



**Title: Durban Climate Change Strategy  
Biodiversity Theme Report**



**Date: 15 January 2014**



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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.

Content of this Theme report is based on the initial technical report completed by Natasha Govender (Acting Manager: Biodiversity Planning Branch, Environmental Planning and Climate Protection Department).

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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. 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.

This report outlines the initial content that has been proposed for the Biodiversity Theme based on an introductory technical report from technical expert Natasha Govender of the Environmental Planning and Climate Protection Department (EPCPD). 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 biodiversity theme, are based on both the input provided by stakeholders at the biodiversity theme working group meeting held on 3rd October 2013 and recommendations by technical expert Natasha Govender. 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 biodiversity theme meeting for stakeholders that will be held in 2014. Following that meeting, amendments will be made to the theme report. The biodiversity 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.

## Section One: Current Status of Biodiversity

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Durban is situated in one of 34 Global Biodiversity Hotspots, namely the Maputaland-Pondoland-Albany region. It is located at the centre of this region in a transitional zone

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<sup>1</sup>Defined as the eThekweni Municipal Area

between the warm tropical and cooler temperate elements. As a result of this unique biogeographical position, as well as varied geological, topographical and climatic conditions, Durban has a wide range of terrestrial and aquatic ecosystems which provide habitat for a rich diversity of organisms. This includes some 2,270 plant species, 526 bird species, 82 terrestrial mammal species, 37 amphibian species and 69 reptile species.

While the current status and distribution of many of these species is not known, there are several species, such as the Natal Brachystelma, Burrowing Skink, Black-headed Dwarf Chameleon, and Pickersgill's Reed Frog, which are known to be rare, threatened and have limited distributions. The Natal Brachystelma in particular only has two known populations both of which occur within Durban. The total population is less than 100 individuals and it appears that the species no longer reproduces successfully. It is estimated that at least 13 species of birds have gone locally extinct.

Durban contains 14 vegetation types of which four (KZN Sandstone Sourveld, North and South Coast Grasslands and Swamp Forest) are endangered or critically endangered (i.e. facing extremely high risk of extinction in the wild). There are a further six that are at the point where continued transformation will transition them into the same situation.

A number of activities are already occurring across Durban that will assist in promoting the protection of biodiversity in the face of climate change impacts. These include efforts to secure the conservation estate through the implementation of the Durban Metropolitan Open Space System (D'MOSS) as well as investments in managing and restoring the conservation estate through programmes such as Community Ecosystem Based Adaptation (CEBA). Since the understanding of species' responses to climate change is still in its infancy, a research partnership has been initiated between eThekweni Municipality and the University of KwaZulu-Natal (UKZN) to generate new knowledge, initiate long-term monitoring studies and to assist with providing the data needed to facilitate decision-making. Efforts to secure and managed biodiversity-rich areas in the eThekweni Municipal Area will have to be prioritised and increased if the Municipality and other stakeholders are to meet even modest conservation targets.

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

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In terms of climate change, the key challenge facing biodiversity is likely to be relatively rapid changes (within a geological time-frame) in local conditions. Early climate modelling indicated that increases in temperature and precipitation would decrease habitat suitability for a number of vegetation types, resulting in changes in the distribution and status of biodiversity. For example, the modelling indicated that some species may retreat inland.

The ability of species to retreat and adapt to changes in conditions is however compromised by large scale transformation and fragmentation of the remaining natural open spaces in Durban. It is estimated that 53% of the eThekweni Municipal Area has already been transformed and that this is likely to continue with future human population growth,

development and urbanisation. Further to this, early climate modelling indicated that climate change will favour the spread of alien invasive plants, resulting in further transformation and fragmentation of indigenous vegetation. Importantly, over-exploitation and pollution of remaining natural open spaces also compromises their ability to adapt to climate change.

## **Section Three: Biodiversity Theme Vision and Aims**

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### **Vision:**

*“Through knowledge generation, awareness-raising, integrated planning and effective action, biodiversity is enhanced to provide Durban’s communities with ecosystem services and protection from climate change impacts. Through this process, impacts of climate change on the integrity and ecological functioning of ecosystems is minimised.”*

### **Aims:**

1. Ecosystem functioning and connectivity are enhanced to reduced climate change impacts on biodiversity.
2. Improve current understanding of climate change impacts on biodiversity through knowledge generation, stakeholder participation and awareness-raising.
3. Take action now.

## **Section Four: Biodiversity Theme Strategies to achieve the aims**

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A number of strategies have been identified in order to achieve these aims. Each strategy relates to one of the three aims (Table 1). These aims and strategies will be subject to evaluation through a second participatory process within the development of the biodiversity theme of the Durban Climate Change Strategy.

**Table 1:** Aims and Strategies proposed for the Biodiversity Theme of the Durban Climate Change Strategy.

Aim	Proposed Strategies
<p>Ecosystem functioning and connectivity are enhanced to reduced climate change impacts on biodiversity</p>	<ul style="list-style-type: none"> <li>• Enhance Durban’s network of interlinked, protected and well managed public and private open spaces to accommodate species’ movements and adaptation to local climate change impacts</li> <li>• Ensure that there is an ecologically viable size of habitats conserved to accommodate climate change impacts.</li> <li>• Ensure that this network takes cognisance of future climate change scenarios likely to impact upon biodiversity and ecosystem functioning</li> <li>• Give consideration to the requirements of gene flow within meta-populations to ensure the sustainability of species within ecosystems</li> <li>• Ensure that ecosystems are surrounded by suitable buffer zones to minimise negative impacts from existing and future development</li> <li>• Integrate terrestrial, aquatic and marine climate change planning and management activities throughout the eThekweni Municipal area and surrounding neighbouring municipalities</li> <li>• Adopt the precautionary principle where climate change impacts are not yet currently understood, while continuously striving to enhance sustainability of natural ecosystems.</li> <li>• Accommodate change: acknowledge that there will be impacts from climate change and implement measures to minimise the negative aspects of these impacts.</li> <li>• Identify gaps in our current understanding of climate change impacts on biodiversity.</li> <li>• Key natural open spaces are protected through formal proclamation and other areas are secured using a range of innovative approaches.</li> <li>• Government, residents and private organisations take responsibility for proactively conserving natural areas under their ownership.</li> <li>• The existing D’MOSS is maintained and managed and key linkages expanded.</li> <li>• Open spaces are integrated into the urban fabric.</li> <li>• Densification is promoted where appropriate and urban sprawl is minimised.</li> <li>• Invasive alien species are controlled and where possible eradicated.</li> <li>• Degraded natural open spaces are restored through government and community efforts.</li> <li>• Incentives for Durban residents and organisations are expanded to protect biodiversity.</li> </ul>

Aim	Proposed Strategies
<p>Improve current understanding of climate change impacts on biodiversity through knowledge generation, stakeholder participation and awareness-raising.</p>	<ul style="list-style-type: none"> <li>• Pursue knowledge generation of projected climate change impacts on biodiversity through focussed research, and engaging within research partnerships to maximise learning opportunities and build appropriate regional capacity.</li> <li>• Pursue the sharing and generation of scientific, social and indigenous knowledge systems through participatory processes.</li> <li>• Improve mutual understanding of the benefits communities and other stakeholders derive from ecosystem services within Durban.</li> <li>• Advance the sharing of accurate and useful information between institutions and communities of Durban to increase capacity and ability of Durban residents to take action.</li> <li>• Ensure that learning outcomes arise from all actions through effective monitoring and evaluation processes.</li> <li>• Evaluate options for action, including conducting vulnerability assessments, improving understanding of related issues like ecosystem restoration and an understanding of novel ecosystems' functioning.</li> <li>• Integrate indigenous knowledge with scientific knowledge on biodiversity</li> <li>• All Durban residents are educated on the value of Durban's biodiversity and the ecosystem services that it provides.</li> <li>• Develop audience-appropriate education and awareness materials for different sectors and age groups and use a variety of communication methods including social media and technology to raise awareness.</li> <li>• Implement capacity building programmes at grass roots level for communities.</li> <li>• Organisations to implement internal green value systems.</li> <li>• Residents to take responsibility for educating themselves on biodiversity protection.</li> <li>• Improve integration and cooperation between different stakeholders and sectors.</li> <li>• Local government to provide up to date and accessible contact information where residents can report environmental pollution and degradation.</li> <li>• Local government spending on biodiversity protection is shared with stakeholders.</li> </ul>

<b>Aim</b>	<b>Proposed Strategies</b>
Take action now	<ul style="list-style-type: none"> <li>• Promote meaningful and coordinated action within all sectors of Durban and her communities.</li> <li>• Use existing policy frameworks and legislation to enhance immediate action.</li> <li>• Address non-climate change impacts on biodiversity in an integrated manner.</li> <li>• Pursue innovative action plans to achieve these aims, including stewardship approaches and prioritising the Green Economy, whilst not demonising failure.</li> <li>• Promote job creation in climate change adaptation action.</li> <li>• Integrate mitigation and adaptation actions that prioritise least regrets options and maximise multiple co-benefits deriving from action.</li> <li>• Employ the usage of appropriate and enforceable tools for the protection of biodiversity.</li> <li>• Ensure that existing planning and implementation is done in an effective and efficient manner.</li> <li>• Establish an effective “green police” that enforces regulations and by-laws that protect biodiversity.</li> <li>• By-laws to protect biodiversity are regularly updated and reviewed.</li> <li>• Implement incentives that encourage organisations and individuals to protect biodiversity.</li> <li>• Local government to lead the way by complying with legislation on their own properties.</li> <li>• Pollution of natural open spaces is prevented by ensuring municipal infrastructure is maintained and in good working order, and illegal dumping is controlled.</li> </ul>

## Appendix One: Minutes from Biodiversity Theme Working Group Meeting: 3rd October 2013

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#	Item	Action
1.	<p><b>Welcome</b></p> <p>Sean O'Donoghue welcomed everyone to the meeting. He gave a brief background to climate change and the project's context. He explained that the purpose of the Durban Climate Change Strategy (DCCS) project was to develop a Climate Change Strategy to provide guidance for the city as a whole, to mitigate against and adapt to climate change.</p>	
2.	<p><b>Introduction</b></p> <p>Margaret McKenzie provided a brief overview of the process that had been followed for 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 individual public working group meetings to develop aims and strategies on each of the seven themes. Seven technical experts have been procured by the Environmental Planning and Climate Protection Department (EPCPD) and the Energy Office (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 new year (2014) where stakeholders will be given an opportunity to comment on the written theme report and add additional content, if applicable.</p>	

#	Item	Action
	<p>Margaret closed by explaining that the Biodiversity working group meeting was the first of seven working group meetings to be held, one for each of the themes that have been identified. Natasha Govender was the technical expert responsible for providing advice on the biodiversity theme.</p>	
3.	<p><b>Presentation</b></p> <p>Natasha Govender presented a summary of the Introductory Report for the Biodiversity theme. This included the following:</p> <ul style="list-style-type: none"> <li>• Durban’s key biodiversity challenges associated with climate change.</li> <li>• Strategies used internationally to deal with biodiversity challenges associated with climate change.</li> <li>• Strategies that have already been implemented in Durban to adapt to these changes in climate.</li> </ul> <p>The <a href="#">biodiversity presentation</a> can be downloaded from the DCCS Website.</p>	
4.	<p><b>World Café Discussion – Round One</b></p> <p>Margaret McKenzie explained the concept of world café consultation. She then asked attendees to form groups of six people each. Groups were allowed 20 minutes for discussion on the aims for the biodiversity and climate change theme, and five minutes to capture these aims on key cards. The stakeholders were given flip chart sheets to record their discussions (See Annex A) prior to noting their top three aims on three cards. A representative of each group was then asked to present their group’s top three aims. There did appear to be some confusion around whether aims or strategies were required.</p> <p>The various aims proposed by the groups are presented below. They have been grouped into common areas:</p> <ul style="list-style-type: none"> <li>• <b>Education and grassroots involvement</b> <ul style="list-style-type: none"> <li>○ Education</li> <li>○ All people understand and care about biodiversity</li> <li>○ An educated public (about the value of biodiversity)</li> <li>○ Changed mindsets (education and awareness)</li> <li>○ Education about biodiversity at all levels for all people</li> <li>○ Education especially at grassroots level</li> <li>○ More inclusive community participation in matters concerning</li> </ul> </li> </ul>	

#	Item	Action
	<ul style="list-style-type: none"> <li>○ biodiversity <ul style="list-style-type: none"> <li>○ Extending reach of awareness</li> <li>○ Full community participation</li> <li>○ Local level decision making and involvement</li> </ul> </li> <li>● <b>Legislation</b> <ul style="list-style-type: none"> <li>○ Legislation</li> <li>○ By laws – ACT NOW</li> <li>○ Environmental enforcement (sand mining, dumping, polluter pays – legislation is in place, use it)</li> <li>○ Green police</li> <li>○ Improved and well enforced legislation</li> </ul> </li> <li>● <b>Protect and restore natural environment</b> <ul style="list-style-type: none"> <li>○ Save ecosystems</li> <li>○ We should protect our nature and environment so that we will prevent it from getting extinct</li> <li>○ Restoration of disturbed environments</li> <li>○ Maintain and expand current biodiversity in the face of climate change</li> <li>○ We need to save our nature for us to breathe</li> <li>○ Efficient ecosystem services</li> <li>○ Protect water resources and environments supporting water</li> <li>○ River protection by increasing buffer zones and watch-dogging against pollution in all forms</li> <li>○ Protecting biodiversity corridors</li> <li>○ Prioritising of conserving urban spaces</li> <li>○ Recognise the urban biome (creation of corridors that co-exist with people – biodiversity relationships)</li> <li>○ Drop higher rates on vacant land</li> <li>○ Permaculture as a design science in planning offices to provide holistic solutions</li> <li>○ CEBA projects</li> <li>○ More sensitivity to biodiversity hotspots</li> </ul> </li> <li>● <b>Green Economy</b> <ul style="list-style-type: none"> <li>○ Establishment of green economy</li> <li>○ Cleaner production and technology</li> </ul> </li> <li>● <b>Sustainable Urban Development</b> <ul style="list-style-type: none"> <li>○ All development as sustainable as possible</li> <li>○ Promote densification, oppose urban sprawl</li> <li>○ By 2030 it would be best if we could prevent all informal settlement in the CBD</li> <li>○ A dynamic population programme</li> </ul> </li> </ul>	

#	Item	Action
	<ul style="list-style-type: none"> <li>○ Installation of compost toilets in all new developments (increases fertility of the earth, reduces load on water services, no water needed)</li> <li>○ Less consumptive lifestyles (e.g. storm water tariffs; incentives for lowering consumptions)</li> </ul>	
5.	<p><b>World Café Discussion – Round Two</b></p> <p>For the second round of world café discussions, Margaret McKenzie asked participants to move to new groups. She then asked groups to identify strategies which can be used to achieve the aims identified in the first round. Twenty minutes were allowed for discussion. The stakeholders were given flip chart sheets to record their discussions (See Annex B) prior to noting their top three strategies on key cards.</p> <p>The various strategies proposed by the groups are presented below. They have been grouped into common areas:</p> <ul style="list-style-type: none"> <li>● <b>Incentives for biodiversity protection</b> <ul style="list-style-type: none"> <li>○ Put a value on ecosystem goods and services</li> <li>○ Create and optimise opportunities and incentives that align with conservation goals and developing green economy</li> <li>○ Introduce incentives to consumers to promote and maintain biodiversity</li> <li>○ Rebates</li> <li>○ Lower tariffs on eco-friendly consumptions</li> <li>○ Water usage tariff incentives</li> <li>○ Biodiversity protection</li> </ul> </li> <li>● <b>Strategic partnerships</b> <ul style="list-style-type: none"> <li>○ Public private partnership to manage biodiversity</li> <li>○ Co-operate across structures</li> <li>○ Integrate relationships</li> <li>○ “Grass roots to tree tops”, Stronger relationships between stakeholders and integrate expertise</li> <li>○ Create a stronger network through social media</li> <li>○ Government to lead by example</li> </ul> </li> <li>● <b>Sound financial management</b> <ul style="list-style-type: none"> <li>○ Monitor subcontracting</li> <li>○ Decrease subcontracting</li> <li>○ Redistribute and use funds to be most useful</li> <li>○ Re-evaluate pay structure</li> </ul> </li> </ul>	

#	Item	Action
	<ul style="list-style-type: none"> <li>○ Redirection of funds: plastic industry, plastic bag levy</li> <li>○ Use funds wisely</li> <li>● <b>Education and empowerment</b> <ul style="list-style-type: none"> <li>○ Increase own skills</li> <li>○ Get already skilled staff for high positions and teach for lower positions</li> <li>○ Incorporate community based conservation initiatives into existing conservation strategies (strengthens biodiversity stewardship)</li> <li>○ Empower local people – there is a loss of community</li> <li>○ Have people involved from a decision making level so that they are involved in creating and implementing the solutions</li> <li>○ Public participation</li> <li>○ Have contact details easily attainable</li> <li>○ Education</li> <li>○ Constant learning at all levels, ages and aspects in an understandable and comprehensive manner (environmental, climate change, product use e.g. Electricity)</li> <li>○ Technology / social media as an educational tool (how we “package” biodiversity value message)</li> <li>○ Education through workshops in local communities using projects – treepreneurs</li> <li>○ Strengthen capacity building in terms of environmental training at grass roots level (EE focus)</li> <li>○ Human capacity with a difference</li> <li>○ Institutions need to practically educate via greening by establishment of green value system. Schools should focus</li> <li>○ Increase awareness in individuals relating to biodiversity topics using media, education and social events.</li> </ul> </li> <li>● <b>Economy</b> <ul style="list-style-type: none"> <li>○ Steady state economy</li> <li>○ Unlocking green job opportunities</li> </ul> </li> <li>● <b>Legislation</b> <ul style="list-style-type: none"> <li>○ Legislations</li> <li>○ Green police – a special environmental law enforcement force: well paid, well trained</li> <li>○ Empowering legislation and incentives – conserving biodiversity</li> </ul> </li> </ul>	

#	Item	Action
	<ul style="list-style-type: none"> <li>○ Enforcement of legislative – more through the processes</li> <li>○ Better regulations – polluters pay penalties, incentivise conservation, stronger bylaws</li> <li>● <b>Sustainable Living</b> <ul style="list-style-type: none"> <li>○ Change our thinking from development and growth to using what we have</li> <li>○ Encourage change choices for sustainability</li> <li>○ Responsible living</li> </ul> </li> <li>● <b>Other</b> <ul style="list-style-type: none"> <li>○ Alien vegetation used as renewable energy</li> <li>○ Water saving: Introduce rainwater harvesting under same model as solar panels, manage alien plants and introduce eco-friendly solutions (Example taps with timed output)</li> <li>○ Pollution reduction</li> </ul> </li> </ul>	
6.	<p><b>Closure</b></p> <p>Margaret McKenzie outlined the process going forward. This included the following:</p> <ul style="list-style-type: none"> <li>○ Michael Van Niekerk will prepare minutes and a short report summarising the content provided by the groups.</li> <li>○ The technical specialist, Natasha Govender, will review the report and provide comments and recommendations.</li> <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 biodiversity component of the strategy.</li> </ul> <p>Sean O'Donoghue then closed the meeting, thanked everyone for their participation, and invited attendees to partake of a light meal.</p>	

## **Annex A: Flip chart sheet discussion notes- Aims**

### **Group1**

- Responsible living (water, energy, food)
  - Permaculture
  - Mitigation
  - Recycling
  - Transport sharing
- Biodiversity protection/ manage / restoration
  - Enforcement
  - Education
  - Proclamation
  - Alien biota control
  - Town planning schemes
  - Economic development/ permaculture/ green economy
- Pollution reduction – including mitigation
  - Waste management / recycling
  - Permaculture
  - Land use management (siltation)
  - Water use reduction in dilution strategies
- Social / cultural understanding

### **Group 2**

- Public park transformed and redesigned using permaculture design strategies
- Wildlife corridors
  - Use all cuttings and grass on site
  - Create food gardens on site – local food
  - Harvest water on site
  - Further links between parks and DMOSS areas
  - Proper management (Protects biodiversity and therefore curtails CC)
- Functioning sewage system and increase clean river systems
- Environmental Enforcement: Green Police
- Stop talking and start doing
- Education
- Permacultures in town and regional climate change offices

### **Group 3**

- Education
  - Municipal workers
  - Political governance
  - Social (Grassroots and poor informal: CEBA Projects informal settlements)
- CEBA projects
- By-laws

- Prevent cutting of trees
- Act now
- Planting trees for utilisation

#### **Group 4**

- Contact numbers are important e.g. dumping
- Ensure that all current biodiversity persists in the face of climate change
  - Responsibilities filter down to local community levels
  - Maintain current wild areas and possibly expand them – re-establish
  - Build communities around those areas for ownership /involvement
- Consolidate for economic development
- Make food production local
- Ensure progress –educate communities
  - Have Izimbizo
  - Involve local councillors
  - Involve townships ie adults, all age groups and rural areas

#### **Group 5**

- Awareness creation important
  - At an early age
  - Social media (participation)
- Integrate indigenous knowledge with the scientific
  - Changing mindsets
- Clamp down on legislature
  - Permits: Proper implementation of legislature with regards to biodiversity
- Participation of all stakeholders
  - On all levels
- Change monitoring (imagery)
  - To illustrate impacts over time

#### **Group 6**

- An aim of protecting biodiversity should be focused on water as a source and riparian habits
- There needs to be an emphasis on densification rather than urban sprawl
- Protecting the biodiversity corridors and so ensure ecological sustainability

#### **Group7**

- Education: education needs to take place at a grass roots level amongst corporate as well
  - Workshops in community
  - Community based projects to build knowledge and understanding
- Controlling alien vegetation

- Harvesting to use as a renewable fuel e.g. to pellets, biomass
- Education on alien vegetation

### **Group 8**

- More area under formal protection
  - Management of D'MOSS
- More inclusive community participation in matters concerning biodiversity
- Cleaner production and technology
  - Smaller carbon footprint
  - More sensitivity to biodiversity hotspots
- Population control
  - In an attempt to lower required resources
  - Lower supply = higher quality
- More realistic valuation of environmental goods and service
- Incentives to the community for maintaining and protecting biodiversity
- Less consumptive lifestyles
  - Ex-storm water tariffs

### **Group 9**

- We need the nature for us to breathe
  - It provides our food
  - We also get medicines from it
- We should protect our nature and environment so that we will prevent it from getting extinct
  - We should extinct all the alien plants
- By 2030 it would be best if we should prevent all the informal settlements from being built in the CBD

### **Group10**

- The municipality partners with the private sector to promote green jobs – working environment
- Education
  - Waste management
  - Reduction pollution
  - Recycling
- Initiating individual partnerships with public sector to conserve biodiversity
  - Dumping stop and monitor

### **Group 11**

- To save all ecosystems that provides us with goods and services
  - Remove alien plants
- Keep the earth as natural (untransformed) as possible
  - This will help support life in times of climate change and encourage tourism and interest in biodiversity

- Build human capability so as to achieve the above
  - New strategies are needed to achieve this
- Tools
  - Calendar garden to help understand “change”
  - Turbidity Tube – for understanding water quality
  - Bio-monitoring e.g. using mini SASS
  - Fixed point assessments / photography
  - An encouraging manner
  - Encouraging change choices for sustainability
  - Co-operation across national and regional objectives
  - Reduce waste

### **Group 12**

- Corporate responsibility, private responsibility
- Using alien invasive plants as renewable energy
  - Use it as fuel to be sold to fund removing alien species
- Educated public and parties about importance of biodiversity
- Recognise the urban biome by the integration of biodiversity, industry and residential areas
- Establish “Green Economy” properly
  - Better subsidies on renewables (water tanks etc)
  - Provision of incentives for taking care of resources e.g. rivers
  - Business – unusual approach
  - Employers teaching employees better habits to educate many people in the ripple effect of this

## **Annex B: Flip chart sheet discussion notes - Strategies**

### **Group 1**

- Water usage tariffs / incentives for responsible use
- Educational tool for biodiversity education
  - Social media and technology
- Institutions
  - Incorporating schools as well or other institutions
  - Need to practically educate via greening by establishment of green value system

### **Group 2**

- Introduce incentives to consumers to promote and maintain biodiversity
- Start using rainwater harvesting in the same model used for solar panels nationally
- Reduce
  - load on resources currently available
- Water saving
  - E.g. gum trees consume exorbitant amounts (chokes supply to endemic life)
  - National consumption management and alien plant monitoring
- Increasing awareness to individuals relating to biodiversity topics

### **Group 3**

- Awareness and education at an early age and in adult level
- Create a stronger network
  - Reach out through social media to increase participation at all levels
- People respond better to pictures than words
  - Social media and other media to illustrate impacts and differences
- Better enforcement of permit system
  - Illegal harvesting and poaching
- “Grassroots to tree tops”
  - Create stronger relationships between stakeholders and their different expertise

### **Group 4**

- Green police
  - Special task force
  - Environmental team
- Integrate green areas within industrial and residential areas e.g. corridors, green roofs, urban gardens etc.
- Put a value on environmental goods and services
- Steady state economy
  - Stop the gross use
  - Use what you already have
  - Change the language that we speak from a developmental driven economy to a steady state economy
- Population control
- Media and awareness campaigns
  - Make it sexy and nice

### **Group 5**

- Empower local people
- Government land free from alien vegetation
- Incentives (rate reduction) make it simpler to get reductions
  - Improving biodiversity
  - Empowering legislation

#### **Group 6**

- Fences alongside rivers to be moved further back to create corridors
- More people to be educated about biodiversity
- The poor are most affected
- Any major development should have a buffer zone which links with other development in areas where there is still room to influence future development
- Take much more care of our rivers
- Waste water treatment work should be funded off from rivers
- Rivers cannot be dumping grounds for industry or shack dwellers
- Importance of education at grass roots level
  - Use schools
- We would like to see government taking a more proactive lead
- We would like to see D'MOSS given more teeth
- Reduce rates on vacant land which is rich in biodiversity
- Density the city to protect vacant land and provide more services intensively

#### **Group 7**

- Prioritize environmental education
  - Wasted funds
  - More sensible use
- Efficient monitoring of subcontractors
  - Tenders most efficient not cheapest
- Accurate energy use readings
  - Educate the users
- Implement strategies NOW before it's too late
  - Cut out double work – merge skills
- Re-evaluate pay structures funds where it's needed
- Monitor subcontractors or reduce subcontractors by redistributing funds from overpaid civil servants to action
- Increase training of skilled and able people
  - Training education
- Reporting
  - Public participation and action
  - Monitoring and implementation of service action
- Educational material tailored to the user
  - Children
  - Adults
  - Language

#### **Group 8**

- Prioritise conserving urban spaces

- Focus on restoration of disturbed environments and ecosystems
  - Ecological infrastructure
- Prioritise the removal of invasive species
- Capacity building
  - Environmental training to school groups, communities and municipal workers
- Create opportunities and incentives that align to conservation and develop the green economy
- Incorporate community based conservation initiatives into existing biodiversity conservation / stewardship
  - Environmental education