

# Durban Adaptation Charter: Regional Hub Knowledge Sharing Exchange Visit - Dar es Salaam to eThekweni Municipality

4<sup>th</sup> to 6<sup>th</sup> August 2014

Margaret McKenzie



**ICMA**  
*Leaders at the Core of Better Communities*



## Contents

---

Introduction .....	1
Day One: Catchment Management Projects and Sea Level Rise.....	3
Session One: Welcome and Introductions.....	3
Session Two: Coastal Management, beach erosion and sea level rise.....	3
Session Three: Catchment Management.....	3
Durban Green Tour: Durban Beachfront, Umdloti, Riverhorse Valley .....	4
Day Two: Environmental Planning and tools for management.....	6
Session One: Welcome and Reflections .....	6
Session Two: Biodiversity Planning and Stewardship .....	7
Session Three: Biodiversity Enforcement: Tools and Innovative Approaches.....	7
Session Four: Biodiversity project implementation and the Green Economy.....	7
Durban Green Tour: Buffelsdraai .....	7
Day Three: Wastewater and waste .....	9
Session One: Innovations in wastewater treatment in eThekweni.....	9
Parallel Session One: Training opportunities for implementing locally appropriate climate change adaptation.....	9
Session Two: Reflections and Way Forward.....	9
Durban Green Tour: Newlands DeWATS and Mariannahill Landfill Site.....	11
Mariannahill Landfill Site .....	12
Appendix One: Event Agenda .....	14

## Introduction

---

The [Durban Adaptation Charter](#) (DAC) was initiated in 2011 at the Durban Local Government Convention which ran concurrently with the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 17. The DAC was established as a result of the recognition of the advantages of an integrated response to climate change adaptation at a local level. There are currently over 1,000 signatories of the DAC.

The International City/County Management Association (ICMA) is one of several organisations that are working to promote the implementation of the DAC globally. ICMA implements its USAID funded CityLinks program which has been established to *“allow city officials in developing and transitioning countries to draw on the resources of their U.S. counterparts to find sustainable solutions tailored to the real needs of their cities.”* The CityLinks program focuses on assisting developing country cities to meet USAID’s objectives linked to climate change, food security, and health.

In support of the DAC, the ICMA CityLinks program funded a diagnostic trip of officials from eThekweni Municipality (Durban, South Africa) to Kinondoni Municipality, Dar es Salaam, Tanzania from the 12<sup>th</sup> to the 17<sup>th</sup> of May 2014. One of the key outcomes of eThekweni Municipality’s visit to Dar es Salaam was an agreement to have a follow up exchange visit of Dar es Salaam councillors and officials to Durban.

This exchange visit took place from 4<sup>th</sup> to 6<sup>th</sup> August 2014 and was attended by nineteen people, (eight officials and eleven councillors) from Kinondoni Municipality. The exchange was predominately funded by Kinondoni Municipality who paid for travel, accommodation and per diem costs of 16 of the participants. ICMA funded the travel, accommodation and per diem costs of three engineers included in the exchange. ICMA also paid for the transport and catering costs of the afternoon site visits that took place on each day. EThekweni Municipality hosted the exchange at eThekweni Transport Authority board room, provided teas, funded transport of the delegates to the venue each morning, and hosted all the delegates at the Cargo Hold restaurant on Tuesday evening. EThekweni Municipality was also responsible for designing the agenda of the exchange, providing in-kind support in terms of supplying the experts for the various topics of the exchange and gaining permission for site visits.

The purpose of the exchange visit was two-fold. Firstly, for Dar es Salaam councillors and officials to gain an understanding of the context of eThekweni Municipality, its key climate change adaptation challenges and actions that are being taken to respond to climate change. A secondary purpose of the exchange was to agree on the next steps in promoting the regional climate change learning hub that has been established between Dar es Salaam and Durban. The participants in the visit from Dar es Salaam are listed on the following page:

<b>Councillors</b>	
<b>Wards</b>	<b>Name</b>
Hananasif	MH. Tarimba Gulam Abbas
Mabibo	MH. Makongolo J. Gonza
Mbezi Juu	MH. Rickson Foya
Msigani	MH. Rogath E. Mbowe
Makongo	MH. Deusdedit Jacob Mtiro
Mbezi	MH. Kajare J. Songore
Saranga	MH. Ephrahim A. Kinyafu
M/Nyamala	MH. Florence G. Wasira
Manzese	MH. Joyce S. Muya
Saranga	MH. Hilda Mria
Kwembe	MH. Hilda Kitana

<b>Technical officials</b>	
<b>Designation</b>	<b>Name</b>
Town Planner	Mr Hussein M. Omar
Legal Officer	Mr Burton Yesaya Mahenge
Training Officer	Ms Adrophine Tutuba
Town Planner	Mr Aidan Haule
Natural Resource Officer	Mr Bupe Mwansasu
Engineer	Mr Simon Mbaga
Engineer	Mr Ismail Mafita
Engineer	Mr Chionda Kawawa

The eThekwini Municipality officials who hosted the exchange were:

- Environmental Planning & Climate Protection Department (EPCPD):
  - Dr Debra Roberts, Deputy Head: EPCPD
  - Dr Sean O'Donoghue, Manager: Climate Protection Branch
  - Ms Penny Price and Ms Lisa Guastella-Smith, Climate Protection Scientists
  - Ms Nongcebo Hlongwa and Ms Kathryn Kasavel, Support
- Coastal Policy:
  - Dr Andrew Mather, Project Executive

The eThekwini Municipality team were also assisted by Ms Margaret McKenzie who had been contracted to assist with the event by ICMA.

The agenda for the visit is outlined in Appendix One of the report.

## **Day One: Catchment Management Projects and Sea Level Rise**

---

### **Session One: Welcome and Introductions**

Dr Sean O'Donoghue initiated the exchange event by welcoming all the visitors from Dar es Salaam to eThekweni Municipality. Thereafter Dr O'Donoghue introduced the team from Durban that was responsible for hosting the exchange. The delegation leader Cllr Tarimba Abbas then introduced himself and invited all the councillors and staff from Dar es Salaam to introduce themselves.

Once the introductions were completed Dr O'Donoghue provided an introductory presentation to participants. During his presentation he provided an overview of climate change with specific reference to the expected climate change impacts for Durban. He then described the Durban Adaptation Charter (DAC) and indicated that the partnership between Durban and Dar es Salaam had been initiated about a year and half ago following a meeting with Engineer Mussa Natty, Director of Kinondoni Municipality who is a member of the Steering Committee of the DAC. As part of the work on the DAC, Dr O'Donoghue explained that eThekweni Municipality is promoting the establishment of regional hubs, such as the Durban - Dar es Salaam hub, to facilitate implementation. This Durban - Dar es Salaam exchange is a knowledge sharing event that aims to support the activities of the regional hub.

### **Session Two: Coastal Management, Beach Erosion and Sea Level Rise**

Dr Andrew Mather, eThekweni Municipality Project Executive for Coastal Policy, provided a detailed presentation on coastal management and climate change. He started his presentation with an overview of the Durban coast and provided an introduction to the key physical processes that operate on the coast. He then provided an introduction to climate change with particular emphasis on the likely impact of climate change on sea level rise. He provided specific information on the current status of sea level rise in Durban. Dr Mather then introduced integrated coastal management and eThekweni Municipality's approach to coastal management. He highlighted the following key strategies used by eThekweni Municipality: Set Back Lines/Building Control Lines, Coastal Management Plans, Estuary Management Plans, Shoreline Modelling, Retreat Strategy, Soft Engineering Solutions and Dune Rehabilitation. During his presentation Dr Mather provided a number of case studies of specific management issues on the Durban coast and the response of eThekweni Municipality to these issues.

### **Session Three: Catchment Management**

Mr Geoff Tooley from the eThekweni Municipality Coastal, Storm-Water and Catchment Management Department provided a presentation on catchment coordinated interventions. He started his presentation with an overview of catchment management in Durban and highlighted the likely impact of climate change on catchment management. He then explained that eThekweni Municipality had adopted a number of Municipal Adaptation



Plans including a plan that focused on water and health. Thereafter he provided an overview of uMhlangane River Catchment and the variety of projects that eThekweni Municipality is implementing in that catchment including the Sihlanzimvelo project which contracts local community members to assist with a range of catchment management activities in the area in which they reside.

## **Durban Green Tour: Durban Beachfront, Umdloti, Riverhorse Valley**

After the formal presentations the participants embarked on the first of three Green Tours of Durban. On the first tour three sites were visited:

### ***Durban Beachfront***

The first stop of the tour was a visit to the central Durban beachfront. Dr Andrew Mather provided participants with an overview of some of the key management issues on the beachfront. Key discussion points included the municipal sand pumping scheme to replenish the central beaches with sand, development of setback lines, dune rehabilitation and building height restrictions.



*Figure 1: Dr Andrew Mather explaining some of the key challenges involved in managing the Durban central beaches*

### ***Umdloti***

The second stop on the green tour was the Umdloti beachfront. Dr Mather explained that Umdloti beachfront was one of many beaches in Durban where it is necessary to manage coastal erosion. The purpose of the visit to Umdloti beachfront was for participants to see

first-hand the use of geotextile sand containers (also known as geobags) to protect the beach from erosion. Dr Mather indicated that eThekweni Municipality have had considerable success employing this soft engineering technique rather than conventional hard engineering approaches.



*Figure 2: Dr Andrew Mather explaining the use of geotextile sand containers to manage coastal erosion*

### ***Riverhorse Valley***

The final stop of the tour was a visit to the Riverhorse Valley to view wetland rehabilitation steps that have been taken in the area. Geoff Tooley provided a brief overview of the project in the area that was being conducted in partnership with the Riverhorse Valley Business Management Association. Wetland rehabilitation processes included levelling of furrows to restore the wetland function through raising the water table, removal of invasive alien plants and targeted planting of wetland species.

## Day Two: Environmental Planning and Tools for Management

---

### Session One: Welcome and Reflections

Dr Sean O'Donoghue welcomed everyone and thanked them for their active participation on Day One. He then handed over to Ms Margaret McKenzie to facilitate a brief reflections session on the previous day. Key issues highlighted by participants were:

- Coastal Management:
  - The Durban coast has been extensively developed to facilitate commerce and recreation whereas the Dar es Salaam coast is comparatively underutilised for economic activities and little has been done to promote recreation. Dar es Salaam participants expressed an interest in learning more about how to develop the Dar es Salaam coast in the future. Durban participants indicated that there was an opportunity for Dar es Salaam to learn from some of the development mistakes of Durban and ensure the implementation of environmental protection measures to minimise risks to future coastal development. It was also noted that Dar es Salaam has its own unique coastal context and any future development should be appropriate to that context.
  - Institutional arrangements: It was noted that the institutional arrangements for coastal management in Durban appeared to be significantly different to the institutional arrangements for coastal management in Dar es Salaam and in particular it was highlighted that the local Dar es Salaam municipalities appear to have less management control over the coast than eThekweni Municipality. The need for a more detailed explanation of institutional arrangements in Durban was highlighted.
  - Integrated Coastal Management: The importance of an integrated approach to coastal management was noted along with the need for proper coordination of the range of coastal development activities that take place. The need for more learning on integrated coastal management was highlighted.
  - The use of alternative buffers for protecting against sea level rise: The site visit to Umdloti illustrated the possibility of using alternative approaches for protection against sea level rise and the need to investigate the possible use of alternatives for coastal protection in Dar es Salaam was highlighted.
  - Source of sand: It was noted that the key issue for coastal management in Dar es Salaam was the source of sand for the coastal area. It was noted that it was important to understand what the current sources of sand are in order to adopt an appropriate approach to protecting the coast.
- Engaging the community in local management: The model employed by the Sihlanzimvelo Project to engage the community in the management of their local areas was highlighted and a request was made to learn more about approaches to engaging the local community in management.



- Role of Corporate Social Responsibility: The role of the River Horse Valley Business Association in the management of the wetlands was highlighted and a request was made to learn more about approaches to engaging corporate organisations in environmental management.
- Catchment management: The approach taken to catchment management in Durban and the replanting of catchments to improve performance was highlighted as an area for future engagement.

## **Session Two: Biodiversity Planning and Stewardship**

Mr Bheka Memela from EPCPD provided a presentation on the Biodiversity Stewardship Programme in Traditional Communities of the eThekweni Municipal Area. Mr Memela started with an overview of the variety of land ownership arrangements within eThekweni Municipality with a specific emphasis on arrangements within communal land. He then provided a summary of the legal framework for environmental planning within eThekweni Municipality. Thereafter he explained several tools under the auspices of the Biodiversity Stewardship Programme that are available in eThekweni Municipality to promote the involvement of land owners and users in environmental management.

## **Session Three: Biodiversity Enforcement: Tools and Innovative Approaches**

Mr Sabelo Nkosi from EPCPD provided a presentation on environmental legal frameworks. He initiated his presentation with an overview of South Africa's environmental law framework as well as the consideration of the environment in planning law. He then summarised the key tools that exist for biodiversity protection and management. Thereafter he explained a range of approaches to enforcement and promoting compliance.

## **Session Four: Biodiversity project implementation and the Green Economy**

Mr Errol Douwes from EPCPD provided a presentation on the implementation of Urban Ecosystems Restoration. He explained that the purpose of the restoration ecology branch of EPCPD was "To combine innovative research with practical implementation, as a means to guide ecosystem restoration and sustainability, within eThekweni Municipality." To this end he indicated that the branch has three large scale projects: Working for Ecosystems, Community Reforestation, and, Working for Fire. He provided a brief overview of these projects which have been in operation for some time and in addition to their core benefits of ecosystem restoration have the co-benefit of creating jobs and facilitating skills development in ecosystem restoration. He concluded by explaining a programme the branch has to promote research in ecosystem restoration.

## **Durban Green Tour: Buffelsdraai**

After the formal presentation the participants embarked on the second Green Tour of the exchange. The focus of this tour was a visit to the Buffelsdraai Landfill Site which is the site of an extensive reforestation programme that is currently funded by the Green Fund. The participants were hosted at the Buffelsdraai Landfill Site by Ms Nondumiso Ndlovu from

the Wildlands Conservation Trust. The Wildlands Conservation Trust is the implementing agent for the project. Ms Ndlovu highlighted that the programme had planted approximately 500,000 trees since its inception in 2009. She explained that the project used 600 active local 'Treepreneurs' who grew the trees which they then swapped for credits which they could use to buy a variety of items. In addition to the Treepreneurs the programme had a number of employees who were responsible for the actual tree planting.



*Figure 3: Nondumiso Ndlovu providing an overview of the Buffelsdraai Reforestation Project*

## Day Three: Wastewater and waste

---

### Session One: Innovations in wastewater treatment in eThekwini

Dr Sean O'Donoghue welcomed everyone to the final day of the exchange and introduced Mr Max Grau a senior engineer with eThekwini Water and Sanitation Unit.

Mr Grau started his presentation with a brief overview of the eThekwini Water and Sanitation Unit and the variety of sanitation forms that exist within the eThekwini Municipal Area. He then went on to highlight several innovations in wastewater treatment that are being implemented or tested by eThekwini Municipality. Key innovations include:

- Implementing nutrient recovery in wastewater works for the water borne sewerage system.
- The establishment of Decentralised Wastewater Treatment Systems (DeWATS).
- Implementing nutrient recovery from urine for urine diversion toilets.
- Implementing the LaDePa process for sludge disposal for Ventilated Pit Latrines. The final product of the LaDePa process is pasteurized pellets that can be used for soil enrichment.

### Parallel Session One: Training opportunities for implementing locally appropriate climate change adaptation

Ms Penny Price, one of eThekwini Municipality's Climate Protection Scientists, led a parallel session with the Kinondoni Municipality's Human Resources official responsible for training and capacity building at the Kinondoni Municipality, Ms Adrophine Tutuba. This involved a presentation and the handing over of a dossier documenting training and capacity building opportunities, contact details of the respective organisations, and a short description of what is on offer.

### Session Two: Reflections and Way Forward

Ms Margaret McKenzie facilitated a final reflection and way forward session with the participations. Key reflections highlighted by participants were:

- Legal framework: The legal framework under which Kinondoni Municipality performs its mandate is the 1982 law. Implementation is a challenge for Kinondoni Municipality as in terms of this law the Municipality has limited mandates and requires approval of others. There is a need to review the legal framework for municipal operation.
- Water and sanitation system: There is a need to study the eThekwini Municipality's water and sanitation systems in more detail in order to understand which elements are applicable for Dar es Salaam. It would also be helpful to understand the business case for aspects of the system.
- Reforestation: A key challenge in Dar es Salaam is pressure on the use of land and the community use of land in particular. Reforestation projects could be successful in Dar es Salaam if applied to public land.

- Planning: It would be helpful to understand better the planning framework in KwaZulu-Natal and the reasons behind the establishment of the Planning and Development Act. In Tanzania there are only two acts: one for urban areas and one for rural areas.
- Open Space: It was observed that land does not appear to be invaded to the same extent in Durban as in Dar es Salaam and it would be helpful to unpack the reasons why there is less land invasion. One potential reason put forward was higher levels of enforcement in Durban, however it was also noted that Durban has a much lower growth rate than Dar es Salaam.
- eThekweni Municipality organisational structure: A need was expressed to better understand the organisational structure of eThekweni Municipality and how the different departments work together. It was noted that perhaps changes are required to the structure of Kinondoni Municipality.

Once participants had completed highlighting their key reflections, the group moved onto a way forward discussion. The following points were noted in the way forward discussion:

- Memorandum of Understanding: A memorandum of understanding has been drafted between Dar es Salaam City Council, eThekweni Municipality and ICMA. The ICMA has approved the draft and eThekweni Municipality is expected to secure approval from its Exco by the end of August.
- Durban return visit to Dar es Salaam October 2014:
  - Content: Ms McKenzie briefly presented the reflections from the beginning of the second day to participants so they were able to review the key issues that emerged from both reflection sessions. Based on the issues that had been highlighted in the reflection sessions the following topics were suggested for the October Visit:
    - Coastal Management: This was noted as an area where quick wins are possible. In particular it was recommended that the visit be used to start the process for the drafting of an integrated development plan for the coast.
    - Water and Sanitation: This was noted as particularly relevant to the new settlement that is being established in Kinondoni Municipality and the possibility of influencing the water and sanitation plan for the settlement was raised.
    - Wetlands: The need to better understand how wetlands in public land can be managed was highlighted.
  - Finalising Dates: It was agreed that dates for the October event should be proposed to Engineer Mussa Natty so he could select and approve dates that fit in with the municipal schedule.
- Adaptation Fund Project: This project entitled *“Implementation of Concrete Adaptation Measures to Reduce vulnerability of Livelihood and Economy of Coastal and Lakeshore Communities in Tanzania”* includes a component to protect key coastal areas in Dar es Salaam. With regards to eThekweni Municipality providing technical support to this project it was agreed that:

- Dr Mather will be an internal resource for the project and will provide technical support to the project implementing team from Dar es Salaam.
- Dr Mather will also promote co-learning with the Dar es Salaam technical staff in order to build on the ground coastal engineering skills in Dar es Salaam. To this end Dr Mather presented a short technical exercise for the engineers involved in the coastal project to complete in order to assist in developing an understanding of the coastal processes in Dar es Salaam.
- Dr Mather will also share a coastal erosion guideline document with the engineers from Dar es Salaam.

## **Durban Green Tour: Newlands DeWATS and Mariannahill Landfill Site**

Once the way forward session was completed participants left for the final Green Tour of the event.

### ***Newlands DeWATS***

Mr Max Grau walked the participants through the operation of the small Decentralised Wastewater Treatment System (DeWats) that has been established at Newlands to test out the potential of this technology for eThekweni Municipality. Decentralised sanitation systems process waste water and sewage on site by channelling the wastewater into an underground container. In the case of the Newlands site waste water undergoes a number of treatment processes in this container and then is channelled into a planted gravel filter. Mr Grau explained the various processes to the participants and showed them the change in water quality after each part of the process. The Newlands DeWATS serves 85 households and is used to test out various aspects of the operation of the DeWATS to understand optimal operation of DeWATS. Mr Grau highlighted that an implementing partner on the project was the non-governmental organisation called BORDA. BORDA has its head office in Tanzania and it was agreed that eThekweni Municipality staff would facilitate an introduction to BORDA for the Kinondoni Officials.





*Figure 4: Max Grau explaining the functioning of the Newlands DeWATS*

## **Mariannahill Landfill Site**

The final stop of the Green Tour was the Mariannahill Landfill Site. The participants were hosted by Mr Richard Winn a specialist ecologist with the Solid Waste Department. Mr Winn initiated the tour by explaining that the landfill was located in a conservancy which serves to buffer the neighbours from the landfill site. He then went on to explain the operation of various elements of the landfill site. In particular he highlighted that the cells of the site are filled one at a time and only prepared when they need to be used. To establish a cell the top layer of soil and vegetation are removed and saved for reuse in later rehabilitation efforts when a cell is closed. He emphasised that rehabilitation was implemented continuously at the site to prevent the need for one large scale rehabilitation project at the end of the landfill's life. He also explained the process that is used on site to capture methane from the site for use in a landfill gas to electricity plant located at the landfill. He then explained the leachate treatment plant on the site. The tour was rounded off with a visit to the education centre on the landfill site that is used to host schools and other groups that come to learn about landfilling and the innovative approaches used on site to minimise the impact of landfilling.



*Figure 5: Richard Winn explaining the operation of the Mariannahill landfill site to participants*

## Appendix One: Event Agenda

<b>DAY ONE – 4<sup>th</sup> August: Catchment Management Projects and Sea Level Rise</b>		
09h00 – 10h00	Welcome, introductions and agenda for the three days	SOD/AM
10h00 – 10h30	TEA	
10h30 – 11h30	Coastal Management, beach erosion and sea level rise	AM
11h30 – 12h30	Catchment Management	GT
12h30	LUNCH, taken en route to green tour	
13h00 – 17h00	Durban Green Tour: Durban Beach Front, Umdloti , Riverhorse Valley	AM/GT
<b>DAY TWO – 5<sup>th</sup> August: Environmental Planning and tools for management</b>		
08h30 – 09h00	Welcome and brief recap of day 1: reflections	MM
09h00 – 09h40	Biodiversity Planning and Stewardship	BM
09h40 – 10h30	Biodiversity Enforcement: tools and innovative approaches	SN
10h30 – 11h00	TEA	
11h00 – 11h40	Biodiversity Project Implementation and the Green Economy	ED
11h40 – 12h30	Discussion: reflections on the suite of tools presented thus far, but also including mitigation as an adaptation tool for developing cities	ALL
12h30	LUNCH	
13h00 – 17h00	Durban Green Tour day 2: Buffelsdraai, Umgeni mangroves and the uMngeni Ecological Infrastructure Programme	NM/ SOD
<i>Evening: Supper at Cargo Hold – reservation for 19h30</i>		
<b>DAY THREE – 6<sup>th</sup> August: Wastewater, Waste and CC training</b>		
08h30 – 09h30	Wastewater treatment in EWS: DeWATS, innovative solutions	MG
	Climate Change training (parallel session in Room 200, EPCPD)	PP
09h30 – 10h30	Reflections on Day 2 and way forward discussion	MM
10h30 – 11h00	TEA	
11h00 – 15h00	Durban Green Tour day 3: DeWATS, Mariannhill Landfill Site	MG, RW
15h30 – 17h30	Retail Therapy at the Pavilion. Bus departs at 17h30 to return to the Beach Hotel. Delegates should inform the tour organisers if they plan to stay on and catch a taxi home.	SOD