



**Title: Durban Climate Change Strategy**  
**Health Theme Report: Draft for Public Comment**

**Date: 6 December 2013**

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## **Acknowledgements**

The Durban Climate Change Strategy (DCCS) project is funded and lead by the Environmental Planning and Climate Protection Department (EPCPD) and the Energy Office (EO) of eThekweni Municipality.

The EPCPD and EO have commissioned Urban Earth in association with FutureWorks! to assist in the implementation of the project.

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# Introduction

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The Environmental Planning and Climate Protection Department (EPCPD) and the Energy Office (EO) of eThekweni Municipality have commissioned Urban Earth, in association with FutureWorks!, to develop a city-wide climate change adaptation and mitigation strategy for Durban<sup>1</sup> through an inclusive and participatory process entitled the Durban Climate Change Strategy (DCCS).

During the initial consultation phases of the project seven key themes were identified for the strategy:

1. Biodiversity
2. Health
3. Food Security
4. Water
5. Sustainable Energy
6. Transport
7. Waste and Pollution

Separate public workshops were hosted for each theme to secure stakeholder input on the aims and strategies for each of the themes which will form the basis for the final content of the Durban Climate Change Strategy. In addition seven technical experts were procured by EPCPD and EO to provide expert technical advice on each of themes.

Section one and two of this report provides a summary of the health and climate change context for Durban based on an introductory technical report from technical expert Mamopeli Matoane of the Council for Scientific and Industrial Research (CSIR). The introductory technical report is available for download on the [DCCS website](#). Sections three and four, which outline a vision, aim and strategies for the health theme, are based on both the input provided by stakeholders at the health theme working group meeting held on 12 November 2013 and recommendations by technical expert Mamopeli Matoane. The minutes of the working group meeting can be found in Appendix One of this document.

Interested stakeholders are invited to submit [online comments](#) on the report. Comments will be presented at a follow up health theme meeting for stakeholders that will be held in 2014. Following that meeting, amendments will be made to the theme report. The health theme report will then be combined with the reports from other themes to form a draft climate change strategy document that will also be distributed for comment.

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<sup>1</sup>Including the eThekweni Municipal Area.

## Section One: Current Status of Health

### Climate change impacts on health

Climate change is a major public health issue (Samet, 2009). Potential climate change impacts such as extreme weather events, droughts, sea level rise, water shortages, poor air quality and food shortages (Samet, 2009; Kjellstrom, 2009; Vörösmarty, McIntyre, Gessener, et al., 2010) are anticipated to increase the burden of disease, which includes, but is not limited to mental health, cardiorespiratory ailments, infectious diseases, malnutrition, and injuries (Campbell-Lendrum, Corvalan, & Neira, 2007; WHO, 2008; Nerlander, 2009; Berry, Bowen and Kjellstrom, 2010; McMichael & Dear, 2010). It is projected that the impacts will be particularly severe in the developing world and among the most vulnerable sub-population groups such as young children, the elderly, those with pre-existing diseases, and those of poor socio-economic background (Ebi, Kovats & Menne, 2006; WHO, 2008; Kjellstrom, 2009; Bell, 2013). The situation underscores the importance of developing appropriate and proactive adaptation strategies to protect the health of eThekweni Municipality residents from the impacts of climate change (Nerlander, 2009; Naidoo, 2012; Bell 2013).

### Climate change in eThekweni Municipality

Table 1 below highlights the potential impacts of climate change based on climate change projections for eThekweni Municipality (based on downscaled Global Climate Models data from the school of Bioresources Engineering and Environmental Hydrology, University of KwaZulu-Natal). For more information on the impacts of climate change for Durban, the report entitled "[Climatic Future for Durban](#)" can be downloaded from the DCCS website.

Table 1: Potential Climate Change Impacts in eThekweni Municipality

Parameter	Climate Change Impacts	Possible Environmental Impacts	Possible Health Impacts
Temperature	Mean annual temperature increase of 1.5-2.5°C in 2045-2065; and 4 – 5°C in 2081-2100	Alteration of disease transmission cycles Severe and extreme weather - oppressive weather conditions	Heat stress Respiratory diseases Cardiovascular diseases Diabetes
Heat waves	30% increase in heat-waves (defined as 3 or more consecutive days with max temp >30°C), and 50% increase in heat waves (defined as 3 or more consecutive days with max temp >35 °C).	Loss of habitat Displacement of people Droughts; water shortages Poor air quality	Mental problems Infectious diseases Socio-cultural impacts
Rainfall/ floods	A 30-100% increase in mean annual rainfall, characterised by short episodes of heavy rainfall; a double increase in flooding	Storm water, sewerage and water treatment systems damage; property damage; poor water quality, soil erosion, landslides; poor agricultural yields	Infectious diseases Hunger and Malnutrition; Injuries Displacement Loss of sense of place Water-related diseases
Storms			
Sea level rise (SLR)	Between 1997 and 2003 SLR increased by 2.7 ± 0.05 mm/yr; SLR expected to	Beach erosion landslides Poor agricultural yields Loss of biodiversity	

Parameter	Climate Change Impacts	Possible Environmental Impacts	Possible Health Impacts
	increase by 0.5-1.0 m by 2100;	Decline in tourism	
Droughts	No change is projected	Poor agricultural yields; Food insecurity and Household hunger Water shortages, water contamination	

(Adapted from: Hounsoume and Iyer, 2006; Mather, 2007; Mather & Stretch, 2012; Knoesen, Schulze, Pringle, Summerton et al., 2009; Schulze, Knoesen, Kunz, & van Niekerk, 2010; Constable, & Cartwright, 2009).

## **Status quo of health in Durban**

This section provides an overview of Durban’s socio-demographics, living conditions, health services and the burden of disease highlighting diseases that may be impacted by climate change.

### ***Socio-Demographics***

Durban, one of the eight Metropolitan cities of South Africa, is situated in the eThekweni Municipality in the KwaZulu-Natal (KZN) Province along the east coast of the sub-continent. eThekweni Municipality is home to approximately 3.4 million people (StatsSA, 2011), comprising largely people of African descent, followed by people of Asian/Indian (16.7%), White (6.6%), Coloured (2.5%), and other (0.4%) descent (eThekweni Municipality, 2013). The age distribution within the Municipality is biased towards the 0-14 year (25.2%) age group, while the elderly (>65 year) account for 4.8% of the total population (eThekweni Municipality, 2011). There are more females (51.2%) than males (48.8%) in the Municipality. A large proportion of the adult population (20+years), have matric (37.1%) and tertiary qualifications (12.3%), while 4.2% have no schooling at all. The unemployment rate is 30.2%, and largely affects the youth (39.0%) (StatsSA, 2011).

### ***Living Conditions***

Of the 956,713 households within the eThekweni Municipal Area, which have an average household size of 3.4 persons, 40% are headed by women and 17.1% have no income at all (StatsSA, 2011). Most of the households live in formal dwellings (79.0%), of which 54.5% are owned or paid off, use electricity for cooking (86%), and have piped water inside the dwelling (60.2%), flush toilets connected to the Municipal sewerage system (63.4%), and access to weekly municipal refuse removal services (86.1%). While there is good coverage of basic services, some households still use paraffin (11%) and wood (2%) for cooking, and have no sanitation services (2%), while 17% obtain water from street taps (StatsSA, 2011). The Quality of Life surveys conducted by eThekweni Municipality indicate that Durban residents are generally satisfied with their health and access to services although there is room for improvement in areas such as housing, job creation and unemployment, inequality, and safety and security (eThekweni Municipality, 2011).

### ***Health Services***

The Municipal health services which are aimed at treating and preventing diseases and promoting public health are provided through four units, namely, communicable diseases, environmental health services, social health services, and clinical services. With 16 private hospitals, 8 specialised hospitals, 1 central hospital, 116 primary health care clinics, 8 health centres and emergency facilities, 66% of Durban's residents are within 5 km of health facilities (eThekweni Municipality, 2013). Approximately 80% of Durban's population rely on public health facilities, which may in part be driven by affordability, as less than 20% of the population has medical aid coverage (eThekweni Municipality, 2013). According to 2009 estimates, the primary health care facilities serviced approximately 8.7 million people (eThekweni Municipality, 2013). Durban is, however faced with staff shortages at most health facilities, which affects the quality of care, and leads to poor data management practices, poor policy guidelines, a lack of integration and communication among programs and facilities, poor infrastructure, shortage of equipment and supplies and inadequate social mobilization for effective primary prevention of diseases (Health Systems Trust, 2009).

### ***Burden of Disease***

Health impacts of climate change in Durban are not clearly understood owing to a lack of data. It is, however important to note that climate change will exacerbate the existing burden of disease, as many health outcomes are sensitive to climatic factors.

### ***Mortality***

The Burden of disease data (mortality) for Durban indicates that there were 32,011 deaths registered in Durban in 2010 (StatsSA, 2013). The main four leading natural causes of death in the Municipality were infectious and parasitic diseases (8,309 deaths), circulatory system diseases (5,494 deaths), other natural causes (5,139 deaths), and respiratory diseases (2,760 deaths). The three main leading natural causes of deaths specific to children (0-14 years) were intestinal infectious diseases (16.7%), influenza and pneumonia (9.4%), and respiratory and cardiovascular disorders specific to the perinatal period (9.2%). For the >65 year age group the three leading natural causes of death were cerebrovascular disease (12.2%), other forms of heart diseases (10.6%), and diabetes (10.2%) (StatsSA, 2013). Non-natural causes of death (e.g. accidents) resulted in 3,274 deaths in 2010 in Durban (StatsSA, 2013).

### ***Mother and Child Health***

According to 2009 estimates, malnutrition, which is a predisposition factor to infectious diseases, affects 2% of children under-five years of age in Durban (eThekweni Municipality, 2013). Recent media and official reports indicate that Durban is prone to diarrhoeal and measles outbreaks that mainly affect young children (Chirwa, 2013; eThekweni Municipality, 2013).

### ***Vector-borne diseases***

The eThekweni Municipality reported 295 Rabies positive dog bites which resulted in three human deaths in 2009 (eThekweni Municipality, 2013). Malaria is also of concern as a climate related disease.

### ***Chronic diseases***

Chronic diseases such as diabetes and hypertension are an issue of increasing concern for the Durban as 29 604 diabetes cases and 26 514 hypertension newly diagnosed cases were put on treatment in 2009 (eThekweni Municipality, 2013).

### ***HIV***

The prevalence of HIV in KZN in the 15-45 year age group is estimated to be around 25%; this is much higher than the national average (18%) (eThekweni Municipality, 2013).

## **Section Two: Key Climate Change Challenges for Health Theme in Durban**

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Given the many and varied potential health impacts of climate change for Durban (Table 1), it is reasonable to assume that health services including emergency rooms, hospitals, mortuaries and crematoria will be severely impacted by increased demand and lack of coping resources. The impact of climate change on these services will be over and above the usual health impacts that may result from with inadequate or compromised water and sanitation, waste management, housing, transportation, safety and security, and occupational health services within the eThekweni Municipal Area. The key challenge for the eThekweni Municipality is to build resilience and plan for recovery of both the Municipality and its communities, particularly the most vulnerable groups. The main key challenges associated with mitigating health impacts from climate change highlighted below are based on various reports for the eThekweni Municipality and these are:

### ***Health Services***

- Development/implementation/improvement of effective and efficient health and environment surveillance and an early warning system for climate sensitive diseases.
- Capacity building to better equip and adequately train emergency, general health and support personnel to anticipate, identify and handle climate-related cases/diseases
- Building climate-proof /resilient health facilities that are adequately equipped to cope with added case load during emergencies/disasters
- Building and securing climate resilient health support infrastructure (e.g. cool houses, electronic health systems, etc.)
- Cooperation and information-sharing between private and public health care facilities, eThekweni Municipality health, other Municipal units and government agencies in climate-related health emergencies/disaster situations
- Secure water and energy sources and distribution systems and plan for possible water and energy shortages under a changing climate.
- Maintenance and/or improvement of drinking, recreational and surface water quality to acceptable physical, biological and chemical standards.
- Education and awareness

### ***Research and Development***

Development of an integrated climate and health research agenda for eThekweni Municipality, focusing on identifying and profiling the risk and needs of the most vulnerable

population groups; determination and quantification of the types, nature, magnitude and distribution of current and potential climate change health impacts; and development of appropriate and efficient data capturing systems in eThekweni Municipality.

### ***Policy and Governance***

Address policy and governance issues including lack of or poor policy implementation, lack of coordination, poor citizen participation, and funding and costs in the context of competing priorities.

### ***Developmental Challenges***

Address poor economic growth, high levels of poverty, and unemployment, as well as high levels of crime and food security issues.

## **Section Three: Vision and aims for Health and Climate Change Strategy**

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The following preliminary vision and aims are proposed for the health and climate change component of the DCCS:

*Vision: The Health Theme of the Durban Climate Change Strategy promotes proactive actions that enable the prevention of diseases, and protection and promotion of public health and safety in the face of a changing climate; robust stakeholder engagement in building a resilient Municipality and the capacity to prepare for and recover from climate change impacts; and actions that enhance our natural resources and the environment as well as promotion of an equitable and prosperous society.*

The proposed aims to achieve this vision are:

1. Promote healthy and resilient communities, populations, and living environments by reducing health, environmental, and socio-economic inequalities, and improving the preparedness for unavoidable climate change impacts.
2. Ensure protection of the most vulnerable sub-population groups or communities from the impacts of climate change.
3. Encourage an active and empowered citizenry in dealing with climate change by promoting public awareness and understanding of climate change impacts on human health, the need to prepare for these changes (unavoidable climate change), and the importance of adopting prevention/mitigation measures that will help slow down, reduce or reverse climate change.
4. Promote actions that maximise health co-benefits and minimise unintended consequences.
5. Provide adequate resources to support comprehensive climate mitigation and adaptation strategies across sectors that have the greatest impact of reducing climate change impacts on human health and well-being in eThekweni Municipality.

6. Identify and promote local research and data gathering that will inform the continual refinement of objectives and strategies to minimise the impacts of climate change on human health.
7. Strengthen emergency management services to better handle emergency and disaster situations.

## Section Four: Health strategies to achieve the aims

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The strategies highlighted below were developed based on stakeholder input from the Health Theme Stakeholder’s workshop and recommendations by Technical Health Experts. For further background reading on health and climate change in Durban see the technical introductory report available on the [DCCS website](#).

Aims	Objectives	Proposed Strategies
Promote healthy and resilient communities, populations, and living environments by reducing health, environmental, and socio-economic inequalities, and improving the preparedness for unavoidable climate change impacts.	Identifying vulnerable communities and building resilience	<ul style="list-style-type: none"> <li>• Conduct community mapping to identify places occupied by sub-populations groups/communities considered vulnerable to urban heat island effect, floods, air pollution and other climate-related events.</li> <li>• Improve the safety, and water and energy efficiency of such communities and places.</li> <li>• Modify structures (e.g. houses) and landscape to accommodate the needs of the vulnerable, e.g. disabled/old persons (e.g. improve access/mobility for disabled persons; provide alarms, shade, regular health checks, etc.)</li> <li>• Improve safe roads to schools and social places.</li> <li>• School health programs to include climate change and health; improved nutrition, health and safety of children in and around school.</li> <li>• Encourage communities to be self-reliant – For example the resilience of local communities is improved as people grow their own food.</li> <li>• Vulnerable communities are empowered through awareness generation on climate change and health impacts.</li> </ul>
	Durban’s residents have healthy and safe living and working environments	<ul style="list-style-type: none"> <li>• New community developments are designed, and existing developments retrofitted, to take into account the projected changes in climate.</li> <li>• More indigenous trees are planted to provide shade and cool down the city; communities should be encouraged to plant trees where they live.</li> <li>• Low income settlements (e.g. settlements with RDP houses) are designed to allow for better air circulation.</li> <li>• Access roads to existing low income settlements should be improved.</li> <li>• Transport nodes are sheltered to accommodate street sellers, passengers and taxis; developments are planned with emergency</li> </ul>

		<p>evacuation routes in mind;</p> <ul style="list-style-type: none"> <li>• Water/cooling fountains are placed throughout the City.</li> <li>• Public spaces are cordoned off during episodes of climate/weather events that pose imminent threat to human health (e.g. beach closure during heat wave to avoid sun burn, sunstroke or stampede).</li> <li>• National air, water and soil quality standards are enforced and maintained to reduce pollution and environmental exposures, thereby ensuring the protection of eThekweni Municipality communities from health hazards.</li> </ul>
Ensure protection of the most vulnerable sub-population groups or communities.	Identify and prioritise and provide resources for persons or group of persons that cannot take care of themselves	<ul style="list-style-type: none"> <li>• Profile the most vulnerable (i.e. those who cannot take care of themselves) sub-population groups.</li> <li>• Provide a support network for the aged, persons living with disability and any other sub-population group that may require extra care and assistance during emergency situations.</li> <li>• Provide safe places for persons requiring assistance during emergency situations</li> <li>• Stock requirements (e.g. medications, transportation, etc.) for the most vulnerable should be identified and planned for.</li> </ul>
Encourage an active and empowered citizenry in dealing with climate change by promoting public awareness and understanding of climate change impacts on human health, the need to prepare for these changes (unavoidable climate change), and the importance of adopting prevention/mitigation measures that will help slow down, reduce or reverse climate change.	Durban's residents and organisations understand the health impacts of climate change and are equipped to respond to these impacts	<ul style="list-style-type: none"> <li>• The eThekweni Municipality's Health Department understands the impacts of climate change on health and is equipped to serve as the driving force behind adaptation responses.</li> <li>• Develop an early warning system with public health advice</li> <li>• Education and awareness programs on climate change and health impacts (mental, social and physical) are developed and implemented. These should become an integral part of the normal health education and communication activities.</li> <li>• Education and awareness programs on how to live a healthy lifestyle are implemented. This includes the promotion of healthy food, exercise, and organic permaculture farming; subsistence farming.</li> <li>• Residents are educated on how to cope with changing climatic conditions, such as heat waves and floods. Strategies include staying out of the sun and drinking lots of fluids in hot conditions, making sure that the people who need assistance (e.g. elderly, young children and the disabled) are safe.</li> <li>• Vulnerable groups should have targeted climate and health messages e.g. construction workers/farm workers/ runners.</li> <li>• The appropriate manner of communication of</li> </ul>

		<p>climate and health information, particularly for mass communication, should be devised for the City. For example, electronic and print media could be used to promote climate and health messages at sport events (e.g. snippets/video clips during half time at stadia), cinemas, schools, and through social media platforms.</p> <ul style="list-style-type: none"> <li>• Communication language should be appropriate have the right tone, content and be succinct. Climate change and health messaging should include health co-benefits of mitigation activities and preparedness.</li> <li>• Community participation in decision making should be encouraged,</li> </ul>
Promote actions that maximise health co-benefits and minimise unintended consequences.	Identify and prioritise adaptation and support mitigation strategies that have the greatest impact in reducing health impacts of climate change	<ul style="list-style-type: none"> <li>• Mainstream climate change health considerations into sectoral-plans that address climate change – use the health in all policies approach.</li> <li>• Evaluate the impacts on health of other sectoral adaptation plans and proposed mitigation strategies in eThekweni Municipality (i.e. perform health impact assessment/risk assessment of sectoral adaptation plans and strategies )</li> </ul>
	Durban’s GHG emissions are minimised reducing the impact of climate change on human health	<ul style="list-style-type: none"> <li>• Trees are planted for carbon sequestration.</li> <li>• Legislation and regulations are put in place to penalise large emitters.</li> <li>• Businesses and residential users are encouraged to convert to more energy efficient forms of production.</li> <li>• Lessons/experiences of other international cities in mitigating climate change and health impacts should be explored and drawn upon to enhance Durban’s efforts in dealing with climate change.</li> </ul>
Provide adequate resources to support comprehensive climate mitigation and adaptation strategies across sectors that have the greatest impact of reducing climate change impacts on human health and well-being in eThekweni Municipality.	Identify resources (local, national and regional. / international) that can be used to support climate change adaptation plans in eThekweni Municipality	<ul style="list-style-type: none"> <li>• Develop/enhance an interdepartmental task force/team for health adaptation</li> <li>• Provide a dedicated budget for climate change health adaptation activities in the Municipality.</li> <li>• Ensure that staff are adequately trained to deal with climate change and health impacts in the Municipality.</li> <li>• Ensure that proposed health adaptation strategies are aligned with key policy and strategic objectives of eThekweni Municipality.</li> <li>• Seek support (financial and technical) for proposed health adaptation strategies for eThekweni Municipality.</li> </ul>
Identify and promote local research and data	The impacts of climate change	<ul style="list-style-type: none"> <li>• Research is conducted into understanding the link between climate change and health impacts</li> </ul>

gathering that will inform the continual refinement of objectives and strategies to minimise the impacts of climate change on human health.	on human health in Durban are understood.	<p>in Durban.</p> <ul style="list-style-type: none"> <li>• Vulnerability of Durban’s communities should be evaluated with a view of informing community specific adaptation strategies.</li> <li>• Ways in climate change and health communication could be improved to have optimal impact should be explored.</li> </ul>
	Surveillance and Monitoring	<ul style="list-style-type: none"> <li>• Surveillance systems need to be introduced and/or enhanced to monitor changes in climate and climate-related diseases; systems should include a weather watch system/early warning systems; surveillance for heat-related illnesses; vector-water-and-food borne illnesses.</li> <li>• Community burden of diseases data (particularly co-morbidities for climate-sensitive health outcomes) should be updated regularly.</li> <li>• Monitoring for conditions (e.g. tree cover, improved housing development, etc.) that enhance/reduce communities’ vulnerabilities/resilience should also be included.</li> <li>• Health systems for record keeping and reporting climate-related diseases need to be develop and/or improved. These should be able to provide data of good quality in a timely manner.</li> <li>• Surveillance system should be interfaced across departments and with those of private organizations to provide a holistic view of climate change and health and vulnerabilities within the City.</li> </ul>
Strengthen emergency management services to better handle emergency and disaster situations.	Improved emergency management	<ul style="list-style-type: none"> <li>• Develop community emergency plans that include use of early warning systems with associated public health advice.</li> <li>• Alternative emergency communication systems should normal/usual communication not be possible during emergencies should be developed.</li> <li>• Evacuation routes in low income community areas are clearly laid out and emergency vehicles have easy access to all houses.</li> <li>• Ensure that local health facilities are equipped to handle emergency in order to prevent or lessen referrals to tertiary health facilities.</li> <li>• Ensure adequate stockpiles of medications, medical supplies, assistive devices and other resources that may be required during emergencies.</li> </ul>

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# Appendix One: Health Theme Working Group Meeting Minutes

Minutes of meeting held on 12<sup>th</sup> November 2013.

#	Item	Action
1.	<p><b>Welcome</b></p> <p>Sean O'Donoghue introduced himself from the eThekweni Municipality's Environmental Planning and Climate Protection Department (EPCPD) and welcomed everyone to the meeting. Sean stated that the DCCS project is an initiative by eThekweni Municipality's Energy Office (EO) and the Environmental Planning and Climate Protection Department (EPCPD) and has been contracted out to Urban Earth and FutureWorks! to facilitate the development of the Strategy. Sean explained that the purpose of the Durban Climate Change Strategy (DCCS) project is to develop a Climate Change Strategy document that will provide guidance for the city as a whole, to mitigate against and adapt to climate change. Sean encouraged stakeholders to participate in the meeting as their comments will be used to identify aims and strategies for the Health theme. He then introduced Mamopeli Matookane as the Technical expert to present at this meeting.</p>	
2.	<p><b>Introductions</b></p> <p>Margaret McKenzie provided a brief overview of the process that had been followed by the project up to this point. She explained that the project had been initiated with public consultation where stakeholders were asked to provide input on what should be the key focus areas of the strategy. The results of stakeholder feedback were then presented at a Reference Group meeting. The Reference Group was made up of a group of people who volunteered from different sectors to provide guidance to the strategy development process. Following advice from the Reference Group seven key themes were identified for the strategy:</p> <ol style="list-style-type: none"> <li>1. Biodiversity</li> <li>2. Health</li> <li>3. Food Security</li> <li>4. Water</li> <li>5. Sustainable Energy</li> <li>6. Transport</li> <li>7. Waste and Pollution</li> </ol> <p>Margaret explained that the DCCS project was now in the process of hosting public working group meetings on each of the seven themes to develop aims and strategies for each of the themes. Seven technical experts have been procured by EPCPD and EO and will provide expert technical advice on each of themes. Margaret added that a second round of working group meetings will be held in the</p>	

	<p>new year where stakeholders will get an opportunity to comment on the written theme report and add additional content. She explained that the strategy document then will be adopted by council.</p> <p>Margaret stated that the Health working group meeting was the sixth of the seven theme working group meetings to be held and introduced Mamopeli Matoane as the technical expert responsible for providing advice on the Health theme.</p>	
<p><b>3.</b></p>	<p><b>Presentation</b></p> <p>Mamopeli Matoane from the CSIR presented a summary of the Introductory Report for the Health Theme and focused on the following aspects:</p> <ul style="list-style-type: none"> <li>• Overview of how climate change affects human health</li> <li>• Climate change environmental risks and health impacts</li> <li>• International public health adaption to climate change</li> <li>• Climate change health and equity</li> <li>• Co-benefits of climate change adaptations and public health</li> <li>• Policy, governance and resources</li> <li>• Climate change and health communication</li> <li>• Research</li> <li>• Vulnerability and building community resilience</li> <li>• Key principles of emergency management and planning</li> <li>• Climate change in Durban in relation to climate change and health priorities in eThekweni Municipality,</li> <li>• eThekweni key health adaptation strategies</li> <li>• Development of an umbrella Health Unit Emergency Plan</li> <li>• Inter-sectoral co-operation</li> <li>• Barriers to health adaptation in eThekweni</li> </ul> <p>The Health Presentation and Technical Report can be downloaded from the <a href="#">DCCS Website</a>.</p>	
<p><b>4.</b></p>	<p><b>Comments and Questions</b></p> <p>The floor was then opened where stakeholders were invited to ask questions. The following issues were raised by stakeholders during discussion and responses made by the technical expert and eThekweni Municipality officials.</p> <p>A question was raised on the definition of 'ozone'. A definition of ozone was provided and the ozone layer was described as a blanket protecting the earth from harmful UV rays.</p> <p>The eThekweni Municipality Health Adaptation Plan was raised and it was asked whether it was up to date and who is driving it. The eThekweni Municipality Health Adaptation Plan was developed in 2010 by the EPCPD and was one of three adaptation plans developed on three focus areas. It was stated that the plan is</p>	

	<p>being implemented in the eThekweni Municipality health department but does need an update. The eThekweni Municipality Health Adaptation Plan was directed internally whereas the DCCS is looking at the impact of climate change on health outside of the formal government structure. The DCCS has therefore required stakeholder input for the development of a health theme within the DCCS.</p> <p>This issue of whether the ozone layer is healing was raised and although reports of it healing were confirmed, it was pointed out that the ozone layer is not causing climate change and that the focus should be on GHG emissions reductions and preparing the city for changes in climate that are pending.</p> <p>The last issue raised concerned Durban's refineries and the chemicals and pollutants that are emitted, and the impact on human health. It was felt that large industries should be stopped from polluting the atmosphere.</p>	
<p>5.</p>	<p><b>Group Discussion</b></p> <p>Margaret McKenzie asked stakeholders to form groups of four people each. Groups were allowed 20 minutes for identifying strategies to address the key issues relating to Health and climate change, and five minutes to capture these strategies on key cards. The stakeholders were given flip chart sheets to record their discussions (See Appendix B) prior to noting their top three strategies on key cards.</p> <p>A representative of each group was then asked to present their group's top three strategies.</p> <p>The various strategies proposed by the groups are presented below. They have been grouped into common areas:</p> <p><b>Climate Change Awareness</b></p> <ul style="list-style-type: none"> <li>• Awareness: Media/stadiums/schools campaigns</li> </ul> <p><b>Promote good health</b></p> <ul style="list-style-type: none"> <li>• Promote good health across the board – healthy food and exercise will bring down the incidence of any disease – permaculture</li> <li>• Community <ul style="list-style-type: none"> <li>○ Restrict access to beaches and open areas on hot days</li> <li>○ Introduce more drinking fountains and misting machines</li> <li>○ Healthier foods and drinks to regulate internal heat and hydration</li> <li>○ Communication/understand/educate</li> </ul> </li> </ul> <p><b>Governance and management</b></p> <ul style="list-style-type: none"> <li>• Provide direct access to RDP houses for emergency evacuations (<i>if there is a disaster access is needed</i>)</li> <li>• Design space with RDP houses to allow free circulation of air</li> </ul>	

	<ul style="list-style-type: none"> <li>• Other <ul style="list-style-type: none"> <li>○ Laws and regulations to control and mitigate emissions</li> <li>○ Planting indigenous plants and removal of harmful alien plants</li> </ul> </li> <li>• Governance: huge gap – no Health Department – driving force</li> <li>• Governance – educate the health department about relevance of climate change to them i.e. disease incidence will increase with climate change: it is important they know about it (where are they tonight?)</li> </ul> <p><b>Biological offsets</b></p> <ul style="list-style-type: none"> <li>• Plant more trees instead of sugar cane</li> <li>• Grow more trees - bamboo <ul style="list-style-type: none"> <li>○ Shade</li> <li>○ Carbon sequestration</li> <li>○ Promotes local resilience</li> </ul> </li> </ul> <p><b>Research</b></p> <ul style="list-style-type: none"> <li>• Science – R&amp;D <ul style="list-style-type: none"> <li>○ Follow world ideas on reducing carbon footprint</li> <li>○ Reconstitute ozone layer (<i>if we can put a man on the moon we can reconstitute our ozone</i>)</li> </ul> </li> <li>• Surveillance: statistics from health facilities</li> </ul>	
6.	<p><b>Discussion</b></p> <p>Margaret opened the floor for a final round of questions and comments to allow stakeholders the opportunity to mention any areas that had not been covered in the report backs.</p> <p>It was suggested that a Memorandum of Understanding (MOU) between tertiary institutions and the eThekweni Municipality should be introduced to help create awareness on climate change issues. It was stated that a Memorandum of Understanding (MOU) between tertiary institutions and the eThekweni Municipality does already exist. The purpose of this phase in the DCCS process is to gather input from stakeholders and develop the strategy. The next step will be to implement the strategy and the MOU with tertiary institutions will help with this phase.</p> <p>Another issue raised was on the area of disaster management and how Durban will respond to natural disasters in the future.</p>	
7.	<p><b>Closure</b></p> <p>Margaret outlined the process going forward. This included the following:</p> <ul style="list-style-type: none"> <li>• A short report summarising the content provided by the groups will be prepared.</li> <li>• The technical specialist, Mamopeli Matoane will review the report and</li> </ul>	

	<p>provide comments and recommendations.</p> <ul style="list-style-type: none"> <li>• The report will then be uploaded on the website and emailed to everyone for further comment.</li> <li>• A follow-up meeting will be held early next year to present the draft strategy and to collect any comments and suggestions on the health component of the strategy.</li> </ul> <p>Mamopeli encouraged stakeholder to talk to other people to raise awareness about climate change and health related issues.</p> <p>Sean then closed the meeting, thanked everyone for their participation and ideas and thanked Mamopeli for her input.</p>	
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## Appendix B: Flip chart sheet discussion notes – Strategies

### Group 1

- Plant more trees in place of sugar cane
- Design space with RDP houses to allow free circulation of air
- Provide direct access to RDP houses for evacuations in emergencies
- Build spaces for taxis and street sellers

### Group 2

- Research, find out what other countries do that's working on reducing the carbon footprint
- The government have the power to put laws in place and force large industries and transport to adapt to the most efficient forms of production and penalise them if they do not follow the law – reward them if they do
- Heat
  - Restrict access to open spaces (beaches, parks)
  - Introduce more drinking fountains and public misting machines
  - Promote healthier foods and drinks that promote internal heat regulation and hydration
- R&D to reconstitute the ozone layer
- Communication
  - Understanding
  - Education in schools
  - Distribution of pamphlets to companies
  - Media
  - Planting more indigenous plants and removal of alien plants

### Group 3

- Promote good health i.e. healthy foods, exercise and fresh air
- Local community resilience
  - Local food growing

- Edible food forest
  - Neighbourhood watch
- Grow more trees – shade and carbon sequestration
- Education of Health department

#### **Group 4**

- Governance (administration, rules, legislation)
  - To identify industries that contribute negatively to climate change
  - The health department (driving force)
  - Stakeholders: NGO's, media
- Awareness
  - What is climate change?
  - Effects on health (physical, mental, social)
  - What's the link between the two above
  - Media/stadiums
  - Schools campaigns