **3.3 International Dialogue Forum on Climate-Proof Urban Development, Santiago De Chile, September 2017.**

The International Dialogue on Climate Proof Urban Development was held to map trajectories for a climate-friendly future. This dialogue forum involved the participants from seven different cities, including the three partner cities and four German cities (Leipzig, Nuremburg, Frankfurt and Munich). The German cities were invited to share information regarding their work on climate-proof urban development and to learn from the Cities Fit for Climate Change partner cities.

The main objectives of the Santiago Cities Fit for Climate Change dialogue forum were to:

- Generate networking opportunities between Cities Fit for Climate Change partner cities; and,
- Learn about and exchange information regarding municipal practices and climate-proof urban development experiences from the participating cities.



Figure 6: An image of Santiago de Chile.

Source: <https://www.gettyimages.com/photos/santiago---Chile>.

The Santiago International Dialogue on Climate Proof Urban Development concentrated on how to change institutional patterns to achieve enhanced integrated urban development. A cross cutting theme of the workshop was “The Governance of Local Climate Action and How to Foster Multi-Stakeholder Collaboration”. It was at this International Dialogue session that emphasis was placed on the definition of Climate-Proof Urban Development as follows:

‘In connection with spatial planning and spatial development, climate proofing includes methods, instruments and procedures that ensure that plans, programmes and strategies, as well as the associated investments towards the current and future impacts of climate change will be more resilient and adaptable, and that they also aim for the corresponding plans, programmes and strategies to take into account the aim of climate change mitigation’ (Birkmann and Fleischhauer, 2009).

The above definition points out that to achieve a climate proof urban development a collective action from all stakeholders responsible for urban development is required. Two site visits in the city of Santiago were undertaken to showcase urban development projects and the climate considerations that come with them. The real-life examples, Bajos de Mena, in the municipality of Puente Alto, and Ciudad Parque Bicentenario, in the municipality of Cerrillos, were discussed to illustrate the challenges and opportunities of climate-proofing urban development in district neighbourhoods or infrastructure projects. Both projects were selected to represent examples of national policy implementation in urban development, as well as to stimulate conversation regarding the challenge of integrating climate change related elements into such projects.

### **Bajos de Mena**

Bajos de Mena is a historically neglected area, 20 kms away from Santiago with more than 120,000 inhabitants. It was built to provide social housing, but without territorial planning. Bajos de Mena is a social housing condominium area located in the southern periphery of the city of Santiago. It is a neighbourhood of high complexities with the following characteristics: "precarious condition of habitability with serious problems of violence and



insecurity; lack of infrastructure and public - private services; and, above all, deteriorated relationships with authority and feeling of abandonment by the State”.

One of the primary challenges was to incorporate climate change adaptation into the new plan by generating pilot development projects which include renewable energy and water efficiency among other actions. The plan was to evaluate the impacts of these interventions and to determine the feasibility of scaling up such approaches. The plan is led by the Regional Government of the Metropolitan Region of Santiago, in direct coordination with various public and private services.



Figure 7: An image illustrating the built form in Bajos De Mena  
Source: Letebele, K.E. (2017) Photographic Image.

The Second Chance Plan for this area was incorporated into the Bajos de Mena Integral Plan, under the direction of the Integral Plans Unit of the Metropolitan Intendencia. It proposed housing and neighborhood improvements, more transport infrastructure, services, green areas, and new security prevention plans. It also seeks to provide the area with services (banks, supermarkets, police, public, services, etc.), improved housing quality (isolation, bigger spaces), connectivity, and public areas focused on sustainability in terms of living standards, both in social and environmental terms. The project highlights the co-benefits and synergies between the various social and climate related challenges, by incorporating adaptation initiatives that respond to both social and climate problems identified by the local community, such as flooding in certain areas of the various neighbourhoods. However, there is still work to be done in terms of transportation and connectivity, as well as energy efficiency and supply.

The experience generated by the project points towards a recommendation to clearly understand the pertinent climate change risks prior to any urban intervention, by performing a vulnerability and risk assessment. This allows for climate change related challenges to be integrated from the beginning of the project, instead of having to integrate such considerations after the development phase has begun.

## Ciudad Parque Bicentenario

Ciudad Parque Bicentenario (CBT), also known as the Bicentennial Park of Cerrillos, is an urban-real estate project located in the commune of Cerrillos within the metropolitan area of the city of Santiago, Chile. The project was designed to commemorate the Bicentennial of the Country in 2010. CPB is an integral urban project led by the Ministry of Housing and Urban Development (MINVU). The project program consists of the reconversion of 250 hectares of the former Los Cerrillos Airport into: a 50 ha park; a proposed development of about 16,500 homes to be developed over the next 20 years; the development of Sports Village for the Pan-American Games to be held in Santiago on February 2023; the development of homes to be transferred to the Chilean Air Force; and, apartments for the institution's members. Due to its size and location, the CPB provides an opportunity for implementation of public policies that promote the improvement of the quality of life of its inhabitants and the environment.



Figure 8: Plan City Bicentenario Plan

This project attempts to consolidate a new form of city, which enhances the role of the state in guiding urban development with an emphasis on building socially integrated, environmentally sustainable neighbourhoods, fully equipped with quality public spaces and a very good standard of green open spaces. Emphasis was given to initiatives such as water collection in the lagoon, the integration of urban gardens and organic waste management into the courtyards, climate modelling of the structures and their orientation, and connections with surrounding neighbourhoods.

As a demonstration project for Santiago, this project seeks to set a benchmark for Chile and the Latin American countries in terms of three primary pillars: sustainability and a response to climate change; urban design; and, social integration. It is perceived as an urban laboratory where new urban policies are and will be tested. A mixed-use approach will be employed to assimilate changes that are happening in Santiago into this project. It will be developed by both public and private entities. It is interesting to note that the incorporation of climate change considerations into the project was an outcome of the practitioners from Santiago participating in the Cities Fit for Climate Change.



Figure 9: An image depicting the public open space within Ciudad Parque Bicentenario  
Source: Letebele, K.E. (2017) Photographic Image.

A key finding that emerged from Santiago was that Climate change is not an environmental issue, it is about politics, planning and it is a transversal phenomenon. It was also emphasized that it is important to convince political leadership to address Climate Change issues beyond their political term of office to ensure that new leaders assume their predecessor's role and continue advocating for Climate sensitive spatial planning.

### **3.4 International Dialogue Forum -Chennai, India**

The Dialogue Forum in India, Chennai will be held in August 2018. This the third in the series of comprehensive workshops and will build on the outcomes of the previous Dialogue Forums. The third Dialogue Forum will focus on the process that spans from Policy to Action. After having intensively looked at urban development approaches and concepts, urban stakeholders and actors; the idea is to jointly sketch out the path that leads from theory into practice. The focus of the Dialogue will be the Rehabilitation of the Buckingham Canal in Chennai. This process has been generating various social conflicts, related to high levels of pollution as well as periodic floods. The restoration is planned for 3 km of the canal in the southeast sector of the city, and consists of cleaning the river, fencing it off, constructing tracks for running and protecting dikes and other activities. Following the implementation of this project, the restored area could be used as a model for the rest of the canal.

### **Concluding remarks**

The following important lessons were derived from our participation in the Cities Fit for Climate Change program: how to conceptualise and frame climate change responses; how national and city-level policies can support cities in dealing with the impacts of climate change; how valuable the contributions of civil society can be, working in partnership with government; the value of hard science and building scenarios; and, what institutional arrangement within cities and across government are helpful in promoting climate change resilience at the local level.

A strong coherent and coordinated future vision that is owned, not only by city officials and politicians, but by the residents, will assist in embedding climate change adaptation and

mitigation measures into local level planning and hold leaders accountable. A common vision can pull together communities, departments within a city and the various government agencies that operate at the local level and galvanise these actors into action.

The climate-proof urban development approach represents an important framework for how to pursue climate change adaptation and mitigation in the context of urban planning. Based on the experiences of the participating German cities, many interesting ideas, urban development processes and lessons learned were identified as being of great use for the cities involved Climate Change projects, as well as for other cities experiencing similar difficulties regarding climate-proofing urban development.



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