PARLIAMENT
OF THE REPUBLIC OF SOUTH AFRICA

COMMITTEES
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PORTFOLIO COMMITTEE ON ENVIRONMENTAL AFFAIRS
AGENDA

DATE: 07 AUGUST 2015

TIME: 09:30 – 13:00

VENUE: COMMITTEE ROOM M314, MARKS BUILDING.

	AGENDA	PRESENTER	TIME
1.	Welcoming and Opening Remarks	Chairperson Hon JM Mthembu, (MP)	09:30 – 09:40
BRIEFING BY THE ENTITIES REPORTING TO THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS, NAMELY SAWS AND SANBI ON THEIR MANDATE AND STRATEGIC ROLES.			
2.	BRIEFING BY THE SOUTH AFRICAN WEATHER SERVICES (SAWS)	SAWS	09:40-10:40
2.1.	Discussions	All	10:40-11:00
3.	BRIEFING BY THE SOUTH AFRICAN NATIONAL BOTANICAL INSTITUTE (SANBI)	SANBI	11:00-12:40
3.1.	Discussions	All	12:40-13:00
4.	Adjournment	Chairperson Hon JM Mthembu, (MP)	13:00-13:10

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"Saving lives and Property"

Parliamentary Portfolio Committee on Environmental Affairs

07 August 2015

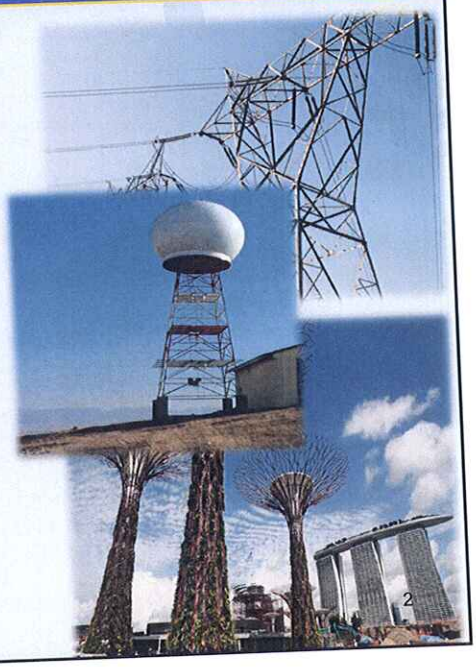
Dr. Linda Makuleni

South African Weather Service

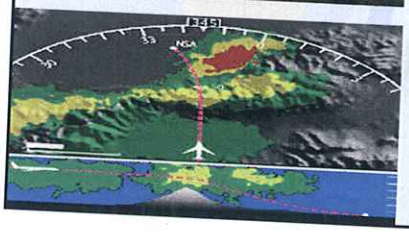
Templ ref: PPT-ISO-.001 Doc Ref no: SAWS-PRES- Parliament 07082015

CONTENTS

- SAWS Mandate
- National Framework for Climate Services
- Knowledge generating institution
  - Custodian of National climatological databank
  - Accredited Regional Training Centre
  - National Education Plan for Atmospheric and related sciences
- Conclusion



SAWS MANDATE



- SAWS is a section 3a entity governed by the South African Weather Service Act, (Act No. 8 of 2001 as amended), the public finance management act (PFMA) and associated treasury regulations.
- SAWS in terms of its enabling act, Act no 8 of 2001 (as amended) is mandated to:
  - Provide **reliable weather services** to support **public good** and its **commercial** ventures
  - Provide **aeronautical** and **marine** meteorological services
  - Provide **ambient air quality services**

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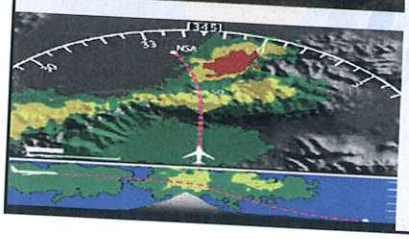
SAWS MANDATE



The objects of SAWS are:

- to ensure ongoing **collection** of **meteorological and ambient air quality data** over south Africa and surrounding southern oceans for use by current and future generations;
- To be a **long-term custodian** of a reliable **national climatological and ambient air quality record**;
- to provide **public good** services and **commercial** services to all South Africans;
- to ensure the ongoing **collection of** meteorological and ambient air quality **data** over **South Africa and surrounding southern oceans** for the use by current and future generations;

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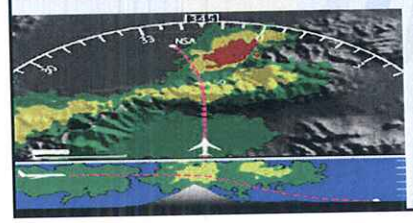
SAWS MANDATE



- to be the **long-term custodian** of a reliable **national climatological and ambient air quality services record**;
- as the **national meteorological service** of the Republic of South Africa, to fulfil the **international obligations** of the Government under the Convention of the **World Meteorological Organization**; (WMO)
- as the **Aviation Meteorological Authority**, to **fulfil** the **international obligations** of the Government under the **Convention of the International Civil Aviation Organization**;

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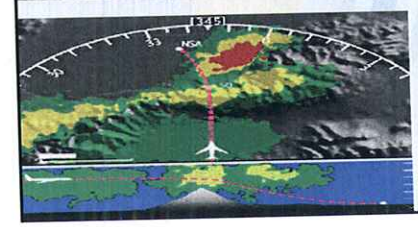
SAWS MANDATE



- to **provide services** that are **sensitive to the demographic** realities of the country;
- to fulfil such **other** weather-related or ambient air quality information(,) **international obligations** as the Minister may direct;
- to be **custodian** of the **South African Air Quality Information System** (SAAQIS).

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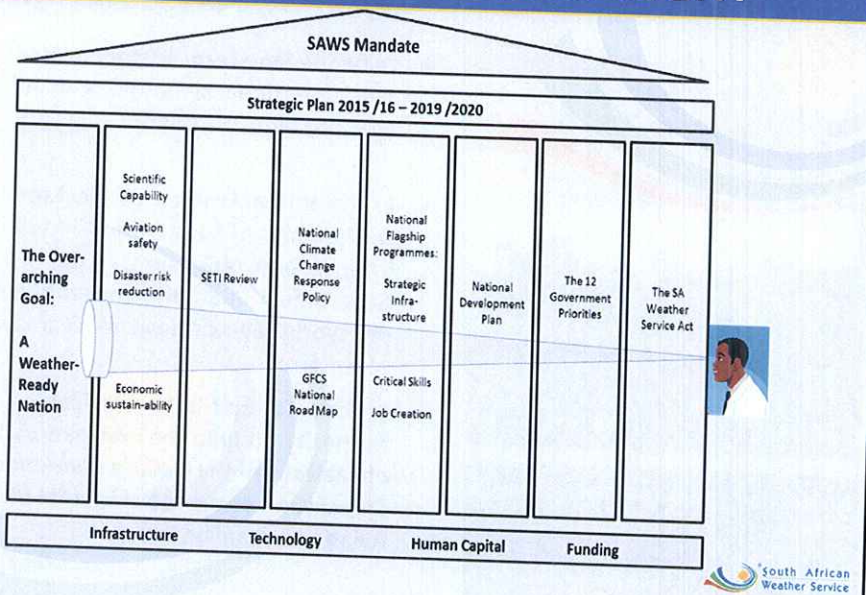
SAWS STRATEGIC LINE OF SIGHT



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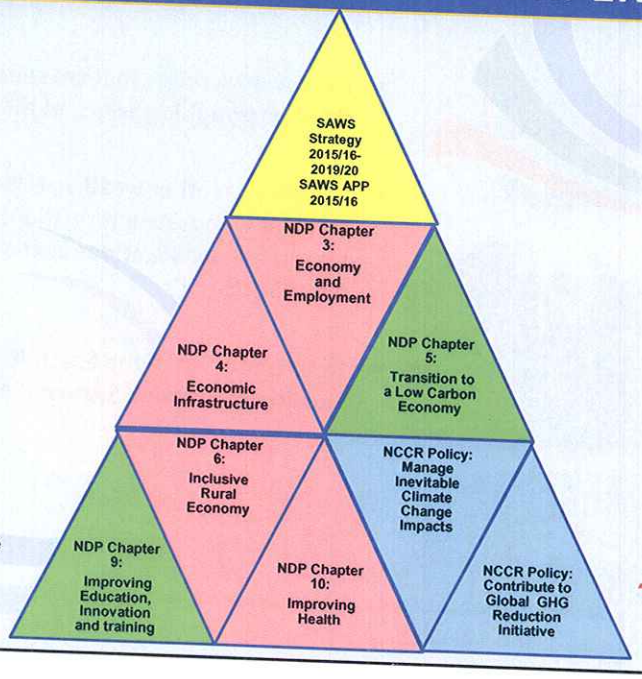
RESPONDING TO NATIONAL IMPERATIVES



NCCR Policy = National Climate Change Response Policy

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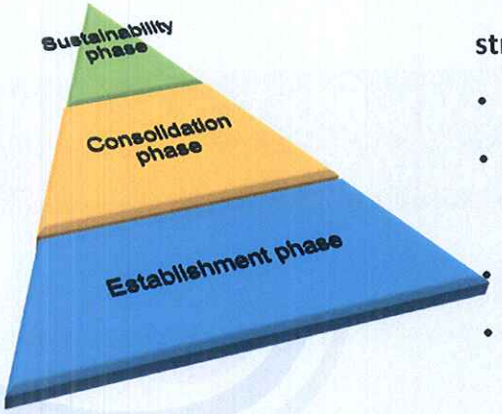
SAWS ROADMAP



Sustainability – focus of strategy

- Resource mobilisation
- Strategic partnering/collaboration
- Positioning of SAWS
- Relevant projects

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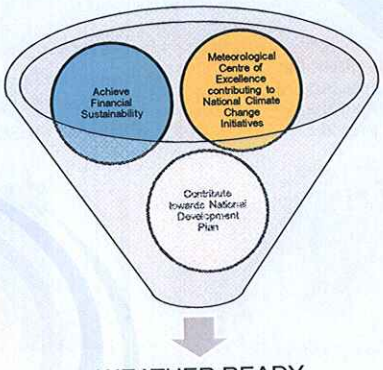
STRATEGIC FOCUS IN A NUTSHELL



WEATHER READY NATION

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NATIONAL FRAMEWORK FOR CLIMATE SERVICES

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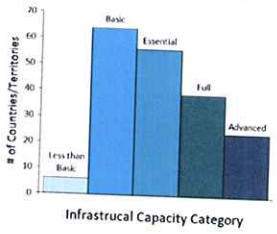
CONCERN

- Many countries lack the infrastructural, technical, human and institutional capacities to provide

Infrastructural Capacities of Countries as of Aug 2010 to provide Basic, Essential, Full and Advanced Climate Services.



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BACKGROUND

- The **World Climate Conference-3** (WCC-3) – Sept. 2009, in Geneva – Declaration on GFCS adopted by 150 countries, incl, Heads of State/Gov., >80 Ministers.
- Sixteenth World Meteorological Congress, WMO was requested through **Resolution 47 (Cg-16)** to lead the development of the Implementation Plan of the GFCS, with active involvement of relevant stakeholders, incl. UN bodies.
- **Aim:** To strengthen production, availability, delivery and application of science-based climate prediction and services.
- **Rationale**: Society will need information tools to adapt as the climate will continue to be variable and to change notwithstanding steps taken to reduce GHG emissions.
- **Climate service**: Providing climate information in a way that assists *decision making* by individuals and organizations. A service requires appropriate *engagement* along with an effective *access mechanism* and must respond to *user needs* (WMO GFCS Implementation Plan).).

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Purpose

1. *Reducing the vulnerability of society to climate-related hazards*
2. *Advancing the key global development goals through better provision of climate services*
3. *Mainstreaming the use of climate information in decision-making.*
4. *Strengthening the engagement of providers and users of climate services.*
5. *Maximising the utility of existing climate service infrastructure. Improving coordination, and strengthening and building this infrastructure where needed*

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GFCS Vision and Pillars

- GFCS VISION -

"To enable better management of the risks of climate variability and change and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale."

Est. 2009

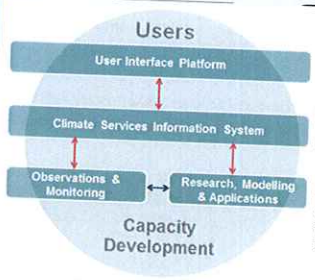
The GFCS comprises five main components -

User Interface Platform

A structured means for users, climate researchers & climate information providers to interact at all levels.

Climate ser information s

The productic distribution sys climate data information pr that address needs.



earch, Modelling & Prediction

To advance the ience needed for nproved climate ervices that meet user needs.

Capacity development

To support the systematic development of the institutions, infrastructure and human resources needed for climate services.

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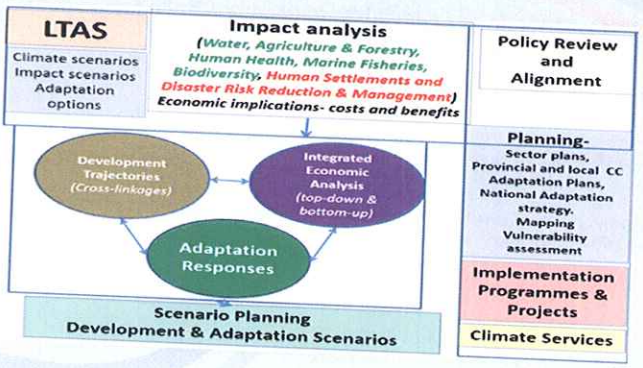
LINKAGES TO NATIONAL PRIORITIES

The NFCS-SA and NCCRP imperatives are aligned and complementary in providing a system for the effective delivery climate services.



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PROGRESS IN THE DEVELOPMENT OF NFCS

Phase 1: Roadmap for Climate Services

Phase 2

Mapping the climate services landscape

- Literature review and desktop research
- Roadmap
- Face-to-face interviews
- Database development, detailing:
  - Role players;
  - Overall climate-related service offerings/ applications;
  - Activities underway/ planned;
  - Gaps (where applicable);
  - Indicative collaborating framework, mechanisms and structure(s); and
  - Current/ available interface mechanisms.

Phase 3

Gap analysis

- Identify and analyse gaps in South Africa's climate services landscape, based on:
  - GFCS requirements for establishing a NFCS; and
  - Information from Roadmap presentations, stakeholder interviews and desktop research

Phase 4: NFCS-SA

Implementation Plan of NFCS-SA

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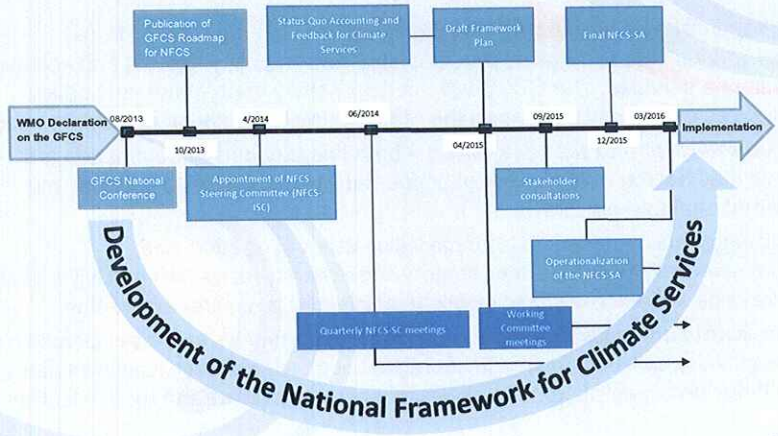
TIMELINE IN THE NFCS IMPLEMENTATION



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ROADMAP FOR SAWS

- Participation of ***stakeholders*** in climate services in South Africa.
- Support by MASA and RA-1
- Need for ***continued championing*** of climate variability and change efforts at the highest national leadership level was identified.
- Reinforced the ***collaborative culture*** required for successful support to vulnerable and resource poor communities that have the least resilience to the impact of climate variability and change and severe weather events.
- Need for ***Policy Alignment*** in order to create an enabling environment for the GFCS and National Climate Change Response Policy to be implemented successfully.

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ROADMAP FOR SAWS: FUTURE ACTIONS

- ***Policy interface and institutional arrangements*** – this will address appropriately the synergistic relationship between policy makers and scientists in climate services. The GFCS will not necessarily bring about new policy initiatives but will rather support the effective implementation of existing ones.
- ***Data integrity and dissemination*** – both integrity and dissemination are viewed as having a framework of accountability that includes national and international role-players.
- ***Modelling*** – the requirement is for modelling issues to be addressed comprehensively to include data integrity and reliability issues. The possibility of an Africa-wide modelling resource mobilisation initiative is requires exploration.
- ***Inter-institutional collaboration on outreach*** – opportunities have been identified for strengthening collaboration in climate-related outreach work between institutions; Multi-disciplinary collaboration includes that between climate and social scientists.

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ROADMAP FOR SAWS: FUTURE ACTIONS...

- ***Sector-specific capacity building*** – gaps in sector-specific capacity were identified and will be addressed in the future GFCS Implementation Plan.
- ***Strengthening DRR framework of accountability*** – opportunities for further strengthening of collaboration and addressing potential gaps were identified. Experiences from other jurisdictions will be examined for relevance and utility within the South African context.
- ***Built environment (infrastructure) and environmental impact*** – opportunities to address adaptation to climate variability and change related to the built environment (residential and occupational) in a dedicated manner were identified.
- ***Capacity building and innovation*** – new innovations are to be explored. This includes identification of strategic and operational partnerships.
- Positioning of climate services in relation to ***socio-economic development*** – dedicated studies on the impact of climate on socio-economic development are required.

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NATIONAL EDUCATION PLAN FOR ATMOSPHERIC AND RELATED SCIENCES

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CONCERN

- South Africa has high levels of unemployment resulting in at least 36% of youth unemployed;
- only 16% of South African workers are in Science and Technology occupations;
- In order for SA to achieve its identified national priority outcomes and in particular the National Development Plan (NDP) objectives, it is necessary to avail the necessary competencies;
- The contribution of meteorological and climate impact sciences is articulated in the NDP in respect of contribution to sustainable economic development, innovation as well as creating resilience among communities; and
- Further, it is recognised that the advancement of knowledge and skills in these sciences will enhance South Africa's continued positioning within the region and globally.

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PURPOSE - NATIONAL EDUCATIONAL PLAN

The primary purpose of the National Educational Plan is:

To address the country's shortage of the required skills in science related field, specifically the Weather, Climate impact, Climate risk reduction and Air Quality sciences. This will be done by building the national talent pool in the specified sciences.

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POLITICAL BACKGROUND

A vision for 2030: South Africa's National Development Plan

"South Africa can realise its vision by drawing on the energies of its people, growing an inclusive economy, **building capabilities**, **enhancing the capacity of the state**, and promoting leadership and partnerships throughout society."

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STRATEGIC FRAMEWORK

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STRATEGIC FRAMEWORK: VISION 2030

- The National Educational Plan emanates from the ***National Development Plan*** introduced in 2013 whose aim is to eliminate poverty and reducing inequality in South Africa by 2030 through economic growth, job creation, improved education and skills etc;
- The Department of Higher Education and Training's ***White Paper on Post School Education and Training*** - It represents government's thinking in the capacity building in higher education and training and is in line with the country's National Development Plan, the New Growth Path, the Industrial Policy Action Plan and the Human Resource Development Strategy for South Africa.

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CHALLENGES IDENTIFIED WITHIN SOUTH AFRICA

- ***Loss of property and lives*** due to weather related disasters;
- ***Increased usage of funds*** for restoring infrastructure and effects of the damage of weather related incidents;
- ***Water-born diseases and respiratory ailments*** which are traceably from both weather incidents and air pollution incidents;
- ***Shortage of skills*** with prerequisite skills in weather and climate related field; and
- ***Climate variability and extreme events;***

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LINKAGE TO NATIONAL DEVELOPMENT PLAN

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LINKAGE TO THE NATIONAL DEVELOPMENT PLAN

Aim of the National Educational Plan - Build the national talent pool with the skills to help achieve the vision as per the chapters below.

Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 9	Chapter 10
Economic & Employment development	Economic Infrastructure development	Environmental sustainability	Inclusive rural economic development	Improving Education, Training and Innovation	Health care for all

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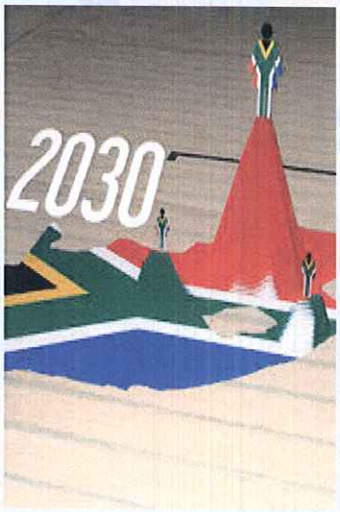
IMPACT - NATIONAL EDUCATIONAL PLAN

- Alleviate poverty through creation of employment opportunities;
- Adequate talent pool with requisite skills to address the country's weather and climate matters;
- Contribute to the knowledge economy of the country;
- Effective climate risk reduction i.e. Disaster Management;
- Improved health by reduction of water and air borne disease impact.



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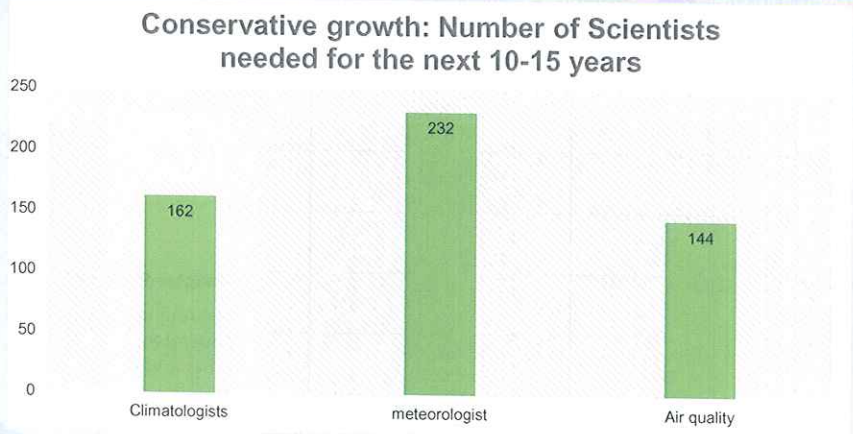
Conservatively: Numbers of Scientists needed for the next 10-15 years



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THE CRITICAL SKILLS TO BE DEVELOPED

- Meteorology;
- Climatology;
- Air quality;
- Agro-meteorology;
- Hydro-meteorology;
- Health;
- Early warning and disaster management;
- Alternative energy; and
- Oceanography/Marine; and
- Other not yet identified areas

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PROJECT PLAN FOR THE NATIONAL EDUCATIONAL PLAN

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PROJECT PLAN

PHASE	ACTIVITY	TIMELINE
PHASE 1	Stakeholder Engagement	2015/16
PHASE 2	Resource Mobilization	2016/17 – Stakeholder Engagement Resource Mobilization
PHASE 3	Implementation of the National Educational Plan	2017/18

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STAKEHOLDERS IDENTIFIED

- Department of Higher Education
- Department of Basic Education
- Skills Education Training Authorities
- Department of Science and Technology
- South African Weather Service
- Department of Environmental Affairs
- Department of Water Affairs
- Department of Agriculture, Forestry and Fisheries
- Department of Energy
- Department of Health
- National Research Foundation
- Water Research Commission
- Agricultural Research Commission
- University of Pretoria
- University of Zululand
- University of North West
- University of Free State
- University of Fort hare
- University of Kwa-Zulu Natal
- University of Cape Town
- University of Witwatersrand
- Local Government
- Private sector
- And many more that wants to work together.

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BUDGET PROPOSAL

Summary of Total Cost			
Groups	Estimated cost for one year	Estimated total cost for 5 or 15 (group 2) years	Estimated total cost with a 5.7% CPIX included for 5 years.
Meteorology and Climatology	R 26,300,000	R171,500,000.00	R192,903,200.00
Related sciences to meteorology and climatology	R15,700,000	R118,500,000.00	R133,288,800.00
New Sciences or sciences that needs expansion)	R10,000,000	R190,000,000.00	R 213,712,000.00
PROJECT IN TOTAL	R52,000,000	R480,000,000.00	R 539,904,000.00

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PROGRESS ON THE NATIONAL EDUCATIONAL PLAN

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STAKEHOLDER ENGAGEMENT

- Endorsement of the National Educational Plan by MINMEC;
- Development of the Stakeholder Engagement Plan;
- Engagement of Department of Higher Education and Training (DHET) and the other main stakeholders i.e. Universities;
- Identification of working groups to research each occupational list (Air Quality, Meteorology etc.) and resource requirements;
- Submission of the relevant reports to the DHET as per the research done for each occupational list

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CONCLUSION

Critical Success Factors

- Political support
- Collaboration
- Leveraging capabilities and competencies
- Resource mobilisation
- Continued monitoring and evaluation

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Discussion?

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ISO 9001 Certified Organisation

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EDUCATIONAL CATALYTIC PROJECT

EDUCATIONAL DEVELOPMENT PLAN FOR CRITICAL SKILLS AND MAINSTREAMING OF WEATHER AND CLIMATE IMPACT SCIENCES

IN SUPPORT OF IMPLEMENTATION OF THE

NATIONAL DEVELOPMENT PLAN

From

South African Weather Service

(SAWS)

Document Reference:	HCM-RTC-BC-2013-001
Document Type:	Catalytic Project Proposal
Version:	6

DOCUMENT CONTROL

Version and Amendment Schedule

Version	Version Date	Author	Description of Amendments
0.0	28 November 2012	Dr Winifred Jordaan Prof Hannes Rautenbach	Initiate draft
1	29 January 2013	Dr Winifred Jordaan Prof Hannes Rautenbach Prof Coleen Vogel Prof Themba Dube	First version
2	18 March 2013	Dr Winifred Jordaan	Second version
3.1	22 March 2013	Mr L Gcwensa	Third version
3.2	30 April 2013	Dr Winifred Jordaan	Adaptation to the pivotal project plan
4	July 2013	Dr W Jordaan	Additions
5	September 2013	Dr W Jordaan	Stakeholder analyses and phases
6	16 December 2013	S.F. Mphuthi	Addition of text regarding "Catalytic" project

Compliance Schedule

Compliance Type Checked	Compliance Approved by:	Responsibility	Signature	Date of Compliance Approval

Approval and Control Schedule

Approved By	Designation	Responsibility	Signature	Date Approved	Copy Status

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LIST OF TABLES

ACRONYMS

ACCESS	-	Applied Centre for Climate & Earth Systems Science
CoE	-	Centre of Excellence
DEA	-	Department of Environmental Affairs
GFCS	-	Global Framework for Climate Services
IPCC	-	Inter-governmental Panel for Climate Change
MASA	-	Meteorological Association of Southern Africa
NDP	-	National Development Plan
PR	-	Permanent Representative
SADC	-	Southern African Development Countries
SAWS	-	South African Weather Service
SIPs	-	Strategic Integrated Projects
WMO	-	World Meteorological Organization

EXECUTIVE SUMMARY

This document is an education development plan, that integrates national resources to address the identified shortage of skills in weather, climate impact and climate risk reduction and air quality sciences critical to the country. This plan addresses key objectives and actions outlined in the National Development Plan (NDP) for South Africa. It is in the latter regard that the plan is being proposed as a *Catalytic Project* in support of the implementation of the National Development Plan. In particualr, the *catalytic* character of the plan lies in its integration of priorities and objectives across most sectors in the NDP, the mainstreaming of scientific and innovation skill sets that will drive economic performance beyond the specific needs of the meteorological and climate impact sciences. Central to the achievement of the integrative impact and maintsreaming of science and innovation by the plan is the significance now attributed to meteorology and climate impact sciences in themselves as subject matter. The contribution of meteorological and climate impact sciences is articulated in the NDP in respect of contribution to sustainable economic development, innovation as well as creating resilience among communities. Further, it is recognised that the advancement of knowledge and skills in these sciences will enhance South Africa's contued positioning within the region and globally.

It is envisaged that the project will be done in different stages. The projected human capital capacity needs indicate that the output of the different scientific needs to triplicate in the next five (5) years to keep up with the demand in various institutes. The summary of the cost based on the estimated activities is as follows:

Table 1: Summary of Total Cost

Groups	Estimated cost for one year at 2013 rate	Estimated total cost for 5 or 15 (group 2) years at 2013 rate	Estimated total cost with a 5.7% CPIX included for 5 years.
Total GROUP 1A	R 26,300,000	R171,500,000.00	R192,903,200.00
Total GROUP 1B	R15,700,000	R118,500,000.00	R133,288,800.00
Total GROUP 2 (total cost on 15 years)	R10,000,000	R190,000,000.00	R 213,712,000.00
PROJECT IN TOTAL	R52,000,000	R480,000,000.00	R 539,904,000.00

1. INTRODUCTION

This document is an Educational Development Plan, formulated as a *catalytic project* in support of the implementation of the National Development Plan – 2030 (**NDP**). The Educational Plan integrates national resources to address the identified shortage of skills in weather, climate impact and climate risk reduction and air quality sciences critical to the country. In its formulation and implementation, the Educational Plan addresses key objectives and actions outlined in the NDP. It is in the latter regard that the plan is intended to be a *Catalytic Project* in support of the implementation of the NDP. In particualr, the *catalytic* character of the plan lies in its effect of achieving the following:

- Integrating priorities and objectives across most sectors in the NDP;
- Mainstreaming of scientific education and innovation skill sets that will drive economic performance beyond the specific needs of the meteorological and climate impact sciences; and
- Specific advancement of the subject matter of meteorology and climate impact sciences, leading to the highest capability standards nationallly.

In addition to the above fundamental contribution to national priorities, the NDP also recognises that the advancement of knowledge and skills in these sciences will enhance South Africa's continued positioning within the region and beyond as a centre of excellence for meteorology and climate impact sciences.

Based on the foregoing, it is self-evident that the implementation of the Educational Plan has to assume the character of a *National Catalytic Project* in order to yield optimal national benefit from the educational and training programmes outlined in the rest of this document.

Due cognisance is taken of the need to secure the status of a national catalytic project in support of the implementation of the NDP. Key stakeholders have been identified based on the broad and complex nature of actions required to implement the NDP. Similarly, there is also recognition that key aspects of the Educational Plan are already being implemented, albeit, at institutional level, as driven by the South African Weather Service (SAWS). Given this status quo, it will be advantageous to proceed along a path that allows for

implementation of the Educational Plan at institutional (SAWS) level whilst concurrently securing championing and resource mobilisation as a *National Catalytic Project*. The parallel processes require that a rigorous programme management standard be utilised to ensure that educational and training programmes can be implemented incrementally, in line with the securing of resources ultimately resulting in the catalytic effect described above.

The rest of this document outlines the following:

- Overall rationale and justification of the Educational Plan as a National Catalytic Project
- The strategic case
- The economic case
- Implementation approach
- Conclusion and summary
- Recommendation

2. OVERALL RATIONALE AND JUSTIFICATION OF THE EDUCATIONAL PLAN AS A NATIONAL *CATALYTIC PROJECT*

2.1 Purpose

The purpose of this document is to:

- Promote the educational plan for meteorology and climate impact sciences as a national *catalytic project* in support of the implementation of the NDP;
- Outline specific efforts aimed at expanding existing human capacity in meteorology and climate (one of which is to double the number of forecasters graduating every year);
- Contribute to mainstreaming of science education and innovation nationally through incorporation and development of related disciplines (agro-meteorology, hydro-meteorology, air quality, disaster risk reduction and integrated water management).

2.2 Background

Worldwide, economic and population growth is resulting in more sectors becoming exposed and influenced by both weather and climate, including associated events (e.g. floods, droughts, extreme heat days, diseases etc.). Weather patterns and climate (both climate change and climate variability), for example, are projected to change in the near future as a result of anthropogenic changes, including global warming. The discourse has also included the science of air quality as a priority to head back and mitigate against the adverse effects of harmful emissions worldwide. In this context, South Africa is playing a pivotal role and has identified air quality as a key strategic scientific area in which to contribute to the well–being of its citizens.

Climate variability and extreme events are a common feature in South Africa's climate regime. Extreme weather events such as floods, coastal inundations, droughts, and wildfires, have increased, in some cases, in frequency and intensity over the past three decades (Collins, 2011; Zhou, 2010). Surface air temperatures in South Africa have increased significantly since 1900. Over the past thirty years, most of the country has warmed by about 1°C (New, *et al.*, 2006; Hughes and Balling). In line with global trends, no large areas in South Africa exist where there is a spatially coherent positive or negative trend in annual rainfall for the last century. The data indicate areas with more extreme dry and wet seasons as well as increases in high daily precipitation amounts. Model projections, however, reveal that, by 2050, there will be significant drying in most of the western and inland parts of the country with a possible wetter trend in eastern parts. Notwithstanding the uncertainty of the science, climate impact loss estimations continue to grow. Costs of extreme weather events since the year 2000, for example, are estimated at R1 billion per annum. Though this figure is conservative taking into account that it is often capturing only first-order impacts.

Given this changing scenario and potential strain on an already stretched fiscal position, the need for a more targeted and credible system to monitor and assess change is evident. The observed climate trends suggest the need to research and plan for these events more strategically including monitoring and to better understand climate impacts. Moreover, there is an urgent need to enable the development of effective local adaptation and mitigation strategies including effective national and local risk reduction efforts.

For South Africa and the Southern African region, it has therefore become essential to not only focus on the long-term climate in order to facilitate adaptation, but also on daily weather patterns, which in some cases have a more direct influence on the economy and social society. In most cases, these influences exacerbate existing stresses (e.g. through floods, structural damage, agricultural disasters, disease outbreaks etc.)

Weather and climate impact sciences and their applications therefore are large in scope and include, amongst others:

(1) Meteorology;
(2) Climatology;
(3) Air quality;
(4) Agro-meteorology;
(5) Hydro-meteorology;
(6) Health;
(7) Early warning and disaster management;
(8) Alternative energy;
(9) Oceanography (marine)

2.3 Supporting implementation of the NDP and achievement of national priorities

The NDP and the actions required around the NDP enable the targeting of critical areas that should be addressed through education development in weather and climate impact sciences. These areas include:

- Economic and employment development – potential for enhanced and expanded different career opportunities in the above-mentioned sciences;
- Economic infrastructure development – potential for water management, disaster prevention and agricultural development skills;
- Environmental sustainability and resilience skills - weather and climate impact sciences have a direct impact on the environment;
- Inclusive rural economic development - agriculture, small-holder farming;
- Improving education, training and innovation as this plan addresses critical and essential skills components;

- Health care for all and social protection - It is well known that climate has a direct link to general health and thus health care institutes should also have access to these information.

Looking at the eighteen (18) Strategic Integrated Projects (SIPs) identified by the government that focus directly on infrastructure development plans for the country and beyond, they cannot be clinically implemented without the input from meteorologists, climatologists and air-quality scientists. For example, any building project, to a large extent, requires weather and climate considerations. Without careful planning, by not taking the weather and climate into account, costs may skyrocket due to unexpected weather events.

The energy SIPs, especially energy SIP 8: *Green energy in support of the South African economy*, needs meteorological information and knowledge. In the process to address SIP 18 for adequate water supply, direct involvement from the meteorologists will be needed.

In the Human Capital Strategy for the environmental sciences, the Department of Environmental Affairs (DEA) has already identified a shortage of skills in the environmental sector especially in the field of air quality and climate change.

South Africa is signatory to the World Meteorological Organization (WMO) Global Framework for Climate Services (GFCS). This therefore puts an obligation on SAWS to take a leading role in building capacity in weather and climate sciences to ensure development of effective strategies for societal adaptation to climate change and variability.

The National Climate Change Response White Paper identifies climate change education as fundamental to future development pathways and the well-being of South African society. This would require, among other things, that climate change and related environmental issues be included in all relevant aspects of formal education curriculum, with an emphasis on qualitative research of the human resource needs for a green transition as well as other societal adaptation strategies and needs.

Through this proposal and associated products, South Africa will provide education and develop skills to scientists in South Africa and the region, as defined in the mandate of the SAWS and this may be the building blocks in having SAWS becoming a leader in the field of Climate Services.

Due to the complexity of the service, distance learning activities are also becoming important. SAWS has started with distance learning activities as personnel are spread right around the country. This is assisting SADC as well. This service will have to expand drastically, as the sciences develop.

It is therefore important to start investing in comprehensive and coordinated approaches to education about weather and climate, climate impacts and climate resilient living including mitigation and adaptation-related sciences. Such an investment should begin with a substantial component of human capacity building. This may be achieved, in part, by encouraging scientific excellence through the achievement of higher degree qualifications and innovative research, and at the same time by including the broader community involved in the discourse including those affected by weather and climate impact sciences and its associated activities.

3 STRATEGIC CASE

3.1 The Case for Change

As demonstrated in the NDP and in other contextual issues outlined above, most day-to-day activities in modern society are integrated. It has thus become important and urgent to follow a similar integrated approach in human capital development in order to retain optimal utilisation of limited resources. SAWS has to date operated mostly independently by focusing on providing excellent and credible weather and climate data including relevant information and forecasts to various sectors. In most cases, these are used in isolation from science experts who could add value and improve the user-value of the weather and climate

information. This is far from ideal and a more integrated approach is required, given the expected future changes in weather patterns and climate.

Most weather and climate related sciences have a mathematical and physical base. Scientists in these fields are relatively scarce in South and Southern Africa. It is therefore essential to invest in human capital development in the field of mathematics and physics, as well as some related disciplines. Apart from this, it is also critical that such knowledge development is also channelled towards wider applications in order to ensure that it adds value to improved economic growth and quality of life.

A number of scientific institutions, including Government Departments, Sciences Councils, Universities and others, will benefit from such human capital development. This will be to the benefit of the country as all institutions involved will collaborate in a combined effort to enhance human capital development. The human capital development will not only focus on new education, but also on continuous training and the upgrading of existing human capacity.

The indication, therefore, is that it has become urgent to be proactive regarding an integrated approach to Weather and Climate Services at a national level.

It is an advantage that the further detailed articulation of this plan will be based on work already under way. This includes proposals by SAWS for the hosting of an integrated science hub where capacity building and education will take place. The hub would assume the role of a *Weather and Climate Services Academy*. The resource implications (including building facilities) are included in the indicative costs in Table 1.

All of these aspects are an integral part of giving this Educational Plan the character of a *National Catalytic Project.*

3.2 The Integrative and Mainstreaming Effect at National Level

The proposed Educational Plan, in its character as a *National Catalytic Project*, provides an unprecedented opportunity for combining the integrative and mainstreaming effects at national level with support for an overall migration of SAWS towards maturity at institutional level.

At national level, the integrative effect is identified most in the impact that the implementation of the plan will have on the achievement of the goals of the NDP and national priorities in general.

The NDP envisages that South Africa should grow economically and develop sustainable social delivery to enable the country to alleviate poverty and other challenges. The NDP envisages a better South Africa in 2030, with a higher standard of living and education. The SIPs will enhance the implementation of the infrastructure programme to assist the NDP and here, as with any infrastructure development, meteorological and climatological input is critical for such projects.

As indicated in 2.3 above, the plan proposed here will address critical aspects of the NDP and it will also support the 18 identified SIPs, and, as such, will have an impact the South African population as a whole. It will also ensure that South Africa will have the skills and competencies to assist the wider region to adapt, mitigate and reduce the risks associated with changes in weather patterns and climate.

3.3 Supporting sustainability at institutional level

At institutional level, SAWS as the sponsor of the Educational Plan will benefit through strengthening the three thrusts that have driven the organisation since its inception, with close support from the Ministry of Environmental Affairs, namely:

- **Growth and short-term viability** – the proposed educational and training programmes of this plan will contribute invaluable benefit in ensuring that, in the short-term, SAWS grows and continues to fulfil its mandate through a "funded" mandate. In particular, resource allocation commensurate with the role of SAWS in

the short-term will enable the organisation to retain its capability and, through retention of fluency in the implementation of the plan, provide a stable basis for expanding training programmes and strategic partnerships

- **Consolidation** – SAWS is continuously striving for consolidation of its capability and capacity. Thus, as training programmes in this plan are delivered, SAWS will, on an incremental basis, attain Centre of Excellence (**CoE**) status for programmes delivered directly as well as those delivered through strategic partnerships. This augurs well for the overall migration of SAWS towards organisational maturity, as evidenced by the Total Quality Management system of the organisation
- **Sustainability** – SAWS strives for sustainability through the first two thrusts just described. Growth enables the organisation adapt to new demands in fulfilling its mandate whilst consolidation ensures that the organisation has resilience during times of limited resourcing. Further, SAWS cultivates mutually beneficial relations that enable the organisation retain and deliver on its mandate

4 THE ECONOMIC CASE

4.1 Main benefits criteria

The main outcome of this project will be able to build capacity that addresses the critical need that is already visible in the country (note, for example, the recent cases of flooding in the past few years, not least the impacts recorded towards the end of 2012 and 2013 and the searing heat recorded in 2013) but also to address the scientific capacity needs that need to be developed.

It is important for this project to establish the scientific need that the municipalities will have in the next 5, 10 and 15 years. A questionnaire was sent to the disaster managers within the municipalities in an attempt to establish what they regard as important skills for them. See Appendix A for the summary of the survey.

Of the 9 municipalities that answered they indicated that they will need 10 Climatologists, 17 disaster managers, 8 forecasters and 18 air quality specialists in the next five (5) years.

If the trend is extrapolated to the other district and metropolitan municipalities that probably will have a need for these skills, the need can be such:

There are 52 district and metropolitan districts in South Africa.

At least one climatologist and forecaster and at least 2 air quality specialists for the next 5 years for each of the 52 municipalities. Thus at least 52 new climatologists and forecasters with 104 air quality specialists need to be trained only for the municipality needs. They also indicated that they need related skills such as GIS specialists, noise level inspectors and environmental health.

All this will directly translate into internships and then permanent positions that need to be filled with well trained personnel. On the moment on an average 5 meteorologists complete the course per year. For meteorology and climatology (thus for all the other sciences), there is a need to support the learners from first year to final 4th year. Target groups will be from the disadvantaged groups that have mathematics and physical sciences passed with at least 50% or higher from around the country as the offices are spread around the country.

This project directly address some of the NDP action plans as well as the Green Paper on Post School Education and Training, GFCS implementation requirements, as well as the medium- to long-term aspirations of the National Climate Change Response White Paper with regard to investment in human and productive resources to enable sustainable growth in green sectors. It will assist in reaching the published goals of SAWS.

In order to address the needs of the country, the educational institutes will have to be able to produces the adequate numbers of scientists within the areas identified below:

- Meteorologists (including forecasters)
- Climatologists:
- Air quality specialists

Outside the realm of known sciences, there is already a need for environmental health scientists.

It must be noted here that in the Human Capital Development strategy for the Environmental sciences mention was made of a need to achieve at least 350 for climate change mitigation and adaptation as well as air quality specialists.

4.2 Distributional Impacts

This project and programme suggested here will impact directly on the lives of South Africans, especially the poorest (agriculture, health and disaster management). The development of the sciences and capacity will also create new scientific fields and thus new job opportunities. The existing opportunities will also be enhanced.

Out of the developed human capacity a number of spin-offs will be derived including a more credible identification of climate change and climate variability impacts and a more carefully targeted set of efforts for effective climate risk reduction and resilience building. For example, in disaster management, it is usually the poor people living in and near marginal and high risk zones (e.g. in and or near riverine areas or living in flood prone areas) that is usually hit the hardest by extreme rainfall events.

5 IMPLEMENTATION APPROACH

5.1 Key Stakeholder Relations Management

The stakeholder analysis in section 5 will apply as detailed therein. Here only the champion and sponsor are indicated for purposes of the implementation approach.

5.1.1 Championing of the Educational Plan as a National Catalytic

It is anticipated the plan as a national *Catalytic Project* will be championed at the level of the Ministry of Environmental Affairs, through the relevant framework of accountability, as may be advised by the Ministry.

The desired champion role of the Ministry of Environmental Affairs is to endorse the resource mobilisation efforts of SAWS and other stakeholders of the Educational Plan on the basis that it has the character of a *National Catalytic Project* supporting the implementation of the NDP. Further, the champion will also involve attainment, ultimately, the designation of the Educational Plan the status of a National Catalytic Project.

5.1.2 Sponsorship

Based on the need to fulfil its mandate effectively, SAWS will assume the role of sponsor of the Educational Plan. This includes securing championing of the plan by the Ministry of Environmental Affairs as well as dedicated engagement with strategic partners and other key stakeholders for resource mobilisation and implementation of the plan.

5.2 Programme Management Standard

5.2.1 Implementation framework of accountability

In most cases a consortium guided by an overarching steering committee is envisaged.

The different areas of the project will, however, have different project management arrangements.

The GROUP 1A includes those already directly involved in meteorology and climatology. These competencies already fall within the South African Weather Service mandate. It is envisaged therefore that the South African Weather Service will take responsibility for this part of the project working together with those already engaged in accredited courses on meteorology and climatology. The CEO of SAWS will thus take the responsibility.

The GROUP 1B will be informed more fully by the consortium and steering group. In most cases the stakeholders are clearly defined but others may be required as the programme develops. This group needs to be established, a management group needs to be selected with a chairperson that will drive the process.

GROUP 2 will also be led by inputs from the wider consortium and steering committee. It will not always be clear who all the stakeholders are. The idea is to have an overall consortium that will identify the different areas to be developed. As the areas are identified, working groups needs to be identified with clear terms of reference to plan the curriculum. After the planning the curriculum will also have to be developed and registered by the identified institution that will conduct the capacity development.

5.2.2 Implementation phases

It is clear from the scope above that this project will need to be done in phases.

Phase 1:

As the Group 1A is well defined and needs to be tuned to the needs and requirements of the community and WMO standards, this group will be targeted first.

The SAWS will take the lead here through the RTC. The role players are known and can be expanded. More information sharing and guidance needs to be given to the Education institutions.

The distance learning activities must be expanded to include more access to material and information.

The Role Players will be:

The RTC Pretoria

The interested Educational Institutions

WMO

Interested parties.

The Resources needed:

A Chairperson: The chair will need to be nominated by the SAWS CEO.

Administrative person to organize the meetings and workshops from the RTC.

Expansion of training personnel according to growth of the training needs of the RTC like a marine forecaster trainer

A web developer/administrator (the administrator and wed administrator can be the same person if the organizing committee and the Group 1A committee are different))

Training Facilities including committee rooms.

Budget to function

Phase 2:

This phase will be the establishment of the consortiums that will address Group 1B and Group 2. These groups will have preliminary meetings until permanent groups have been established. One of the main objectives of these groups will be the identification of occupation categories that needs urgent attention. As soon as these categories have been established, a working group needs to be established that will address these urgent educational needs.

The Role Players will be:

SAWS

All relevant institutions

All relevant Educational Institutions.

The resources needed:

The establishment of an organizing committee by the different groups.

The organization committee can consist out of the following:

A chairperson

A vice- chairperson

A secretary/administrative person

This organization committee will have to be housed at a fixed location

RTC Committee rooms needs to be available

Strong communication network

Budget

Phase 3:

This phase will be staggered according to needs and thus working groups established by the consortiums.

Each working group will have to communicate and work through the organizing committee.

These working groups will report back to the consortiums.

The Role players:

Each working group will be identified by the consortiums

The organizing committee.

The recourses needed:

The RTC committee rooms

Budget

5.2.3 Programme Milestones

GROUP 1 A

Table 2 Programme Milestones

Area of interest	Different aspects	Milestone
Meteorology		
	Definition of Meteorologist and meteorological Technician to be implemented	End Nov 2013
	Increase the number on intake per year to 25 minimum	From 2014
	Aviation personnel competencies concluded: forecasters	End Nov 2013
	Aviation personnel competencies: met tech	3 years
	Marine personnel competencies concluded	Date will be released with WMO documentation
	Public Weather personnel competencies	Date will be released with WMO documentation
	Certification of met tech on instrumentation calibration	3 years
	Distance learning development: Appointment of a contract on web administration Development and administration	ASAP then continuously.
Climatology	Definition of Climatologist implemented	TBA
	Increase the number of intake per year	After definitions implemented
	Distance learning development	continuously

GROUP 1 B

Area of interest	Different aspects	Milestone
GROUP 1B	Establishment of consortium	June 2014
Agro-Meteorology	Need to establish group	TBA
Hydro Meteorology	Need to establish group	
Disaster management	Need to establish group	

GROUP 2

Area of interest	Different aspects	Milestone
GROUP 2	Establishment of consortium	End 2014
Social scientists		TBA
Air Quality	Need to make contact with relevant establish group Definition of a full course as well as capacity for training in Air quality.	End 2015
Disaster	Need to establish group	

management		
New courses	Identification of new courses by consortium	TBA

6 CONCLUSION AND SUMMARY

This proposal is an education development plan, that integrates national resources to address the identified shortages of skills in weather and climate impact and risk reduction related sciences critical to the country. This plan address some of the identified objectives and actions outlined in the NDP for South Africa.

This plan is critical not only for South Africa but the whole of southern Africa. If the human capacity shortage in this critical area is not addressed, the whole region may not be able to keep abreast with the challenges associated with climate change and continuing climate variability.

7 RECOMMENDATION

The recommendations for taking forward this Educational Plan are twofold:

- Approval of the Educational Plan at institutional level – it is recommended that SAWS approve the plan and the role of a sponsor, which entails:
    - Initiating and driving the process of securing formal championing of the plan by the Minister of Environmental Affairs as a *National Catalytic Project* as well as initiating resource mobilisation commensurate with the desired designation of a *National catalytic Project* in support of the implementation of the NDP
    - Supporting implementation of programmes of the Educational Plan on the basis of currently available resources, as a parallel process with promoting the plan as a national catalytic project
- Approval of the proposed role of champion for the Educational Plan by the Minister of Environmental Affairs, which entails endorsing the plan for designation as a *National Catalytic Project* in support of the implementation of the NDP

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APPENDIX A – ESTABLISHED NEEDS FROM THE MUNICIPALITIES

ESTABLISHED NEEDS FROM THE MUNICIPALITIES:													
Municipalities	Climatologists			Disaster Managers			Meteorologists			Air Quality Specialist			Total
	1-5	5-10	10-15	1-5	5-10	10-15	1-5	5-10	10-15	1-5	5-10	10-15	
Waterberg District Municipality	2	2	2	7	0	0	2	2	2	2	2	2	25
Saldanah Bay	1	0	0	1	0	0	1	0	0	2	1	0	6
City of Cape Town	1	2	2	1	1	1	1	2	2	1	2	2	18
Theewaterskloof Municipality	0	0	0	0	1	0	0	0	0	0	0	0	1
Swellendam Municipality	1	1	1	0	1	0	1	1	1	0	1	0	8
Namakwa district Municipality	3	5	7	1	2	3	2	2	2	10	12	14	63
Cape Agulhas Municipality	1			1						2			4
West Coast Municipal area	1			1			1			1			4
Mangaung Metropolitan Municipality				5	5	5							15
Total	10	10	12	17	10	9	8	7	7	18	18	18	144
Total for different groups			32			36			22			54	

Municipalities		Others			Type for Others			Total
		1 - 5	5 - 10	10 - 15	Type			
Waterberg District Municipality								0
Saldanhah Bay								0
City of Cape Town		2	3	4	GIS Technology			9
Theewaterskloof Municipality		0	0	0	Budget constraints			0
Swellendam Municipality								0
Namakwa district Municipality		5	7	10	Noise level inspectors			22
Cape Agulhas Municipality								0
West Coast Municipal area								0
Mangaung Metropolitan Municipality		5	5	5	Environmental health			15
Total		12	15	19				46
Total for different groups				46				

End of Document

South African Weather Service

ISO 9001 Certified Organisation

SOUTH AFRICAN WEATHER SERVICE (SAWS) REGIONAL TRAINING CENTRE: PRETORIA FIVE-YEAR STRATEGIC PLAN

2014/15 – 2018/19 FINANCIAL YEAR

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1	28 November 2013	Mr S Mphuthi	First Draft
2	5 December 2013	Mr S Mphuthi	Second Draft, incorporating input from Management Meeting of 2 December 2013
3	10 December 2013	Mr S Mphuthi	Final Draft, incorporating feedback on First and Second Draft documents

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EXECUTIVE SUMMARY

Since becoming recognised as a Regional Training Centre (**RTC**) of the World Meteorological Organization (**WMO**) in 2011, the Pretoria RTC assumed its new status of providing training for the NMHSs in the region in earnest, drawing on the strengths of its operating context and well-established collaborative relationships with strategic partners in the region and beyond. This document constitutes the Strategic Plan of the Regional Training Centre (RTC) for the 5-year period 2014/15 – 2018/19. The purpose of the document is to articulate positioning of the RTC within the region and beyond, towards attaining centre of excellence (**CoE**) status in the delivery of training, directly, as well as through strategic partnerships, in meteorological and climate impact sciences.

The document outlines the operating context of the RTC, key strategic drivers, key stakeholders, priorities of the RTC, strategic objectives drawn from the priorities, and the envisaged programme of action. Implementation and resourcing considerations for ensuring achievement of the programme of action are also enumerated.

The scope of training of the RTC is based on the needs of the African region, with a focus on SADC. The experience of the RTC following recognition by WMO as a RTC has provided invaluable insights and enabled the institution to acquire competencies for the development and delivery of programmes relevant for WMO members in the region. In this regard, the RTC is cognisant of its role as an integral part of the efforts by National Meteorological or Hydrometeorological Services (NMHSs) to achieve the priorities detailed by the African Ministerial Conference on Meteorology (**AMCOMET**) in 2012, in the *Integrated African Strategy on Meteorology (Weather and Climate Services)*. This is reflected in the priorities and strategic objectives formulated by the RTC and its aspiration towards excellence in the provision of training and also facilitation of delivery of training through strategic partnerships within the region and beyond.

The capacity building component of the Global Framework for Climate Services (**GFCS**) has expanded the scope of work of RTCs globally to take into account the sciences that are linked to climate change (e.g. climate change adaptation and climate change mitigation).

The environmental scan and SWOT analysis revealed the inherent advantages of the RTC to migrate towards a fully-fledged centre of excellence within the region and beyond and, simultaneously, revealed the enormous resourcing requirements for the RTC to meeting the broad scope and complexity of subject matter entailed in the needs of the NMSs in the SADC region. Thus the

strategic drivers of the RTC revolve around the migration of the centre towards excellence and the need to mobilise resources commensurate with the training requirements of NMHSs in the region.

The business model reflects value-driven and collaborative approach. The training programmes of the RTC are based on proactively-established needs of the NMSs in the region. The outcomes relate to both the effectiveness of the NMSs, through enhanced capability of personnel as well as the resilience of communities served by the NMSs.

In addressing the positioning of the RTC as a centre of excellence (CoE) with regard to delivery of training programmes underpinned by a collaborative culture, the centre will engage all major stakeholders to secure the championing and sponsorship for the required commitment. At the Pan-African level, the stakeholders include the African Union and SADC, with particular emphasis on the championing role of AMCOMET. At national level, major stakeholders include the Minister of Environmental Affairs as well as all key stakeholders in the meteorological and climate impact sciences.

The priorities of the RTC in the five-year period of this strategy include enhancing its training programmes, these being based on the needs of the region. Close collaboration with NMSs and other RTCs in the region and beyond is crucial in ensuring successful delivery of the training programmes. In pursuing these priorities, the RTC will retain the aspiration of migration towards a centre of excellence status in all identified programmes. The strategic objectives thus include focus on mutually beneficial regional stakeholder relations management and the strengthening of internal capability.

The programme of action follows logically from the priorities and strategic objectives, providing detailed formulation of the training programmes, stakeholder engagement and resource mobilisation.

The initial estimated cost includes the establishment of a dedicated training and conference institute. The average annual expenditure is anticipated to grow tenfold to around R 64 million. The critical importance of the funding model and the requisite resource mobilisation based on it cannot be overstated.

The overall position reflected in this strategy is that the RTC is well positioned to fulfil current commitments and that, on securing resourcing commensurate with the needs of the region, it will deliver training programmes of the highest standard. This augurs well for its migration towards a CoE within the region and beyond.

ABBREVIATIONS AND ACRONYMS

AMCOMET	African Ministerial Conference on Meteorology
AMF	Aeronautical Meteorological Forecaster
AMO	Aeronautical Meteorological Observer
AMP	Aeronautical Meteorological Personnel (both forecaster and observer)
BIP	Basic Instruction package
CEO	Chief Executive Officer
CHE	Council of Higher Education
CoE	Centre of Excellence
COGTA	Cooperative Governance and Traditional Affairs
CSI	Corporate Social Investment
CSR	Corporate Social Responsibility
DEA	Department of Environmental Affairs
DIRCO	Department of International Relations and Cooperation
ETR	Education and Training Programme (of the WMO)
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FAO	Food and Agricultural Organisation (of the United Nations)
GFCS (IP)	Global Framework for Climate Services (Implementation Plan)
GM	General Manager
HCM	Human Capital Management
HEQC	Higher Education Quality Committee (of the CHE)
ICAO	International Civil Aviation Organisation
ICT	Information and Communications Technology
(UNESCO)-IHE	Institute for Water Education (of UNESCO)
IR	International Relations
MASA	Meteorological Association for Southern Africa
M&E	Monitoring and Evaluation
Met	Meteorology or Meteorological
MOU	Memorandum of Understanding
NDP	National Development Plan
NRF	National Research Foundation
NMS	National Meteorological or Hydrometeorological Service (NMS)
NMHS	National Meteorological and Hydrological Services
ODL	Open distance learning
OHS	Occupational Health and Safety
PESTEL	Political, Economic, Social, Technological, Environmental, Legal
RTC	Regional Training Centre
SADC	Southern African Development Community
SAWS	South African Weather Service
SANDF	South African National Defence Force

SETA	Sector Education and Training Authority
SOEs	State-owned Enterprises
SRM	Stakeholder Relations Management
SWOT	Strengths, Weaknesses, Opportunities and Threats
TQMS	Total Quality Management Systems
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WMO	World Meteorological Organisation

1. INTRODUCTION

In 2011, the Meteorological Training Institute of the South African Weather Service (**SAWS**) became a recognized Regional Training Centre (**RTC**) of the World Meteorological Organization (**WMO**). This document constitutes the Strategic Plan of the Regional Training Centre (**RTC**) for the 5-year period 2014/15 – 2018/19. The purpose of the document is to articulate positioning of the RTC within the region and beyond, towards attaining centre of excellence (**CoE**) status in the delivery of training, directly, as well as through strategic partnerships, in meteorological and climate impact sciences.

The document outlines the operating context of the RTC, key strategic drivers, key stakeholders, priorities of the RTC, strategic objectives drawn from the priorities, and the envisaged programme of action. Implementation and resourcing considerations for ensuring achievement of the programme of action are also enumerated.

The scope of training of the RTC is based on the needs of the African region, with a focus on Southern African Development Countries (**SADC**). The experience of the RTC following recognition by WMO as a RTC has provided invaluable insights and enabled the institution to acquire competencies for the development and delivery of programmes relevant for WMO members in the region. In this regard, the RTC is cognisant of its role as an integral part of the efforts by National Meteorological or Hydrometeorological Services (**NMHSs**) to achieve the priorities detailed by the African Ministerial Conference on Meteorology (**AMCOMET**) in 2012, in the *Integrated African Strategy on Meteorology (Weather and Climate Services)*. This is reflected in the priorities and strategic objectives formulated by the RTC and its aspiration towards excellence in the provision of training and also facilitation of delivery of training through strategic partnerships within the region and beyond.

The capacity building component of the Global Framework for Climate Services (**GFCS**) has expanded the scope of work of RTCs globally to take into account the sciences that are linked to climate change (e.g. climate change adaptation and climate change mitigation).

The development of this plan is in itself also intended to serve a communication to stakeholders of the RTC the commitment of the leadership and staff of the RTC towards the achievement of the expanded mandates, in line with the requirements guided by WMO.

In defining the desired path and end state, the strategy attempts to anticipate both short-term

viability and long-term sustainability issues. This is reflected in the current budget as well as projected funding requirements for the achievement of the programme of action.

Based on the foregoing, the rest of the document covers the following:

- Context
- Environment scan and SWOT Analysis
- Strategic Drivers
- Redefining the RTC Vision and Mission
- The indicative business model
- Major stakeholders
- Priorities and strategic objectives
- Programme of action
- Implementation approach and resource requirements

2. CONTEXT

The operating context of the RTC is defined by its location and relationship with the WMO and the SAWS. The WMO provides the global context whilst the SAWS houses the RTC as an operating unit. The key contextual issues in respect of the expectations of the role of the RTC and the framework of accountability within which it operates are covered along these lines below.

2.1 The WMO Position on the role of RTCs

The history of the role of RTCs within WMO for capacity building is comprehensive and well documented. For purposes of this strategy, only the most recent assumptions and options being considered within the WMO environment with regard to the future role of RTCs are presented, albeit, at a high level. Relevant WMO literature can be referred to for detailed information.

2.1.1 Context and assumptions

The future roles and operations of RTCs within the WMO are based on the assumptions described below.

- ***Function of a NMHS for training and staff development.*** According to relevant WMO guidelines, the key functions of training and staff development for an NMHS are to provide for the current and future needs of the NMHS workforce. These should cover training of new recruits and existing staff in both technical (scientific) and organizational areas (including leadership and supervision)

- ***Satisfying WMO 1083 requirements.*** WMO Members will need to educate and train meteorological, hydrological and climate personnel over the next ten years, including utilization of RTCs, to satisfy some or all of the requirements outlined in current and future companion volumes.
- ***Specific focus on future new staff.*** Available information suggests that **NMHS** will need training over the next ten years for WMO Members that do not have the required capability or capacity.
- ***Continuous professional development.*** Meteorological personnel working for WMO Members will need to enhance their knowledge and skills to maintain their competencies.
- ***Achieving service competencies***. WMO Members face the substantial task of ensuring their staff meet the Aeronautical Meteorological Forecaster (**AMF**) and Aeronautical Meteorological Observer (**AMO**) standards, and address the service competencies being developed by WMO commissions;
- ***Interaction between RTCs and Regional Associations.*** The RTCs need to provide training according to the needs of Regional Associations. In addition, there is a need for regional cooperation between RTCs;
- ***Availability of distance learning material.*** There is need for use of available high distance learning material in WMO Education and Training (**ETR**)
- ***Use of new technology.*** Technological advancements continue to provide major opportunities for RTCs to exploit for both content development and training delivery
- ***Establishment of networks to support leaning.*** Advances in communication and learning technology have led to the establishment of networks that aim to foster the sharing of knowledge and resources and stimulate innovation. UNESCO-IHE Global Campus and FAO Knowledge Network are examples of such
- ***Standards and guidelines.*** Establishment of standards and guidelines, quality assurance, and facilitating the exchange of data and resources through the RTCs in the realm of education and training will benefit the WMO community.

2.1.2 Options for consideration

Based on above assumptions and findings (successes and challenges) in respect of the current performance of RTCs, WMO is exploring ways in which the RTC network could further develop. The spectrum of options is listed briefly below. It is recognized that some of the options are not mutually exclusive and thus it would be possible to combine some options.

A. Carry on with business as usual for the RTC network.
B. Remove all RTC designations and abandon the RTC concept.
C. Enhance the criteria and assessment regime for the designation and reconfirmation of RTCs so that there is greater emphasis on the need to identify and meet regional training requirements now and in the future.
D. Reclassify all existing RTCs as a WMO National Training Centres and allow those that can fully meet all the criteria (along with other institutions) to apply to be a WMO Regional Training Centre.
E. Maintain the present.
F. RTC network but transfer all responsibilities for the designation and reconfirmation of RTCs to Regional Associations – they would also establish regional priorities and actively support RTC activities.
G. Establish the WMO Global Campus which consists of a coordinated and self-governing global network of education and training organizations working together to advance meteorological, hydrological and climate services amongst WMO Members.

Irrespective of the option or combination of options to be adopted in the future, the implication for the Pretoria RTC is that it will be critical to position the centre for the role of providing services in line with the assumptions outlined in section 2.1.1.

2.1.3 *Capacity building needs of National Meteorological Services in SADC-countries*

The following capacity needs building needs were identified for NMSs in the SADC region through feedback received from the countries as well as findings of missions made by experts:

- Quality management systems
- Management skills
- Numerical modelling
- Aviation forecasts
- Climate change
- Training meteorologists (old Class I)

The estimated budget for training to meet the above capacity requirements is between R 20 million and R 30 million equivalent.

2.2 SAWS operating context

2.2.1 Overview

Whilst the RTC has its scope of work defined along the parameters described in section 2.1 above, its historical and contemporary operating context entails being located within SAWS and governed by relevant agreements between the SAWS and WMO. As a functional unit within SAWS, it is influenced by SAWS' framework of accountability, and references its relationship with WMO through SAWS. The RTC organisational structure is presented in Annexure A for ease of reference. Here, the SAWS vision, mission and values are stated for ease of reference. The RTC has to continuously align itself with both the WMO and SAWS goals and objectives. This enables the RTC to benefit from synergistic influences that strengthen the design and delivery of its training programmes as a regional facility.

The SAWS is thus the parent organisation of the RTC as well as a key client and a service provider of the RTC. In this regard, the SAWS strategic objective in respect of human capital influences the RTC's capacity development and, in turn, the RTC supports the SAWS achieve its capacity needs. SAWS also provides the RTC with services which include support in technical and corporate areas. The organogram in Annexure A reflects this framework of accountability and institutional arrangement.

2.2.2 SAWS Vision

In delivering on its mandate and statement of purpose, SAWS sets for itself the following vision*:*
"A Weather and Climate centre of excellence providing innovative solutions to ensure a weather ready region, sustainable development and economic growth."

2.2.3 SAWS Mission

SAWS will realize the above-mentioned vision through excelling in the following areas:

- *Thought leadership in meteorological, climatological and other related sciences;*
- *The development of relevant and innovative applications and products utilising cutting edge technology;*
- *Establishing and leveraging collaborative partnerships.*

2.2.4 SAWS values statement

Based on the requirements of the mandate, the aspiration in the vision and the mission, SAWS is guided by and committed to the following set of values:

Thought Leadership: A commitment to scientific excellence and innovation, always striving for knowledge leadership in our field of expertise.

Professionalism: Self-control and behaviour that is aligned to best business practices, and displays a high standard of excellence in the job.

Integrity: A consistent sense of honesty, truthfulness and trust in one's own actions while valuing others opinions and beliefs.

Caring: A commitment to create a supportive environment that promotes compassion and understanding, both internally and externally.

Accountability: A commitment to take responsibility for things expected from the position and/or role occupied - responsible for own actions.

Recognition of Excellence: A willingness to identify, recognise and acknowledge individuals and teams who demonstrate outstanding performance.

Teamwork: A willingness to work together towards achieving a common goal by making use of and / or appreciating individual's diverse strengths and abilities. A willingness to identify, recognise and acknowledge individuals and teams who demonstrate outstanding performance.

2.2.5 *SAWS strategic goals*

The strategic goals outlined here were formulated as the basis for taking SAWS towards maturity and sustainability which are a necessary requirement for SAWS to deliver on its mandate and realise its vision. The five goals are:

1. To ensure the continued relevance of the organisation in delivering meteorological related products and services in compliance with all applicable regulatory frameworks.
2. To ensure the effective management of stakeholder, partner and key client relations.
3. To address the short-term viability and long-term sustainability of SAWS revenue and ensure continued fiscal discipline.
4. To ensure continuous organisational effectiveness and efficiency.
5. Ensure the availability of strategy-driven human capital capacity for SAWS performance

The vision, mission, values and strategic goals provide the basis for the RTC to align its efforts in support of SAWS' human capital needs as well as utilise the benefit of SAWS' operational context to augment the RTC overall capability in delivery of training programmes and beneficial relations with strategic partners.

3. ENVIRONMENTAL SCAN AND SWOT ANALYSIS

Based on the operational context and the specific expectations in respect of the role of the RTC, the environmental scan and SWOT analysis presented below serve the purpose of identifying issues that influence the RTC's successful performance on its mandate.

3.1 Environmental scan

Whilst there was detailed discussion of the environmental scan, only the issues eventually identified as key to the role of the RTC are captured here. The issues were then incorporated into the formulation of strategic drivers and success factors in section 4 below.

3.1.1 Political

The need for the RTC to be proactive in establishing the **priorities of WMO-** Meteorological Association of Southern Africa **(MASA) members** was emphasised. This includes tracking current regional focus initiatives to ensure that the work of the RTC remains aligned to the strategic objectives of the NMHSs. Further, alignment with MASA / SADC needs would enable the RTC to formulate and gain appropriate support for the required resourcing of its programmes.

Collaboration with other RTCs in RA-1 and beyond was viewed as a particularly important area for ensuring coverage of the region, especially given the limited resources of both the RTCs and their respective client bases. This would also allow for better focus on value propositions and pre-empt dysfunctional competition.

All of the above require that the RTC works closely with International Relations **(IR).** With increased scope of communication required, the RTC and IR will need to generate a communication protocol that enables the RTC to expedite communication for purposes of training programmes, at the same time without inducing duplication and / or "distortion of command" in the process.

With regard to supporting the SAWS, the RTC will need to retain the linkages with national priorities that have been identified within the SAWS' HCM strategy. In particular, the business case for the educational plan should be appropriately positioned at a national level, including advocating that it becomes a *catalytic* project for the National Development Plan (**NDP**).

3.1.2 Economic

Budget cuts and reduction in grants among NMSs, including SAWS, especially related to the global financial downturn, place limitations on the direct funding allocation that is channelled to a RTC. The WMO's funding of RTC activities is also limited by budgetary constraints.

The need for a comprehensive funding model for the RTC is therefore self-evident.

Again, the Business Case for the Educational Plan is pertinent here. Resources should be mobilised on the understanding that the initiative has the effect of integrating capacity development across several sectors and that of mainstreaming physics and mathematics in the education system.

In the medium to long-term, the RTC may benefit from emerging financial allocations derived from *Climate Finance*. This is an area that needs to be monitored and relevant roleplayers supporting the RTC need to be engaged for championing the funding.

Foreign direct investment and technology transfers are of particular importance for the RTC as this may open possibilities of supporting desired learning system platforms for e-learning (e.g. MOODLE) and distance learning in general. Thus both content and delivery platforms can be pursued through exploring foreign direct investment, especially as it is related to climate technology transfer.

The resource constraints cited above have introduced a paradox that leads to demand for greater innovation in the provision of training programmes. On the one hand, limited resource mean that WMO members have less allocation for training which creates a greater demand on the RTC to assist with servicing the gaps in capacity building that members would have, under other circumstances, partially cover. Open distance learning (ODL), especially e-learning becomes indicated among innovations required to delivery training programmes within a context of resource constraints. This has implications for the funding model and key stakeholder engagement.

3.1.3 Social

The RTC needs to utilise social dynamics associated with adaptation in the region for developing relevant programmes. In this regard, multi-disciplinary collaboration is indicated, especially the need to work with social scientists in designing programmes. This will enable forecasters and other trainees to work effectively with clients. This has been demonstrated in disaster management work and CSR / CSI.

All of the above considerations should be addressed taking into account that the RTC needs to assume a regional character at all times. This includes innovations that can be promoted through NMSs.

3.1.4 Technological

Technology transfers is of particular importance in addressing innovation and general technological advancements relevant for training. The RTC is well placed to contribute towards elimination of the "digital divide" that the region is subject to. Training programmes thus have to be linked to the development of products and services aimed at migrating users into the information age.

Technology will become of particular importance in supporting continuing professional development. This links to the WMO assumptions on professional development cited in section 2.1.1 above.

3.1.5 Environmental

The subject matter and competencies related to the priority sectors identified in the GFCS and other frameworks such as those emanating from ICAO are an important reference for the RTC in developing its programmes. The RTC has the dual role of generating content for delivery in its programmes or dissemination through other channels and also that of engaging in actions that demonstrate protection of the environment as an institution. Again the RTC's CSR / CSI initiatives will be important to sustain for purposes of ensuring effectiveness and retaining support from its client base.

The RTC has to sustain its Centre of Excellence (**CoE**) status in respect of satellite training and continue pursuing excellence in other programmes.

3.1.6 Legal

The retention of the mandate of SAWS is a suspensive condition for the continued operation of the RTC as unit linked to a NMS. Compliance with relevant regulatory framework is thus a critical aspect of the operations of the RTC. In addition, the RTC also has to be viewed as a contributor towards SAWS' commercial revenue imperative.

Given the increased demands placed on the RTC by the expanded scope of work, the issue allocation of funds through dedicated project funding for the RTC has to be instituted.

Specific issues related to intellectual property, library license agreements and fees and overall compliance with standards as well as accreditation requirements are crucial for the RTC to retain its status as a regional centre

3.2 SWOT analysis

As with the environmental scan, there was detailed discussion of the strengths, weaknesses, opportunities and threats attendant to the role and work of the RTC. For ease of reference, a high level indication of strengths and opportunities (competitive advantage of the RTC) is given. The identified actions from addressing weaknesses and threats by using strengths and opportunities are captured here. The overlap between weaknesses and threats and the indicated actions is inevitable but also not undesirable as overlap serves to emphasise the importance of the recurring point.

The key *strengths* and *opportunities* identified include the following:

- Being WMO recognised positions the RTC to benefit from attracting and retaining staff complement from across the region and beyond. This will enable the RTC to augment its internal capacity as it enhances its training programmes towards a centre of excellence status;
- Existing highly qualified and competent staff complement – the current establishment of the RTC provides an advantage for migrating towards a centre of excellence;
- Established strategic partnerships with institutions of higher education within the region, South Africa and beyond enables the RTC to increase and consolidate its training programmes. Relevant Memoranda of Understanding are of particular importance in this regard. This will enable the RTC to continue lobbying for funding for relevant programmes, for instance, seeking bursaries for tuition from the NRF and other potential funders;
- Existing centre of excellence status in respect of satellite training is a major advantage in enhancing other RTC training programmes towards CoE status;
- The RTC has a proven track record with accreditation and quality assurance processes, supported by the SAWS TQM environment. This positions the RTC favourably regarding recognition of its qualifications and demand for its training programmes
- The location of the RTC within the operating context of SAWS provides the centre with a capability environment from which services and products can be drawn to further position the RTC in becoming a centre of excellence in the region and beyond;
- The bilateral and multi-lateral relationships within which SAWS participates provide opportunities for the RTC to draw lessons and benefit directly from available financial and other resources.

In respect of *weaknesses*, the following drawn from strengths and opportunities were identified:

- **Limited skilled personnel** – the indicated actions include strengthening of strategic partnerships, linking to the SAWS retention strategy and succession planning, as well as introducing and

sustaining job enrichment, e.g., consulting opportunities for staff and role diversification appropriate for the levels of employment;

- **Mobility of skilled personnel** – again, partnerships and retention strategy are key interventions to address this area;
- **Losing skilled resources to other organisations due to international recognition** – this point relates to the one above;
- **Budget constraints** – the envisaged funding model will address this point;
- **Regulatory environment of meteorological services –** compliance will be audited to ensure that there are no gaps in respect of standards and applicable regulatory framework including OHS;
- **Limited establishment for RTC to meet enhancement of scope** of work – capacity will be augmented through partnerships as well as the interventions of retention, job enrichment and succession planning alluded to earlier;
- **Facilities constraints** – funding model to address requirements; innovations related to e-learning and distance learning will reduce physical planning demands; subsidized accommodation will be included in funding model;
- **Limited meteorological applications expertise** – enhancement of applications and complexity of programmes will entail "new" shortage of skills; The nature of sourcing options related to staff / establishment will be included in the funding model;
- **Ability to adapt to technological advancement** – expertise within SAWS and WMO will be sought for support to content development and the setting of delivery platforms.

With regard to threats, the following actions drawn from strengths and opportunities were identified

- **Changing role of Meteorological service;** enhancement will place strain on capacity / budget – the interventions cited with respect to ability to adapt also apply here;
- **Financial constraint** – the business case for the Educational Plan and the funding model need to address resource mobilisation and allocation;
- **Scarcity of specialised skills** – partnerships, retention and job enrichment are also applicable here
- **"Competitors"** – the focus of the RTC should be on opportunities for strategic partnerships for the advancement of meteorological and climate impact sciences; collaboration opportunities of those between RTCs;
- **Poor understanding of mandate by stakeholders** – Communication and Relation Management with MASA/WMO are crucial in this regard. RTC and IR have to generate effective communication;
- **Losing technical skills** – partnership, retention and job enrichment apply as stated earlier.

4. STRATEGIC DRIVERS

Given the operating context of the RTC and the broader environmental scan undertaken, as described in sections 2.1, 2.2 and 3 above, the RTC identified basic considerations that have to be incorporated in the formulation of the future direction of the institution. Whilst there was detailed discussion of issues leading to the determination of the drivers, only the drivers are listed here. In

virtue of strategic drivers being the most important factors that have to be taken into account in order for an organisation to succeed in achieving its goals, these subsume the conventional "critical success factors". Further, there is an inevitable overlap between the strategic drivers and the high level interventions derived from environmental scan and SWOT analysis.

Strategic drivers are adopted as part of leadership decisions regarding the factors that will be utilised to guide formulation of priorities as well as short-term and long-term objectives for the organisation to succeed in its desired end state.

The RTC strategic drivers appear self-evident from the issues covered in the preceding sections. However, the drivers will need to be an integral part of the Monitoring and Evaluation (M&E) plan of the RTC on its performance. It will be important to subject the drivers to a test of continuing relevance and effectiveness in guiding the resourcing and actions of the RTC in future. The fact that the role of NMSs is dynamic and subject to factors that may not have been initially anticipated makes the M&E system crucial.

The drivers are listed here in the order they were identified rather any weighting. If later required, prioritising or weighting of the drivers will be undertaken as a dedicated exercise. An example of where this may become important is in the development of the funding model where a decision matrix is driven by the hierarchy of priorities.

1. **Positioning of the RTC as a centre of excellence** – given that the WMO is reviewing the role of RTCs and exploring options for the future, achieving CoE status within the region and beyond becomes a major consideration and must be factored in determining resource requirements. The aim is to ensure that the RTC retains and sustains continuing relevance and competitiveness as a region-wide facility, irrespective of the option or combination of options adopted by the WMO;
2. **Dedicated resource mobilisation and commensurate funding allocation** – the RTC requires funding that enables it to meet the demands of the scope of work to be undertaken. This driver (dedicated resource mobilisation) talks to both short-term viability of programmes to be offered as well as long-term sustainability of the RTC's role as a regional CoE. The funding model as well as relations management (including advocacy and lobbying) are critical considerations in this regard;
3. **Collaborative thrust** – the RTC will need to conduct its role according to its regional character. Collaboration will include that which is promoted by NMSs in the region, institutions of higher education in the region, RTCs in RA-1 as well as elsewhere and other key stakeholders and strategic partners. This includes providing dedicated capacity building

support to SAWS as a client of the RTC, within the regional context. A collaborative culture will enable the RTC to focus on a CoE trajectory as it delivers programmes with the additional capacity of strategic partnering;

4. **RTC organisational capability** – this entails the ability (competency or handling of relevant complexity) and capacity (handling of scope or span of work) of an organization. Organisational capability may be expressed in terms of an organisation's (1) People: establishment size, quality, skills, and experience; this may include people from other organisations collaborating with the organisation (2) Physical and material resources: technology, land, buildings, and (3) Financial resources: money and credit, (4) Information resources: pool of knowledge, databases, and (5) Intellectual resources: copyrights, designs, patents, etc.

It is apparent from the foregoing that the strategic drivers are closely related and that the programme of action has to ensure that all are addressed in the identified actions.

5. REDEFINING THE RTC VISION AND MISSION

The vision statement of the RTC needs to reflect its status as a recognised WMO RTC since 2011. The following will be incorporated into the vision statement to be finalised during the period of this strategic plan. Specific parameters will be utilised to define the new vision of the RTC

- **Aspirational** – the ideal end state of the RTC is that of a centre of excellence in the delivery of training programmes in meteorological and climate impact sciences. This includes the collaborative culture alluded to above, in the strategic drivers;
- **Value proposition** – the ideal experience or outcome for the RTC client will be that which enables the client to be competent, innovative and effective;
- **Enhancement of the state of the profession** – the advancement of the state of meteorological and climate impact sciences through training excellence is a dimension that defines the aspiration of the RTC, for example, innovative development of content and delivery of programmes will advance the training praxis of relevant disciplines or professions;
- **Broad, universal contribution to the welfare of humanity** – the RTC's vision will have embedded in it the impact of its training, especially the contribution that trainees have in influencing resilience and improvement in the overall quality of life of mankind.

The mission statement will be generated following the adoption of a vision statement. It will outline high level interventions for the RTC to achieve its vision. These may include, but not limited to, the following:

- The Development of Specific Knowledge Areas for the CoE (technician and post-graduate programmes);
- Standards development, quality management and compliance with WMO requirements;
- Excellence in Knowledge Resource Management (KRM), leading to KRM Maturity within the RTC and within the RTC client base;
- Organisational capability, effectiveness and efficiency of the RTC.

6. THE INDICATIVE RTC BUSINESS MODEL

The business of the RTC is based on the operating context of the centre, the envisaged programmes to be promoted (including that will be delivered by partners) and the internal organisation of the RTC. These are covered in turn below, with the indicative business model depicted in Figure 2

6.1 High level strategic framework

The framework linking the RTC strategy to WMO-MASA, GFCS and SAWS shown in Figure 1 below is based on the contextual issues detailed in section 2 above. The purpose of the framework is to demonstrate the location of the RTC strategy within the context described. It indicates that, whilst the RTC is an operating unit within SAWS, its scope of work is driven by the needs of the region.

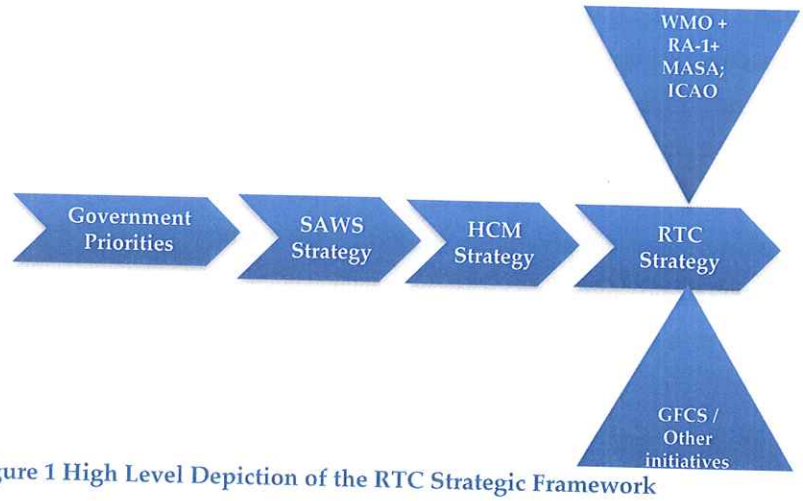


Figure 1 High Level Depiction of the RTC Strategic Framework

6.2 The Training Programmes

6.2.1 Overview

In developing the training programmes, it will be from the current position:

1. WMO (through EUMETSAT) identified the training centre as a centre which can provide training for SADC personnel on the use and interpretation of satellite data. The RTC is also a recognized Centre of Excellence in satellite training;
2. Utilisation of the needs identified in section 2.1.3 as a basis for engaging further within the region to strengthen the resource mobilisation effort for the RTC;
3. Enhancement of the Training of Scientific Personnel, including Meteorological Technicians, accredited by the TETA SETA and the successful application to become a Regional Training Centre of WMO;
4. Effective Scientific and Business Excellence Partnership with Higher Learning Institutes and NMSs elsewhere.

6.2.2 The training programmes

The programmes of the RTC will follow those outlined in the *Education Development Plan that integrates National Resources to address the identified shortages of skills in, critical to the Country.* The programmes are classified as follows:

GROUP 1A - existing sciences in Meteorology and Climatology, for instance, aviation, marine, public weather service as well as theoretical and applied climatology

GROUP 1B - sciences related to meteorology and climatology

Existing courses for **GROUP 1B** include:

1) Agro-meteorology
2) Hydro-meteorology
3) Oceanography
4) Disaster management, disaster risk reduction

GROUP 2 - new courses and career options that need to be developed including impacts and other risk reduction activities. Air quality, emission and greenhouse gas inventories, water-based courses, medical-based/related courses, alternative energy and agricultural and development e.g. urban spatial planning and storm water management etc.

The RTC's initial resourcing allows for direct delivery and partner collaboration training for courses within Group 1 A. The other categories will depend on the resource mobilisation for the Education Plan. The programmes are depicted in Figure 2.

6.3 The operational business model

The business model of the RTC follows a value chain approach where the needs of clients drive the formulation and delivery of programmes, with the impact being as envisaged in the parameters to be incorporated into the new vision (see section 5).

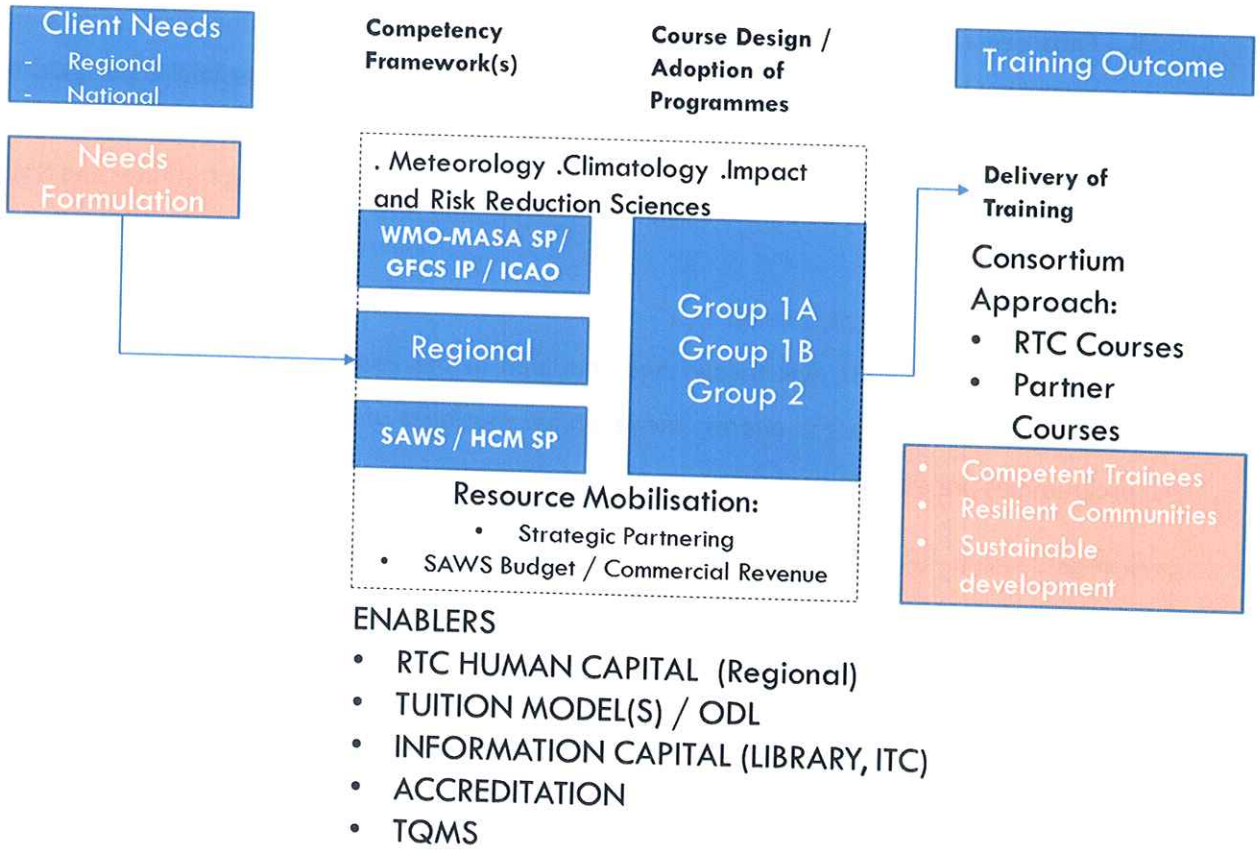


Figure 2 RTC Business Model

The model is underpinned by the internal organisation of the RTC which comprises Human Capital (including collaborating resources), models of delivery of training, information capital (library and ICT support systems) as well as accreditation and total quality management systems.

7. MAJOR STAKEHOLDERS

The stakeholders indicated below are based on the considerations derived from the context, environmental scan, SWOT analysis, strategic drivers and parameters for redefining the vision and

mission of the RTC. They reflect the regional nature of the scope of the work of the RTC as well as its location within South Africa as the WMO member hosting the RTC.

The format is simple, based on that generated by AMCOMET for the *Integrated African Strategy on Meteorology (Weather and Climate Services)* in 2012.

Table 1 Major Stakeholders

Stakeholder(s)	Relationship and/ or Contribution to the Regional Training Centre
At a Pan-African Level and Sub-continental Level	
African Union (AU)	Political support for capacity building within relevant AU programmes
SADC	Support of resource mobilisation based on priorities for capacity building for SADC
RA-1 / MASA	AMCOMET support of RTC-to-RTC collaboration Support RTC towards becoming CoE, including funding and other capability building support
African Centre of Meteorological Application for Development	Collaboration on expanded GFCS capacity building initiatives
Stakeholders and Service Providers Operating at a Global Level	
WMO	
ICAO	Funding support for capacity building initiatives of meteorological forecasts and in-situ observations for operational purposes and flight planning.
UNESCO FAO	Assisting with stimulating innovation, for instance, UNESCO-IHE Global Campus and FAO Knowledge Network
EUMETSAT	Funding support for capacity building related to satellite-based meteorological information to NMHSs
At a National Level	
Presidency	Support prioritisation of Educational Plan and endorse it as a NDP *Catalytic Project*
Minister of Environmental Affairs	Championing of funding model and support of budget and grant for stable resourcing of RTC
Department of Environmental Affairs	Sponsorship of RTC initiatives through support to SAWS
Parliamentary Portfolio Committee on Environment and Water	Support Business Case for Educational Plan and funding model
Department of International Relations and Cooperation (DIRCO)	Support engagement with Embassies for funding of RTC
National Treasury	Funding, support of RTC as a catalytic project for purposes of "project funding"
Departments of Basic and Higher Education:	Support based on the funding model

Stakeholder(s)	Relationship and/ or Contribution to the Regional Training Centre
Council of Higher Education (CHE)	Support related to HEQC and accreditation
Skills Education Training Authorities: Agricultural Sector Education Training Authority (AGRISETA) Chemical Industries Education and Training Authority (CHIETA SETA) Energy and Water Sector Education and Training Authority (EWSETA) Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA) Health and Welfare Sector Education and Training Authority (HWSETA) Local Government Sector Education and Training Authority (LGSETA) Public Service Sector Education and Training Authority (PSETA) Safety and Security Sector Education and Training Authority (SASSETA) Services Sector Education and Training Authority Transport Education and Training Authority (TETA)	Collaboration in standards setting, quality assurance and funding of eligible students
Department of Science and Technology	Support through funding model and collaboration on scientific content and training delivery
State-owned Enterprises (SOEs): Denel Eskom etc.	Funding support on the basis of sector specific needs within the funding model
SANSA	Continued collaboration towards RTC's status as a centre of excellence
COGTA Provincial Local Government	Support of training related to competencies required in disaster risk reduction (through funding model)
Educational Institutions and partners (Segment Institutions)	Strategic partnering in delivery of training programmes (structured programmes; specialized programmes; electives) Support positioning of RTC as a CoE

8. PRIORITIES AND STRATEGIC OBJECTIVES

Based on the foregoing, the priorities and objectives presented in Table 2 have been identified for guiding the programme of action for the five-year period from 2014/15 to 2018/19. These are self-explanatory and not elaborated upon.

Table 2 RTC Priorities and Strategic Objectives

RTC STRATEGIC PRIORITIES	RTC STRATEGIC OBJECTIVES
1. **Positioning of the RTC towards a Centre of Excellence**	1.1 Incrementally migrate the RTC towards Centre of Excellence (CoE) status 1.2 Comply with WMO agreement and standards 1.3 Promote and sustain mutually beneficial regional stakeholder relations
2. **Consolidate the RTC Programmes**	2.1 Continue to develop, enhance and deliver all programmes according to required standards (WMO, ICAO, etc.) and market needs 2.2 Identification of key projects for collaboration
3. **Enhance RTC Capacity**	3.1 Enhance and consolidate RTC human capacity and strategic partnerships to serve enhanced scope of work 3.2 Enhance systems support / ICT infrastructure, and library services 3.3 Secure dedicated training facilities
4. **Mobilisation of resources / revenue for RTC**	4.1 Funding model – identifying sources of funding (international and domestic), allocation criteria, RTC allocation prioritisation 4.2 Budget (scope of work and projections)
5. **Dedicated Support to SAWS Scientific Service Delivery Capacity**	5.1 Ensure the availability of strategy driven human capital for SAWS performance 5.2 Contribute to SAWS commercial revenue imperative

9. PROGRAMME OF ACTION

The programme of action below is based on the priorities and strategic objectives presented in Table 2. These will be reviewed as part of the M&E processes of the RTC. Securing of resources will be a key factor in the review of the programme of action. The actions for the priorities are documented in turn, with indicators, baseline and targets for the five-year period.

Table 3 Priority 1: Position RTC towards centre of excellence status

Priority 1: Position RTC towards centre of excellence status								
				Targets				
RTC strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
1.1 Incrementally migrate RTC towards CoE status	Develop and Implement a Centre of Excellence (CoE) Positioning Strategy	Formal Recognition as CoE for additional programmes	Satellite Training CoE	Develop a Centre of Excellence Strategy, with new programmes identified CoE	Targets / milestones for CoE programme implemented	Scheduled targets for CoE implemented	Scheduled targets for CoE implemented	Scheduled targets for CoE implemented
1.2 Comply with WMO agreement and standards	Implement the Basic Instruction Package (BIP)-Meteorological standards. Cut-off date 2016	University Curriculums aligned to standard	Draft verification process. (UP)	Converse with Universities to become compliant	BIP-M courses verified and compliant. Non complaint universities addressed and partnerships reviewed accordingly.	BIP-M courses verified and compliant. Non complaint universities addressed and partnerships reviewed accordingly.	BIP-M courses verified and compliant. Non complaint universities addressed and partnerships reviewed accordingly.	BIP-M courses verified and compliant. Non complaint universities addressed and partnerships reviewed accordingly.
	Implement the	Course	Verification	BIP-MT course	BIP-MT course	BIP-MT course	BIP-MT course	BIP-MT course

Priority 1: Position RTC towards centre of excellence status								
				Targets				
RTC strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
	BIP-Met Technicians standards	compliant	process completed	compliant	compliant	compliant	compliant	compliant
	Implement the BIP-Climate and BIP-Climate Technicians standards when released.	Course compliant	WMO zero draft compiled.		WMO to release standards. Take 3 years for implementation	Converse with Universities to become compliant	Converse with Universities to become compliant	Course to be compliant. None compliant Universities to be identified and partnership changed.
	Aviation Competency	All Aviation Met Personnel (AMP) competent	Assessments commenced. Developing E-learning modules	All relevant personnel assessed. Meteorological Training requests adhered to.	All relevant personnel assessed. Meteorological Training requests adhered to.	All relevant personnel assessed. Meteorological Training requests adhered to	All relevant personnel assessed. Meteorological Training requests adhered to	All relevant personnel assessed. Meteorological Training requests adhered to
	Marine competency	Marine Competency implemented	Competencies developed but not promulgated	Competencies promulgated	All relevant personnel assessed. Meteorological Training requests adhered to.	All relevant personnel assessed. Meteorological Training requests adhered to.	All relevant personnel assessed. Meteorological Training requests adhered to.	All relevant personnel assessed. Meteorological Training requests adhered to.
	PWS competency	Public Weather Service competency	Competencies to be agreed on	Competencies developed	Competencies promulgated	All relevant personnel assessed. Meteorological	All relevant personnel assessed. Meteorological	All relevant personnel assessed. Meteorological

Priority 1: Position RTC towards centre of excellence status								
				Targets				
RTC strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
						Training requests adhered to.	Training requests adhered to.	Training requests adhered to.
	Other BIP of Agro and Hydro meteorology to be implemented	Other BIP implemented	In process of development	Competencies developed	WMO to release standards. Take 3 years for implementation	Converse with Universities to become compliant	Converse with Universities to become compliant	Course to be compliant. None compliant Universities to be identified and partnership changed.
	Reporting of actions	Report to WMO	Report sent to WMO	Send report to WMO after completion of the yearly programmes	Send report to WMO after completion of the yearly programmes	Send report to WMO after completion of the yearly programmes	Send report to WMO after completion of the yearly programmes	Send report to WMO after completion of the yearly programmes
1.3 Promote and sustain mutually beneficial regional stakeholder relations	Establish Regional needs	Needs Assessment Established and Incorporated into Stakeholder Relations	Needs are currently partially articulated from limited direct response to and documentation	Stakeholder engagement for needs assessment through SAWS Executive and Identified Major Stakeholders	SRM Targets Achieved	SRM Targets Achieved	SRM Targets Achieved	SRM Targets Achieved

Priority 1: Position RTC towards centre of excellence status								
				Targets				
RTC strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
		Management (**SRM**) Plan	review by RTC	Stakeholder Relations Management (**SRM**) Plan Developed				
	Proactively Promote RTC Training Programmes to Regions	Number of students from outside South Africa	Ad hoc training such as SWFDP, MSG, Marine MSG, aviation etc.	RTC Communication Plan	Communication Plan Targets Achieved	Communication Plan Targets Achieved	Communication Plan Targets Achieved	Communication Plan Targets Achieved

Table 4 Priority 2: Consolidate RTC Training Programmes

Priority 2: Consolidate RTC Training Programmes								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
2.1 Continue to develop, enhance and deliver all programmes according to	Develop distance learning (e-learning)	On-line accessibility to all users	Moodle platform	Revive all programmes on new MOODLE platform	Develop and make accessible additional e-learning programs	Develop and make accessible additional e-learning programs	Develop and make accessible additional e-learning programs	Develop and make accessible additional e-learning programs

Priority 2: Consolidate RTC Training Programmes								
				Targets				
RTC Strategic Objective	**Action**	**Indicator**	**Baseline**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
required standards (WMO, ICAO, etc.) and market needs	Conduct Basic Meteorological (Met) Understanding Course	Course Completion Report indicating Achievement of Planned Targets	Currently Operational	Enhance material and facilitation techniques	Enhance material and facilitation techniques	Enhance material and facilitation techniques	Enhance material and facilitation techniques	Enhance material and facilitation techniques
				Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned
	Conduct training for: • National Certificate: Observation • Forecasting Certificate	Training Completion Report indicating Achievement of Planned Targets	Currently Operational	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology
				Courses Implemented as Per Approved Planned	Courses Implemented as Per Approved Planned	Courses Implemented as Per Approved Planned	Courses Implemented as Per Approved Planned	Courses Implemented as Per Approved Planned

Priority 2: Consolidate RTC Training Programmes								
				Targets				
RTC Strategic Objective	**Action**	**Indicator**	**Baseline**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
	Conduct • Aviation Meteorological Observer Course	Training Completion Report indicating Achievement of Planned Targets	Currently Operational	Register the current training program as an accredited **short course or a skills programme**	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology	Enhance the content based on new technological advancements in meteorology
				Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned	Course Implemented as Per Approved Planned
	Ensure registration of the Bridging Course in Meteorology with UP[1]	Formalized bridging course with certificate attached to it.	Bridging course exists but no certificate attached to it	Encourage UP to formalize the course. It will take 2 years	Encourage UP to formalize the course. It will take 2 years	course registered as a certificate	course registered as a certificate	course registered as a certificate
	Implement Educational Plan as a dedicated	Adoption of Educational Plan as national	Draft Educational plan	Approved Educational plan	Implementation of planned targets	Implementation of planned targets	Implementation of planned targets	Implementation of planned targets

[1] The bridging course is through the University of Pretoria. The RTC can only request UP to formalize the course through our discussions

Priority 2: Consolidate RTC Training Programmes								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
	(catalytic) project	project						
2.2 Identification of key projects for collaboration	Develop and Implement Collaborative Project Plan	Approved Project plan	Implement meteorological programs related to • Health • Energy • SANDF • Hydro	Planned targets achieved	Planned targets achieved	Planned targets achieved	Planned targets achieved	Planned targets achieved

Table 5 Priority 3: Enhance RTC Capacity

Priority 3: Enhance RTC Capacity								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019

Priority 3: Enhance RTC Capacity								
				Targets				
RTC Strategic Objective	**Action**	**Indicator**	**Baseline**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
3.1 Enhance and consolidate RTC human capacity and strategic partnerships to serve enhanced scope of work	Facilitate staff academic advancement, Including PhD	MSc/PhD throughput of trained staff	1 PHD 3 MSc 1 BSc (Hons) Higher Diploma in Meteorology	1 additional MSc	1 additional Registered PHD 1 additional Registered MSc 1 additional BSc (Hons)	1 additional Registered PHD 1 additional Registered MSc 1 additional BSc (Hons)	1 new MSc 1 registered MSc 1 additional BSc (Hons) 1 registered PHD	1 new PHD 1 new MSc 1 additional Registered MSc
	Develop and Implement Collaboration Plan with other RTCs and Specialised Meteorological Training Institutions	Memoranda of Understanding (MoU)	Initial Potential Collaboration partners identified	MoU signed with initial partners	Additional MoU signed and collaboration implemented	Additional MoU signed and collaboration implemented	Additional MoU signed and collaboration implemented	Additional MoU signed and collaboration implemented

Priority 3: Enhance RTC Capacity								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
	Develop and Implement Career Advancement Plan for RTC Staff	Career advancement of staff linked to performance (publications, academic qualification and experience)	Current salary levels of staff	Salary benchmark	Salary advancement according to benchmark outcomes	Salary advancement according to benchmark outcomes	Salary advancement according to benchmark outcomes	Salary advancement according to benchmark outcomes
	Implementation of relevant and up to date software and hardware for effective training.	Newly developed material for learning programmes	Current learning programme course material	Learning material must include information from neighbouring countries	Learning material must include information for additional countries further north.	Learning material must include information for additional countries further north.	Learning material must include information for additional countries further north.	Learning material must include information for additional countries further north.
				1 additional specialization added to programme	1 additional specialization added to programme	1 additional specialization added to programme	1 additional specialization added to programme	1 additional specialization added to programme

Priority 3: Enhance RTC Capacity								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
	Establish a Regional RTC Met. Library	Relevant collection and access to information	National Met. Library Mostly Confined to SAWS personnel and students registered with RTC	Grow collection and services in accordance with RTC learning programme expansion and migrate onto a virtual platform as funds become available	Grow collection and services in accordance with RTC learning programme expansion and migrate onto a virtual platform as funds become available	Grow collection and services in accordance with RTC learning programme expansion and migrate onto a virtual platform as funds become available	Grow collection and services in accordance with RTC learning programme expansion and migrate onto a virtual platform as funds become available	Grow collection and services in accordance with RTC learning programme expansion and migrate onto a virtual platform as funds become available
3.2 Enhance systems support / ICT infrastructure, and library services		Seamless transition from Training to operational systems	Basic technical training tools.	Upgrade basic technical tools to mirror operational tools	Upgrading tools in line with operational upgrades	Upgrading tools in line with operational upgrades	Upgrading tools in line with operational upgrades	Upgrading tools in line with operational upgrades

Priority 3: Enhance RTC Capacity								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
		Relevant e-learning and distance learning software	Distance learning software	E-learning platform in place				
3.3 Secure dedicated training facilities	Develop and Implement RTC Training Facility Plan	Fully fledged training facility	Rented premise with limited space	RTC Training Facility Plan Developed and Approved	Approved Milestones / Targets Achieved	Approved Milestones / Targets Achieved	Approved Milestones / Targets Achieved	Approved Milestones / Targets Achieved

Table 6 Priority 4: Mobilisation of Resources

Priority 4: Mobilisation of resources								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
4.1 Funding model – identifying	Develop a RTC business case for	Approved document	5th Draft of the Education	Approval of business case to be	Implementation of specified targets (Group	Implementation of specified targets (Group	Implementation of specified targets	Implementation of specified targets

Priority 4: Mobilisation of resources								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
sources of funding (international and domestic), allocation criteria, RTC allocation prioritisation	funding		Development Plan – Inform a strong RTC business case	implemented as a catalytic project	1)	2)		
	Develop the funding model	Approved funding model	SAWS budget allocation	Approval of the funding model		E-learning platform in place		
	Implement the funding model	Reporting on achieved milestones			Implement approved elements of the funding model	Implement approved elements of the funding model	Implement approved elements of the funding model	Implement approved elements of the funding model
	Develop and implement Marketing strategy (Medium-to-long term)	Approved marketing strategy		Develop marketing strategy	Approval of the marketing strategy	Implement approved elements of the marketing strategy	Implement approved elements of the marketing strategy	Implement approved elements of the marketing strategy
4.2 Strategy-driven budget	To develop and implement a budget in	Approved budget	SAWS budget allocation		Budget cycle implementation according to approved	Budget cycle implementation according to approved	Budget cycle implementation according to approved	Budget cycle implementation according to approved

Priority 4: Mobilisation of resources								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
	line with the RTC funding model				funding model	funding model	funding model	funding model

Table 7 Priority 5: Dedicated Support to SAWS Scientific Service Delivery Capacity

Priority 5: Dedicated Support to SAWS Scientific Service Delivery Capacity								
				Targets				
RTC Strategic Objective	Action	Indicator	Baseline	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019
5.1 Ensure the availability of strategy-driven human capital for SAWS performance	Conduct training according to needs identified by SAWS and agreed targets (operations)	Competent learners that can function as trained	Currently training 13 Met Technicians and 3 Forecasters, 20 SAAF and 2 SANDF	Train according the agreed needs established through existing channels	Train according the agreed needs established through existing channels	Train according the agreed needs established through existing channels	Train according the agreed needs established through existing channels	Train according the agreed needs established through existing channels
5.2 Contribute to SAWS commercial revenue imperative	Conduct a market survey locally and regionally/internationally (training needs analysis)	Feedback report from the survey	Brochure of current courses and costs and RTC	Market survey completed	Target 2 international students	Target 3 international students	Target 4 international students	Target 5 international students

Priority 5: Dedicated Support to SAWS Scientific Service Delivery Capacity								
				Targets				
RTC Strategic Objective	**Action**	**Indicator**	**Baseline**	**2014/2015**	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**
			website					
	Repackage current courses into short courses to meet the requirement of clients locally and regionally/international	Learner/facilitator guides for new short courses including manuals	Satellite short course with CE@UP Marine short course with CE@UP Aviation short course with CE@UP	Run identified short courses	Develop 1 new commercial course according to needs in National Development plan/SAWS	Develop 1 new commercial course according to needs in National Development plan/SAWS	Develop 1 new commercial course according to needs in National Development plan/SAWS	Develop 1 new commercial course according to needs in National Development plan/SAWS

10. IMPLEMENTATION APPROACH AND RESOURCE REQUIREMENTS

10.1 IMPLEMENTATION OF THE STRATEGY

The execution of this Strategy will be undertaken through cascading the Programme of Action above into the RTC Annual Performance Plan, with targets that are in line with programme activities outlined in the log frame tables in section 9 above.

Reporting on the programme activities and achievement of the relevant RTC objectives will follow the integrated reporting cycle already in place at SAWS and the requirements of the WMO Agreement. The cycle includes quarterly, annual and multi-year reports on the performance of the RTC.

10.2 DEFINING RESOURCE REQUIREMENTS

10.2.1 Parameters justifying projected resource requirements

The assumptions and expected role of RTCs as well as the needs of the SADC region outlined in section 2.1 above provide the justification for the resources proposed for allocation to the RTC. The RTC strategy as presented in preceding sections has demonstrated the need to ensure continuing relevance and sustainability of capacity building interventions, as delivered directly by the RTC as well as through strategic partnering.

Based on the foregoing, the following parameters define the benefit to be derived from allocation of adequate resources to the RTC:

- The assumptions on the scope and complexity of the needs of NMSs over the next five to ten-year period enumerated by the WMO in respect of the role to be fulfilled by RTCs
- The early stage of development of the RTC as a centre migrating towards excellence (having been recognised as a regional centre in 2011); the RTC needs to gear its human capital and infrastructure to a level commensurate with the scope and complexity of the support to be provided to the NMSs in the region
- Utilisation of advantages afforded by the RTC's operating context and current strategic partnerships as a base for ensuring short-term viability whilst enhancing long term capability and sustainability; the risk of failure is highly mitigated
- Conservative implementation of the Educational Plan with limited funding for 1A,1B and selective action from 2

10.2.2 Projected 5-Year Budget per Programme Areas

The projected budget in Table 8 below is dependent on the outcomes of the funding model and the degree of success in the mobilisation of resources indicated in the funding model. As a result, the amounts shown are guestimates drawn from indicative needs and selected estimates from the Educational Plan.

The current RTC internal budget is based on limited establishment. The need for growing the establishment is self-evident from the programme of action, especially the required capacity to meet the identified needs of the region's NMSs. In addition to an increased establishment, the RTC's needs include ICT and other support. Thus from the current internal budget of around R 6 million per annum, the RTC will require an average of R 64 million per annum going forward.

The RTC is cognisant of the fact that agreement on the funding model and incremental securing of funding based on it will inevitably mean a phased approach in implementing this strategy.

Based on the foregoing, the RTC will strive in the first instance to secure funding for the capacity building needs identified for the SADC region, as cited in 2.1.3. The needs will be addressed through the actions enumerated in the programme of action in section 9.

The infrastructure budget will also be confirmed with processes that SAWS will run *in tandem* with the implementation of this strategy. The indication is that the training and conference facility will encompass tuition space and student accommodation. In addition to the initial capital expenditure, there will be an on-going maintenance and facilities management budget.

The indication is that the funding model and its implementation will be crucial for the realisation of the budget required for the implementation of this RTC strategy.

Table 8 Projected 5-Year Budget

PROJECT ITEM		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
SADC Capacity / Training Building Needs (Based on EU / SADC Summary of Development needs in the region)		**R 30,000,000**	**R 20,000,000**	**R 10,000,000**	**R 10,000,000**	**R 10,000,000**
RTC Capacity (Based on: **1.** RTC capacity needs [materials development, collaboration (including	1.	**R 52,000,000**	**R 52,000,000**	**R 52,000,000**	**R 52,000,000**	**R 52,000,000**
	2.	**R 5,000,000**	**R 40,000,000**	**R 2,000,000**	**R 2,000,000**	**R 2,000,000**

PROJECT ITEM	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
meetings), student financial support, new MOU's, etc.) **2.** Infrastructure requirements)					
TOTAL	**R 107,000,000**	**R 112,000,000**	**R 64,000,000**	**R 64,000,000**	**R 64,000,000**

All of the above are estimated to grow the RTC into a Centre of Excellence.

11. Conclusion

The RTC has demonstrated an ability to perform at the highest standard in respect of delivery of training and facilitation of strategic partnerships in supporting the capacity building required by the NMSs in the SADC region. The indication is that the magnitude of demand (scope and complexity of subject matter) requires that the RTC rapidly migrate towards a centre of excellence in order to ensure continued relevance and sustainability of training programmes in meteorological and climate impact sciences delivered to NMSs in the region. The strategy outlined above, especially the enumerated programme of action, demonstrates the resourcing challenges that have to be addressed in order for the RTC to effectively support the NMSs in the region.

The track record of the RTC to date and the strengths that it continues to draw from its operating context will mitigate the risk of non-performance as well as ensure strengthening of short-term viability and long-term sustainability. The collaborative culture envisaged in drawing on the capability and resources from the region and beyond will augment the RTC's delivery of training programmes of a high standard and augur well for migrating towards a fully-fledged centre of excellence.

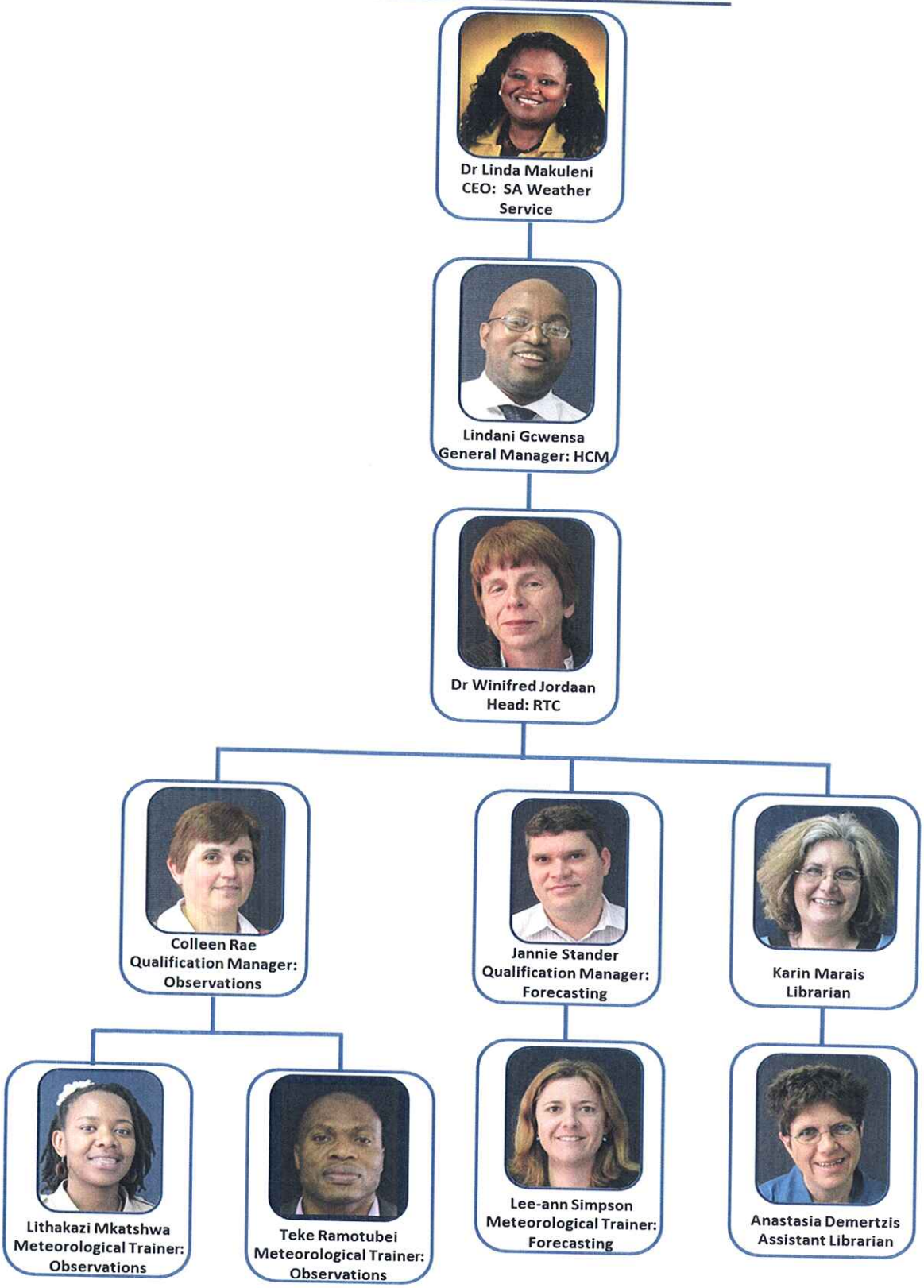
The critical importance of the funding model and the requisite resource mobilisation based on it cannot be overstated.

Record Reference Assigned:	RTC-STRAT-PLAN-2014/15 – 2018/19-001.1

End of Document

Annexure A - RTC Organogram

Regional Training Centre



KEY INFORMATION

- Schedule 3A Public entity (for public good) reporting to DEA
- Responsibility of the Minister of Environment
- Minister & Cabinet appointed Board – Accounting Authority
- Subject to PFMA & other Treasury regulations including AG
- Not subject to Public Service regulations but use most of the prescripts (main differentiator – SANBI Pension Fund)
- Number staff about 700, most Gardens staff (also 946 Groen Sebenza Pioneers)
- Geographic locations – at 10 NBGs, Kwelera NBG launched in 2014 (11 NBG by end of year)
- Head Office in Pretoria

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POLICY & LEGAL FRAMEWORK

National Environmental Management: Biodiversity Act NEMBA (Act No 10 of 2004) [which includes "at the request of the Minister of Environmental Affairs"]	**Gazetted**
SANBI role in NEMBA Regulations: Threatened or Protected Species; CITES including the National Scientific Authority; Alien and Invasive Species	**Gazetted**
Obligations in the National Biodiversity Framework (NBF) (the five year plan from Cabinet approved 20 year vision National Biodiversity Strategic Action Plan (NBSAP)	**Gazetted**
Obligations in Minister's Delivery Agreement - Outcome 10 mandate and now on the MTSF targets	**Published / to be published**
The Climate Change Response White Paper – SANBI designated a role in delivering Long Term Adaptation Scenarios for the bio-natural resources	Published

6

REPORTING ON DELIVERY OF MANDATE

- Key mandate deliverables are reflected in 5 years Corporate Strategic Plan (CSP) & Annual Performance Plan (APP) and achievements are documented in Annual Report.
- Governance Protocol agreement with DEA.
- Progress report on APP is done quarterly and analysed and approved by DEA.



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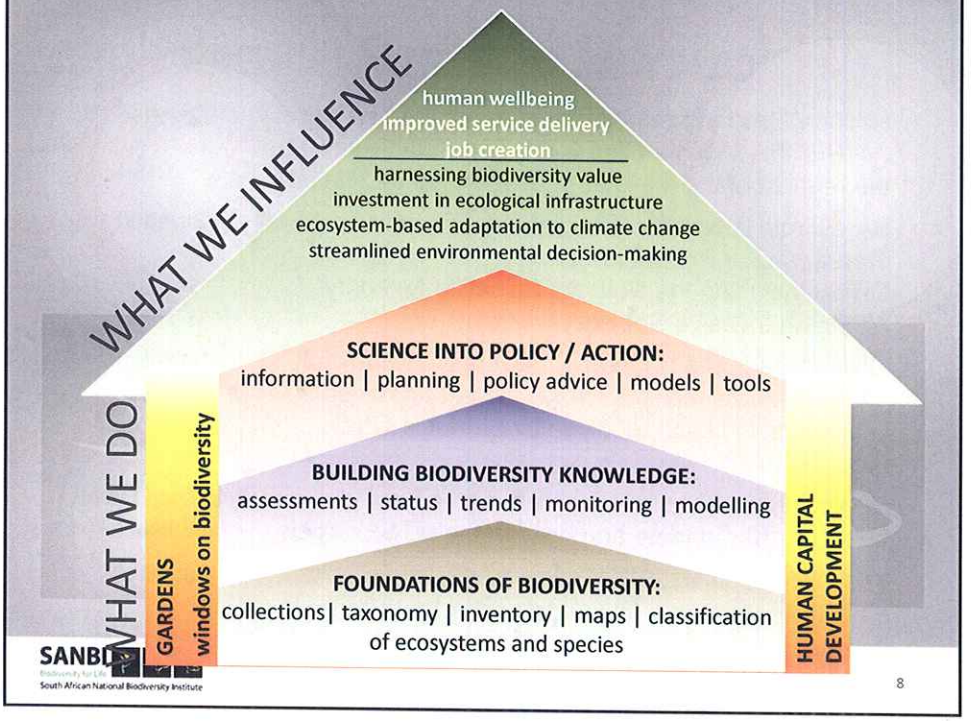

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SANBI delivers its mandate through 6 Programmes

P1: Render effective & efficient corporate services

P2: Manage & unlock benefits of the network of National Botanical Gardens as windows into South Africa's biodiversity

P3: Build the foundational biodiversity science

P4: Assess, monitor & report on the state of biodiversity and increase knowledge for decision making (including adaptation to climate change) — Karoo

P5: Provide biodiversity policy advice & access to biodiversity information, and support for climate change adaptation

P6: Provide human capital development, education & awareness in response to SANBI's mandate

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SANBI's contribution to DEA's Outcomes

National Development Plan (NDP) desired 2030 outcome
Transition to a society & economy which is internationally competitive, equitable, job creating & sustainable

Medium Term Strategic Framework (MTSF) Sub-outcomes

DEA Outcomes

ENVIRONMENTAL ECONOMIC CONTRIBUTION OPTIMISED
Facilitate sustainable Socio- economic Growth & Development by catalysing, optimising & scaling up the contribution of the environmental sector to economic prosperity

ECOLOGICAL INTEGRITY SAFEGUARDED & ENHANCED
Provide leadership in promoting & ensuring environmental sustainability through the management, utilisation, conservation, protection & valuing of our natural resources

SOCIALLY TRANSFORMED & TRANSITIONED COMMUNITIES
Drive socio-economic transformation & transition by optimising the fair & equitable sharing of benefits & enabling Social Development

GLOBAL AGENDA INFLUENCED & GLOBAL/LOCAL OBLIGATIONS MET
Enhanced international cooperation supportive of SA environmental /Social Development priorities

SANBI's Contribution

GARDENS AS WINDOWS ON BIODIVERSITY

FOUNDATIONS OF BIODIVERSITY SCIENCE

BUILDING BIODIVERSITY KNOWLEDGE

SCIENCE INTO POLICY/ ACTION

HUMAN CAPITAL DEVELOPMENT

SANBI's contribution to SDG's through National & International obligations & priorities

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SANBI's STRATEGIC MATTERS that require the attention of the PCEA

- Overcoming the shortage of black Scientists and role models in the Biodiversity Sector – senior appointments in last year
- Increased compliance requirements
- Two new Gardens
- Foundational Biodiversity Information Programme
- Promotion of the Wildlife Economy
- Biodiversity Information Management System (BIM)
- Green Climate Fund: Accreditation Process
- Human Capital Development/Groen Sebenza

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- **Overcoming shortage of black Scientists and role models in the Biodiversity Sector**
  - Appointed six (6) black SMS members during 2014/2015
  - Four (4) of these SMS members are in the content/scientific areas
- **Increased compliance requirements**
  - Occupational Health & Safety standards
  - Use of official language languages
  - New guidelines on Irregular Expenditure
  - Protection of Personal Information (POPI) Act

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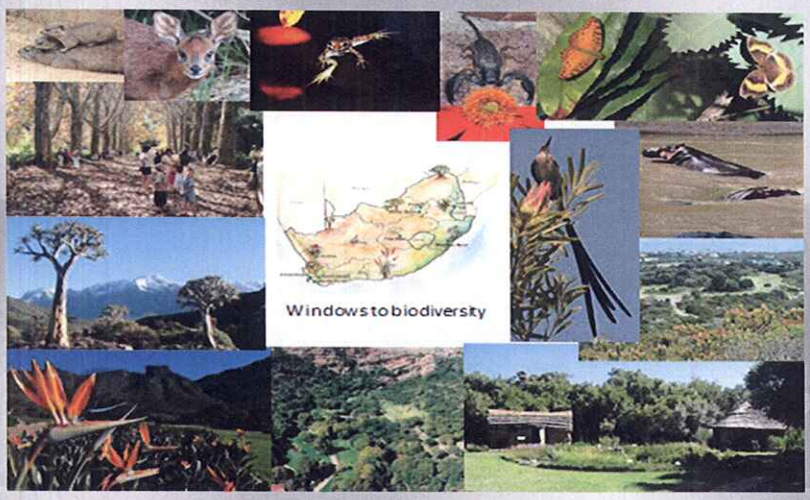
Programme 2: Manage & unlock benefits of the network of National Botanical Gardens as windows into South Africa's biodiversity



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Kwelera National Botanical Garden

(Eastern Cape Province)

- Garden formally declared by DEA Minister in July 2014
- Staff appointed and started 3 August 2015
- Land acquisition (Phase 2) in progress for the remaining 10.48 ha of land. Conditional approval for subdivision, consolidation and use of the land as a national botanical garden received by the Buffalo City Metropolitan Municipality (BCMM) on 14 May 2015.

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Thohoyandou National Botanical Garden

(Limpopo Province)

- Waiting for LEDET to facilitate transfer of land from Provincial Public Works to National Public Works. NPW to vest the management of the Garden to SANBI.
- Task team established between LEDET and SANBI to facilitate HR-related issues
- Limpopo Executive Council resolved that existing 18 staff members at this garden will remain under LEDET payroll
- Once all regulatory and compliance matters have been resolved, DEA Minister will be requested to issue an 'Intention to Declare' the new National Botanical Garden (2016/17). Formal declaration expected in 2016/17.
- Proposed name: Vhembe National Botanical Garden

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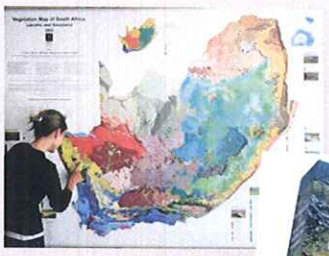
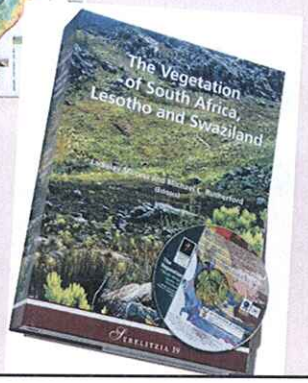
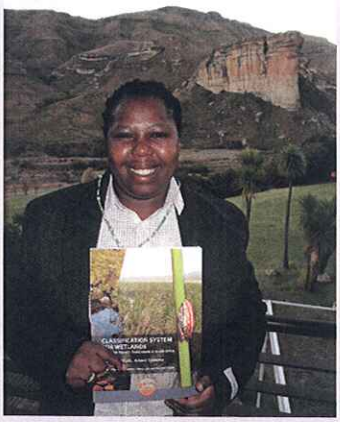
Programme 3: Build the Foundational Biodiversity Science

Ecosystem classification & mapping







- Programme for generating, mobilising and co-ordinating foundational biodiversity information.
- Provides strategic direction, allocates grants and provides mechanism for co-ordination and integration, networking across institutions and researchers.
- Rationale for the FBIP: addresses the SPECIES questions of What have we got? What is it? Where does it occur? What does it do / what is important about it? Also allows changes in species distributions to be tracked (old specimens in collections)

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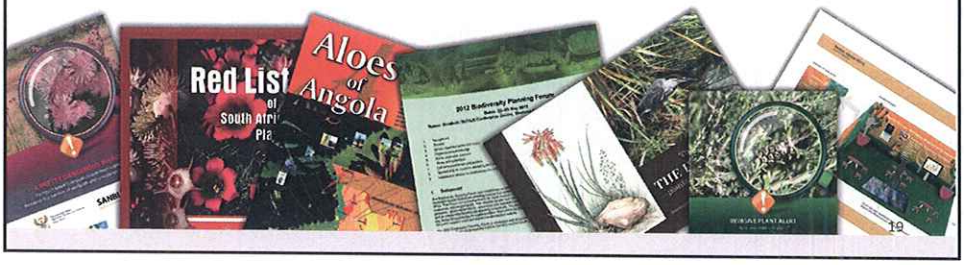
Programme 4: Assess, monitor & report on the state of biodiversity & increase knowledge for decision making (including adaptation to climate change)



Promotion of the Wildlife Economy

- The wildlife economy is a significant and important sector in the biodiversity economy.
- Illegal wildlife trade costs SA billions of Rand and threatens important wildlife resources.
- Scientific oversight of wildlife trade is an important component of effective governance as it helps reduce permit errors and makes corruption harder when permits are issued.
- Improving science oversight has already shown that it can highlight illegal trade and improve governance (e.g. cheetah, leopard, *Pachypodium* succulents, parrots).

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Progress

- SA has the National Biodiversity Economy Strategy (NBES) and the wildlife economy forms part of this strategy.
- SANBI is responsible for the Scientific Authority according to NEMBA
- Funding proposal has been submitted to National Treasury together with DEA for the development of the wildlife economy.
- Pilot projects will be developed as case studies in preparation for the CITES COP to be hosted by South Africa next year (2016).

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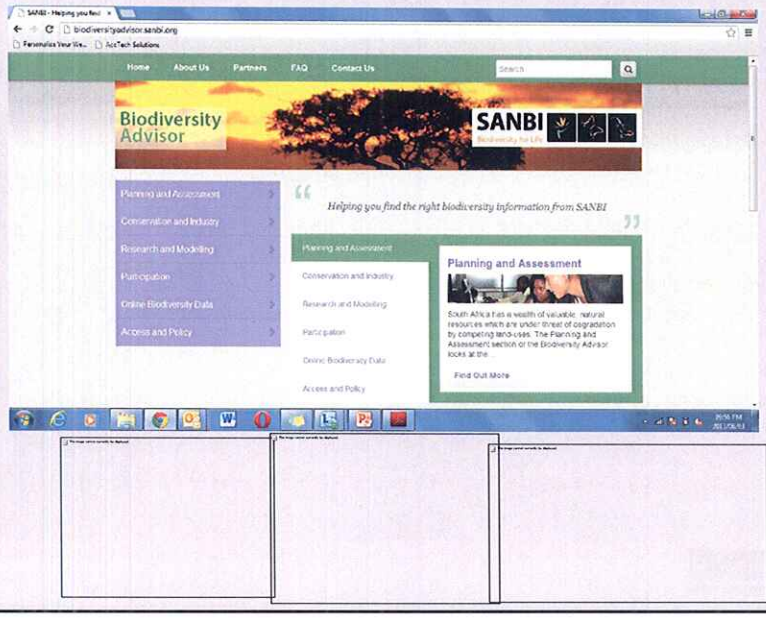
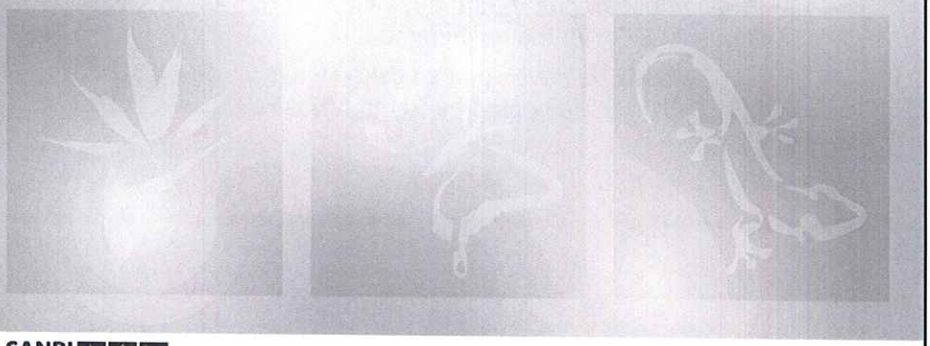
Programme 5: Provide biodiversity policy advice & access to biodiversity information & support for climate change adaptation



Development of Biodiversity Information Management (BIM) System



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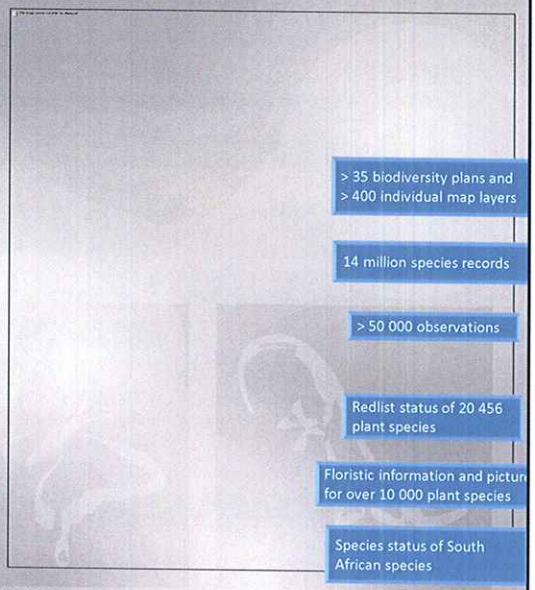
Current state of BIM

Carried out mandate to great effect:

- Global leader in country data holdings;
- Innovative tools and systems;
- Great information policies;
- Basis for international collaboration;
- Has served as a BIM benchmark nationally and internationally

Issues; Improvements to be addressed:

- Systems are in silos;
- Dated technology (not enough systems investment in last 5 years);
- Leads to duplication of data;
- Effort- and time-intensive to manage;
- No interoperability between – systems and data;
- Limited analytical ability;
- Limited ability to monitor use and impact



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Moving towards an integrated information architecture

- Developing an integrated architecture – National Biodiversity Information system
- Bringing together spatial and non-spatial information
- Increased ability to support complex analysis through a single portal
- Support research; policy development and decision-making
- National data standards for easy integration of any new data; reduce maintenance and management of datasets
- Designed to better accommodate future technologies
- Using Infrastructure CapEx as a springboard
- Primary risks are technical capacity (scarce); and integrating complex arrangements/stakeholders across different thematic areas and systems. (species; ecosystems; images; publications; etc)

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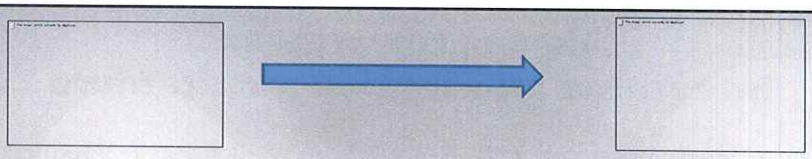
Green Climate Fund: Accreditation Process



SANBI was accredited as South Africa's National Implementing to the Global Adaptation Fund in 2011, and has had two project, with a total value of USD10 million approved. These projects – 'The uMngeni Resilience Project' (approx USD 7.5 million) and the 'Local Adaptation Small Grants Facility' (approx USD 2.5 million) are beginning implementation.

On the back of SANBI's success with the Adaptation Fund, **SANBI has the opportunity to apply for 'fast track accreditation' with the newly formed Global Green Climate Fund**, which has been formed under the UNFCCC. SANBI's application was submitted in July 2015, and has been well received.

Expected Green Climate Fund accreditation date: Late 2015 or early 2016.
Once accredited, as a National Implementing Entity for the Green Climate Fund, SANBI will be able to access further climate finance for South African Climate Change Adaptation projects. Projects will be able to be up to USD 10 million each, and there is no country cap on the number of projects that may be supported.

Challenges and Risks: Meeting all the Green Climate Fund accreditation requirements; Building sufficient capacity in SANBI to develop and oversee projects and manage finances

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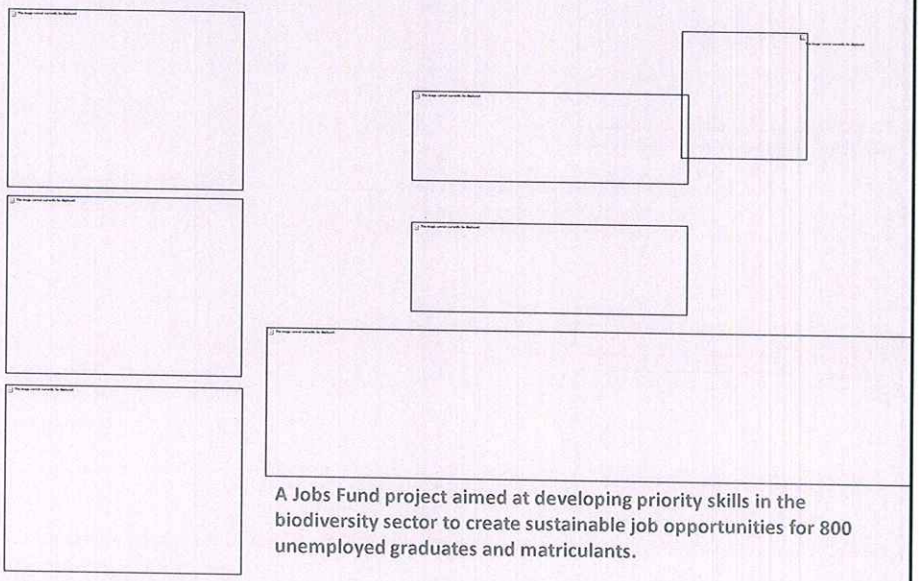
Programme 6: Provide human capital development, education & awareness in response to SANBI's mandate



A Jobs Fund project aimed at developing priority skills in the biodiversity sector to create sustainable job opportunities for 800 unemployed graduates and matriculants.

Progress

- 254 out of 800 pioneers are in permanent jobs
- 227 pioneers offered employment contracts by Host Institutions (HI's) by end of project
- Total jobs created = 481

Challenges/risks

- To create 800 jobs by end of project closure in October 2015.
- GS marked as 'high' risk by NT and put under ITW status due to 600 jobs not having been created by end of July 2015.
- The risk is SANBI's inability to pay pioneers' stipends, staff & service providers timeously, which could result in reputational damage, loss of donor funding, failure to attract young people into the sector in future, loss of incubated skills.

Mitigation

- Social media platforms to promote opportunities for pioneers
- Extensive consultation with HI's to revise targets
- Extensive marketing of the incubated skills in public and private sector – media, BBC, BMF, PSETA/DHET SIPs, DWA, Tourism, use of placement agencies, etc.
- Submission made to MINTECH. Proposed matter be tabled also at MINMEC for DG, MEC's and Minister's intervention

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We would like thank the Committee for a very successful oversight visit at Kirstenbosch NBG on 9 June 2015

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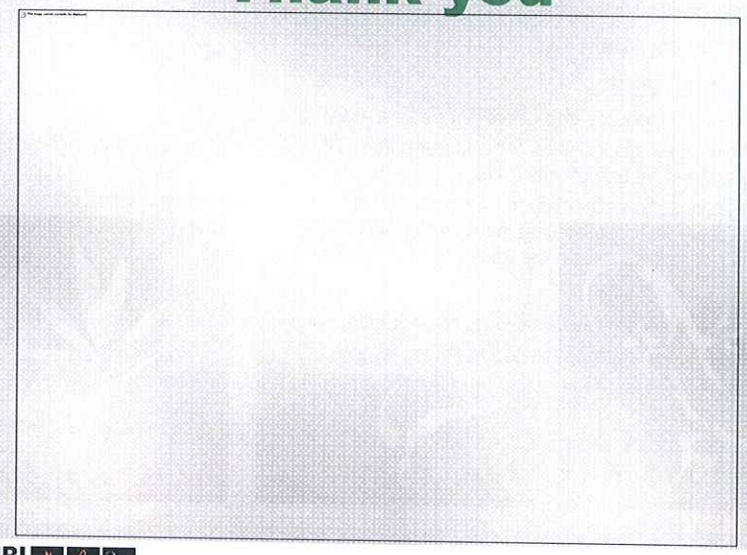
Thank you



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