



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

CORPORATE SERVICES AND COMPLIANCE
EXECUTIVE SUPPORT

Suzanne Abel
Executive Committee Services

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DATE 11 May 2016
To The Executive Mayor
P de Lille

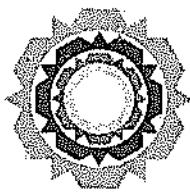
ITEM 01/11/05/16

Dear Madam Mayor,

The **attached** undermentioned Feedback Trip Report is submitted to you for consideration and noting:

FEEDBACK ON THE INTERNATIONAL TRIP UNDERTAKEN FROM 1 FEBRUARY TO 29 MARCH 2016 TO ATTEND TRAINING ON COASTAL RISK MODELLING AND VULNERABILITY ASSESSMENT, UNIVERSITY OF MISSOURI-KANSAS CITY, THE USA


pp Mrs Rehana Razack
Manager: Executive Committee Services
Office of the Executive Director: Corporate Services and Compliance



REPORT TO THE EXECUTIVE MAYOR

LC15812

1. ITEM NUMBER
2. SUBJECT

FEEDBACK ON THE INTERNATIONAL TRIP UNDERTAKEN FROM 1 FEBRUARY TO 29 MARCH 2016 TO ATTEND TRAINING ON COASTAL RISK MODELLING AND VULNERABILITY ASSESSMENT, UNIVERSITY OF MISSOURI- KANSAS CITY, THE USA

ONDERWERP

TERUGVOERING OOR DIE INTERNASIONALE REIS WAT VAN 1 FEBRUARIE TOT 29 MAART 2016 ONDERNEEM IS OM OPLEIDING OOR KUSRISIKOMODELLERING EN KWESBAARHEIDSASSESSERING BY DIE UNIVERSITEIT VAN MISSOURI - KANSAS CITY, VSA BY TE WOON

ISIHLOKO

INGXELO EMALUNGA NEHAMBO KUMAZWE ANGAPHANDLE EQHUTYWE UKUSUSELA NGOWO-1 FEBHUWARI UKUYA KOMWA-29 MATSHI 2016 NGENJONGO YOKUZIMASA UQEQESHO KUMBONISO KWEZOMNGCIPHEKO WASELUNXWEMENI LOLWANDLE NOPHANDO LOKUBASESICHENGENI KWALO, KWIYUNIVESITHI YASE-MISSOURI-KANSAS CITY, E-USA

3. EVENT SUMMARY

EVENT DETAILS	
CONFERENCE/SEMINAR	Technical and Scientific Capacity Building on Advanced Satellite Remote Sensing and Integrated Climate Modeling for Coastal Vulnerability Assessment
OTHER	To be trained in the use and application of various coastal risk mapping and vulnerability assessment software programmes.
DATE	1 February to 29 March 2016
VENUE	University of Missouri-Kansas City
CITY	Kansas City
COUNTRY	UNITED STATES OF AMERICA

ATTENDEE DETAILS	
NAME AND SURNAME	DESIGNATION
Darryl Colenbrander	SPO: COASTAL COORDINATOR
<p align="center">PROVIDE SUMMARY OF HOST ORGANISATION / CITY</p> <p>The training course entitled "Technical and Scientific Capacity Building on Advanced Satellite Remote Sensing and Integrated Climate Modeling for Coastal Vulnerability Assessment" was held at the Department of Geosciences, University of Missouri-Kansas City (UMKC). Mr. Colenbrander was affiliated directly with the Center for Applied Environmental Research (CAER). The Department of Geosciences within the CAER focuses on the application of the geosciences to human activities. The unique program prepares students and visiting scholars, depending on their area of concentration, for advanced study of different facets of the environment including: environmental issues and geospatial methods, natural hazards, environmental remediation, waste management, air and water pollution, resource evaluation and management, geoarcheology, historical geography and urban land use planning. The department also participates in a visionary interdisciplinary doctoral degree program where the Geosciences department works with faculty from Engineering, Physics, History, Computer Sciences, Economics, and other disciplines to develop focused degree programs.</p>	

4. OBJECTIVE

Coastal vulnerability mapping and risk assessment is currently a significant skill gap within the City. This is a key discipline that is required to ensure coastal infrastructure and development is risk averse. Without such a skill base the City is reliant on the appointment of external service providers at substantial cost to the City when undertaking coastal development projects. Up skilling a City official in this discipline has contributed to the training and development of a City employee. In addition to this the individual will impart the skills acquired from the training to additional City employees in the coming months thereby further expanding the City's skill base in-house.

5. OUTCOMES

- ☐ - Partnership Agreement
- ☐ - Membership Agreement
- ☐ - Grants Agreement
- ☐ - Memorandum of Understanding
- ☐ - Statement of Intent
- ☒ - Other

The training provided to Mr. Colenbrander forms a deliverable of a broader project entitled "*Minimizing vulnerabilities of coastal cities and communities in Africa through adaptation to climate change*". The City is currently participating in this project, which is funded by the African Development Bank. Deliverables under this project are listed in section 6.

6. ACTIONS REQUIRED

Funding to the City has been provided from the Directorate of Technical Cooperation in Africa, African Development Bank under the project entitled "*Minimizing vulnerabilities of coastal cities and communities in Africa through adaptation to climate change*". In addition to up skilling local authorities in the field of coastal risk governance, additional deliverables of this project include the following:

- 1) Provision of assistance to City operatives and community members to identify past, present and future climate risks; the affected sectors and to identify the needs and to propose a range of solutions;
- 2) To develop strategies for the effective integration of climate change adaptation, climate change mitigation, and disaster risk reduction measures into city planning;
- 3) Initiate actions aimed to reduce the vulnerabilities of coastal communities to these climate change risks;
- 4) Develop local adaptation and mitigation guides;
- 5) Enhance networking between local and urban task force committees and government authorities within South Africa and between other participating countries;
- 6) Develop relations with the AfDB, European Union, USAID, CIDA, SIDA, DFID, UNESCO etc. with the intent to explore climate funding opportunities, best practices, best available technologies and further skills transfer top developing countries.

7. IMPLICATIONS

7.1 Constitutional and Policy Implications No ☒ Yes ☐

7.2 Environmental implications No ☐ Yes ☒

Training and development of a City official in the discipline of coastal vulnerability and risk assessment will enable the City to make more informed and sustainable coastal planning decisions. This is critical to

building a resilient and risk averse coastal city and which will optimize the socio-economic potential of Cape Town's coastline.

This skills gained in this training programme supports those principles contained in the City's IMEP. The training and development of a City official in the field of coastal vulnerability and risk assessment demonstrates good governance. The City, through up skilling its staff within this discipline, will enable more informed decision making as it relates to coastal infrastructure and development. This in turn will ensure that activities and infrastructure within the coastal space are sustainable and which will ensure the social, environmental and economic value of the City's coastline into the future.

- | | | | |
|------------|--------------------------------------|--|------------------------------|
| 7.3 | <u>Financial Implications</u> | No <input checked="" type="checkbox"/> | Yes <input type="checkbox"/> |
| 7.4 | <u>Legal Implications</u> | No <input checked="" type="checkbox"/> | Yes <input type="checkbox"/> |
| 7.5 | <u>Staff Implications</u> | No <input checked="" type="checkbox"/> | Yes <input type="checkbox"/> |
| 7.6 | <u>Risk Implications</u> | No <input checked="" type="checkbox"/> | Yes <input type="checkbox"/> |

8. OTHER SERVICES CONSULTED

ERMD: Gregg Oelofse – 021 400 2085

9. RECOMMENDATIONS

It is recommended that:

- a) It be noted that the training provided to Mr. Colenbrander in the field of coastal risk mapping and vulnerability assessment addresses a significant skill gap within the City.
- b) It be noted that Mr. Colenbrander will undertake capacity building exercises with other officials to expand the City's skill base.
- c) It be noted that the project entitled "minimizing vulnerabilities of coastal cities and communities in Africa through adaptation to climate change" through which the training was provided adds significant value to the City in respect of coastal risk governance.
- d) It be noted that Mr. Colenbrander thanks the City for the opportunity to develop his skills and commits to using these skills for the betterment of Cape Town.

AANBEVELINGS

Daar word aanbeveel dat:

- a) Daar kennis geneem word dat die opleiding wat mnr. Colenbrander in die veld van kusrisikokartering en -kwesbaarheidssassessering bygewoon het 'n belangrike vaardigheidsgaping in die Stad aanspreek.
- b) Daar kennis geneem word dat mnr. Colenbrander ander amptenare se kapasiteit sal uitbou om die Stad se vaardigheidsbasis te verbreed.
- c) Daar kennis geneem word dat die projek genaamd "minimizing vulnerabilities of coastal cities and communities in Africa through adaptation to climate change" waardeur die opleiding aangebied is, aansienlike waarde ten opsigte van kusrisikobestuur tot die Stad toevoeg.
- d) Daar kennis geneem word dat mnr. Colenbrander die Stad bedank vir die geleentheid om sy vaardighede te ontwikkel en dat hy hom daartoe verbind om hierdie vaardighede tot voordeel van Kaapstad aan te wend.

IZINDULULO

Kundululwe ukuba:

- a) Makuqatshelwe ukuba uqeqesho olwenziwe kuMnu Colenbrander kwicandelo loCwangciso lezoMngcipheko woNxweme lolwandle noVavanyo/uPhando lokuba seSichengeni kwalo, luyimpendulo kumsantsa ongezakhono kwiSixeko.
- b) Makuqatshelwe ukuba uMnu Colenbrander uzakuthabatha uqeqesho lokuxhobisa ngezakhono kunye namanye amagosa ukuze kwande uvimba wezakhono weSixeko.
- c) Makuqatshelwe ukuba iprojekthi esihloko "Ukucuthwa kokubasesichengeni kwamaNxweme akwizixeko nakuluntu e-Afrika ngokuthi kusetyenziswe ukumelana notshintsho lwemozulu" apho uqeqesho olu lwalugxile khona, longeza ixabiso olumandla kwiSixeko ngokujoliswe kulawulo lomngcipheko waselunxwemeni.
- d) Makuqatshelwe ukuba uMnu Colenbrander uye wabulela iSixeko ngethuba athe walifumana lokuphucula izakhono zakhe kwaye uzimisele ekusebenzisweni ezi zakhono ekuphuculeni iKapa liphela.

10. GENERAL DISCUSSION

The City of Cape Town Municipality (City) administers a coastline of approximately 240km in length. Cape Town is South Africa's largest coastal metro in terms of sea frontage. Arguably, the coastline is the City's greatest socio-economic and environmental asset, underpinning Cape Town's economy, identity, sense of place and global desirability. Whilst the coastline is an asset to the City, it also presents a substantial risk to City. The exposure of both City infrastructure and private property to coastal processes is

expected to increase as a consequence of a warming atmosphere, rising sea-levels and shifting wind regimes. Currently there are sections of Cape Town's coastline exposed to this risk and have been identified as vulnerable in terms of the Sea-level Rise Risk Assessment undertaken in 2008.

Funding to the City has been provided from the Directorate of Technical Cooperation in Africa, African Development Bank under the project "Minimizing vulnerabilities of coastal cities and communities in Africa through adaptation to climate change". The intention of this project is to assist and capacitate the City in the identification of appropriate solutions in response to climate change and associated coastal risks. A key deliverable of this project as hosted by the African Development Bank is the up skilling of local government officials in the highly technical discipline of coastal vulnerability mapping and risk assessment. Mr. Colenbrander was identified as the most appropriately qualified City official in terms of the selection criteria for this training course. In addition, Mr. Colenbrander's core function in the City is the determination, mapping and remediation of coastal risk and vulnerability in Cape Town.

The training course, entitled "Technical and Scientific Capacity Building on Advanced Satellite Remote Sensing and Integrated Climate Modeling for Coastal Vulnerability Assessment", was provided by the Department of Geosciences, University of Missouri Kansas-City, United States of America. The course focussed on the following technical components (see Annexure A for detailed course content):

- Advanced remote sensing mapping techniques using ERDAS Imaging and Arc GIS;
- Analytical and geospatial methods for coastal vulnerability mapping;
- Training on NASA Giovanni platform for satellite data retrieval and analysis;
- Geospatial methods for integration of climate model outputs with GIS and other satellite derived product, and
- Introduction to climate modeling downscaling techniques.

The City stands to benefit from this training on numerous fronts. Capacitation to the City has been gained in the field of coastal vulnerability mapping and risk assessment which is becoming increasingly relevant in the context of contemporary pressures such as climate change. In addition to this Mr. Colenbrander will undertake capacity building exercises with other City officials to further expand this skill base within the City. These skills will be developed and retained in-house and is considered a wise investment by the City for optimizing the socio-economic and environmental potential of Cape Town's coastline.

11. ANNEXURE A: course content

FEB 1 – 5: Basic GIS & Mapping I

Day 1: Welcome and Housekeeping
Day 2: Getting to Know ArcGIS: Introduction to GIS
Day 3: Interacting with Maps, Data
Day 4: Coordinate Systems and Projections
Day 5: Review and Questions

FEB 8 – 12: Basic GIS & Mapping II

Day 1: Symbolizing Features
Day 2: Classifying Features
Day 3: Labeling Features
Day 4: Making Maps for Presentation
Day 5: Review and Questions

FEB 15 – 19: Satellite Remote Sensing

Day 1: Satellite orbits, navigation & satellite systems
Procurement of Satellite images from USGS, intro to ERDAS Imagine
Day 2: Electromagnetic radiation, spectral signatures
Landsat LULC classification exercise (unsupervised)
Day 3: Land Applications: Digital image interpretation pt. 1
Landsat LULC classification (supervised).
Day 4: Land Applications: Digital image interpretation pt. 2
Accuracy assessment and change detection analysis
Day 5: Review and Questions

APRIL 22 – 16: Advanced GIS Applications I

Day 1: Geodatabase: Topology & Domains
Day 2: Geodatabase: Editing attributes
Day 3: Spatial Analyst
Day 4: Model Builder
Day 5: Review and Questions

MARCH 29 – 4: Advanced GIS Applications II

Day 1: Applications 1: Flood Hazard Mapping & Assessment
Day 2: Applications 1: Flood Hazard Mapping & Assessment
Day 3: Applications 2: Suitability Analysis
Day 4: Applications 2: Suitability Analysis
Day 5: Review and Questions



MARCH 7 – 11: Climate modeling downscaling and integration

Day 1: Regional climate modeling - Impacts of climate change on coastal winds

Day 2: Heat Waves: Impacts of climate change on heat waves

Day 3: Droughts - Impacts of climate change on droughts

Day 4: Extreme Rainfall Events - Impacts of climate change on extreme rainfall events

Day 5: Review and Questions

MARCH 14 - 18 - NASA GIOVANNI satellite retrieval, analysis and GIS integration

Day 1: Meteorological and Climate applications

COMET Satellite Meteorology application modules

Day 2: Microwave Sensors: Precipitation, Aerosols, Ocean SST & Sea Ice
NASA Giovanni Tutorial / Modules pt. 1

Day 3: Microwave Sensors: Precipitation, Aerosols, Ocean SST & Sea Ice
NASA Giovanni Tutorial / Modules pt. 2


Day 4: LAB

Day 5: Review and questions

MARCH: 21 – 25

Day 1 – 5: Coastal zone assessment and vulnerability mapping

MARCH 28 – 31: Cultural and Tourist Program**FOR FURTHER DETAILS CONTACT:**

NAME	Darryl Colenbrander
CONTACT NUMBERS	021 487 2355
E-MAIL ADDRESS	Darryl.Colenbrander@capetown.gov.za
DIRECTORATE	Energy, Environment and Spatial Planning
FILE REF No	
SIGNATURE	



EXECUTIVE DIRECTOR

Comment:

NAME 24.04.2016
DATE _____





MANAGER INTERNATIONAL RELATIONS
Dr. Denver van Schalkwyk

Comment:

NOTED.

DATE

25/04/2016



CITY MANAGER
ACHMAT EBRAHIM

☒ SUPPORTED FOR ONWARD SUBMISSION TO
MAYOR ☒ / MAYCO ☐ / COUNCIL ☐

☐ NOT SUPPORTED

☐ REFERRED BACK

COMMENT:

DATE

25.04.2016



LEGAL COMPLIANCE

☐ REPORT COMPLIANT WITH THE PROVISIONS OF
COUNCIL'S DELEGATIONS, POLICIES, BY-LAWS
AND ALL LEGISLATION RELATING TO THE MATTER
UNDER CONSIDERATION.

☐ NON-COMPLIANT

NAME Charlynn Arendse
TEL CHARLYNNE ARENDEE
DATE 26.4.2016
021 400 1265

Comment:

For information. BT

JFH v/d Merwe
MAYORAL COMMITTEE MEMBER

COMMENT:

NAME JFH v/d MERWE
DATE 03/05/2016.

A. G. Ras
**EXECUTIVE DIRECTOR: COMPLIANCE &
AUXILLARY SERVICES**
GERHARD RAS

- ☒ SUPPORTED FOR ONWARD SUBMISSION
☐ NOT SUPPORTED
☐ REFERRED BACK

COMMENT:

DATE 5/5/2016

EXECUTIVE MAYOR
PATRICIA DE LILLE

P. de Lille

DATE:

12 May 2016

☐ SUPPORTED FOR ONWARD SUBMISSION TO
MAYCO ☐ / COUNCIL ☐

☐ PC RECOMMENDATION

☐ RECOMMENDATION AS CONTAINED IN
ORIGINAL REPORT

☐ ALTERNATIVE RECOMMENDATION TO BE
REFLECTED BELOW

☒ APPROVED I.T.O. DELEGATED AUTHORITY

☐ NOTED

☐ REFUSED

☐ REFERRED BACK