South African Weather Service

ANNUAL REPORT 2017/18

An Entity of the Department of Environmental Affairs


Creating a
WeatherSMART Nation

Table of Contents

PART A – GENERAL INFORMATION

PART B - PERFORMANCE INFORMATION

PART A
GENERAL INFORMATION

Public Entity's General Information

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South African Weather Service Annual Report 2017/2018

List of Acronyms and Abbreviations

AAWS	Aviation Automatic Weather Station
ACAMS	Advisory Committee for Aeronautical Meteorological Services
ACCESS	Applied Centre for Climate & Earth System Science
A-CDM	Aerodrome Collaborative Decision Making
ACRE	Atmospheric Circulation Reconstructions of the Earth
ACRU	Agricultural Catchment Research Unit
AFI	Africa-Indian Ocean
AFTN	Aeronautical Fixed Telecommunication Network
AGA	Annual General Assembly
AGCM	Atmospheric General Circulation Model
AGSA	Auditor-General South Africa
AIRMET	Airmen's Meteorological Information
AMC	Aerodrome Management Centre
AMCOMET	African Ministerial Conference on Meteorology
AMHS	Aeronautical Traffic Services Message Handling System
AOC	Airline Operators Committee
APCC	APIRG Coordination Committee
APIRG	Africa Planning and Implementation Regional Group
AQHI	Air Quality Health Index
AQMF	Air Quality Modelling and Forecasting
AQMS	Air Quality Modelling and Forecasting System
ARC	Audit and Risk Committee
ARS	Automatic Rainfall Station
ASCA	Agulhas System Climate Array
ASMET	African Satellite Meteorology Education and Training
AT	Apparent Temperature
ATC	Air Traffic Community
ATNS	Aeronautical Traffic Navigation Services
ATR	Annual Training Report
AUC	African Union Commission
AvRDP	Aviation Research Demonstration Project
AWC	Aviation Weather Centre
AWS	Automatic Weather Station
BARSA	Board of Airline Representatives of South Africa
BCB	Bergville Community Builders
BCM	Business Continuity Management

List of Acronyms and Abbreviations

BCP	Business Continuity Plan
BSRN	Baseline Surface Radiation Network
CAMU	Central Airspace Management Unit
CANSO	Civil Aviation Navigation Services Organisation
CAPA	Corrective and Preventive Action
CAPPI	Constant Altitude Plan Position Indicator
CAS	Commission for Atmospheric Sciences
CDAR	Climate Data Analysis and Research
CCMA	Commission for Conciliation, Mediation and Arbitration
CDW	Community Development Workers
CGICT	Corporate Governance of ICT
CHPC	Centre for High Performance Computing
COMET	Cooperative Program for Operational Meteorology Education and Training
CPT	Climate Predictability Tool
CRS	Community Rainfall Station
CRSES	Centre for Renewable and Sustainable Energy Studies
CRSVIS	Catchment Rainfall Spatial Variability Indicator Suite
CSI	Corporate Social Investment
CSIR	Council for Scientific and Industrial Research
CNS	Communication, navigation and surveillance
CSP	Concentrated Solar Power
DAFF	Department of Agriculture, Forestry and Fisheries
DBCP	Data Buoys Co-Operational Panel
DEA	Department of Environmental Affairs
DGCS	Decadal Global Climate Summary
DNII	Direct Normal Irradiance Index
DoT	Department of Transport
EC-JRC	European Commission's Joint Research Centre
ECMWF	European Centre for Medium-Range Weather Forecasts
EIA	Environmental Impact Assessment
ENSO	El Niño Southern Oscillation
ERF	Extended Range Forecast
ERM	Enterprise-wide Risk Management
FAO	Food and Agriculture Organization
FDR	Fire Danger Rating
GANP	(IACO) Global Air Navigation Plan
GCIS	Government Communication and Information System

List of Acronyms and Abbreviations

GFCS	Global Framework on Climate Service
GHG	Green House Gases
GISC	Global Information System Centre
GISS	Goddard Institution for Space Studies
GLOBE	Global Learning and Observation to Benefit the Environment
GML	Geographical Mark-up Language
GPC-LRF	Global Producing Centre for Long Range Forecasts
GTS	Global Telecommunication System
HCM	Human Capital Management
HPC	High Performance Computing
HRRC	Human Resources and Remuneration Committee
HSWI	Heat Stress Watch Index
IAGA	International Association of Geomagnetism & Aeronomy
IAMAS	International Association of Meteorology & Atmospheric Sciences
IAPSO	International Association for the Physical Sciences of the Oceans
IIM/SG	Information and Infrastructure Management Sub-Group (of the AFI-APIRG)
INAM	Mozambique National Meteorology Institute
ICAO	International Civil Aviation Organization
ICT	Information and Communication Technology
IMO	International Marine Organisation
IMT	Institute for Marine Technology
IOC	International Oceanographic Commission (of UNESCO)
IDSA	Institute for Directors of Southern Africa
IPCC	Intergovernmental Panel for Climate Change
IRI	International Research Institute
ISOC	International Scientific Organizing Committee
JCOMM	Joint Commission for Oceanography and Marine Meteorology
JDE	JD Edwards (financial system)
JOC	Joint Operating Centre
JTA	Joint Tariff Agreement
KNMI	Royal Netherlands Meteorological Institute
LDN	Lightning Detection Network
LRF	Long Range Forecasting
MASA	Meteorological Association of Southern Africa
MESA	Monitoring for Environment and Security in Africa
METAR	Meteorological Aviation Report

List of Acronyms and Abbreviations

MHS	Message Handling System
MoU	Memorandum of Understanding
MRI	Mammal Research Institute
NAAQWN	National Ambient Air Quality Monitoring Network
NAEIS	National Atmospheric Emission Inventory System
NAME III	Numerical Atmospheric-Dispersion Modelling Environment
NASA	National Aeronautical and Space Administration
NATJOC	National Joint Operating Centre
NCEP-CFS	National Centre for Environmental Prediction – Climate Forecasting System
NDMC	National Disaster Management Centre
NEOSS	National Earth Observation and Space Secretariat
NJDCC	National Joint Drought Coordinating Committee
NMHS	National Meteorological and Hydrological Service
NMMU	Nelson Mandela Metropolitan University
NOAA	National Ocean and Atmosphere Administration
NRF	National Research Foundation
NVSRF	Nowcasting and Very Short Range Forecasting
NWP	Numerical Weather Prediction
OEI	Organisational Environment of Integration
OHS	Occupational Health and Safety
OPMET	Operational Meteorological
OCIMS	Oceans and Coastal Information Management System
PCEA	Portfolio Committee on Environmental Affairs
PFMA	Public Finance Management Act
PG	Public Good
PR	Permanent Representative
PRASA	Passenger Rail Agency of South Africa
PWC	PricewaterhouseCoopers
QCTO	Quality Council for Trades & Occupations
QMS	Quality Management System
QPF	Quantitative Precipitation Forecast
R4A	Rain for Africa
RCC	Regional Climate Centre
RCM	Regional Climate Model

List of Acronyms and Abbreviations

RCOF	Regional Climate Outlook Forum
REA	Reliable Ensemble Averaging
RMDCN	Regional Meteorological Data Communication Network
RMED	Regional Model Evaluation and Development
RSMC	Regional Specialised Meteorological Centre
RTC	Regional Training Centre
RTH	Regional Telecommunications Hub
SAAQIS	South African Air Quality Information System
SAASTA	South African Agency for Science and Technology
SACAA	South African Civil Aviation Authority
SADIS	Satellite Distribution System
SAEO	South African Environmental Outlook
SAEON	South African Environmental Observation Network
SAFFG	South African Flash Flood Guidance System
SAHAP	South African National Antarctic Program
SAIAB	South African Institute for Aquatic Biodiversity
SAMSA	South African Maritime Safety Authority
SANAE	South African National Antarctic Expedition
SANAP	South African National Antarctic Programme
SANAS	South African National Accreditation System
SANBI	South African National Botanical Gardens Institute
SASAS	South African Society for Atmospheric Sciences
SASSCAL	Southern African Science Service Centre for Climate Change and Adaptive Land Management
SAF	Satellite Application Facility
SARVA	South African Risk and Vulnerability Atlas
SASQAF	South African Statistical Quality Framework
SAWS	South African Weather Service
SCM	Supply Chain Management
SCOM	Sectoral Committee on Meteorology
SET	Science, Engineering and Technology
SETI	Science, Engineering and Technology Institutions
SHADOZ	Southern Hemisphere Additional Ozone sondes
SIGMET	Significant Meteorological Phenomena
SIGWX	Significant Weather

List of Acronyms and Abbreviations

SMART	Safe, More informed, Alert, Resilient, Timeous
SMRF	Short and Medium Range Forecasting
SOLAS	Safety of Life at Sea
SPC	Strategic Programmes Committee
SPECI	Special aviation weather report issued when there is significant deterioration or improve
SPFS	Solar Power Forecasting System
SPI	Standard Precipitation Index
SQL	Structured Query Language
SSFA	Safe Skies for Africa
SSW	Sudden Stratospheric Warning
START	System for Analysis, Research and Training
SWFDP	Severe Weather Forecast Demonstration Project
SWWS	Severe Weather Warning System
TAF(s)	Terminal Aerodrome Forecasts
TETA	Transport Education & Training Authority
TTT	Tropical Temperature Trough
UCT	University of Cape Town
UKMO	United Kingdom Meteorological Office
UMAP	Understanding and Modelling Atmospheric Processes
UVB	Ultra Violet B-Spectrum
VFR	Visual Flight Rules
VOS	Voluntary Observation Ship
WCCAP	World Calibration Centre for Aerosol Physical
WIS	WMO Information System
WCSSP	Weather and Climate Science to Service Partnership
WIS/WIGOS	WMO Information System/WMO Integrated Global Observing System
WMO	World Meteorological Organization
WRC	Water Research Commission
WRR	World Radiometric Reference
WSP	Work Skills Plan
WDCGG	World Data Centre for Greenhouses Gases
WINDEX	Wind Index
WOW	Weather Observation Website
WWF-SA	World Wildlife Fund South Africa
XML	Extensible Mark-up Language

Message from the Minister of Environmental Affairs

Thank you for the opportunity to present the 2017/18 Annual Report of the South African Weather Service (SAWS), a public entity of the Department of Environmental Affairs (DEA).

SAWS derives its mandate from the South African Weather Service Act (No. 8 of 2001 as amended). The organisation's strategic planning and operations are aligned with important national imperatives and strategies such as Vision 2030 of the National Development Plan (NDP), the National Climate Change Response Policy and the Nine Point Plan of 2015. In this way, SAWS maintains its relevance in terms of addressing the needs of the country, which include adhering to the National Infrastructure Plan adopted by the government in 2012. Furthermore, the Global Framework for Climate Services (GFCS) remains one of the key mechanisms for linking SAWS programmes to NDP priorities.

During 2017/18, the continued impact of climate change and variability required that SAWS become even more proactive in its quest to create and support a WeatherSMART nation. Extreme weather events pose one of the greatest threats to sustainable development and the period under review saw an increase in their frequency and intensity. In accordance with the NDP, government strategies for responding to the challenge of climate change includes increased investment in new agricultural technologies and in the research and development of adaptation strategies aimed at protecting rural livelihoods and expanding commercial agriculture.

It is the vision of the NDP that by 2030, South Africa's transition to an environmentally sustainable, climate-change resilient, low-carbon economy and just society will be well under way. This vision is closely aligned to Outcome 10 of the NDP regarding the protection and enhancement of South Africa's environmental assets and natural resources. Realising this goal will require a base of expert human capital and technologies that can support the implementation of programmes to grow the economy without increasing the country's emissions profile. DEA plays the lead role in this regard, with SAWS as its implementing agency.

With NDP Outcome 5 in its line of sight (viz. a skilled and capable workforce to support an inclusive growth path) SAWS has developed a National Education Plan which not only articulates the human resource needs of the meteorology sector across all spheres of government but is aimed at contributing to the resolution of unemployment challenges.

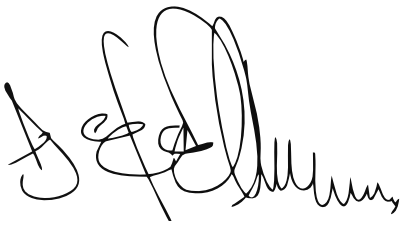
SAWS has a strong relationship with the World Meteorological Organization (WMO) and the Intergovernmental Panel for Climate Change (IPCC). The WMO has laid the foundation for the Global Framework for Climate Services (GFCS) that promotes global information sharing. As a key player in the sector and with its extensive operational and research activities, SAWS capitalises on the impetus generated by the 2013 GFCS Workshop on Climate Services to position itself strategically within the network of climate service organisations.

Together with DEA, SAWS has been actively involved in the development of a National Framework for Climate Services (NFCS) that provides climate-related information to support individual and organisational decision-making. Without doubt, SAWS has risen to the challenge of responding to user needs by providing high quality data on temperatures, rainfall, wind, soil moisture and ocean conditions from national and international databases, as well as effective access to maps, risk and vulnerability analyses and assessments, and long-term projections.

The continuing drought in the Western Cape remained a key issue during 2017/18 and required intensified cooperation between SAWS and national, provincial and local government. Furthermore, extreme weather events such as flooding, severe winds, tornadoes and wild fires put the organisation in the spotlight as disaster management agencies relies on SAWS for up-to-date information in order to develop effective mitigation strategies. In addition to addressing the challenges associated with short-term weather variability, SAWS continued to participate in global collaborations and information sharing and to leverage international partnerships for the development of relevant local and global products. In addition to promoting scientific innovation and fostering research partnerships in the current economic climate, the optimisation of resources through collaboration with similar institutions is a prudent strategy.

In recognition of its initiatives and to give the organisation access to direct funding from the National Research Foundation (NRF), SAWS was recently declared a National Science Council. Knowledge generation is essential for the development of adaptation strategies at local, national and international level, and SAWS, in partnership with DEA, is at the forefront of increasing research outputs and realising tangible returns on research investment.

This 2017/18 Annual Report of the South African Weather Service complies with statutory requirements of the Public Finance Management Act (No. 1 of 1999) and National Treasury regulations. It is my pleasure to present it for your perusal.



Dr BEE Molewa
Minister of Environmental Affairs

Message from the Deputy Minister of Environmental Affairs

As an entity of the Department of Environmental Affairs, the mandate of the South African Weather Service (SAWS) reflects a combination of both public good and commercial services aimed at building stakeholder relations and empowering citizens, particularly in terms of adapting to the effects of weather and climate variability.

The research capacity and responsibilities of the Weather Service continued to grow in the period under review and the organisation has become an international competitor in the in-house modelling of weather and climate outlooks. However, SAWS has not lost sight of the immediate needs of its key stakeholders and no stone has been left unturned in the quest to ensure that stakeholders were well informed and prepared for the severe weather events that affected the country in the period under review.

SAWS continued to build on the insights gained and expertise developed over previous years in order to understand and meet the needs of weather-sensitive sectors and vulnerable communities. This was done by enhancing the performance of existing products and services and developing new ones.

One example of how SAWS continued to respond to the climate-related needs of the public was the development of a Heat Stress Watch Index (HSWI) which alerts users to extremely high temperatures and recommends actions to mitigate the health impacts of temperatures in four heat categories.

During the past financial year work commenced on the development of a near real time Air Quality Health Index to inform and advise citizens, and limit exposure to, short term increases in air pollution. In addition, the research efforts of SAWS' Hydrometeorology Group, including a study of the transition between drought types, were particularly relevant in this period given the ongoing drought in much of the Cape Province.

The noteworthy enhancement of SAWS' communications, particularly on social media and during periods of severe weather, has made a critical contribution to strengthening the country's weather resilience. In its ongoing quest to increase stakeholder and public awareness and to facilitate access to timely weather information and alerts, SAWS made efficient use of its website and increased its use of media platforms such as community radio stations and Twitter.

On the international front, SAWS participated in international regulatory bodies such as the World Meteorological Organization (WMO) and International Civil Aviation Organization (ICAO). It continued to contribute to the WMO through its Global Production Centre for Long Range Forecasts (GPC-LRF).

As an implementing agency of the DEA, SAWS fulfilled its international responsibilities under the Safety of Life at Sea (SOLAS), WMO and ICAO Conventions.

In addition to its designated roles as Regional Training Centre (RTC), Regional Specialised Meteorological Centre (RSMC), Global Producing Centre for Long Range Forecasts (GPC-LRF) and Global Information System Centre (GISC) within the Southern African Development Community (SADC) region, SAWS serves as a Board Member of the Meteorological Association of Southern Africa (MASA) and hosts the Secretariat of MASA at its headquarters in Pretoria. Furthermore, SAWS runs the WMO's Severe Weather Forecast Demonstration Project (SWFDP) for all SADC members and ensures that severe weather forecasts in the SADC region are developed and shared timeously with all National Meteorological Services in the sub-region.

It is without doubt that SAWS has continued to play a pivotal role in meteorological cooperation in Africa and in severe weather prediction and training within the SADC region.

SAWS continued to work towards the implementation of a National Education Plan aimed at developing the meteorological and climate-related skills that are critical for the achievement of the SAWS mandate, as well as the priorities of the country contained in the National Development Plan's Vision 2030. An important aspect of this is community outreach and exposing young people to career opportunities in the skills-scarce fields of meteorology and climatology. SAWS has continued with extensive educational and awareness raising efforts in order to encourage young people to join its ranks.

It gives me great pleasure to join the Minister of Environmental Affairs and the SAWS Board, Management and staff in presenting the 2017/18 SAWS Annual Report.

Mrs Barbara Thomson
Deputy Minister of Environmental Affairs

Foreword by the Board Chairperson

During the financial and reporting period of 2017/18, under the able stewardship of the Board, the South African Weather Service achieved, inter alia, the following:

- A systematic approach in the execution of its mandate and its vision to create a nation that is resilient to the impacts of climate change and driven by a thriving economy; and
- Renewed efforts to generate the knowledge required towards achieving climate change adaptation and mitigation imperatives as well as deliver products and applications aimed at enhancing the nation's weather-readiness.

The 2017/18 financial year was also a period in which the South African Weather Service underwent a substantive strategic review in light of the end of office of the Board. In order to reach all 57 million South Africans, it was realised that the organisation needed a strategy to help extend its reach through innovative products and services that ensure the effective dissemination of information and knowledge sharing. This change in focus required a review of the South African Weather Service's strategy and business and financial models and involved a number of key initiatives, namely:

- The development of an Integrated Services Strategy: The Integrated Services Strategy introduced in the period under review emphasises our vision of a WeatherSMART nation, which aims to improve the safety of citizens in times of severe weather events associated with climate variability and change. To this end, a range of activities were initiated. The first of these is integration across the entire forecasting value chain for enhanced seamlessness in terms of all aspects, both timescales and systems (Numerical Weather Prediction, Early Warnings and Observation systems). Secondly, strategies for communicating information on hazardous weather and climate related needs must be improved continuously. Thirdly, the strategy fulfills the need to ensure that services reach communities at risk;
- A review of the Commercialisation Model: A commercial business review was initiated to interrogate the South African Weather Service's participation in its target markets and determine the most efficient operating model for the organisation's commercial activities. A Commercialisation Policy Framework was developed against the background of increasing availability and diverse and sophisticated use of weather-related information in the public and private sector markets globally;

- The development and implementation of a WeatherSMART Communications and Brand Strategy: The South African Weather Service acknowledges that it does not function as an independent entity but has an impact on and is in turn impacted by many different stakeholder groups. It also recognises that only through effective stakeholder engagement can it meet its goals of maintaining mutually beneficial stakeholder relations; exploiting resource mobilisation opportunities, ongoing engagement irrelevant projects; and strategic positioning of the organisation both nationally and globally. The South African Weather Service, therefore, adopted a holistic approach to stakeholder engagement and recognises that corporate communications and brand management are key mechanisms in creating value. To ensure the appropriate communication of relevant messages to targeted audiences, a WeatherSMART Communications and Brand Strategy was to be developed and implemented.
- The development of a Human Resources Strategy: It is imperative that the South African Weather Service has a clear and robust Human Resources Strategy as an integral part of the organisation's defined strategy and vision. This strategy shall set the overarching key human resource objectives and delineate the associated action plans needed to support the organisation in delivering on its Five Year Strategic Plan. With a view to assuring a future for the organisation, the strategy will indicate how the South African Weather Service educates, manages and leads its employees; attracts and retains talent; and mitigates strategic workforce risks;
- Conducting a Socioeconomic Benefit Study: Given the increasing pressure on society and Government to adapt to the effects of climate change and variability, SAWS needs to demonstrate the socioeconomic value of its national weather services. It is anticipated that the outcome of a Socioeconomic Benefit Study will assist in the justification and evaluation of current programmes and investment in future programmes;
- Leveraging and expanding Regional Training Centre capacity: The South African Weather Service is recognised by the World Meteorological Organization as a Regional Training Centre (RTC) which provides formal international standard technical training in a number of atmospheric science related fields. The South African Weather Service over the next three years will review the organisation's RTC Strategy with a view to intensifying efforts to increase throughput from this capability; and
- Optimizing and enhancing SAWS' infrastructure: An important element of reviewing the status of SAWS' infrastructure was the formulation of a Radar Business Case. The availability and reliability of the organisation's radar network have been major concerns for the organisation over the past few years due to the negative impact on the provision of accurate and timely forecasting information during weather events. Following the identification of the challenges involved, possible immediate and short-term interventions were evaluated and action plans developed for implementation over a three-year period. A budget of R 20 million has been approved by the Board for this implementation, which includes, amongst others:
    - o The procurement and installation of Uninterrupted Power Supplies;
    - o The upgrading and repair of non-operational radars; and
    - o The implementation of an integrated computerised management system.

These actions have been initiated and will be completed in the 2020/21 financial year. It is anticipated that they will stabilise and improve radar availability and reliability while the long-term radar network management is being developed.

Significant progress had also been made in the plan to convert manual rainfall and climate stations to automatic ones and the planned rollout is envisaged in financial years 2018/19 and 2019/20. Having established that there is a clear need to enhance organisation's marine meteorological capability, the South African Weather Service had also developed a 10-year Marine Master Plan to increase its service offering to the marine sector as recommended by the Special Programmes Committee and yet to be approved by the Board in Quarter 2 of the 2018/19 financial year.

In conclusion, our measure of success can only be determined on how far we contribute to enhancing the climatological and meteorological knowledge base and research methodologies. The true value of our work must be experienced on the ground through the products that we continue to make available for use by national international entities, commercial organisations, communities and individual citizens. These products continue to support the practical management of climate and weather phenomena that have a direct impact on personal safety, public health national food security and international obligations.

The content of this Annual Report is testament to the sterling job done by a courageous and forward thinking Board and Executive team at a time when constraints cannot be allowed to impact on the delivery of SAWS' expanded mandate. It is with confidence and pride that I join the Minister, Deputy Minister and the Executive team in presenting the report for your perusal.

Ms Ntsoaki Mngomezulu
Board Chairperson

Overview by the Chief Executive Officer

The South African Weather Service (SAWS) plays an essential role in supporting the short, medium and long term socioeconomic development policies and strategies of South Africa and the Southern African Region in the face of increasing weather variability and escalating climate change impacts. As such, the SAWS Strategic Plan, Annual Performance Plan (APP), programmes and activities are all aligned with the South African Weather Service Act, 2001 (No. 8 of 2001 as amended) and the organisation's mandate to provide timely and accurate scientific data in the field of meteorology (including climatology) and air quality information management.

The crucial and strategic socioeconomic role of the organisation has once again been highlighted during the 2017/18 reporting period, when South Africa experienced a number of severe weather hazards that directly affected the lives, livelihoods and property of a large number of citizens, particularly the poor and vulnerable. While the media reported widely on the Western Cape drought, many other regions also experienced drought and severe weather systems during which SAWS provided decision support on local, provincial and national level, not least through the Disaster Management system and the support provided to the Inter Ministerial Task Team (IMTT) on Drought. In our quest to reach 57 million South Africans with the WeatherSMART message, timeous and accurate weather alerts and warnings enabled weather sensitive sectors and the general public to prepare for and mitigate the impact of episodes of severe cold, flooding and gale force winds. On the seasonal forecast time scale, our monthly seasonal predictions and interactions continued to support provincial planning and decision making in Government and other sectors. Many lessons were learnt on the importance of ensuring basic infrastructure was always available and data and timely information derived from this network was available to support core delivery of product and services.

The SAWS Aviation Weather Centre (AWC) contributed to the maintenance of a globally competitive national airspace by providing reputable aeronautical meteorological services aimed at ensuring safer skies with quality information and data availability at an impressive rate of 98% or above. On the Marine weather front, our initiatives to enhance the availability of data over the data sparse southern oceans continued with our marine infrastructure expansion activities.

While we maintained our observations infrastructure as the basis of our data collection and service delivery, challenges over the past few years relating to our radar network came under the spotlight during our review of the status of SAWS' infrastructure. As an example, the development of a three-year action plan to address these challenges was supported by the Board, with their approval of a budget of R 20 million to upgrade and enhance our radar network by 2020/21. We are optimistic that this intervention will stabilise and improve radar availability and reliability which will exponentially enhance the quality of our service delivery in our drive to provide accurate, relevant and timeous products and services to all South Africans. Other interventions included the development of a business case to address the SAWS High Performance Computer (HPC) requirements in the face of a serious operational risk to the core mandate were the business case not implemented.

The monitoring of ambient air quality has become increasingly important, as the adverse effects of atmospheric pollution are felt across many segments of the population and the economy. As mandated by the SAWS amendment Act of 2013, we continued to manage the South African Air Quality Information System (SAAQIS) National Ambient Air Quality Monitoring Network (NAAQMN) in collaboration with the Department of Environmental Affairs.

The base of knowledge and information in the field of weather and climate was continuously increased through research conducted within the organisation as well as in collaboration with other partner scientific institutions. This culminated, amongst others, in the publication of peer reviewed articles in scientific journals or conference presentations both locally and abroad, thereby highlighting the continued relevance of the research done by the organisation.

In line with its mandate, and over and above its commitment to its significant strategic review, SAWS made substantial progress in the development of new products to assist in the practical management of the impacts of climate and weather on personal safety, public health and food security. Innovative new products include Chill Units Maps for use by the agricultural sector, a Heat Stress Watch Index for the health sector, a Drought Propagator for the water sector and a Direct Normal Irradiance Index for the energy sector. Furthermore, with a view to extending the organisation's reach, a WeatherSMART Application for mobile phones was developed and the Air Quality Health Index was made available on the SAAQIS system.

The results of the 2017/18 SAWS' Stakeholder Perception Survey remained encouraging. Although the 86% satisfaction rating achieved is once again far above the accepted industry standard of 70%, SAWS will continue to engage its various stakeholders and implement identified corrective actions in the next financial year.

We were committed to ensure purpose-driven human resources development that not only focussed on employment equity and redress but also strategic talent management and leadership development. This included the review and realignment of the organisation's structure at Executive and Senior Management level with a view to promoting lean and effective operations and a renewed focus on inculcating the principles of customer-centred agility, collaboration, trust and accountability throughout the organisation. Furthermore, we implemented a number of human resources development initiatives not only to build expertise both internally and in the national atmospheric and related sciences talent pool but also in the Engineering and Technology side of the entity to meet the ever increasing strategic challenge of developing more and more instruments domestically. This is discussed at length in Part D of this report.

I commend SAWS' dedicated personnel who, supported by the Board and the Executive, continued to perform their duties to the highest standards of excellence. I am confident that the strategic review embarked upon during the period under review will support the organisation's continued and critical role in responding to the strategic outcome areas identified by Government, thereby contributing to an environmentally sustainable, climate change resilient, low carbon economy.

Mr Jerry Lengoasa
Chief Executive Officer

Board Members

Ms Ntsoaki Mngomezulu
Board Chairperson

Mr Jerry Lengoasa
Chief Executive Officer
from 8 May 2017

Ms Mmapula Kgari
Acting Chief Executive Officer
until 7 May 2017

Ms Judy Beaumont
Board Member

Mr Derick Block
Board Member

Mr David Lefutso
Board Member

Ms Nandipha Madiba
Board Member

Dr Keabetswe Modimoeng, (PhD)
Board Member
until 19 February 2018

Prof Elizabeth Mokotong
Board Member

Board Members

Ms Sally Mudly-Padayachie
Board Member

Mr Rowan Nicholls
Board Member

Dr Jasper Rees
Board Member
until 31 July 2017

Dr Jonty Tshipa, (PhD)
Board Member
until 2 November 2017

Adv. Portia Matsane
Company Secretary
from 19 September 2017

Ms Thobile Ntusi
Acting Company Secretary
until 16 September 2017

Executive Management

Mr Jerry Lengoasa
Chief Executive Officer
from 8 May 2017

Ms Mmapula Kgari
Acting Chief Executive Officer
until 7 May 2017

Mr Mnikeli Ndabambi
Executive: Infrastructure
and Information Services

Ms Julia Mphafudi
Executive: Corporate and
Regulatory Services

Ms Busisiwe Shongwe
Chief Financial Officer
from 1 January 2018

Mr Mark Majodina
Acting General Manager:
Corporate Affairs
until 11 August 2017

Mr Lulama Gumenge
Acting Chief Financial Officer
from 1 April – 31 December 2017

Ms Michelle Hartslief
Acting General Manager:
Commercial until 31 August 2017;
Acting Executive: Infrastructure
and Information Services
from 10 January - 2 March 2018

Mr Jongikhaya Witi
Acting Executive: Weather
and Climate Services

Senior Management

Mr Kama Chetty
Senior Manager: Air Quality

Mr Lulama Gumenge
Senior Manager: Finance

Ms Michelle Hartslief
Senior Manager: Commercial

Ms Khanyisa Hanisi
Senior Manager:
Human Capital Services

Dr Winifred Jordaan
Head: Regional Training
Centre

Ms Gaborekwe Khambule
Senior Manager: Aviation

Ms Tlaki Kobe
Acting Senior Manager:
Supply Chain Management
from 1 October –
30 November 2017

Mr Thabo Maake
Senior Manager: Office of the CEO and
Acting Senior Manager: Finance until 31
December 2017

Mr Ndivhuho Mafela
Senior Manager:
Stakeholder Relations
from 10 April 2017

Senior Management

Mr Mark Majodina
Senior Manager:
International Relations
until 11 August 2017

Mr Sipho Masinga
Chief Information Officer
until 12 August 2017

Ms Zodwa Matlaila
Senior Manager: Supply
Chain Management
from 1 December 2017

Ms Charlotte McBride
Acting Senior Manager:
Climate Service
from 9 October 2017

Mr Thabani Mhlongo
Senior Manager: Technical
Services
from 1 July 2017

Mr Mpho Mofokeng
Senior Manager: ICT
from 1 October 2017

Senior Management

Mr Masindi Netshilema
Senior Manager:
Commercial

Mr Tshepho Ngobeni
Senior Manager: National
Forecasting

Dr Nhlonipho Nhlabatsi, (PhD)
Senior Manager:
Research and Development
until 2 June 2017

Mr Lucky Ntsangwane
Senior Manager:
Research and Development
from 1 October 2017

Executive Report

Report by the Chief Executive Officer to the Executive Authority and Parliament of the Republic of South Africa.

PREPARATION AND PRESENTATION OF THE ANNUAL FINANCIAL STATEMENTS

The Annual Financial Statements have been prepared in accordance with the South African Statements of Generally Recognised Accounting Practice (GRAP) including any interpretations of such Statements issued by the Accounting Standards Board.

The South African Weather Service (SAWS) complies with the Public Finance Management Act (PFMA), 1999 (No.1 of 1999); Treasury Regulations; the Companies Act; and the principles of Good Corporate Governance recommended by King IV in managing its financial affairs. The Annual Financial Statements for the year ended 31 March 2018 were compiled on the going concern basis as it is expected that SAWS will continue operations in the foreseeable future.

GENERAL REVIEW OF THE STATE OF AFFAIRS

SAWS is the primary provider of weather and climate related information within South Africa, as legislated in the South African Weather Service Act, 2001 (No 8 of 2001 as amended) – also referred to as "SAWS Act". It supplies weather-related information to the public at large as part of its public good mandate of which a government grant is received to support this activity.

SAWS furthermore provides weather-related information to the aviation industry on a cost recovery basis through a regulated tariff. The Regulating Committee on Meteorological Services (RCMS) plays a pivotal role to ensure that the recommended tariff is just and fair to all parties involved and recommends accordingly to the Minister of Environmental Affairs for approval and subsequent promulgation in the Government Gazette.

The Act also allows SAWS to provide weather and climate-related information to commercial clients from industries such as mining, insurance, tourism, telecommunication, municipalities and other international meteorological organisations.

According to the Act, SAWS is also the custodian of the South African Air Quality Information System, which includes the selling of ambient air-quality or meteorological information packages.

Executive Report

Revenue

The Total Revenue increased by 8,64% from R 374,93 million to R 407,33 million year-on-year.

Table 1: Movement in Revenue 2017/18 versus 2016/17 (year-on-year)

Revenue	2017/18	2017/16	Variance	
	R	R	R	%
Revenue from non-exchange transactions				
Revenue from non-exchange transactions - operational expenditure	**240 482 000**	**204 985 000**	**35 497 000**	**17,32%**
- Government grant - operational and capital expenditure	223 490 000	189 278 000	34 212 000	18,08%
- Government grant - SAAQIS	16 992 000	15 707 000	1 285 000	8,18%
Contributions and donations	**4 048 344**	**3 002 177**	**1 046 167**	**34,85%**
- TETA -SETA grant	885 609	673 740	211 869	31,45%
- Donor funding - research projects	3 162 735	2 328 437	834 298	35,83%
Revenue from non-exchange transactions	**244 530 344**	**207 987 177**	**36 543 167**	**17,57%**
Revenue from exchange transactions				
Regulated commercial revenue				
- Aviation	**129 300 614**	**132 918 492**	**(3 617 878)**	**-2,72%**
Non regulated commercial revenue	**25 655 469**	**29 369 191**	**(3 713 722)**	**-12,64%**
- Aviation instruments maintenance income	915 434	1 326 540	(411 106)	-30,99%
- Air quality revenue	6 584 065	6 948 003	(363 938)	-5,24%
- Information fees	13 638 158	14 026 508	(388 350)	-2,77%
- Training - Regional Training Centre	377 064	747 495	(370 431)	-49,56%
- Lightning detection network sales	3 911 606	3 903 607	7 999	0,20%
- Sale of instruments	229 142	2 417 038	(2 187 896)	-90,52%
Total commercial revenue	**154 956 083**	**162 287 683**	**(7 331 600)**	**-4,52%**
Other revenue	**7 839 810**	**4 650 726**	**3 189 084**	**68,57%**
- Miscellaneous income	964 163	643 709	320 454	49,78%
- Interest received from receivables	145 643	94 884	50 759	53,50%
- Income from investments	6 730 004	3 912 133	2 817 871	72,03%
Revenue from exchange transactions	**162 795 893**	**166 938 409**	**(4 142 516)**	**-2,48%**
Total revenue	**407 326 237**	**374 925 586**	**32 400 651**	**8,64%**

Executive Report

Government Grant

The total Grant income increased by 17,32% (R 35,50 million) to R 240,48 million. Included under the Grant income is a Capital Expenditure Grant of R35 million.

Aviation Income

Aviation income decreased by 2,72% from R 132,92 million to R 129,30 million year-on-year. This result is mainly due to lower air traffic volumes.

Non-Regulated Commercial Income

Non-regulated commercial revenue decreased by 12,64% from R 29,37 million to R 25,66 million year- on-year, mainly due to lower sales of meteorological instruments which decreased by 90,52% year-on- year.

Other Income

Interest from investments increased by 72,03% from R 3,91 million to R 6,73 million year-on-year. Interest income arose as a result of revenue generated from commercial revenue.

The relation between externally and internally generated revenue is reflected in Table 2 below.

Table 2: Relation between Externally and Internally Generated Revenue

Revenue	2018	2017
Internal Revenue as % of Total Revenue	59%	55%
External Revenue as % of Total Revenue	41%	45%

- Internal revenue comprises all Government Grant Revenue and TETA Grants; and
- External revenue comprises Aviation -; Non-regulated Commercial -; and Other Revenue

Executive Report

Expenditure

Total Expenditure has increased by 10,64% from R 356,84 million to R 403,97 million year-on-year

Table 3: Total Expenditure consisted of the following:

DESCRIPTION	2017/18	2017/16	Variance	
	R	R	R	%
Administrative	9 315 862	7 070 095	2 245 767	31,76%
Employee costs	222 487 039	202 480 457	20 006 582	9,88%
Amortisation	3 877 362	4 205 225	(327 863)	-7,80%
Depreciation	31 566 948	30 435 306	1 131 642	3,72%
Impairment loss	4 574 712	-	4 574 712	-100,00%
Other operating expenses	132 146 739	112 653 793	19 492 946	17,30%
TOTAL EXPENDITURE	**403 968 662**	**356 844 876**	**47 123 786**	**13,21%**

Administrative Expenditure

Administrative Expenditure has increased by 31,76% year-on-year from R 7,07 million to R 9,32 million. Costs related to the provision for doubtful debts resulted to a recovery of bad debts previously written off.

Employee Costs

Compensation of Employees increased by 9,88% year-on-year to R 222,49 million (2016/17: R 2 0 2 , 4 8 million) and make up 55,08% (2016/17: 56.74%) of the Total Expenditure of SAWS.

During the year under review all qualifying employees received an across the board salary increase of 7%.

Operating Expenditure

Other operating expenses increased by 17,30% (R 19,49 million) from R 112,65 million to R 132,15 million year-on-year. The increase in operating expenditure even though higher than the average CPI over the year, is attributed to the volatility in the Rand exchange rate when compared to other foreign currencies, regulatory price increases such as electricity and diesel costs and other contractual agreements whose increase is higher than the average CPI.

Impairment Loss

SAWS incurred an impairment loss of R 4,57 million as the value of the old C-Band radars was deemed to be below its recoverable amount. These radars have deteriorated to an extent that they are no longer in use as they have reached their useful life. Radars have an expected useful life of 25 years, and these particular radars have been used for over 30 years and will be disposed of once approved.

SUPPLY CHAIN MANAGEMENT SYSTEM

SAWS maintains an appropriate procurement and provisioning system which is fair, equitable, transparent, competitive and cost-effective, in accordance with the Public Finance Management Act, 1999 (No 1 of 1999, as amended); Treasury Regulation 16A; Cost Containment Measures as issued by National Treasury and other applicable legislative frameworks.

Executive Report

POST-RETIREMENT MEDICAL AID BENEFIT

SAWS has a Defined Benefit Liability in a form of a Post-Retirement Medical Aid Benefit Plan (PRMA) for all staff employed before November 2008. This obligation has been funded by payments from the entity and its employees, taking into account the recommendations of the independent qualified actuaries.

Actuarial gains and losses are recognised in surplus or deficit in accordance with GRAP 25.

As at 31 March 2018, SAWS' liability on the Post-Retirement Medical Aid (PRMA) decreased from R 11,32 million to R 4,87 million. The decrease was due to a decline in the number of employees entitled to the PRMA both in service and in continuation and the increase in the net discount rate from 0,80% to 1,09% year-on- year.

This Non-current Liability represents a total of 51 employees (2016/17: 56 employees), of which 31 of these employees (2016/17: 34) are already on retirement/pension while the remaining 20 (2016/17: 22) are still in service.

BUDGETED REVENUE AND EXPENDITURE COMPARED TO ACTUAL

During the year under review, SAWS realised a Surplus of R 12,18 million (2016/17: R 23,87 million). Total revenue for the year was below budget by R 34,80 million amounting to R 407,33 million (Budget: R 442,13 million), while total expenditure was below the budget by 8,63% (Actual: R 403,97million).

SERVICES RENDERED BY THE SOUTH AFRICAN WEATHER SERVICE

A list of services rendered by SAWS and the significant events that took place during the year, including major projects undertaken are discussed in detail in the Annual Report.

CAPACITY AND OTHER CONSTRAINTS

Funding Sources - SAWS' optimal productivity relies heavily on the availability of financial enablers to ensure that the desired yields on the investment are attained. It is in this context that SAWS continues to rely heavily on the support from Government in the form of a grant allocation from the Shareholder, which is significant in ensuring the long term sustainability of the entity.

Operational Capacity - Global trends and developmental pressures have propelled organisations similar to ours to invest more heavily in capacity building, such as modern technology and human capital. The enhancement in capital injections and technology ensures that there are up-to-date enablers to assist in generating relevant applications in research that will assist government in planning- and decision-making processes. It is highly desirable that the South African Weather Service takes a leading role in this process. The success of these projects could be derailed by lack of funds to invest in advanced technology and human capital, a necessary resource to drive these processes.

SAWS appreciates and welcomes the continued support it receives from Government and its shareholder in investing in SAWS' infrastructure for the benefit of the South African community. During the 2017/18 financial period, SAWS was allocated R35 million towards capital expenditure and was also allowed to retain an amount of R 39,50 million from surplus funds which have been used to upgrade the High Performance Computer (HPC).

Executive Report

Employees - In as much as there has been marked progress in the attraction and retention of skills, as demonstrated by the steadily declining turnover figures in critical and scarce skills, there is also an equally demanding challenge to maintain these figures and provide such employees with a conducive environment within which to operate.

Part of that responsibility is to respond to creating a greater pool of scientists and technologists with greater focus on the Previously Disadvantaged Individuals. However, without the necessary financial resources it is a tall order to achieve these objectives, more so because these are part of the SAWS mandate, as per the SAWS Act.

SAWS continues to provide bursaries for external students who at the end of their studies are given opportunities to work at SAWS either through internships and/or full time employment. Most of the students on the scientific internships are subsequently employed on a full time basis.

During the year the SAWS Board approved the implementation of the salary parity which is aimed at addressing salary disparities in core staff. Phase I of addressing this imbalance was implemented between December 2017 and March 2018, with Phase II to be implemented in 2018/19.

SAWS has also adopted the salary scales as recommended by the Department of Environmental Affairs which seeks to have a standard salary scale for all its entities. These scales will be effective from 2018/19.

CORPORATE GOVERNANCE ARRANGEMENTS

SAWS is committed to the objectives and principles of transparency; accountability; and integrity as explained in the ***King IV Report on Corporate Governance.*** A detailed discussion of the application and results of Corporate Governance in the organisation is provided in the Annual Report.

Risk Management is disclosed under Note 30 in the Annual Financial Statements, whereas Related Party Transactions are reflected in Note 29 in the Annual Financial Statements.

Disclosure of ***Remuneration to Members of the Accounting Authority and Executive Management*** is disclosed in Note 29 in the Annual Financial Statements.

The ***SAWS Strategic Plan*** which sets out the direction for the entity for the next five years was developed by the Board and approved by the Executive Authority and is aligned to the key Government priorities including the National Development Plan relevant to the mandate of SAWS.

The Audit and Risk Committee meets on a regular basis and ensures that management adheres to internal controls; accounting policies; and procedures. This Committee is chaired by an independent person and the majority of its members are non–executive board members.

During the current financial year, SAWS appointed SizweNtsalubaGobodo as the entity's internal auditors for the next three years.

The Audit and Risk Committee has adopted formal terms of reference and this Committee is satisfied that it covered its responsibilities for the year in compliance with its term of reference. (Refer to Report of the Audit and Risk Committee in the Annual Report).

Executive Report

PERFORMANCE INFORMATION

Performance targets are set on an annual basis - refer to the specific section in the Annual Report for the disclosure of these targets and related performance. Quarterly performance reports are prepared by the South African Weather Service and submitted to the Department of Environmental Affairs stating achievements during the previous year and assessing results against current year targets set.

EVENTS AFTER THE REPORTING DATE

Management is not aware of any matter or circumstances arising since the end of the financial period which would affect the figures, as disclosed in the Annual Financial Statements.

FRUITLESS AND WASTEFUL EXPENDITURE

Fruitless and Wasteful expenditure has been disclosed under Note 33 of the Annual Financial Statements.

IRREGULAR EXPENDITURE

Irregular expenditure has been disclosed under Note 34 of the Annual Financial Statements.

DISCONTINUED ACTIVITIES / ACTIVITIES TO BE DISCONTINUED

There were no discontinued activities during the period under review and there is no plan to discontinue activities in the 2018/19 financial year.

NEW OR PROPOSED ACTIVITIES

An internal project team has been set up to focus on the development of the Waterkloof Land which will be used as the Headquarters of the South African Weather Service. The Integrated Services Strategy which is aimed at realising efficiencies within the entity will be implemented from the new financial period once approved.

REQUEST TO RETAIN SURPLUS FUNDS

The request to retain surplus funds has been submitted to National Treasury through the Department of Environmental Affairs.

Meteorological Authority

Safety Oversight

The South African Weather Service (SAWS) is designated in terms of Section 3 of the South African Weather Service Act, 2001 (No 8 of 2001 as amended) as the aeronautical meteorological authority responsible for fulfilling the obligation of the State under the Convention on International Civil Aviation, commonly known as the Chicago Convention.

The Meteorological (MET) Authority was established to fulfill the safety oversight obligations on behalf of SAWS and the State.

During the period under review, the MET Authority continued to develop the safety oversight system for aeronautical meteorology based on the eight critical elements of the safety oversight system. One of the key achievements in this process was the successful development and promulgation of regulations governing aeronautical meteorological service provision. These regulations are published under the Civil Aviation Act No 13 of 2009 and are referred to as Part 174.

The MET Authority inspectors continued to receive training during the period under review. Training was received in the safety management system and human factors in aviation. The MET Authority completed the implementation of the master surveillance plan for the 2017/18 Financial Year and as a result the following aerodromes where inspected to establish the level of compliance of MET equipment with requirements: OR Tambo, King Shaka, Pietermaritzburg, Mthatha, Cape Town, Mahikeng, Pilanesberg, Polokwane, Kruger Mpumalanga, Grand Central, Bram Fischer, Kimberly, Upington, Rand, Lanseria, Wonderboom, Richards Bay, East London, Port Elizabeth, Phalaborwa and George.

Statement of Responsibility

The Annual Financial Statements are the responsibility of the Board. The Annual Financial Statements, presented herewith were prepared in accordance with the South African Statements of Generally Recognised Accounting Practices, and include amounts based on judgement and estimates made by management.

The Board is also responsible for the systems of internal control. These are designed to provide reasonable but not absolute assurance as to the reliability of the Annual Financial Statements, and to adequately safeguard, verify and maintain accountability of assets, and to prevent and detect material misstatement and loss. The systems are implemented and monitored by suitably trained personnel with an appropriate segregation of authority and duties. The Board reviewed the entity's systems of internal control and risk management and were found to be effective for the year under review.

The going concern basis was adopted when preparing the Annual Financial Statements. The Board has no reason to believe that the South African Weather Service will not be a going concern in the foreseeable future based on forecasts and available cash resources. The Annual Financial Statements support the viability of the South African Weather Service.

The Annual Financial Statements were submitted to the Auditor-General who had unrestricted access to all financial records and related data, including minutes of the Board and all its Committees. The Board believes that all representations made to the Auditor-General during their audit are valid.

Approval of the audited Annual Financial Statements

The Annual Financial Statements submitted herewith were approved by the Board on 31 July 2018 and signed on its behalf by:

Ms N Magomola
Chairperson of the Board
31 July 2018

Mr J Lengoasa
Chief Executive Officer
31 July 2018

Strategic Overview

Vision

The South African Weather Service (SAWS), as the mandated national meteorological service, has as its vision "a WeatherSMART Nation" where citizens and institutions are able to use quality and reliable weather and climate related data provided by the organisation to enhance the quality of their lives, build resilience to extreme weather events and mitigate the impact of climate change.

Mission

The South African Weather Service (SAWS) will achieve this vision by evolving into a Centre of Excellence that provides innovative weather and climate solutions to ensure a WeatherSMART region, sustainable development and economic growth through thought leadership in meteorological, climatological and other related sciences; developing relevant and innovative applications and products utilising cutting edge technology; and establishing and leveraging collaborative partnerships.

Values

The South African Weather Service (SAWS) is conscious of its responsibility to fulfill its mandate in order to support the policies of the government. Its Shareholder concomitantly upholds the following values:

- **Scientific Excellence**
  We consistently demonstrate our commitment to innovation through human capital development, knowledge generation, the dissemination of reliable quality data and information, and continuous learning.

- **Collaboration**
  We are willing to work with, share with and gain knowledge from various stakeholders and to leverage our collective and diverse strengths and abilities to achieve our goals.

- **Community Consciousness**
  We strive to develop and sustain compassion for and attentiveness to the needs of the communities we serve whilst also building a sense of community within the organisation.

- **Safety**
  Given our authoritative role in ensuring public safety, we are committed to maintaining high safety standards at all times with respect to our employees and the communities we serve.

Brand Promise

Making you WeatherSMART
S - Safe
M - More informed
A - Alert
R - Resilient/Ready
T - Timeous

This is the promise that will permeate all SAWS products and services as well as the associated marketing and brand promotion.

Key Policy Developments and Legislative Changes

The South African Weather Service Act, 2001 (No 8 of 2001) as amended in 2013.
During the period under review, no policy or legislative changes were implemented.

Strategic Outcome Oriented Goals

To fulfil its mandate, SAWS has revised its goals and set out to achieve the following in the 2017/18 to 2020/21 financial years:

- The development and delivery of products and services that meet the needs of the communities we serve.
- Enhancing the South African Weather Service infrastructure to enable Government and developmental agencies to deliver their services to all South Africans but mostly the vulnerable communities, whilst investing in People development.
- Increased cooperation and relationships with our partners in particular Government departments and industry forums in the SADC region and global structures.
- A science institute that has a powerful knowledge base that could be reckoned with world-wide.
- Diversifying our commercial portfolio to create new revenue streams, especially in the converged ICT sector.

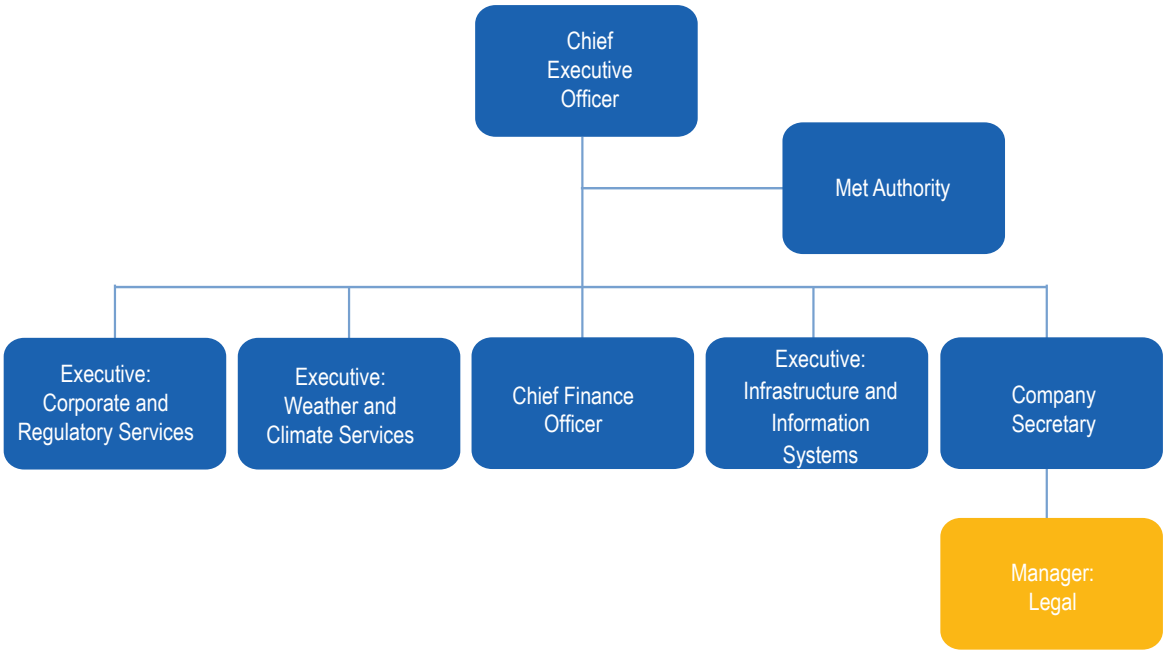
Legislative and Other Mandates

The South African Weather Service (SAWS) is a Schedule 3 A entity in terms of the Public Finance Management Act (PFMA), 1999 (No 1 of 1999) and relevant Treasury regulations and derives its mandate from the South African Weather Service Act, 2001 (No 8 of 2001) as amended by the South African Weather Service Amendment Act, 2013 (No. 48 of 2013).

The objectives of SAWS are to:

- Maintain, extend and improve the quality of meteorological services for the benefit of all South Africans;
- Provide public good services and commercial services to all South Africans;
- Ensure the ongoing collection of meteorological and ambient air quality data over South Africa and the surrounding southern oceans for use by current and future generations;
- Be the long-term custodian of a reliable national climatological and ambient air quality record;
- As the national meteorological service of the Republic of South Africa, to fulfil the international obligations of government under the Convention of the World Meteorological Organization (WMO);
- As the Aviation Meteorological Authority, fulfil the international obligations of Government under the Convention on International Civil Aviation;
- As a signatory to the Safety of Life at Sea (SOLAS) Convention for METAREA VII, provide marine and safety services for the second largest meteorological area in the world;
- Provide services that are sensitive to the demographic realities of the country;
- Fulfil such other weather-related or ambient air quality information and international obligations as the Minister may direct; and
- Be the custodian of the South African Air Quality Information System (SAAQIS).

Organisational Structure



PART B
PERFORMANCE INFORMATION

Programme 1

Strategic Goal 1: Provision of meteorological products and services that meet the needs of a WeatherSMART nation.

SAWS is committed to continuously improving and expanding its delivery of weather related information, forecasts and alerts and the development and enhancement of products. It is the goal of the organisation to support the resilience and adaptability of South Africans in the face of climate change and severe weather events which can put food security, lives and property at risk. SAWS' activities and initiatives are guided by its vision of "a WeatherSMART Nation – Innovating, Adapting and Facing the Future Together".

As the winter rainfall regions of the country continued to be gripped by a severe drought in the year under review, SAWS' research and forecasts played an important role in supporting decision makers at local, provincial and national level. Timeous and accurate weather alerts and warnings also helped weather sensitive sectors and the general public to prepare for and mitigate the impact of episodes of severe cold, flooding and gale force winds.

CHAPTER 1 SERVICE AND PRODUCT DELIVERY

Through various platforms, SAWS has continued to provide community-segmented products and services for various forecasting timescales including the public weather forecast, severe weather warnings, guidance maps, extended range forecasts and the seasonal climate outlook.

These services are supported by the maintenance and enhancement of a range of products including but not limited to the Lightning Threat Index, the Rapidly Developing Thunderstorm product, the Fire Danger Index and the Climate Change Reference Atlas.

1.1 Public Weather Forecast: Significant Weather Events in the 2017/18 Period

A cold front and a cut-off low affected the country from 12 to 14 May 2017 followed by an intense cold front from 6 to 8 June. Both systems were associated with very cold temperatures, disruptive snow, heavy rain and flooding, high wave heights and storm surge as well as gale force winds over the interior and along the west and south coasts of the country. A number of low temperature records were broken in the eastern interior during the May cold front (detailed in a subsequent National Forecasting Centre (NFC) media report) and all roads leading to the Drakensberg were eventually closed due to heavy snowfalls of up to 50 cm in places. Flash flooding necessitated the evacuation of 200 residents in KwaZulu-Natal and one man lost his life when his car was swept away by a flooded river in Umzinyathi District. A media report was issued by SAWS on 10 May 2017 to alert the public, disaster management teams and other relevant stakeholders to the severity of the impending weather system. This was followed by a watch for heavy rainfall and a special weather advisory for very cold conditions in certain regions.

While the rainfall associated with the cold front in June resulted in minimal damage, wind speeds averaged 70-90 km/h along the coast and 60-80 km/h over the interior of the Western Cape, gusting 100 to 120 km/h in some places. The Overberg and Cape Town Metropolitan districts experienced power outages due to power lines being blown over (leaving an estimated 46,000 households without power) and roads were closed due to fallen trees and road flooding. The Western Cape Education Department's decision to close all schools on 7 June was a wise one given that the damage to 170 schools amounted to well over R 124 million. The George Airport was also temporarily closed due to the strong winds.

With wave heights of 10 m, a number of coastal towns experienced damage and two large ships broke their mooring lines in Cape Town Harbour. Probably the most disastrous feature of this cold front was that the strong winds further fuelled runaway fires in the areas of Knysna in the Western Cape and Port Elizabeth in the Eastern Cape, causing the fires to spread out of control for more than 100 km. Winds gusting over 90 km/h severely hampered efforts to put out the fires and conduct rescue missions. Over 600 homes were destroyed and nine people died in Knysna. The estimated damage to property amounted to well over R 4 billion.

A cut-off low pressure system developed over the southern interior of the country on the evening of 16 August 2017 and exited the country over the eastern parts of the Eastern Cape and southern parts of KwaZulu-Natal by the afternoon of 18 August. Most of the country experienced a significant drop in temperatures and the Eastern Cape experienced heavy rainfall along the coast and disruptive snowfalls over the high lying areas that resulted in the closure of some of the mountain passes. Although the disruptive snow fell primarily on 17 August, most of the passes in the north eastern parts of the Eastern Cape remained closed until 19 August as refreezing melted snow caused dangerous black ice on the surface of roads.

SAWS' forecasters anticipated the weather system well and timely advisories, watches and warnings and prompt communication by the Port Elizabeth weather office with the regional disaster management team afforded relevant stakeholders ample time to act decisively.

In March 2018, SAWS started supplying weather updates three times a day to 36 new community based radio stations in Limpopo, Mpumalanga, KwaZulu-Natal, Free State and the Eastern Cape while the Cape Town weather office continued to service radio stations in Northern Cape and Western Cape.

1.2 Severe Weather Warnings

SAWS' successful monitoring and forecasting of developing weather systems continued to contribute to enhanced societal resilience in the period under review. Following the severe weather system early in June 2017, the head and staff of the National Disaster Management Centre expressed their gratitude for the early alerts and regular warnings and updates issued by SAWS.

The second weather system in July 2017 was also handled exceptionally well by the Cape Town weather office and the National Forecasting Centre (NFC). A severe weather alert was sent to regional disaster management officials and the Western Cape forecasting office was actively involved at the Joint Operation Centre (JOC) over this period. The public also received media releases, severe weather warnings and updates with respect to possible localised flooding, gale force winds, high seas, storm surges along the coast and high fire danger conditions leading to runaway fires.

An evaluation of the daily general public forecasts indicated information availability in accordance with scheduled broadcast times. Warnings are evaluated using the WMO recommended 2 x 2 contingency tables based on hits and misses. The evaluation yielded an overall accuracy of 98% a probability of detection of 92% and a false alarm rate of only 14%. These are very good results although it should be noted that these are very short timescale warnings of up to one day in advance.

1.3 Services to the Aviation Sector

As the Meteorological Watch Office (MWO), the SAWS Aviation Weather Centre (AWC) contributes to the maintenance of a globally competitive national airspace by providing reputable aeronautical meteorological services aimed at ensuring safer skies. In its role as the Aeronautical Meteorological Regional Bulletin collection centre and the Operational Meteorological (OPMET) databank, SAWS is responsible for gathering quality data and ensuring that the availability of aviation information is maintained at or above 98%.

SAWS continued to support the aviation industry through scheduled broadcasts as stipulated or recommended by the International Civil Aviation Organization (ICAO), pilot briefings, real time weather observations and coded aviation messages such as Terminal Aerodrome Forecasts (TAFs), Meteorological Aviation Reports (METARs) and Significant Meteorological Phenomena (SIGMET) reports. In addition, pilot reports received by the regional offices were forwarded to the AWC for confirmation and the issuing of further warnings when necessary.

An increasing number of requests from the South African Civil Aviation Authority (SACAA) with respect to aircraft accidents and aviation incidents were attended to and SAWS provided weather reports to assist investigations into the cause of accidents.

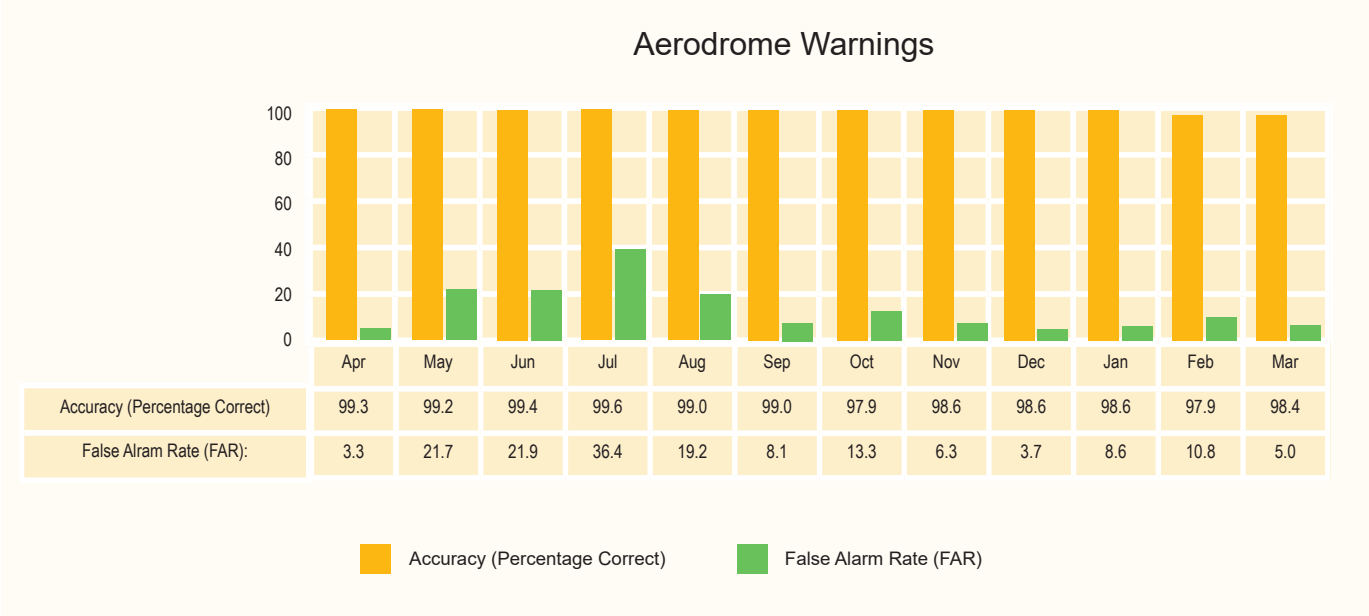
An intense cold front with a well-developed pre-frontal upper level trough moved over the Western Cape on the evening of 6 June 2017 causing a tight pressure gradient with strong offshore north-westerly winds. As a result, several SIGMET and AIRMET warnings were issued for severe mountain waves, turbulence and low level wind shears on 6 and 7 June. The AWC also added adverse weather to Significant Weather Charts (SIGWX) where applicable and communicated with the Central Airspace Management Unit (CAMU) via tele-conference.

The Rapidly Developing Thunderstorm (RDT) product developed by SAWS proved to be of great assistance to the aviation industry, particularly for small aircraft. The aviation products were transformed to 4 km resolution following the discontinuation of the SA 12 km model products.

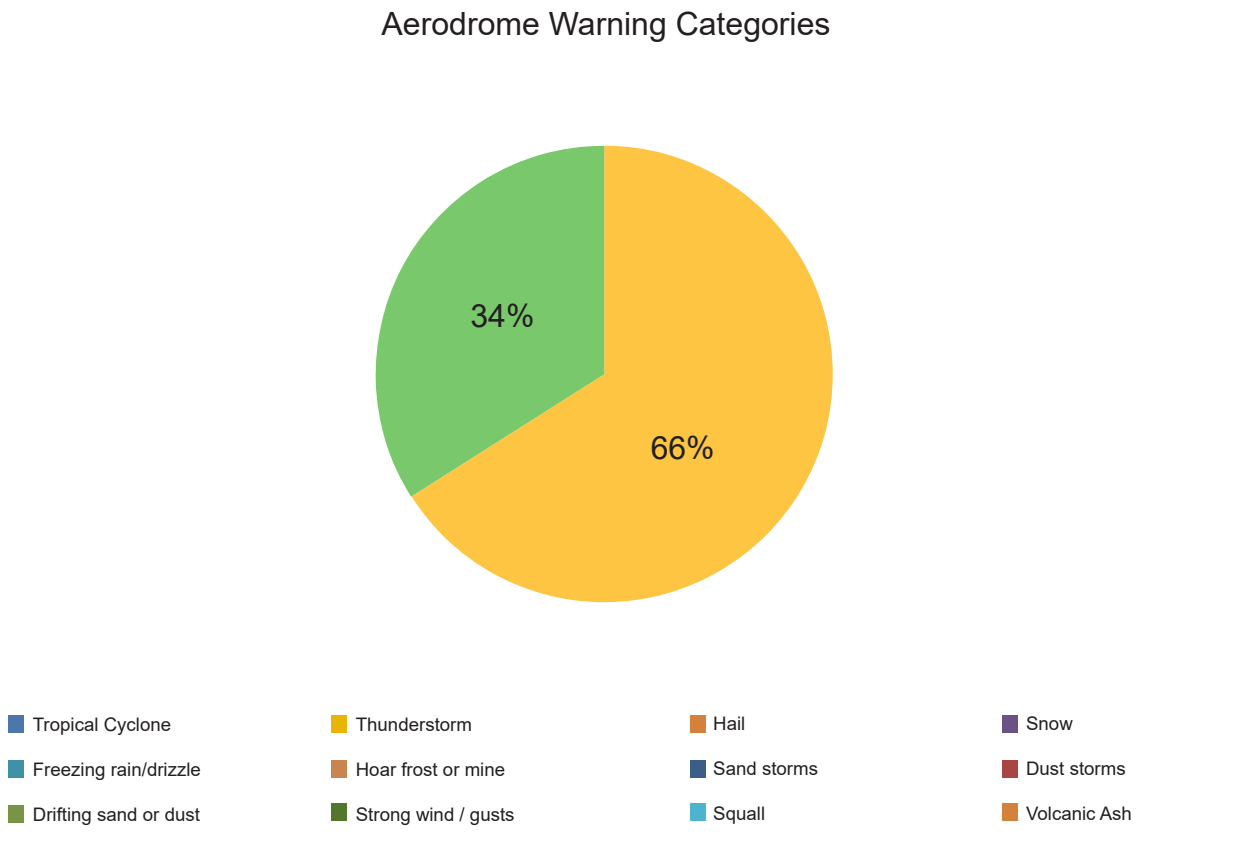
As a provider of aeronautical meteorological services, SAWS continued to monitor the quality of messages to the national and international aviation industry to ensure that operational data were free of syntax errors which could affect the availability of data in the OPMET databank which in turn affects aviation safety. As part of this monitoring function, SAWS identified and investigated non-compliant messages, resubmitted and as part of corrective measures, forwarded them to the originator to enable them to minimise and avoid future errors.

As part of the Aviation Research Demonstration Project (AvRDP), SAWS forecasters participated in case studies of events that affected operations at OR Tambo International Airport. This exercise will contribute to the development of new ways of issuing aerodrome weather warnings with the emphasis on impact-based forecasts and warnings.

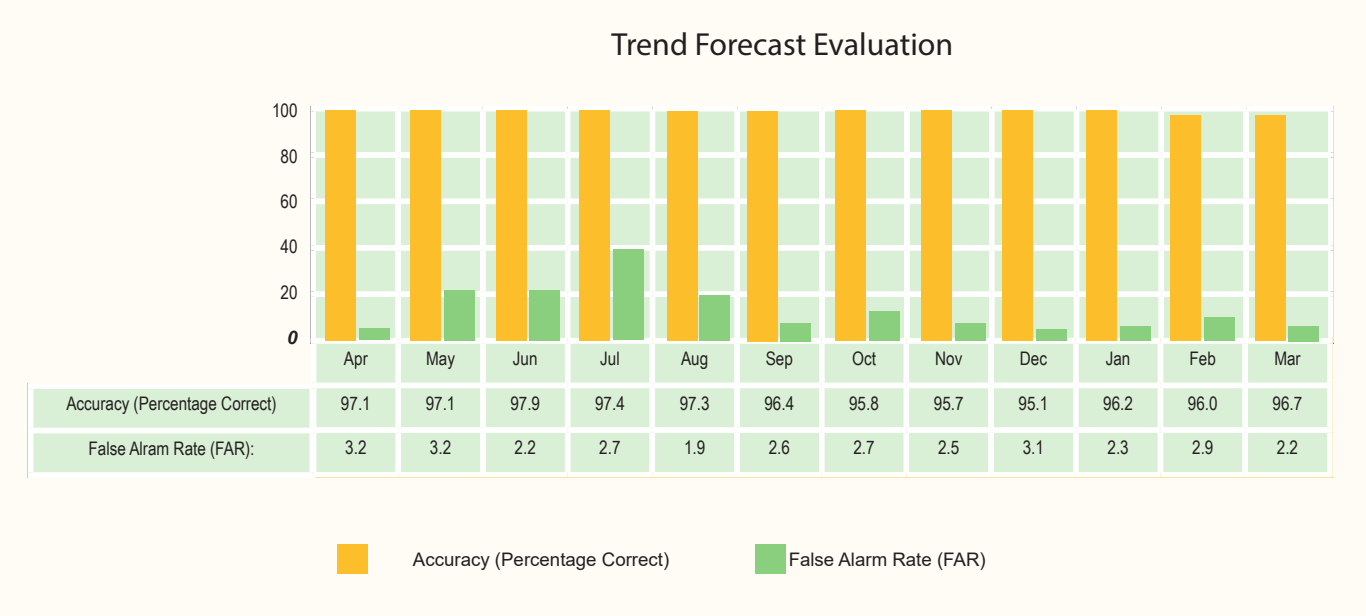
The graphs below depict the achieved national targets as per ICAO requirements. These include accuracy, availability, probability of detection and false alarm rates. These are very good results considering that these are detailed forecasts of wind and other weather conditions up to 30 hours in advance and with very strict tolerances.



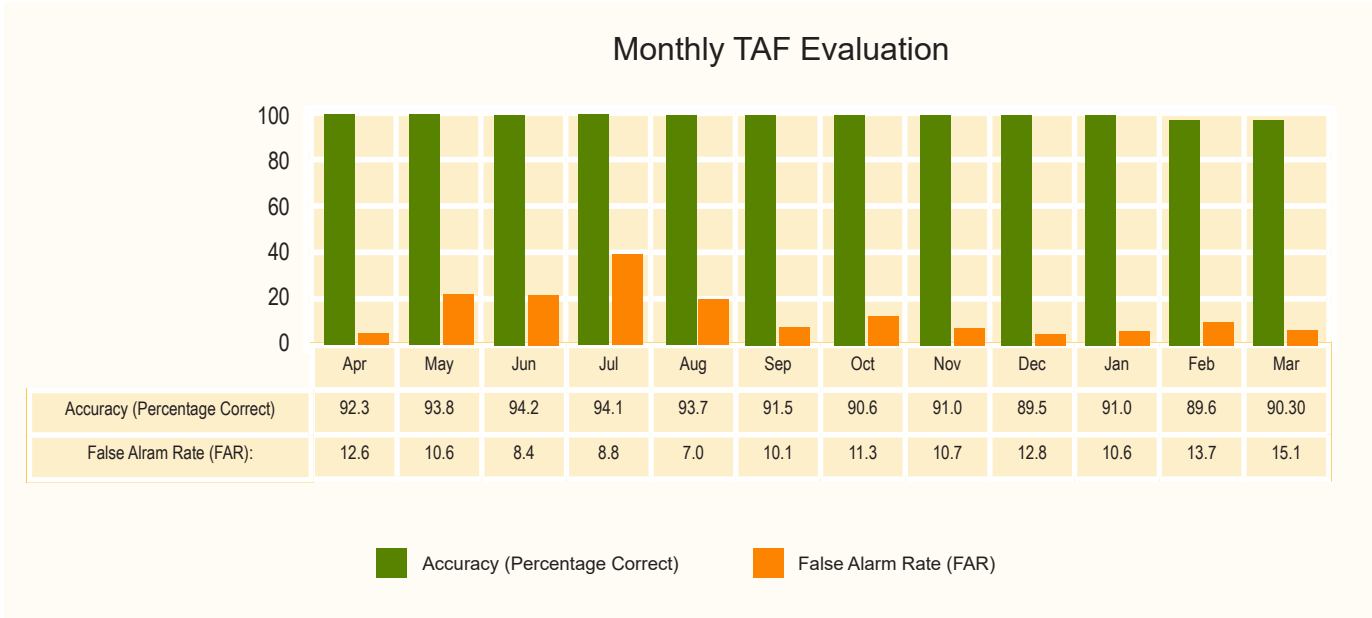
Graph 1: Aerodrome warnings



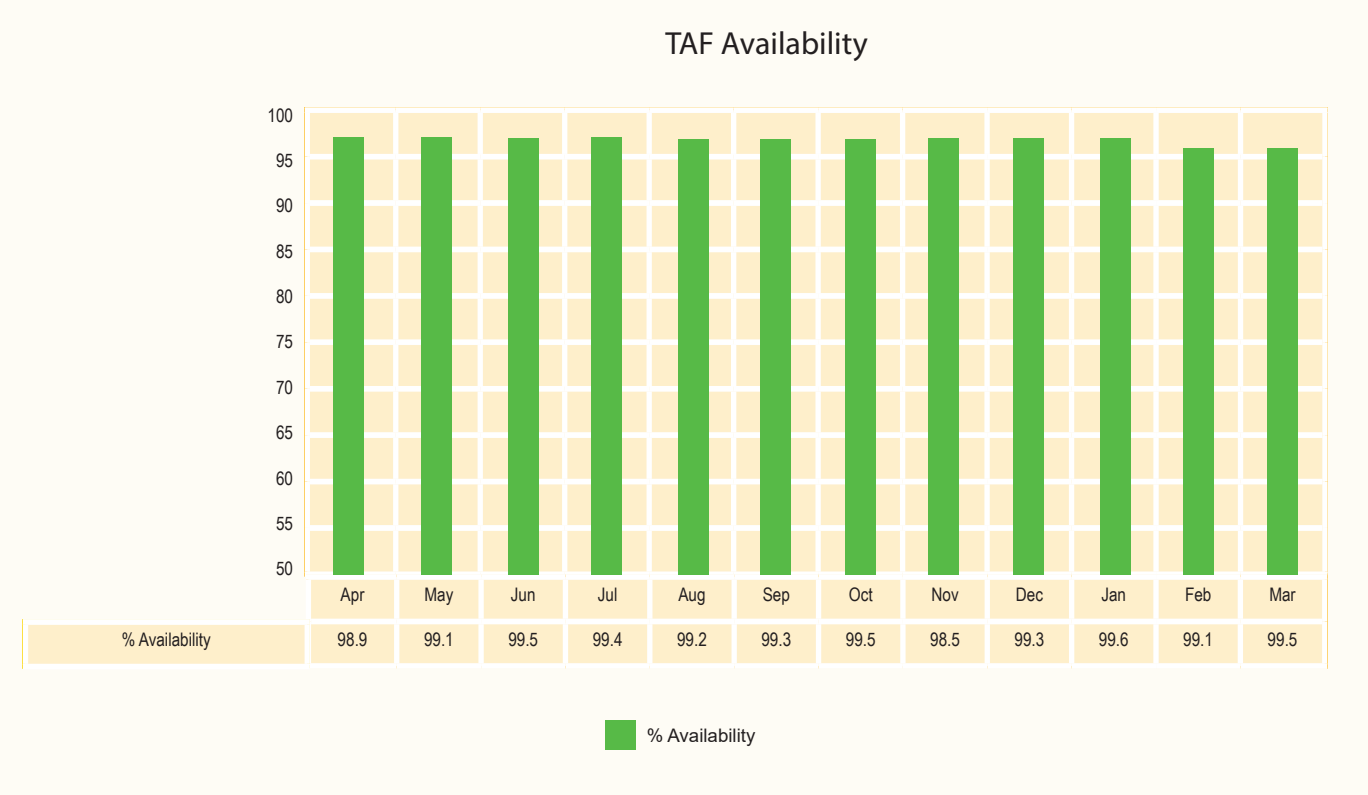
Graph 2: Aerodrome warning categories



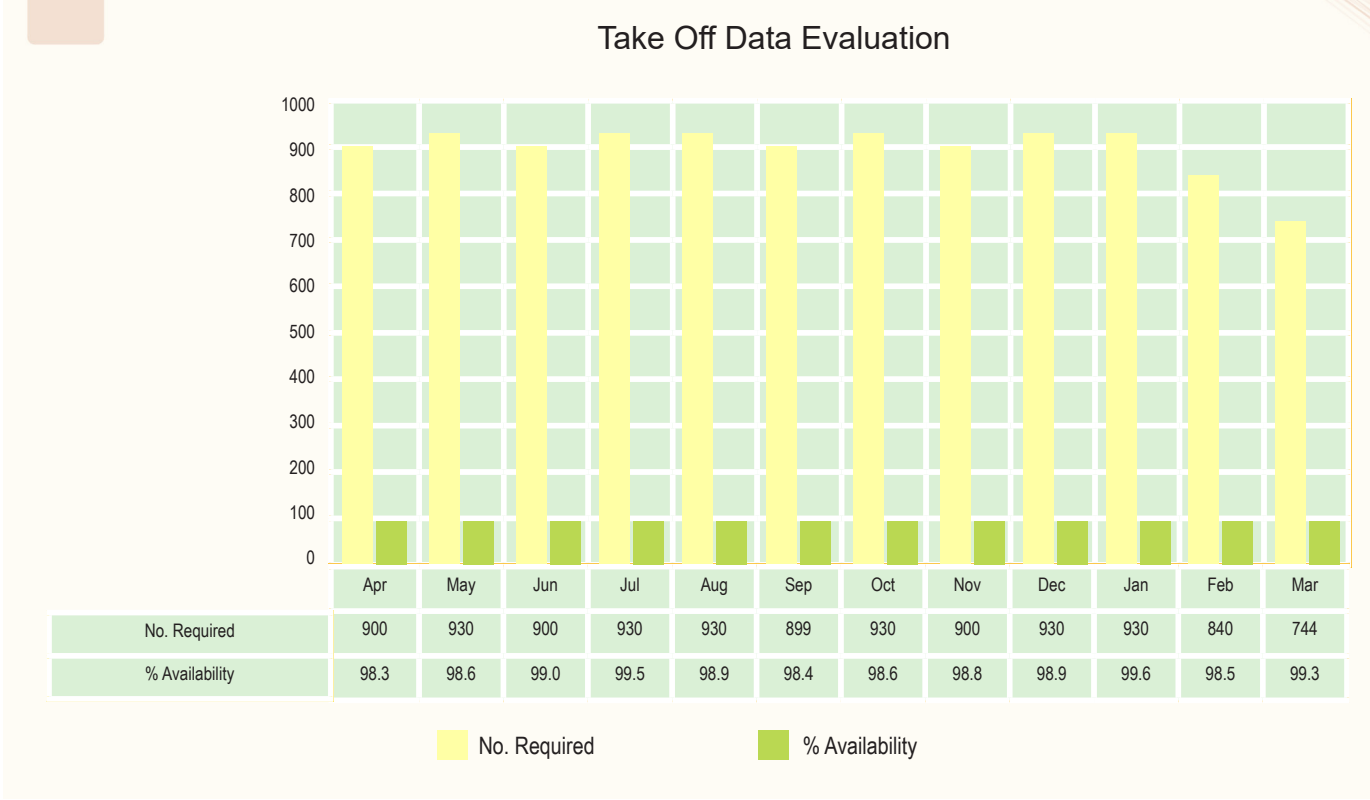
Graph 3: Trend forecast evaluation



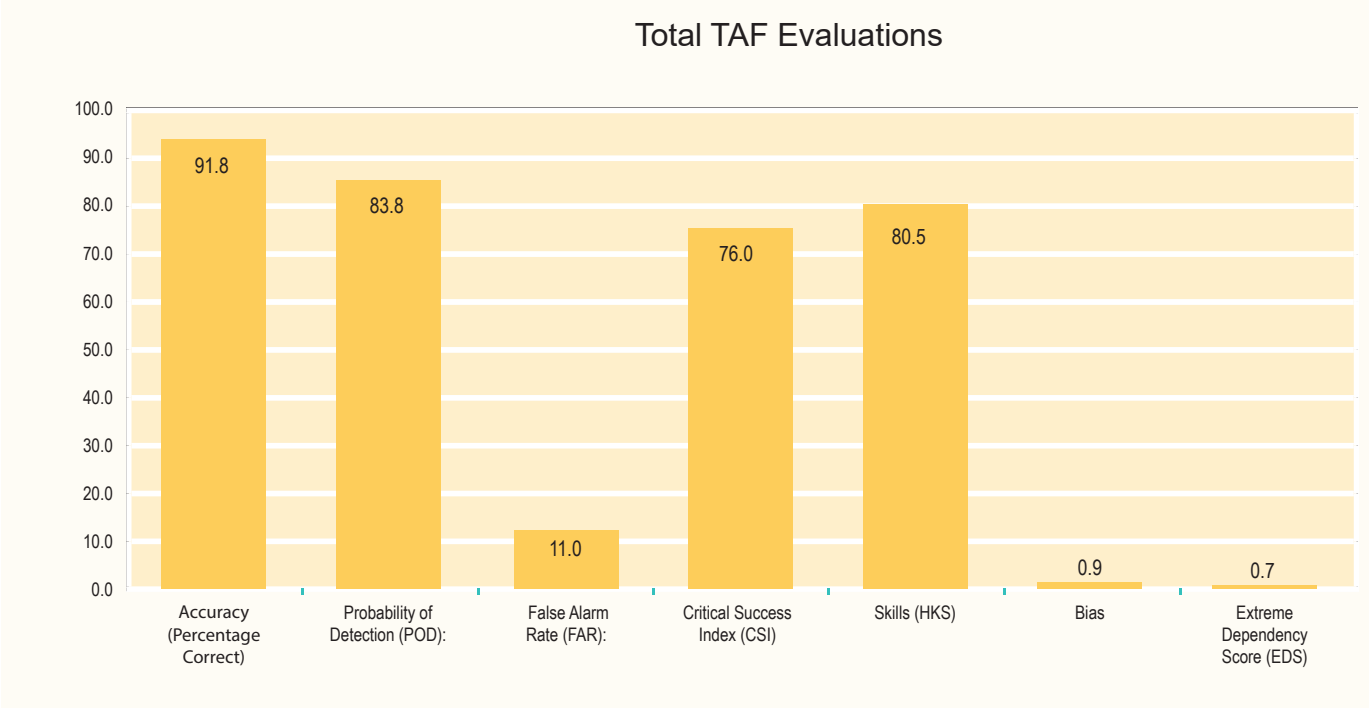
Graph 4: Monthly Terminal Aerodrome Forecast (TAF) evaluation



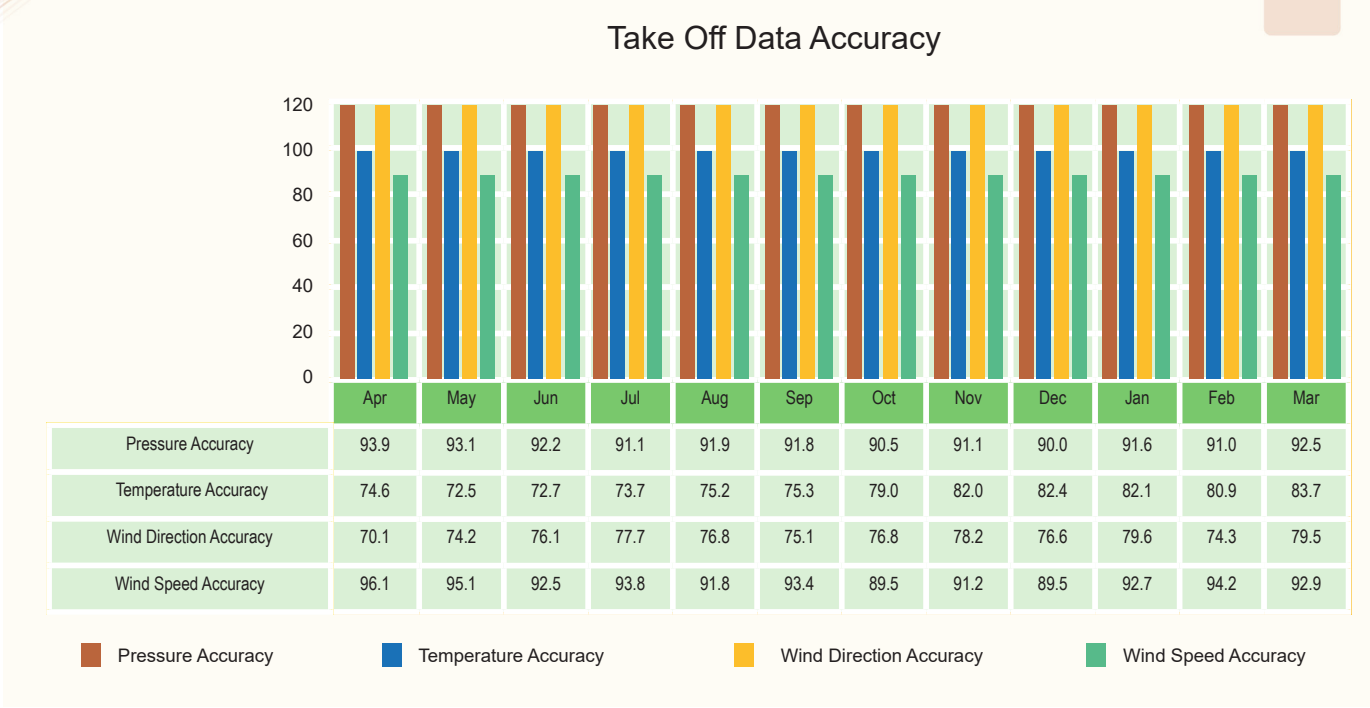
Graph 5: TAF availability



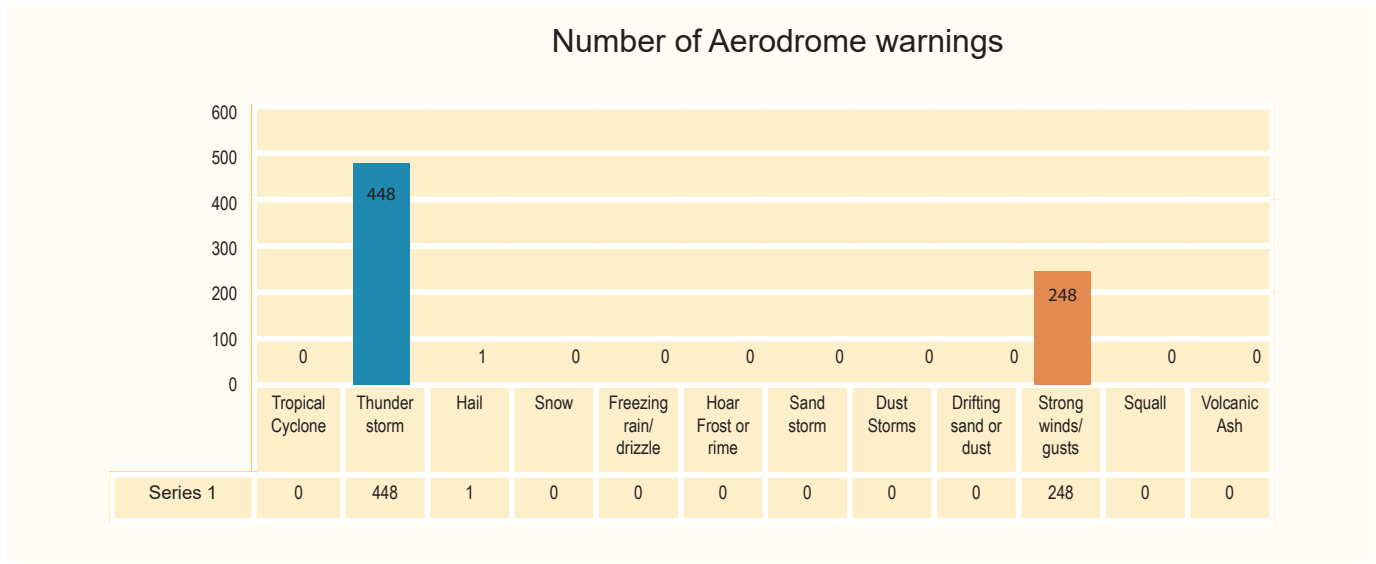
Graph 6: Take Off Data Evaluation



Graph 7: Total TAF evaluations

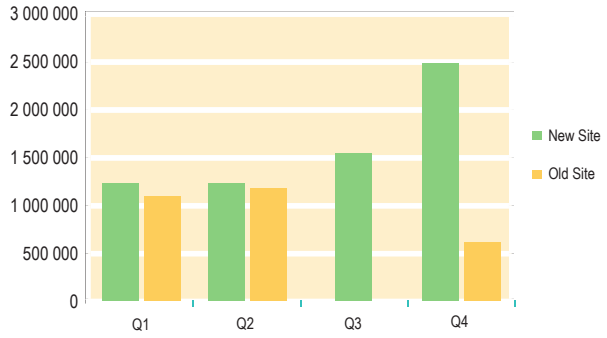


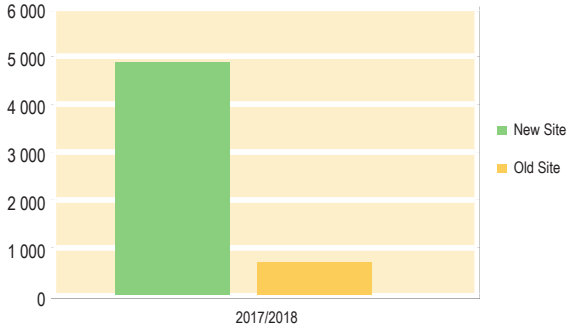
Graph 8: Take off data accuracy

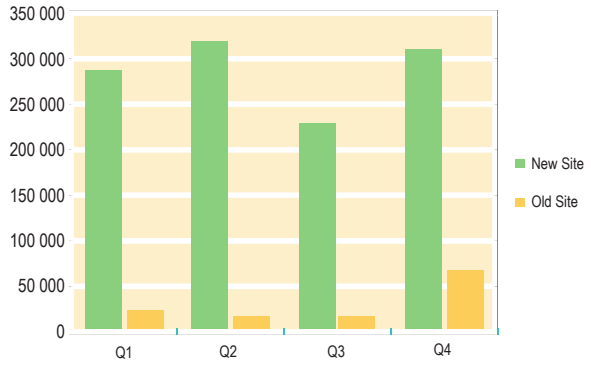


Graph 9: Number of Aerodrome warnings

Graph 10: Aviation Website(s) Statistics – Annual – April 2017 to March 2018

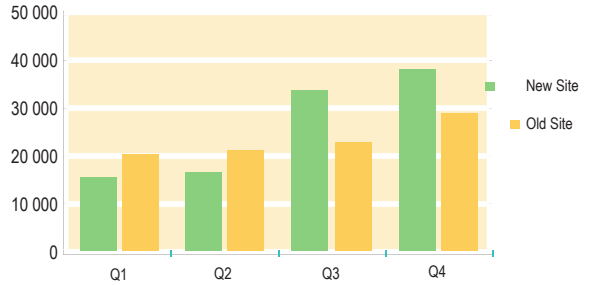
Number of Hits			Number of Hits - APR 2017 to MAR 2018
Total	New site	Old site	
9 550 396	6 500 508	3 049 888	

Registered Users			Registered Users - APR 2017 to MAR 2018
Total	New site	Old site	
5 668	4 946	722	

METAR Requests			METAR Requests - APR 2017 to MAR 2018
Total	New site	Old site	
1 238 874	1 146 011	92 863	

Domestic Flight Document		
Total	New site	Old site
198 257	105 953	92 304

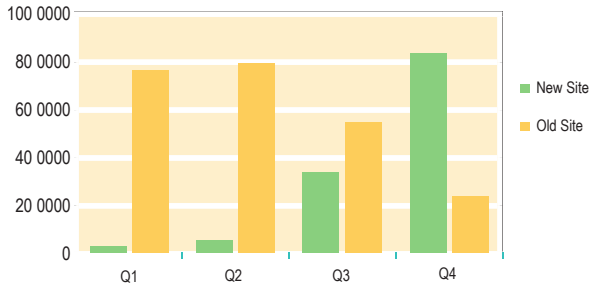
Domestic Flight Documents - APR 2017 to MAR 2018



Radar Images		
Total	New site	Old site
3 603 915	1 228 760	2 375 155

A user (AlouetteII) downloading all radar images on the **old website**, every 5 minutes, was blocked on the 15th November 2017. The user had access to both aviation websites and can use the new site where auto-downloading is not permitted.

Radar Images - Apr 2017 to MAR 2018



The new aeronautical meteorological office was opened at Lanseria Airport. The location of the office just below air traffic control provides a good view for observations aimed at improved aviation safety services.

1.4 Services to the Marine Sector

SAWS continued to provide accurate and timely marine forecasts and warnings for METAREA VII (the second largest meteorological area in the world) in accordance with WMO and IMO requirements and the Safety of Life at Sea (SOLAS) Convention.

In addition to providing regular services and scheduled forecasts, the SAWS Marine Unit participated in a number of initiatives aimed at improving marine meteorological data and supporting search and rescue operations.

Work commenced on establishing a Weather Observation Website (WOW) to catalogue observational data and provide the SA Agulhas II with easier access to forecast data during the South African National Antarctic Programme (SANAP) expeditions. SAWS also continued to provide specialised marine services to the SA Agulhas II during all her voyages.

New sea-surface temperature measuring buckets were designed to accommodate the alcohol thermometers which were acquired to replace mercury thermometers as per a directive of the WMO. A prototype bucket is ready for testing with partners at the University of the Western Cape (UWC) and more buckets are due to be received shortly.

As part of an Operation Phakisa initiative, SAWS scientists consulted on the use of marine meteorological data for incorporation into a coastal ocean model which is being developed by the Council for Scientific and Industrial Research (CSIR). The tool will benefit coastal communities by enhancing maritime search and rescue services.

The Marine Unit also contributed wind wave and swell data and analysis for a consultation. The data used were primarily from global Atmospheric General Circulation Models (AGCMs) and satellites.

SAWS continued with its marine infrastructure expansion with a view to enhancing the availability of data over the data sparse southern oceans.

1.5 Seasonal Climate Forecast

The seasonal forecast information and products provided by SAWS continued to support provincial planning and decision making in Government and other sectors in the period under review.

Seasonal climate forecasts involve operating and maintaining global climate models as well as a multi-model system for a regional and national seasonal outlook and the monthly climate watch advisory bulletin. The outlooks to depict the probability forecasts of temperature and rainfall on the seasonal timescale were adapted to be more simplistic and user-friendly.

SAWS continued to make contributions to the WMO through its Global Production Centre for Long Range Forecasts (GPC-LRF). As a further contribution to the sub-seasonal timescale, SAWS maintained an Extended Range Forecasting (ERF) system based on an uncoupled GCM. The Extended Range Forecasts (period 11-30 days) are produced on a weekly basis in combination with the seasonal climate outlook. The ERF system consistently indicated below normal rainfall over most parts of the country in the second quarter of the reporting period.

CHAPTER 2 PRODUCT DEVELOPMENT AND ENHANCEMENT

SAWS is committed to improving the quality of life of all South Africans, reducing weather-related fatalities and supporting weather-sensitive sectors in their planning and decision making. With this in mind and in response to increasing user demand, SAWS has continued to prioritise the maintenance and enhancement of existing products and services and to expedite the development of new offerings. In some cases, this has involved new strategic partnerships such as subcontracting the German company Hydro & Meteo GmbH to assist in improving the quality of radar and surface observations data.

The Applications Group within the SAWS Research Department has made a dedicated effort to promote the use of meteorological products and data in sectors such as agriculture, water, health and energy. To this end a number of products were developed in the period under review, some of which are still in the testing and verification phase before being operationalised.

SAWS received several requests for access to the Climate Change Reference Atlas maps which are available to the general public through the SAWS website. In the interests of even greater access, the maps were also made available to the South African Risk and Vulnerability Atlas (SARVA) which is a South African Environmental Observation Network (SAEON) facility supported by the Department of Science & Technology (DST). The SARVA maps were upgraded to incorporate sectoral impact factors derived from SAWS' temperature and rainfall projections. Work was also done to improve these projections by incorporating a Reliable Ensemble Averaging (REA) method.

Several rainfall products continued to be maintained and enhanced. An existing real time rainfall product was upgraded through the introduction of radar quantitative precipitation estimates to make it more computationally efficient.

The Convective Rain Rate (CRR) is a particularly important element of the South African Flash Flood Guidance (SAFFG) system. This is satellite rainfall product which makes use of three MSG channels to determine rainfall while a combined CRR product integrates Unified Model (UM) rainfall forecasts with the satellite data.

The radar rainfall product uses a system that differentiates between convective and stratiform rainfall. Different Z-R relationships are used for the two categories of rainfall resulting in improved radar-determined rainfall figures.

Verification of the SAWS rainfall products are conducted on the International Precipitation Working Group (IPWG) web portal. Monthly and seasonal averages for Numerical Weather Prediction (NWP) and satellite rainfall products were calculated at the end of each month and bootstrapping was used to test the significance of the satellite and model derived rainfall products in measuring summer and winter rainfall.

In light of the ongoing drought in much of the Cape Province, the research of the Hydrometeorology Group using the Standardised Precipitation Index (SPI) and Standardised Streamflow Index (SSI) was also particularly relevant. The resulting product makes it possible to track drought propagation in the hydrological cycle and alert stakeholders and decision makers to transition from one drought category to another.

The Aviation Lightning Warning System, a new product developed for operators at OR Tambo International Airport, underwent testing and verification with a view to operationalisation in the first quarter of 2018/19. Stakeholders in the aviation sector also assisted forecasters in the testing of a Radar Qualitative Precipitation Forecasting/ Nowcasting system which makes heavy rain and severe storm information available in a format appropriate for impact-based forecasting.

SAWS also maintained the Combined Instability Index which is based on atmospheric stability indices determined from upper air soundings, satellite and other means. These maps give an indication of the location of where convective development will occur later in the day.

SAWS' Air Quality Modelling and Forecasting (AQMF) Unit conducted a photochemical model validation based on the RegCM-CLM4.5-CBM-Z modelling system. The validation was initialised by creating 4D data gridding for simulated air pollutant and meteorological variables after which observation data preparation and data corrections were made for 64 SAAQIS ambient air quality monitoring stations. The high resolution simulation outputs generated were evaluated through comparison with surface observations and the results obtained were excellent.

SAWS has developed a Heat Stress Watch Index (HSWI) based on Apparent Temperature (AT) which is what the temperature feels like to the human body when relative humidity, wind speed and water vapour are considered in combination with air temperature. Developed using historical observed meteorological data, the HSWI was used to statistically forecast heat stress conditions in Gauteng Province and later elsewhere in the country. The HSWI maps indicate what the outdoor temperature will feel like on a specific date and provide information on the possible health impacts of four temperature ranges, from heat oedema and rashes to cramps, exhaustion and heat stroke. This is an important development in light of the expected increases in temperature for most parts of the country. The index makes it possible to alert vulnerable members of society such as the sick or elderly to potential risks and advise them on appropriate action. A related product, the heat wave forecasting system developed using European Centre for Medium-Range Weather Forecasts (ECMWF) model output, was also evaluated by SAWS researchers.

Within the context of SAWS' expanding mandate, a project was initiated to compute the Direct Normal Irradiance Index (DNII) as a measure of the suitability of locations for the installation of Concentrating Solar Power (CSP) technologies. This is an important way in which SAWS can contribute to cost savings at national and provincial level in the context of a constrained economy.

The Extended Range Forecasts (period 11-30 days) are produced in combination with the Seasonal Climate Forecast.

Further technical advances in the period under review were as follows:

- Advances in the integration of products into the Rain for Africa (R4A) platform.
- Installation of software which allows for fast Constant Altitude Plan Position Indicator (CAPPI) conversion and radar merging and dramatically reduces the time needed to run Quantitative Precipitation Forecast (QPF) data.
- Installation of a Google Maps display for radar and precipitation data. The display was tested with a single radar and can be developed further for operational use.
- Development of a Wind Index (WINDEX) to provide the aviation industry with information about turbulence or strong winds aloft.
- Development of an early strong winds warning system for Gautrain operators (and ultimately also road users).
- Development of a Frost Probability Index for the agricultural sector.
- Development of a Hail Cast model gives an indication of the location of hail storms and the expected size of the hail. The Hail Mass Aloft product uses radar data to determine the location of severe weather containing hail.

Programme 2

Strategic Goal 2: Development of service delivery infrastructure and human capital capability and capacity.

CHAPTER 1 SAWS OBSERVATIONS AND DETECTION NETWORK

Optimal infrastructure and systems that support advanced technologies for observations and information dissemination and exchange are fundamental to SAWS' ability to achieve its mandate. Central to the SAWS observations and detection capabilities are the Surface Observations Network consisting of Automatic Weather Stations (AWS), Automatic Rainfall Stations (ARS) and rainfall and climate stations; the Upper-Air Sounding Network; the Radar Network; and the Lightning Detection Network.

As SAWS is a provider of weather and climate related statistics, a gap analysis was conducted as part of an assessment to evaluate whether the data generated by SAWS met the requirements of the South African Statistical Quality Framework (SASQAF), namely relevance, accuracy, timeliness, accessibility, interpretability, comparability and coherence, methodological soundness, and integrity. During the analysis it emerged that clarity was needed regarding the applicability of certain of these indicators to SAWS. A SASQAF expert was invited to assist SAWS in closing the identified gaps.

1.1 Regional Telecommunications Hub

In addition to operating an observations network, SAWS must ensure the regular and reliable communication of data between regional equipment and the central SAWS database. As a WMO-designated Regional Telecommunications Hub (RTH) in Southern Africa, SAWS is also responsible for data communications between national weather services in the sub-region and other RTHs globally.

SAWS complied with all RTH requirements in the reporting period and ensured the timeous exchange of Global Telecommunication System (GTS) data in the organisation's area of responsibility, viz. RA 1 and the surrounding ocean areas.

1.2 High Performance Computer (HPC)

The signing of a Memorandum of Agreement (MoA) between SAWS and the Centre for High Performance Computing (CHPC) in the reporting period was an important milestone in enhancing the ICT infrastructure needed to ensure accurate and reliable data processing and to support the organisation's research activities.

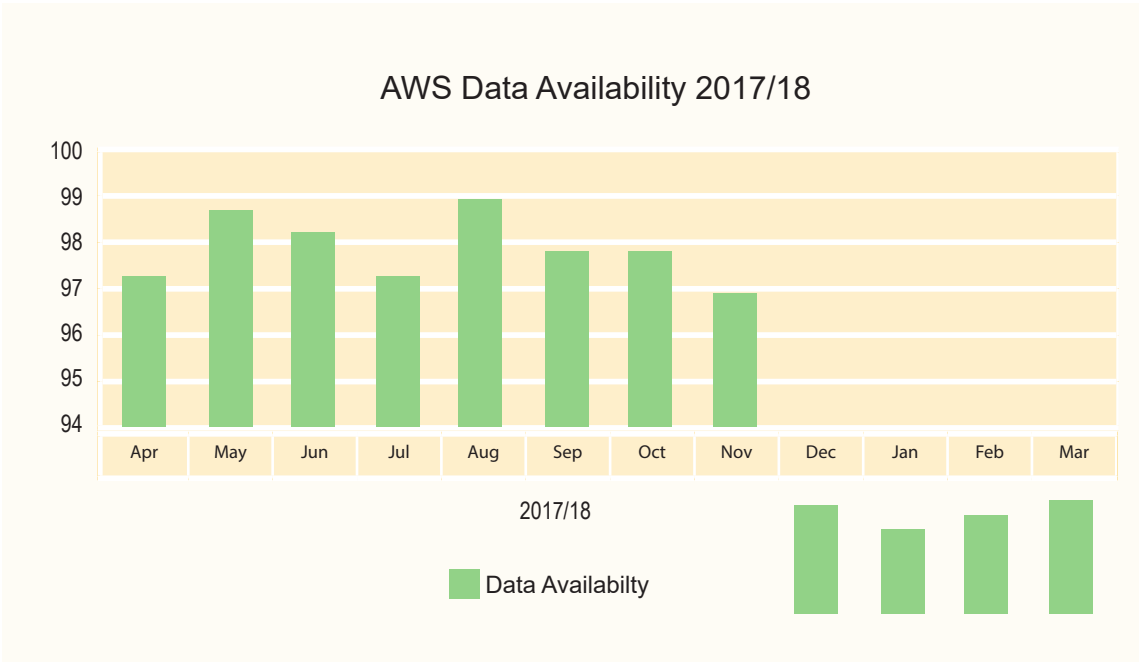
A number of challenges were encountered with the HPC in the reporting period, primarily due to the over-utilisation of SAWS' HPC resources, particularly the bulk storage capacity. SAWS management engaged with various departments to find both immediate and longer term solutions. Storage space on HPC Lustre storage system was decreased to 87% capacity. Despite these difficulties, the group succeeded in maintaining a high level of model availability.

The SAWS HPC was upgraded in March 2018 with minimal disruption for users. The CRAY XC-30 upgrade involved doubling the computational capacities and increasing the Lustre storage capacity from 0.5 to 1.5 Petabytes.

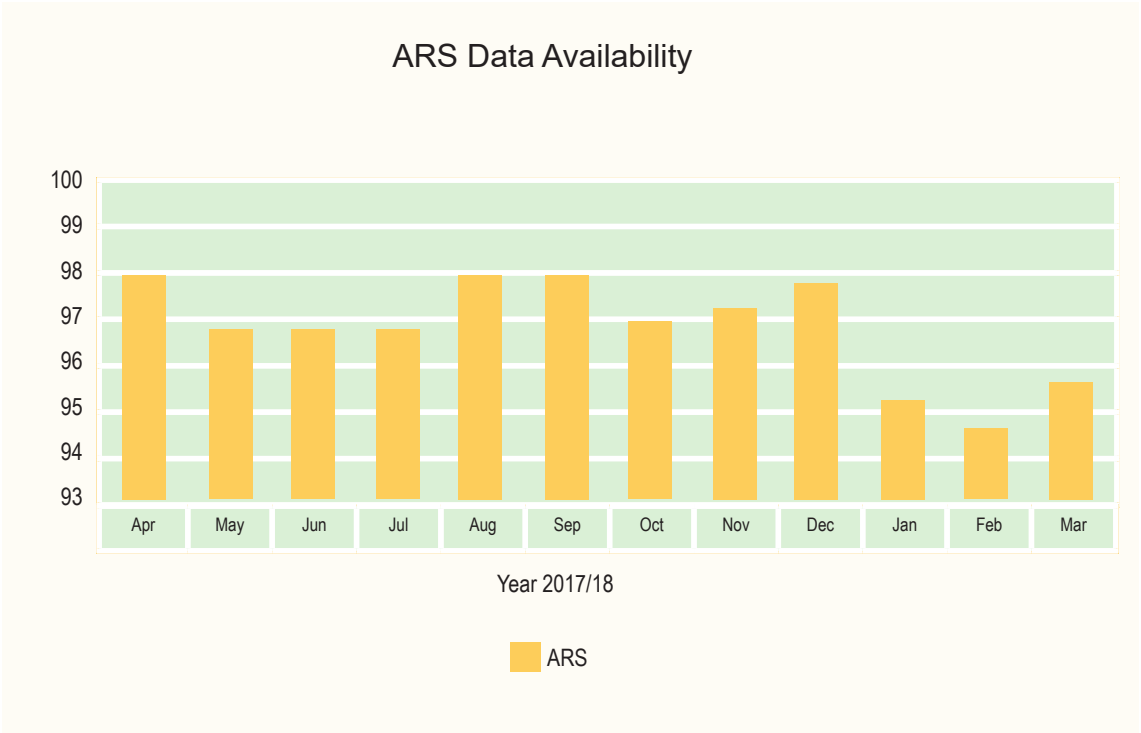
1.3 Surface Observations Network

Automatic Weather Station (AWS), Automatic Rainfall Station (ARS) Network and Rainfall Stations

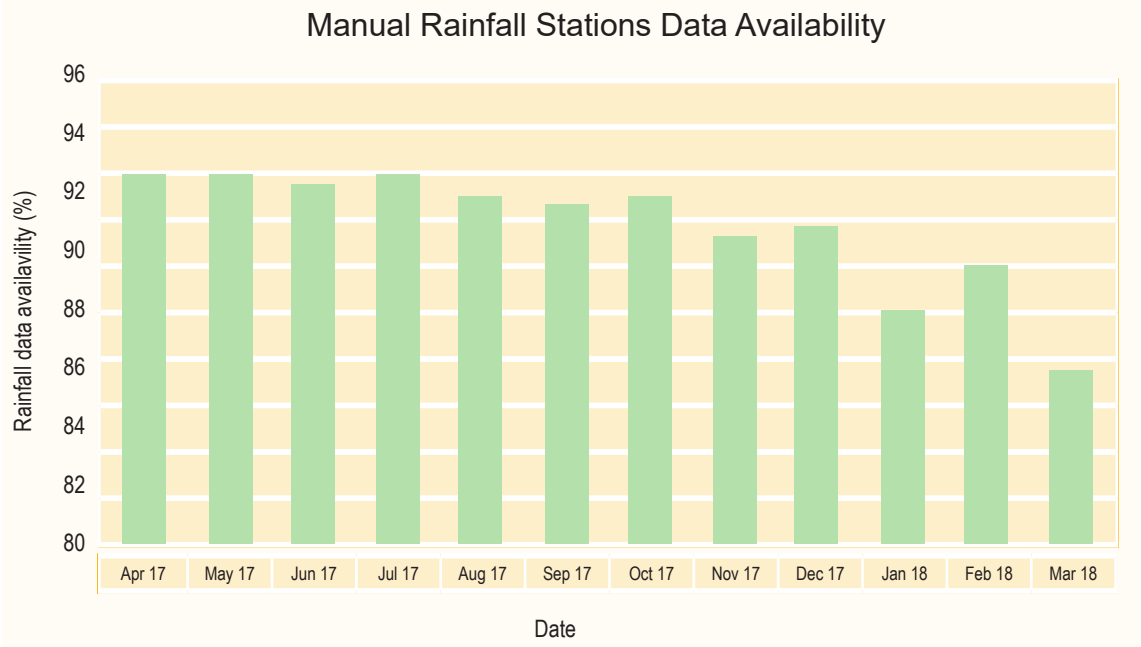
The networks encountered periodic system component failures but these were addressed in order to maintain and even improve their data availability.



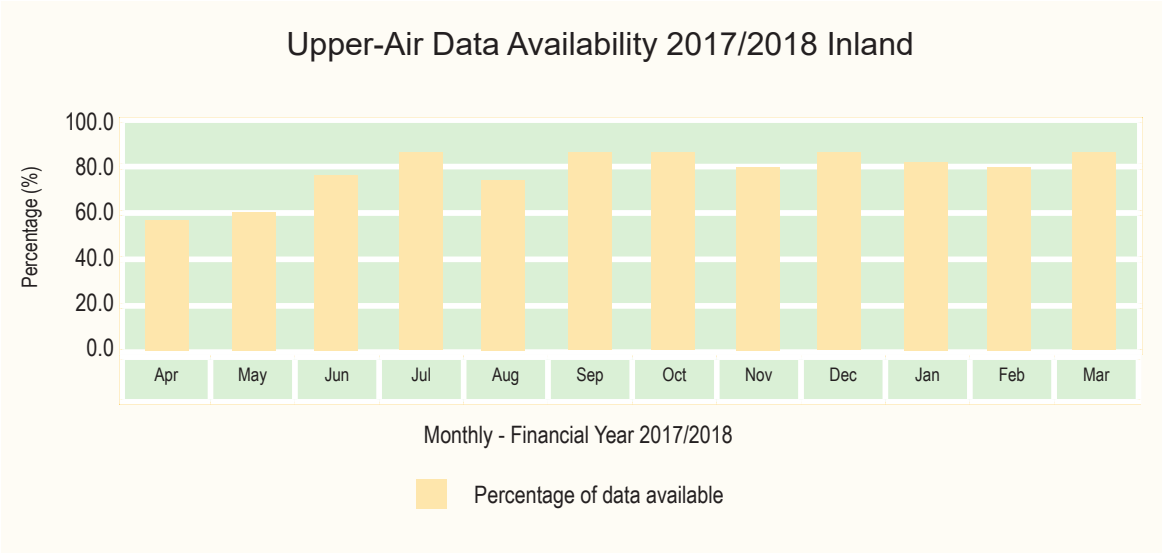
Graph 11: ARS Data Availability 2017/18



Graph 12: Automatic Rainfall Stations Data Availability 2017/18



Graph 13: Manual Rainfall Stations Data aAailability



Graph 14: Upper-air Data Availability 2017/18 inland

Work was done to address problems encountered with respect to hydrogen generators at Gough Island, Marion Island and Irene. Towards the end of the reporting period, the performance of the network was negatively affected by multiple machine failures and challenges in obtaining spares at Marion Island, Irene, Durban and De Aar.

The Energy Application Group acquired a fourth biometeorological station and new air quality sensors which measure common pollutants in the ambient air which will be integrated into the biometeorological stations. The installation of these stations in the Northern Cape (Upington), Polokwane (Musina), and KwaZulu-Natal (Ndumo or Ingwavuma) will add real value to the SAWS weather observation network as there are currently no temperature measurements in these areas. The data will be made available for the SAWS climate database.

1.4 Radar Network

The SAWS radar network is vital for the monitoring of severe weather systems and the issuing of severe weather warnings. In light of the increased incidence of extreme weather events associated with climate change, every effort is made to maintain and improve this essential component of the SAWS observations network.

Weather radars are vital for weather predictions and offer better data than satellite remote sensing technology for a number of reasons. Radar rainfall estimates provide data with a high spatial and temporal resolution over an extended area. This makes it possible for forecasters to predict the precise time of arrival of precipitation (rain, hail, etc.) over a specific area as well as potential impacts such as flooding and damaging hail or winds. Since satellite based remote rainfall sensing uses the thermal radiance or cloud top reflectance it is a much more indirect method of measuring. Due to its (geo-stationery) high orbit (36 000 km above the earth's surface), the spatial resolution of the data from a satellite is not as good as that of radar. The very high resolution data provided by radar is critical for severe weather identification and analysis. Satellites also have passive sensors which generate derived data based on cloud top temperatures which are less detailed and have to be calibrated and adjusted using surface observations and radar data. The data from weather radars can be applied to various timescales.

By collecting data over an extended time period it is possible to construct a fine resolution, three-dimensional climatology based on which frequency analyses can provide information on the risk of incidents of severe weather. For nowcasting, the tracking of thunderstorm activities in real time provides information about the storm's intensity, propagation and development, when compared to previous radar images. Forecasts of up to a few hours in advance can be of great value in terms of reducing the impact of flash floods, hail, tornado clouds and the high incidence of lightning. In terms of Numerical Weather Prediction (up to two days in advance), radar data provides more detailed initial input to Numerical Weather Prediction Models, resulting in improved short term weather forecasts. Satellite may therefore supplement the weather radar but cannot replace it.

Although the SAWS radar network appears to be stable, there were a number of concerns in the reporting period. The frequency of power outages in Ermelo, Irene, East London, Ottosdal and Bloemfontein was a challenge in the period under review but aging equipment and the availability of supporting infrastructure also affected the performance of the network. SAWS' ICT Team worked at sourcing computers and software to resolve the computing challenges by end March 2018.

Despite these challenges, the radar calibration monitoring software was updated and improved and the auto detection of the sun interference algorithm was improved to reduce the number of false alarms and identify the location of other possible sources of electromagnetic (EM) interference. In addition, the ODIM HDF5 conversion software was updated to include Dual-PI Moments. Scientists from the Royal Netherlands Meteorological Institute (KNMI) who visited SAWS as part of the Rain for Africa Project (R4A) in June 2017 helped the SAWS team establish improved procedures and parameters for the calibration, monitoring, and analysis software. The enhancement of the radar data quality was further improved through the development of a Quality Index (QI) of Quantitative Precipitation Estimation (QPE) data.

1.5 Lightning Detection Network (LDN)

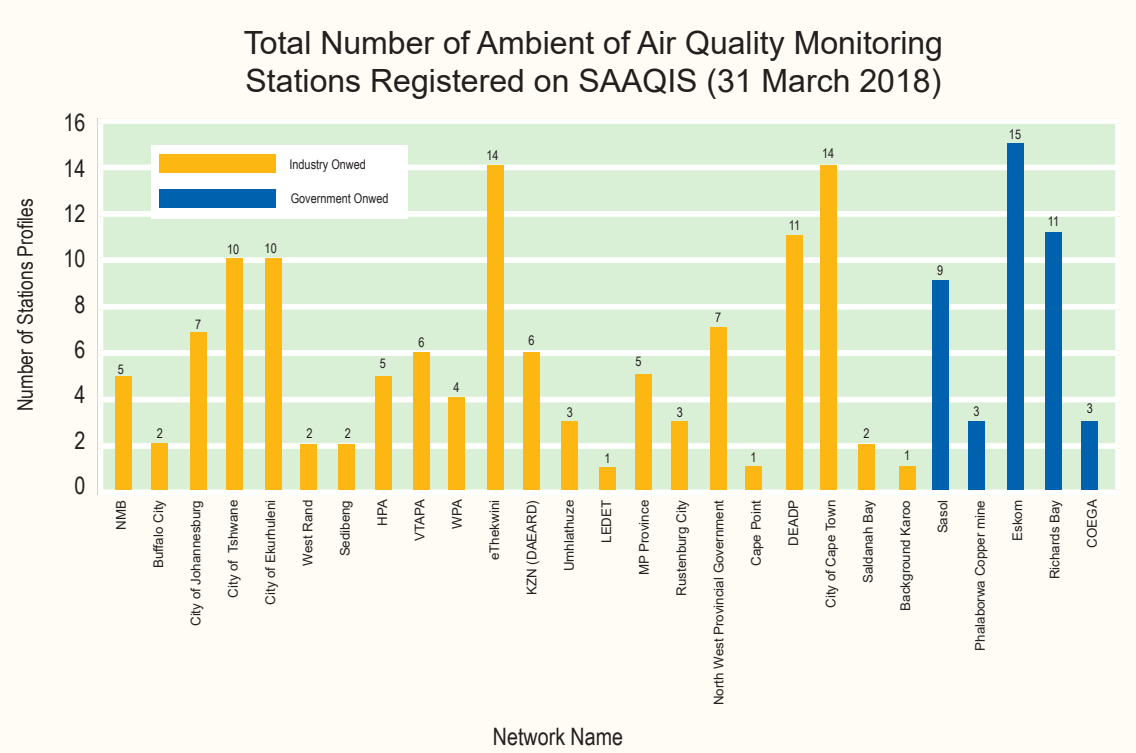
The availability of data on lightning strikes and their location was more than adequate in the period under review. Power outages affected network performance and contributed to communication failures at certain sites during this time, including Irene, Virginia, Bethlehem, Durban Satara, Musina, Wolvespruit and Lephalale. The installation of Uninterrupted Power Supply (UPS) systems at all sites was prioritised and completed early in 2018. To further mitigate such operational risks capital expenditure planning will be improved going forward. Only one sensor failure occurred at Calvinia where the internal UPS was faulty. The problem was resolved on site.

1.6 Solar Radiation Stations and Operational Activities

The solar radiation data provided by SAWS is important not only for the monitoring of the exposure of the population to harmful radiation but also in terms of the sustainability of the renewable energy sector. SAWS' 13 solar radiation stations operated optimally with no interruptions or data loss in the year under review. In the reporting period, SAWS launched a project to compute the Direct Normal Irradiance Index (DNII) as a measure of the suitability of locations for the installation of Concentrating Solar Power (CSP) technologies. Having access to this information will help decision makers select the most cost-effective sites for technologies to harness solar energy.

1.7 South African Air Quality Information System (SAAQIS) National Ambient Air Quality Monitoring Network (NAAQMN)

The number of ambient air quality monitoring stations registered as data providers with the SAAQIS was 162 at the end of the reporting period. Of these, 121 are government owned and 41 industry owned. Graph 15 provides an overview of the ownership of these stations.



Graph 15: Total Number of Ambient Air Quality Monitoring Stations Registered on SAAQIS as on 31 March 2018

1.8 Priority Area Ambient Air Quality Monitoring Networks

The monitoring of ambient air quality has become an increasingly important part of the SAWS mandate as the adverse effects of atmospheric pollution are felt across many segments of the population and the economy.

CHAPTER 2 DEVELOPMENT OF HUMAN CAPITAL CAPABILITY AND CAPACITY

This is discussed under Part D: Human Resource Management.

Programme 3

Strategic Goal 3: Stakeholder engagement and leveraging of strategic relationships.

The extent to which SAWS can achieve its goal of providing essential weather and climate related services to weather sensitive sectors and the general public is related to its perceived relevance as a meteorological organisation. This in turn calls for ongoing targeted engagement with stakeholders through all appropriate platforms and for establishing and nurturing partnerships that support the advancement of SAWS' research and infrastructure and contribute to mitigating the risks associated with climate change.

CHAPTER 1 CORPORATE COMMUNICATIONS

The effective dissemination of information and promotion of public awareness ensures that the SAWS knowledge base, products and services are usefully applied. To achieve this, SAWS has engaged all forms of media to communicate with the South African public continued to leverage opportunities to interact with stakeholder groups and fellow scientists at regional, national and global level.

Over the past few years, one of the important initiatives in terms of keeping SAWS sustainable and relevant has been the development of a WeatherSMART Communications and Brand Strategy. The revised Communications Plan was implemented and proposals to rebrand and co-brand SAWS in the new financial year were approved.

1.1 Media Engagements

In the period under review, SAWS engaged frequently with the media through media releases, especially when severe weather events were imminent. A special media briefing was held in Pretoria on 12 October 2017 following severe weather events that affected the country at that time.

SAWS actively grew its Facebook and Twitter accounts from the March 2017 baselines. Facebook grew from 2 000 to 26 414 followers, while Twitter grew from 33 000 to 70 089 followers. This growth took place organically due to the regular posting of weather warnings and information on the social media platforms.

Internal communication also played an important role in supporting the achievement of SAWS' strategic objectives. To this end, internal communiques and Hot-off-the-Press internal newsflashes and the Our Voice internal quarterly newsletters were issued.

Daily forecasts, either live or in the form of text, were provided free of charge to a variety of radio stations, many of them community based. In the reporting period, approximately 5 000 clients received a daily specialised service from SAWS via the automated forecast product generator, MeteoFactory.

1.2 WeatherSMART News

Two editions of the WeatherSMART scientific newsletter published in August 2017 and February 2018 respectively reflected SAWS' recent scientific contributions.

1.3 World Meteorological Day and SAWS' Inaugural Annual WeatherSMART Science Symposium

World Meteorological Day is celebrated on 23 March every year. In 2018 the theme of the event was "Weather-ready Climate-smart".

This was also the theme of SAWS' first WeatherSMART Science Symposium held at the Royal Elephant Hotel in Centurion on 14 and 15 March 2018. The symposium served as a platform for SAWS to showcase its relevance, value and research facilities and capabilities; to share its weather and climate findings with research orientated stakeholders; and to foster the exchange of knowledge through dialogue.

The event focused on research on impact-based weather and climate outlooks, the interpretation and application of these outlooks, and disaster risk assessment and reduction and was attended by 150 representatives from the agriculture, energy, health and water sectors, universities, science councils and government departments. Presentations and discussions addressed the topics of earth system research; weather and climate prediction research and creating a WeatherSMART society; government support; weather and climate applications; and early warnings.

Mr Jerry Lengoasa, Chief Executive Officer of SAWS, opened the proceedings with a welcome address and the first day concluded with an in depth panel discussion on science communication followed by a networking cocktail event. Ms Ntsoaki Mngomezulu, Chairperson of the SAWS Board, delivered the keynote address on the second day of the symposium, emphasising that SAWS is ideally positioned to serve as the voice on weather and climate in South Africa and the region, and that the WeatherSMART Science Symposium was one of the initiatives to exactly serve that purpose.

1.4 Growth of Advertising Value Equivalent (AVE)

SAWS exceeded its cumulative annual AVE target for the 2017/18 Financial Year. This is in part due to the public interest elicited by severe weather events in the reporting period, with online media being the biggest earners. SAWS' overall free media coverage for the year amounted to R251 758 296. This is expressed as Advertising Value Equivalent (AVE) meaning that it is the value SAWS earned through the media, should it have paid for advertising content.

CHAPTER 2 MANAGEMENT AND LEVERAGING OF STRATEGIC RELATIONSHIPS

No institution has all the knowledge needed to serve the atmospheric science discipline adequately. The management of strategic relationships therefore forms an integral part of success in conducting atmospheric research and collaborative partnerships are a critical element of SAWS' ability to conduct research and develop products for various critical economic sectors and the general public. Collaborations take the form of workshops and reciprocal visits as well as formal agreements or Memoranda of Understanding (MoU).

SAWS has maintained its MoU with South African Airways (SAA) on the provision of Aircraft Meteorological Delay (AMDAR). AMDAR is a vertical profile of high quality data on winds (speed and direction) and temperature. The purpose of the programme is to enhance the sparsely distributed upper air sounding over South Africa and the integration of the data into the Numerical Weather Prediction (NWP) contributes to improved forecast accuracy.

2.1 International Relations and Collaborations

SAWS has continued to participate in global engagements in order to fulfil its international obligations and play the pivotal role of regional responsibility. International travels undertaken during this reporting period were aimed at addressing the strategic intent of SAWS and promoting the continuous improvements on service delivery.

In the 2017/18 financial year, 94 SAWS personnel attended 75 international meetings and workshops. Almost 95% of these meetings were technical in nature while the rest were administrative/strategic.

As shown below, SAWS covered approximately 37% of the international travel costs with the remainder being sourced from organisations such as the World Meteorological Organization (WMO); European Organization for the Exploitation of Meteorological Satellites (EUMETSAT); Global Atmospheric Watch Training and Education Centre (GAWTEC); Rain for Africa (R4A); and the South African Science Service Centre for Climate Change and Adaptive Land management (SASSCAL).

Given the significant decrease in the SAWS budget for international travel, the increase in external sponsorship is a positive and welcome development.

Graph 17: International travel costs

Key administrative/strategic meetings attended by SAWS representatives included the African Ministerial Conference on Meteorology (AMCOMET) Forum in Addis Ababa, Ethiopia in September 2017. The meeting deliberated on and provided insight into how existing weather, water and climate information strategies and programmes could be harnessed to achieve sustainable development in the continent and served as a platform to position and strengthen Hydromet as a pillar of climate-resilient development in Africa. Regional cooperation between the NMSs in the African continent was also emphasised.

SAWS participated in the 17th Session of the Commission for Atmospheric Sciences preceded by a technical conference in October 2017. The main objective of both the technical conference and the Commission Session was to deliberate on seamless predictions aimed at improving predictive capacity across weather, climate, water and environment in order to improve NMS service delivery.

SAWS representatives participated in the 25th Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) session in October 2017. A significant highlight of this event was the re-election of the South African official into the JCOMM Co-Presidency and the securing of financial support from UKMO for the Upper Air Observations in the Southern Ocean which is operated by SAWS. SAWS representatives also attended the WMO Women's Marine Leadership Workshop aimed at empowering women in the marine sector with leadership skills and insight into policy making processes.

With a view to strengthening strategic collaborations, the PR of South Africa with WMO paid a courtesy visit to the PR of USA with WMO during the Global Weather Enterprise (GWE) seminar held in Washington DC in November 2017. The purpose of the visit was primarily to discuss the expired Memorandum of Understanding (MOU) between SAWS and the National Oceanic and Atmospheric Administration (NOAA) and to deliberate on possible new areas of collaboration.

With a view to fulfilling SAWS' regional obligations, the Regional Training Centre (RTC) Pretoria and the Centre of Excellence, under the auspices of EUMETSAT, hosted training for the Regional Association 1 (RA 1) on the use of gridded satellite data for climate services in Africa in November 2017. Background information was provided on the satellite based climate data and software tools for all climate data users in the continent.

As part of its quest to promote regional collaboration, South Africa, through SAWS, hosted the Meteorological Association of Southern Africa (MASA) Board in February 2018. A highlight of this meeting was the extension of the MASA Executive Director's contract to December 2018 for the purposes of continuity in MASA activities. In addition, the MASA Board endorsed the initiative of the Southern African Development Community (SADC) Cyber-Infrastructure project which is aimed at improving the service delivery of National Metrological Services (NMSs) through building regional research and education network capacity; data sharing infrastructure; and human capital trained to make efficient and effective use of High Performance Computing facilities. Furthermore, the Board supported the development of a regional project proposal aimed at reducing the use by NMSs of Mercury-line equipment in their observational networks. This is in accordance with the Minamata Convention and the ratification of the AMCOMET Constitution, which is a resolution of the meeting of SADC Ministers responsible for meteorology and transport in Malawi in October 2017 in Malawi.

SAWS also hosted the Ugandan delegation headed by the Permanent Representative (PR) of Uganda with WMO. The purpose of the visit was to conduct a benchmarking exercise with respect to SAWS' strategic and governance best practices coupled with its stakeholder interfaces. The delegation also sought to learn about technical and operational processes such as the Early Warning System; product and service development and dissemination; and the SAWS observational infrastructure that underpins these processes.

The Department of Science and Technology (DST) in collaboration with the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Regional Office for Southern Africa, hosted a Science, Technology and Innovation training workshop in Pretoria in February 2018. The workshop programme included a visit to SAWS during which a high level session comprising of SADC Parliamentarians and high level officials was convened. The SADC delegation was given an opportunity to familiarise themselves with weather prediction processes, forecasting activities, early warning systems, socio-economic impacts, and the technologies involved in the value chain process.

Another highlight during this financial year was the hosting of the Aircraft Meteorological Data Relay Programme (AMDAR) workshop for the Kenyan delegation. This is a WMO initiative in partnership with the Kenyan Meteorological Department and Kenyan Airways to implement a Public Private Partnership for the establishment and operation of a meteorological observing programme aimed at facilitating the automated reporting of upper-air meteorological data and information.

A high level engagement between the PRs of South Africa and United Kingdom (UK) with WMO was convened in October 2017 to deliberate on Newton Fund activities and matters of strategic collaboration and cooperation between the two meteorological services. This was followed by a visit to SAWS by a UKMO technical delegation to discuss possible areas of cooperation towards the signing of a MoU between the two organisations. SAWS also hosted a technical delegation from the German meteorological service, Deutscher Wetterdienst (DWD) for engagements aimed at renewing the MoU between the organisations.

SAWS hosted a trilateral technical session with UKMO and the Mozambique National Meteorology Institute (INAM) in March 2018. The main objectives of the engagement were to discuss the technical processes involved in the Newton Fund project and the restoration of the Mozambique radar system; benchmarking of the SAWS radar training programme for INAM; and a review of the MOU between SAWS and INAM.

2.2 Engagements with Government Departments and Other Stakeholders

A draft agreement between SAWS, the Department of Environmental Affairs (DEA) and the South African Earth Observation Network (SAEON) was finalised in the period under review. The purpose of the agreement is to enable the routine provision of relevant climate change and drought indicators.

Memoranda of Understanding (MoUs) signed in the period under review included one with the State-Owned Entity (SOE) Umgeni Water and one between SAWS, the Agricultural Research Council (ARC) and the Department of Water and Sanitation (DWS). The renewal of the MoU with the South Africa National Space Agency (SANSA) was finalised in Quarter 4 and a Memorandum of Agreement (MoA) was signed with the Centre for High Performance Computing (CHPC).
Other engagements during the reporting period were as follows:

- Engagements with the Centre for High Performance Computing (CHPC) with a view to a Memorandum of Understanding which will strengthen High Performance Computing (HPC) collaboration and a possible back-up centre for SAWS computational needs.
- A meeting with the Department of Arts & Culture (DAC) on 10 July 2017 to give feedback on progress in the terminology project. At a consultative workshop on isiZulu with the KwaZulu-Natal Department of Arts & Culture in Durban in August 2017 work continued on the translation of a previously compiled list of 500 terms. After a number of working meetings a final list of terms for Phase 1 of the project was ready to be sent to the regions.
- SAWS is working with the South African Medical Research Council: Burden of Disease Research Unit (SAMRC: BDRU) on a national project aimed at computing a national scale population weighted exposure and burden analysis on PM2.5 and photo-chemical species.
- SAWS held its inaugural Annual WeatherSMART Science Symposium at the Royal Elephant Hotel and Conference Centre in Centurion on 14 and 15 March 2018 where the organisation’s research activities and product development were showcased.

2.3 Engagements with Weather-Sensitive Sectors

Table 1: Engagement with weather sensitive sectors

Agriculture & hydrology	Proposals submitted	Proposal submitted to the Water Research Council (WRC) for an investigation of the historical and projected occurrence of the South African mid-summer drought and its application for the agro-water budget. Proposal submitted to the WRC for hydrological modelling in selected Limpopo Valley catchments to investigate the role of streamflow variability in the persistence of malaria in the Vhembe district in Limpopo Province.
	NAC	SAWS continued to present seasonal forecasts at National Agrometeorological Committee (NAC) meetings. There were also negotiations with the Department of Agriculture, Forestry & Fisheries (DAFF) with respect to presenting the R4A project and the HydroNET platform at the NAC.
	SASSCAL	Representatives from the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) visited SAWS from 26-29 September 2017.
	Rand Water	Meetings with Rand Water in May and June 2017 to explore ways in which SAWS can assist Rand Water in operational and strategic planning based on the impact of weather and climate conditions. A comprehensive proposal which included the HydroNET platform and a research component was prepared and submitted to Rand Water.

Table 1: Engagement with weather sensitive sectors (continued)

Agriculture & hydrology	Stakeholder engagement	Engagements at the Grain SA NAMPO Harvest Day in May 2017 with several stakeholders from agro-finance, agro-insurance, farmers and technology suppliers for the agricultural industry.
	Limpopo Department of Agriculture and Rural Development (LDARD) Project	In 2016, the Limpopo Department of Agriculture and Rural Development (LDARD) embarked on a programme to build capacity and enhancing understanding of and access to weather, climate change and agro-meteorological information of the agricultural extension officers. In December 2017 SAWS scientists delivered a unique training programme climate change and agrometeorological applications to 200 agricultural extension officers and 300 farmers from various regions in the province. The participatory training programme focused on the impact of various weather and climate aspects on agriculture and adaptations and mitigations, including SAWS products and services. The programme was also an opportunity for young SAWS scientists to build capacity and gain exposure to knowledge sharing and participatory training.
Aviation	AMDAR	SAWS representatives presented on the status of the South African AMDAR programme (comprising 43 South Africa Airways (SAA) aircraft) at the CBS/OPAG-IOS/ET-ABO-3 meeting in Jakarta, Indonesia from 24 to 26 May 2017. The benefits of the data from this programme, real-time vertical profiles and the assimilation of the data into the Numerical Weather Prediction (NWP) were outlined, particularly in light of the poor distribution of radiosondes data in the African Region (RA 1). The presentation also covered the development of the RA I Regional AMDAR Implementation Plan in which SAWS representatives played a key role.
	Aviation Safety Campaign	SAWS participated in the Gauteng, Western Cape, Eastern Cape and Free State legs of the aviation safety campaign coordinated by the South African Civil Aviation Authority (SACAA). Presentations on the role of weather in aviation and seasonal outlooks were made to the target audience, primarily Visual Flight Rules (VFR) pilots and flying schools.

Table 1: Engagement with weather sensitive sectors (continued)

Aviation (continued)	ACAMS	Presentations at quarterly meetings of the Advisory Committee for Aeronautical Meteorological Services (ACAMS). These regular interactions between SAWS and the aviation industry have proven to be a very valuable platform for collaborative assessments of the value of these services.
	ICAO	Monthly meetings with the International Civil Aviation Organization (ICAO) Meteorology Panel (METP) Working Group on Meteorological Information Exchange (WG-MIE) through teleconference/WebEx.
	AASA BARSA CNS/ATM	SAWS engaged with the Airlines Association of Southern Africa (AASA) and Board of Airline Representatives of South Africa (BARSA) at the Airlines Business meeting, Annual General Assembly (AGA) and Aviation Summit respectively. The engagements foster collaboration with government departments and agencies toward improving the profitability and sustainability of airlines by dealing with issues that impact on aviation industry growth. Participation in meetings of the National Communications, Navigation & Surveillance/Air Traffic Management (CNS/ATM) Implementation Committee and the Aeronautical Traffic Navigation Services (ATNS) Operational User Committee for delivery of a 15 year rolling plan of the Global Air Navigation Plan (GANP) and Aviation System Block Upgrade.
	AvRDP	Engagements with the Aviation Weather Centre (AWC) and aviation industry role players on the implementation of the Aviation Research and Development Project (AvRDP) which focuses on impact-based nowcasting products for the aviation industry.
	CANSO	SAWS is committed to improving the efficiency of global air transport. The Aviation Unit participated in a symposium organised by the Civil Aviation Navigation Services Organization (CANSO) aimed at promoting seamless air traffic management operations. This was achieved by involving stakeholders in the implementation of Aerodrome Collaborative Decision Making (A-CDM) initiative. It was one of the conclusions of the Africa Indian Ocean Planning Implementation Regional Group (APIRG/21) that Africa needs to ensure seamless ATM operation in the continent in support of the implementation of an Africa Indian Ocean (AFI) Seamless Sky.
	APIRG	The SAWS Aviation Unit is an active member of the Africa Planning and Implementation Group (APIRG), a regional body of the ICAO responsible for the planning and implementation of ICAO air navigation programmes in the AFI Region 1. SAWS representatives participated in the second meeting of the APIRG Coordination Committee (APCC) in Nairobi, Kenya in September 2017 and presented two working papers at the 21st ICAO APIRG meeting in Nairobi, Kenya in October 2017 on behalf of the State. Following the election of South Africa as Vice Chair of the AFI-APIRG's Information and Infrastructure Management Sub-Group (IIM/SG) in June 2017, SAWS was allocated the responsibility of coordinating SIGMET and QMS projects within the ICAO AFI region.

Table 1: Engagement with weather sensitive sectors (continued)

Maritime	Operation Phakisa	The SAWS Marine Unit continued to represent SAWS in Working Group 6 of Operation Phakisa. A presentation on SAWS' radar capability and possible acquisition of HF radar was made at a working group meeting on the vessel tracking initiative held at the Institute of Maritime Technology (IMT) on 4 May 2017. Ways in which SAWS could contribute to and engage with the national Oceans and Coastal Information Management System (OCIMS) were communicated to ensure that the brand is represented in that highly visible platform.
	SAMSA	On 31 May 2017 representatives from the Cape Town Weather Office met with representatives from the South African Maritime Safety Authority (SAMSA) to address meteorology and oceanography issues related to severe weather.
Transport	PRASA	A proposal on comprehensive real time, web-based weather solutions to support informed decision making was submitted to the Passenger Rail Agency of South Africa (PRASA). The proposal included the development of a system for monitoring the impact of weather on PRASA services and infrastructure.
	Transnet	Meetings were held with Transnet Freight Rail to explore the possibility of developing a solution similar to the one proposed for PRASA.
Energy	CSIR/DEA	The Chief Scientist: Climate Data Analysis & Research (CDAR) attended the second phase of the CSIR/DEA Renewably Energy Development Zones project in July 2017. The purpose of the engagement was to indicate exclusion zones for renewable energy farms where SAWS infrastructure might be negatively affected.
	NMISA	Meetings were held with the National Meteorology Institute of South Africa (NMISA) regarding the establishment of a gas analysis laboratory and providing reference gas material to South African institutions.
	DEA	The Chief Scientist: CDAR participated in a meeting on the DEA Adaptive Capacity Facility project which focused on climate change adaptation and funded by the government of Flanders. He also participated in the review of the third National Communication on Climate Change, of which he is co-author, held at DEA.
	DOE & SANEDI	Together with other research institutions SAWS was involved in the Wind Atlas for South Africa (WASA) project. Phase 3 of the project, which covers the northern parts of South Africa, commenced in this reporting period.

Table 1: Engagement with weather sensitive sectors (continues)

Disaster Management	Disaster Management Forum	Personnel from SAWS' Forecasting Offices attended the quarterly Disaster Management Forum meetings.
	Disaster Risk Reduction Team	SAWS personnel attended a training workshop on impact-based forecasting hosted by the Disaster Risk Reduction Team at Bolepi House in Pretoria.
	Provincial and District Disaster Managers	On 12 June 2017 the Cape Town weather office participated in a debriefing meeting for Western Cape Disaster Management following the intense winter storm and runaway fires that affected the province. SAWS hosted an impact-based forecasting workshop for Limpopo and Mpumalanga Provincial and District Disaster Managers in January 2018.
	ACCESS	SAWS was represented at the Applied Centre for Climate & Earth Systems Science (ACCESS) seasonal outlook workshop which was convened in response to the devastating drought experienced in the Western Cape.

2.4 Engagements with Universities

Table 2: Engagements with Universities

Memoranda of Agreement/ Understanding	- University of KwaZulu-Natal - North West University - University of South Africa (UNISA). MoU with respect to the Mathematics and Physics of Meteorology in support of its applications in Africa. It is anticipated that this relationship will advance the SAWS research agenda as well as capacity development by contributing to the content of the BIP MSc and distance learning opportunities for the African market. - Reading University
University of Pretoria	SAWS scientists visited the Limpopo River Valley with Prof Riana Bornman from the University of Pretoria's Institute for Sustainable Malaria Control (UO-ISMC) in order to identify two sites for the commissioning of SAWS Automatic Weather Stations (AWSs). SAWS also collaborated with the Department of Geography, Geoinformatics & Meteorology at the University of Pretoria on the establishment of an Integrated Emission System (IES). The Chief Scientist: CDAR has also been reappointed as extraordinary lecturer in the Department.
Reading University, UK	Under the umbrella of the Newton Fund initiative SAWS scientists engaged with Reading University on a convection workshop.

CHAPTER 3 STAKEHOLDER PERCEPTION SURVEY

In the Stakeholder Perception Survey conducted in the reporting period SAWS achieved an overall satisfaction rating of 86%. A satisfaction rating of 80% is considered to be an execellent organisational achievement in the industry. It is also important to note that in the ServQual Methodology developed by Berry, Parasuraman and Zeithaml at the Massachusetts Institute of Technology Sloan School of Management, a rating of 83% or above is considered the desired performance.

CHAPTER 4 COMMUNITY OUTREACH AND EDUCATIONAL ACTIVITIES

SAWS is committed to educating the public and exposing learners to career opportunities in increasingly critical scientific fields such as meteorology, hydrology and air quality. To this end the organisation continued to host school visits at its various offices and to participate in school visits and science and career expos:

Table 3: School visits

WESTERN CAPE	An outreach programme took place at Curro Satari Independent School in Cape Town to demonstrate the instruments used by SAWS to collect real time weather data. In May 2017, the Cape Town weather office participated in the District Expo for Young Scientists at Rondebosch Preparatory School. The event was a precursor to the annual Science Expo in Stellenbosch later in the year aimed at exposing high school students to potential careers in meteorology. Staff from the George weather office met with two students from George High School who are participating in the Global Learning and Observation to Benefit the Environment (GLOBE) programme. SAWS is providing them with historical data from George and Witfontein for use in their presentation in Ireland in July 2018.
NORTHERN CAPE	Outreach programmes took place at Frank Biggs Intermediate School in Louisville and the Northern Cape Department of Education in Hantam regions. The various instruments used by SAWS to collect real time weather data were presented to learners and the general public.
KWAZULU-NATAL	Personnel from the Durban weather office and the National Forecasting Centre (NFC) participated in the annual Bergville Community Builders (BCB) career week in the first week of August 2017. The event was hosted by Eskom.
FREE STATE	An air show organised by the office of the Executive Mayor of Dihlabeng Local Municipality at Bethlehem Airport on 25 and 26 August 2017 was used as an opportunity for a science and career exhibition. SAWS staff from the Bloemfontein and Bethlehem weather offices and the NFC Group participated in the event. Together with SANBI and six other organisations, SAWS reached out to 115 learners and their educators from six different schools through a career exhibition in the Mangaung district. About 72 Grade 11 and 12 learners visited the Bloemfontein weather office and were provided with background on the field of meteorology to assist them in their career choices.

Table 3: School visits (continued)

GAUTENG	Members of SAWS' NFC Group participated in a Department of Science & Technology (DST) event during National Science Week at the Sci-Bono Discovery Centre in Johannesburg in August 2017. The Irene weather office reached out to seven schools, giving presentations to expose over 200 learners the various kinds of careers in the field of meteorology. On 2 February 2018 SAWS hosted a Vulnerable Community Awareness Campaign at the Ikageng Community Centre in Mamelodi East, Pretoria. A number of schools and members of the community attended the event where there were presentations from the National Forecasting Centre (NFC), the Regional Training Centre (RTC) and the Air Quality Department. A presentation on SAWS' activities and services with respect to air quality given by Senior Scientist Ms Ngcukana generated great interest and a number of questions from an enthusiastic audience. Fun activities included live entertainment in the form of a musical play which told the story of drought as well as a quiz with prizes for the correct answers. The productive morning of learning and fun ended with a delicious lunch.
MPUMALANGA	Representatives from SAWS participated in the National Science Week hosted by the Mondi Science, Career Guidance and FET Skills Centre in Piet Retief. There were engagements with schools and relevant stakeholders to advance public awareness of the various impacts of weather on society and business and to promote core career opportunities available within SAWS. The opportunity was also used to showcase one of SAWS' advanced Automatic Weather Station (AWS) and display an upper-air weather balloon with a radiosonde. The SAWS exhibition team was made up of personnel from the Aviation Weather Centre (AWC), the National Forecasting Centre (NFC) and the Ermelo and Nelspruit weather offices. SAWS partnered with SANBI, NOSA and NRF to reach out to 180 learners during a career exhibition in the Lowveld Botanical Gardens in Nelspruit on 9 March 2018.

The Vulnarable Community Awareness Campaign: Mamelodi East

Programme 4

Strategic Goal 4: To be a science institute that has a powerful knowledge base to be reckoned with worldwide.

SAWS continued to conduct research to support the development of operational products in order to improve the services it provides to various stakeholders and to contribute to the global knowledge base on meteorology and weather and climate related matters. With the expansion of the SAWS mandate, air quality modelling now also forms part of the organisation' research activities.

As part of the Aviation Research and Development Project (AvRDP), the Nowcasting and Very Short Range Forecasting (NVSRF) Group conducted research with a view to providing the aviation industry with very short timescale impact-based forecasts. Meetings were also held with role-players in the aviation sector.

The Short and Medium Range Forecasting (SMRF) Group conducted research on the convective scale modelling which contributes to the UK Met Office's Regional Model Evaluation and Development (RMED) project. The model was upgraded to Version 10.4 and made operational.

Work began on the installation of the Unified Model (UM) code at the Centre for High Performance Computing (CHPC). The purpose of doing so is to have a backup in case of a failure of the SAWS' HPC.

Research activities in the Long Range Forecasting (LRF) Group in the reporting period included a study to explore statistical downscaling techniques to improve sub-seasonal to seasonal climate predictions over Southern Africa. In addition, a forecasting system for predicting rainfall characteristics was developed with a view of issuing a rainfall characteristics forecast together with the traditional seasonal climate outlook which covers rainfall and temperatures.

CHAPTER 1 STRATEGIC RESEARCH PARTNERSHIP AGREEMENTS

The Marine Unit collaborated with GAW to determine SAWS' research activities for the 2017 SA Agulhas II Winter Research Cruise with a view to deriving longer term scientific value from the data collected by SAWS during research cruises.

Research into certain aspects of operational ocean modelling continued in collaboration with scientists from the CSIR.

Within the framework of the R4A project, a contract for the supply of a radar and surface observation data quality control was signed with the German company Hydro & Meteo GmbH which specialises in the quality control of real-time data.

Other engagements for the purposes of knowledge development included research on ice forecasting, Agulhas Current system eddies and related operational ocean modelling and coastal wind regime shifts in South Africa. Agreements finalised in the reporting period include:

- The MoU between SAWS and Umgeni Water focusing on weather/climate and water/hydrological research.
- The MoU between SAWS and the Centre for High Performance Computing (CHPC).
- The renewal of the MoU with the South Africa National Space Agency (SANSA).

CHAPTER 2 CLIMATE AND ENVIRONMENTAL RESEARCH AND MONITORING (CERM)

2.1 Research for Improved Weather Prediction

A number of researchers served on several strategic project committees to draft business cases for specialised programmes that are critical for SAWS to conduct its business. These included, amongst others, business cases for the radar network, lightning detection network and HPC business case and the Socioeconomic Benefit Study. Furthermore, various programmes were also conducted to monitor the efficiency and availability of the SAWS models and observation infrastructure. Noteworthy activities and achievements during this reporting period were as follows:

- SAWS acquired its third mobile station for bio-meteorological monitoring. This contributes to research for the development of products and services for the health sector and to support communities in preparing for weather related risks.
- Funding was received from the National Research Foundation (NRF) Thuthuka Grant for a study of the effects of aerosols on thunderstorms.
- The ongoing collaboration with scientists from CSIR on research into certain aspects of operational ocean modelling resulted in a lead author, peer reviewed journal paper.
- The Marine Unit continued to collaborate with SAEON and the University of Cape Town (UCT) on drifter research projects. The work done on the Data Buoy Cooperation Panel (DBCP) posted in 2016 was expanded into an abstract which was submitted for the September 2017 joint conference of the International Association of Meteorology & Atmospheric Sciences (IAMAS), International Association for the Physical Sciences of the Oceans (IAPSO) and International Association of Geomagnetism & Aeronomy (IAGA) held in Cape Town in September 2017.
- The Marine Unit presented a lead-authored conference paper at the Joint Assembly of the IAPSO, IAGA and IAMAS. Research focused on model simulations in the Agulhas Current and techniques for their evaluation. The Agulhas Current is a major determining factor in regional and global climate.

2.2 Climate Change and Variability

A detailed study was conducted to verify CORDEX model simulated ensemble member maximum and minimum temperatures against observations. Such verifications are important in determining the ability of Regional Climate Models (RCMs) to generate climate change projections. In the context of prevailing climate change, changes in extreme temperatures are important. A study by SAWS researchers in 2016 observed maximum and minimum trends by analysing data from 27 Automatic Weather Stations (AWSs) distributed across South Africa. These observations were compared with ensemble members of the RCA4 RCM which was used to generate the climate change projections contained in the recently released SAWS Climate Change Reference Atlas.

Other studies in which the Climate Service department were involved in was a WMO Assessment of Weather and Climate Mortality Extremes from Lightning, Tropical Cyclones, Tornadoes, and Hail, an assessment of rainfall trends in South Africa from 1921 to 2015, trend analyses of received global solar radiation in the country, and a study of the predominant atmospheric and oceanic patterns during coastal marine heatwaves. The results of all these studies were published in relevant national and international peer-reviewed journals.

2.3 Global Atmosphere Watch (GAW) and Regional GAW Group

GAW staff continued with research into various aspects of greenhouse gas variation, focussing mainly on improving the quality of data sets. After a series of extensive data quality procedures, the CO_2, CH_4, CO, O_3 2016 data sets were submitted to the WMO World Data Centre for Greenhouse Gases (WDCGG) and the South African Air Quality Information System database (SAAQIS).

The GAW programme also has a footprint within the regions of South Africa. The focus in the regions is on the monitoring of ozone through balloon ozonesondes and measurements with the Dobson Spectrophotometer instruments. The balloon ozone sounding programme continued successfully from Irene weather office and a new order was placed for ozonesonde consumables. As the Vaisala RS92GPS sondes range of products was discontinued in August 2017, the Vaisala MW31 processing system must be upgraded if SAWS is to continue with the new RS41 radiosonde products entering the market. The three Dobson Spectrophotometer Ozone observation programmes at Irene, Springbok and Stellenbosch functioned very well during this period. In compliance with SAWS' WMO obligations, the 2016 Dobson ozone data for the Irene and Sprinbok stations were quality controlled, formatted and submitted to the WMO World Ozone and UV Data Centre. The ozone sounding data were also shared with the NASA Southern Hemisphere Additional Ozonesondes (SHADOZ) database.

The national UV-Biometer network functioned very well during the reporting period although occasional data logging difficulties were experienced, resulting in loss of data. Replacing the very old data loggers is now becoming essential for the sustainability of SAWS UV-B monitoring efforts.

An analysis of all the 2016 GAW trace gas data was finalised, including Quality Assurance/Control (QA/QC) of the various datasets and submission to the various World Data Centres and to SAAQIS. Overall, 2016 was a particularly difficult year in terms of data quality and availability (primarily due to instrument failures and budgetary constraints). Research activities in this reporting period primarily focused on determining the relationship between 10m and 30m wind sensors; Nitrous oxide optimisation and the improvement of ambient data measurements; and Picarro CO_2 and CH_4 data optimisation.

SAWS implemented a fully interactively coupled RegCM4.5–chemistry modelling system by upgrading its interactively coupled chemistry module and radiative parametrisation schemes. Optimisation and some degree of validation of the modelling system (i.e., RegCM-CLM4.5, RegCM-CLM4.5-CBM-Z and emission climatology) was conducted.

SAWS is currently conducting post-processing and observational data preparation for model validation. The observational data prearrangement comprises an hourly air pollutant concentrations data that are collected from 65 air quality monitoring stations, including the South African Air Quality Information System (SAAQIS). The ambient air quality monitoring stations run by SAWS need to meet the requirements of the South African National Accreditation System (SANAS). It is important to ensure that air quality data is properly validated and managed after it is obtained. The correctness of data produced from continuous ambient air quality monitoring systems plays a key role in the making of informed decisions regarding the measurements that are required to protect the health and safety of living.

A literature review on the Air Quality Health Index (AQHI) was conducted in this reporting period and a report written to communicate to the primary challenges facing the AQHI. The AQHI measures air quality in relation to people's health on a certain scale and has an important role to play in understanding the impact of air quality on human life.

2.4 Air Quality Modelling

Among the various limited area models developed for long term regional climate simulation, the RegCM–Chem system is an advanced model with the architecture of a fully-coupled structure. The implementation of an upgraded RegCM is important for the assessment of a wide range of interactions and links between climate, atmospheric composition and the biosphere. The RegCM-CLM4.5- CBM-Z modelling system is crucial for the examination of the impact of air pollutants on the radiation budget and hydrological cycle; the interpretation of observations; and the study of pollutant distributions and atmospheric chemistry studies as well as air quality forecasting.

During this reporting period the regional optimisation of the interactively coupled RegCM-CLM4.5- CBM-Z was carried out. This optimisation was conducted through the testing of various RegCM dynamical modules, physics schemes, input data and pre-processing procedures. Modules subjected to testing were the semi-lagrangian dynamical core, hydrostatic core, non-hydrostatic core, planetary boundary layer schemes, air-sea flux schemes, interactively coupled 2D lake model, a mixed convection and tropical band configuration, modified radiative transfer module and gas phase chemistry schemes as well as input data and pre-processing systems.

The computational facility of the CHPC was used for this regional optimisation. The CHPC allocated 10 Haswell_ nodes (i.e. 240 processors) to SAWS for the purpose.

CHAPTER 3 APPLICATIONS

SAWS supports the use of meteorological data and products in sectors outside the meteorological discipline by developing applications that address the needs of decision makers. Agriculture, water management, health, energy, aviation and disaster risk reduction are among the sectors SAWS seeks to assist in this regard.

3.1 Agriculture

A new development in this reporting period was the installation of the Monitoring for Environment and Security in Africa (MESA) Drought Monitoring System software which makes it possible to generate various agricultural indices.

MESA uses space-based and in situ data to enable improved management of the environment and food security at continental, national and regional level in Africa. Of the different thematic actions and services of the MESA programme, MESA SADC includes the agriculture, drought, wildfire and floods services. The drought service monitors droughts throughout the whole year and delivers decadal Drought Maps and a Drought Outlook. This allows users to create a wide range of customised drought information products based on various input data, mainly rainfall, vegetation and long range weather forecasts.

3.2 Hydrology (Water Management)

Catchment studies are important for understanding the hydrological processes taking place within a catchment. An understanding of historical trends in climate variables also contributes to the formulation of appropriate adaptation, resilience and mitigation measures.

For this purpose, a study was undertaken to investigate precipitation and streamflow trend characteristics within the Vaal River catchment. As part of catchment studies, various research studies were also undertaken to assess drought conditions in the Vaal River catchment. The drought analysis includes understanding the drought propagation process from meteorological to hydrological drought.

In addition, a study on drought analysis using multi-drought-indices was undertaken to understand historical drought conditions in the Western Cape, and work commenced on the establishment of a database of dam levels in various catchment management areas. This database will be used to study and investigate the relationship between changes in water levels and various climate variables.

3.3 Energy

An analysis was performed on the sunshine duration (SD) data over 22 locations in South Africa. The trend analysis was done on a seasonal scale, namely summer: December, January and February (DJF), autumn: March, April, and May (MAM), winter: June, July, and August (JJA) and spring: September, October, and November (SON). The significance of the linear trend was tested using the t-test at the 5% level of significance and the change detection method was used on shortwave solar radiation (SIS) satellite datasets (CM-SAF, SARAH SIS data).

3.4 Health

One of the bio-meteorological stations procured at the beginning of the financial year was tested at the Irene weather office (coordinates: 25 54’ 37.79” S, 28 12’ 38.15” E, altitude: 1524 m) which is to participate in a heat health research project which forms part of the MoU signed between SAWS and the Central University of Technology (CUT).

The meteorological parameters measured are air temperature (°C), relative humidity (%), wind speed (ms-2) and direction at 2 m above ground, rain (mm), solar radiation (Wm-2), erythemal irradiance (Wm-2) and a heat index directly measured with the black globe. The meteorological data is sampled every 10 seconds and averaged every one minute in the Campbell Scientific data loggers (CR1000 or CR3000). The measured data will be used to calculate different heat indices.

The new bio-meteorological stations have added to SAWS’ vast infrastructure and contribute to the organisation’s ability to meet its strategic goal of providing products and services.

CHAPTER 4 SOCIO-ECONOMIC BENEFIT STUDY

In order that adequate financing can be mobilised and invested strategically to ensure a significant impact of investment, the World Meteorological Organization (WMO) requires that national governments and funding agencies have an understanding of the full value of the socio-economic benefits provided by National Meteorological and Hydrological Services (NMHSs) as well as the financial realities of maintaining operations and service delivery. In turn, NMHSs are under increasing pressure to demonstrate the socioeconomic value of the weather, climate and water related services they provide to society and specific economic sectors.

Against this background, SAWS appointed a service provider to conduct a socio-economic benefit (SEB) study for the organisation. The study focused on the critical infrastructure-related socioeconomic benefits analysis of weather and climate services in South Africa with the emphasis on disaster risk reduction, aviation and social society routines and planning. Of the various valuation methods available for use in socioeconomic benefit studies, the following were deemed suitable for the SAWS study:

a. **Contingent valuation method (CV).** This method is based on survey techniques to elicit information about user preferences and values, e.g. "Willingness to Pay" (WTP) for relevant benefits or willingness to accept hypothetical changes in the quality and quantity of services such as public weather and climate information.
b. **Benefit transfer approach.** This method applies results obtained in existing economic valuation estimations to estimate economic values in a different context.

The final SEB study report delivered to SAWS contained a summary of the literature review that was conducted and the selection of valuation methods and questionnaires relevant to the Disaster Risk Reduction (DRR) and aviation sectors, including information on the perceived value of weather information collected from members of the general public.

Based on the outcomes and recommendations contained in the report, SAWS will devise a plan to continue with the SEB analysis by applying the recommended methodologies to other identified sectors of the economy.

CHAPTER 5 ENHANCING THE SAWS KNOWLEDGE BASE

The enhancement of the knowledge base at SAWS takes place through a number of training initiatives, both formal and informal.

Scientists from SAWS attended the Unified Model tutorial workshop held in Exeter, UK, followed by a convective modelling workshop. WMO sponsored training workshops were also attended on the verification of model output. One such event was the international verification tutorial where one of the SAWS scientists attended as a member of the Joint Working Group on Forecasting Verification and Research (JWGFVR).

Two GAW staff members attended the GAWTEC-32 training course on Greenhouse Gas measurements at the Environmental Research Station Schneefernerhaus, Germany from 30 April to 13 May 2017.

A research staff member attended the CR100 logger training conducted by Campbell Scientific Africa (CS Africa). Training was also conducted on the CR1 000 logger and SAWS' scientists were invited to serve on the Water Research Commission (WRC) Reference Groups for the following new projects:

- Hydrological modelling of climate change impacts for the development of adaptation strategies: The case of the Luvuvhu River Catchment, Limpopo, South Africa (K5/2771//1).
- Collaborative knowledge creation and mediation strategies for the dissemination of water and soil conservation practices and climate smart agriculture in smallholder farming systems (K5/2719//4).

SAWS participated in the Royal Show's Living Land Emerging Farmer Workshop on 29 May 2017 in Pietermaritzburg, KwaZulu-Natal. The aim of the workshop was to equip smallholder farmers with the basic course in Agrometeorology and how to interpret the operational weather forecast issued on daily basis. A SAWS staff member made a presentation entitled "Short to Medium term Weather and Seasonal Climate Forecasting products and services in support of Agriculture."

There will be training for new assessors and moderators to complement the number that have already been trained. An alternative assessment method has been agreed upon, the project will be implemented by the end of the year.

On 15 May 2017, representatives from the Cape Town weather office attended an interdisciplinary summit with the City of Cape Town and the Alliance for Collaboration on Climate & Earth System Science (ACCESS) which comprises scientists from various institutions. The purpose of the summit was to share inter-institutional knowledge and communicate scientific information to stakeholders affected by the current water crisis in the region.

An official from the GAW office attended the DOBSON Inter-comparison training event in Spain from 31 August to 22 September 2017.

In-house training forms a critical part of skills transfer within SAWS' Research Department and experienced scientists continued to share their knowledge with junior staff members, in so doing also addressing business continuity concerns.

Further training activities that took place during the reporting period included the following:

- A number of SAWS research scientists participate in PYTHON software training from the beginning of September 2017.
- SAWS research scientists presented courses at the University of Pretoria on subjects ranging from radar meteorology and satellite meteorology to dynamical meteorology.
- Radar courses and lightning training were also presented to forecasting interns.

An initiative to develop a GIS training manual entitled "Introduction to GIS and Remote Sensing using ArcGIS". In addition to the above activities, a number of SAWS staff members continued to enhance their postgraduate qualifications through university studies at MSc and PhD level.

CHAPTER 6 SCIENTIFIC PUBLICATIONS

SAWS continued to contribute to the base of knowledge and information in the field of weather and climate, through research conducted within the organisation but also in collaboration with scientific institutions. These research studies usually culminate in peer reviewed articles that are published in scientific journals or conference presentations both locally and abroad.

The following is a summary of papers published in scientific journals and conference presentations given by SAWS representatives in the 2017/18 financial year.

A presentation on the downscaling of projected changes in the South African hydro-climate domain given at the SASAS annual conference in September 2017 won the award for Best Presentation by a Young Scientist.

SAWS STAFF IN PUBLICATION: 2017-2018.

2018 (6 Items)

1. ALIYU, Y.A. AND **BOTAI, J.O.** 2018. Appraising City-Scale Pollution Monitoring Capabilities of Multi-Satellite Datasets Using Portable Pollutant Monitors. *Atmospheric Environment*, vol. **179**, Apr, pp. 239–249. https://doi.org/10.1016/j.atmosenv.2018.02.034

2. BOTHA, R., **LABUSCHAGNE, C.**, WILLIAMS, C., BOSMAN, G.**, BRUNKE, E.-G**., ROSSOUW, A. AND LINDSAY, R. 2018. Characterising Fifteen Years of Continuous Atmospheric Radon Observations at Cape Point (South Africa). *Atmospheric Environment*, vol. 176, Mar, pp. 30-39. https://doi.org/10.1016/j.atmosenv.2017.12.010

3. CARBONE, F, BRUNO, NACCARATO, A., DE SIMONE, F., GENCARELLI, C.N., SPROVIERI, F., HEDGECOCK, I.M., LANDIS, M.S., SKOV, H., PFAFFHUBER, K.A., READ, K.A.**, MARTIN, L.**, ANGOT, H., DOMMERGUE, A., MAGAND, O. AND PIRRONE, N. 2018. The Superstatistical Nature and Interoccurrence Time of Atmospheric Mercury Concentration Fluctuations. *Journal of Geophysical Research- Atmospheres*, vol. 123, no. 2, Jan, pp. 764-774. http://dx.doi.org./10.1002/2017JD027384

4. **NDLOVU, S.C.**, MARAIS, A., SHABANGU, P.T., NOTO, L.L., GREINER, J.N., ENGELBRECHT, N.E. and DHUNNY, A.Z. 2018. Diversity of Participant Representation within the 66th Lindau Nobel Laureate Meeting. *South African Journal of Science*, vol. 114, no. 3/4, Mar/Apr, Art#a0263, 4 pp. http://dx.doi.org/10.17159/sajs.2018/a0263

5. **PHAKULA, S.**, LANDMAN, W. A. AND BERAKI, A. 2018. Forecasting Seasonal Rainfall Characteristics and Onset Months over South Africa. *International Journal of Climatology*, Early view, Jan. http://dx.doi.org/10.1002/joc.5417

6. **SIMPSON, L**. AND DYSON, L. 2018. Severe Weather over the Highveld of South Africa during November 2016. *WaterSA*, vol. 44, no. 1, Jan, pp. 75-85. http://dx.doi.org/10.4314/wsa.v44i1.09

2017 (30 Items)

1. **ADEOLA, A.M., BOTAI, J.O., RAUTENBACH, H.**, ADISA, O.M., NCONGWANE, K.P., BOTAI, C.M. AND ADEBAYO-OJO, T.C. 2017. Climatic Variables and Malaria Morbidity in Mutale Local Municipality, South Africa: a 19-year Data Analysis. International Journal of Environmental Research and Public Health, vol. 14, no. 11, 1360, 15 pp. http://dx.doi.org/10.3390/ijerph14111360

2. ADISA, O.M., **BOTAI, C.M., BOTAI, J.O**., HASSEN, A., DARKEY, D., TESFAMARIAM, E., ADISA, A.F., **ADEOLA, A.M**. and **NCONGWANE, K.P.** 2017. Analysis of Agro-Climatic Parameters and their Influence on Maize Production in South Africa. *Theoretical and Applied Climatology,* Early view, 14 pp. https://doi.org/10.1007/s00704-017-2327-y

3. ANSORGE, I.J., SKELTON, P., BEKKER, A., DE BRUYN, P.J.N., BUTTERWORTH, D., CILLIERS, P., COOPER, J., COWAN, D.A., DORRINGTON, R.A., FAWCETT, S., FIETZ, S., FINDLAY, K.P., FRONEMAN, P.W., GRANTHAM, G.H., GREYE, M., HEDDING, D., HOFMEYR, G.J.G., KOSCH, M., LE ROUX, P.C., LUCAS, M., MACHUTCHON, K., MEIKLEJOHN, I., NEL, W., PISTORIUS, P., RYAN, P.G., **STANDER, J.**, SWART; S., TREASURE, A., VICHI, M. AND JANSEN VAN VUUREN, B. 2017. Exploring South Africa's Southern Frontier: a 20-Year Vision for Polar Research through the South African National Antarctic Programme. *South African Journal of Science*, vol. 113, no. 5/6, May/June, 7 pp. http://dx.doi.org/10.17159/sajs.2017/a0205

4. **BOTAI, C.M., BOTAI, J.O., DE WIT, J.P., NCONGWANE, K.P AND ADEOLA, A.M.** 2017. Drought Characteristics over the Western Cape Province, *South Africa. Water,* vol. 9, no. 11, 876, 16 pp. http://dx.doi.org/10.3390/w9110876

5. CADET, J.-M., BENCHERIF, H., PORTAFAIX, T., LAMY, K., **NCONGWANE, K., COETZEE, G.J.R.** AND WRIGHT, C.Y. 2017. Comparison of Ground-Based and Satellite Derived Solar UV Index Levels at Six South African sites. *International Journal of Environmental Research and Public Healt*h, vol. 14, no. 11, 1384, 15 pp. http://dx.doi.org/10.3390/ijerph14111384

6. CERVENY, R.S., BESSEMOULIN, P., BURT, C.C., COOPER, M.A., CUNJIE, Z., DEWAN, A., FINCH, J., HOLLE, R.L., KALKSTEIN, L., **KRUGER, A.**, LEE, T., MARTINEZ, R., MOHAPATRA, M., PATTANAIK, D.R., PETERSON, T.C., SHERIDAN, S., TREWIN, B., TAIT, A. AND WAHAB, A. 2017. WMO Assessment of Weather and Climate Mortality Extremes: Lightning, Tropical Cyclones, Tornadoes, and Hail. *Weather, Climate and Society,* vol. 9, no. 3, Jul, pp. 487-497. http://dx.doi.org/doi:10.1175/WCAS-D-16-0120.1

7. DIRIBA, T.A., DEBUSHO, L.K., **BOTAI, J**. AND HASSEN, A. 2017. Bayesian Modelling of Extreme Wind Speed at Cape Town, South Africa. *Environmental and Ecological Statistics*, vol. 24, no. 2, Jun, pp. 243-267. http://dx.doi.org/10.1007/s10651-017-0369-z

8. FEIG, G.T., **JOUBERT, W.R.**, MUDAU, A.E. AND MONTEIRO, P.M.S. 2017. South African Carbon Observations: CO2 Measurements for Land, Atmosphere and Ocean. *South African Journal of Science,* vol. 133, no. 11/12, Nov/Dec, Art#a0237, 4 pp. http://dx.doi.org/10.17159/sajs.2017/a0237

9. **GIJBEN, M.** AND DE CONING, E. 2017. Using Satellite and Lightning Data to Track Rapidly Developing Thunderstorms in Data Sparse Regions. *Atmosphere, vol. 8*, no. 4, article# 67, 15 pp. http://dx.doi.org/10.3390/atmos8040067

10. **GIJBEN, M.**, DYSON, L.L. AND LOOTS, M.T. 2017. A Statistical Scheme to Forecast the Daily Lightning Threat over Southern Africa Using the Unified Model. *Atmospheric Research,* vol. 194, 15 Sep, pp. 78-88. http://dx.doi.org/10.1016/j.atmosres.2017.04.022

11. GOLIGER A.M., RETIEF J.V., **KRUGER A.C.** 2017. Review of climatic input data for wind load design in accordance with SANS 10160-3. *Journal of the South African Institute of Civil Engineering*, 59(4), Art. #1724, 10 pages. http://dx.doi.org/10.17159/2309-8775/2017/v59n4a1

12. HUANG, G., LIU, X., CHANCE, K., YANG, K., BHARTIA, P.K., CAI, Z., ALLAART, M., CALPINI, B., **COETZEE, G.**, CUEVAS-AGULó, E., CUPEIRO, M., DE BACKER, H., DUBEY, M.K., FUELBERG, H.E., FUJIWARA, M., GODIN-BEEKMANN, S., HALL, T.J., JOHNSON, B., JOSEPH, E., KIVI, R., KOIS, B., KOMALA, N., KöNIG-LANGLO, G., LANEVE, G., LEBLANC, T., MARCHAND, M., MINSCHWANER, K.R., MORRIS, G., NEWCHURCH, M.J., OGINO, S., OHKAWARA, N., PITERS, A.J.M., POSNY, M., QUEREL, R., SCHEELE, R., SCHMIDLIN, F.J., SCHNELL, R.C., SCHREMS, O., SELKIRK, H., SHIOTANI, M., SKRIVáNKOVá, P., STüBI, R., TAHA, G., TARASICK, D.W., THOMPSON, A.M., THOURET, V., TULLY, M., VAN MALDEREN, R., VAUGHAN, G., VöMEI, H., VON DER GATHEN, P., WITTE, J.C. AND YELA, M. 2017. Validation of 10-Year SAO OMI Ozone Profile (PROFOZ) Product Using Ozonesonde Observations. *Atmospheric Measurement Techniques*, vol. 10, no. 7, Jul, pp. 2455-2475. http://dx.doi.org/10.5194/amt-2017-15

13. ISIOYE, O.A., COMBRINCK, L. AND **BOTAI, J.** 2017. Evaluation of Spatial and Temporal Characteristics of GNSS-Derived ZTD Estimates in Nigeria. *Theoretical and Applied Climatology*, Early view, 18 pp. http://dx.doi.org/10.1007/s00704-017-2124-7

14. **KRUGER, A. C.** AND **NXUMALO, M**. 2017. Historical Rainfall Trends in South Africa: 1921-2015. Water SA, vol. 43, no. 2, pp. 285-297. http://dx.doi.org/10.4314/wsa.v43i2.12

15. **KRUGER A.C.**, RETIEF J.V., GOLIGER A.M. 2017. Development of an updated fundamental basic wind speed map for SANS 10160-3. *Journal of the South African Institute of Civil Engineering*, 59(4), Art. #1739, 14 pages. http://dx.doi.org/10.17159/2309-8775/2017/v59n4a2

16. KUYPER, B., PALMER, C. J., **LABUSCHAGNE, C**. AND REASON, C. J. C. 2017. Atmospheric Bromoform at Cape Point, South Africa: a First Time Series on the African Continent. *Atmospheric Chemistry and Physics Discussion*, In review, 22 pp. https://doi.org/10.5194/acp-2017-244

17. LAURIE, S. M., **NHLABATSI, N.,** NGOBENI, H. M. AND TJALE, S. S. 2017. The Effect of In-Field Rain Water Harvesting on Orange-Fleshed Sweet Potato Biomass and Yield. *Journal of Agricultural Science*, vol. 9, no. 10, pp. 1-10. https://doi.org/10.5539/jas.v9n10p1

18. LIEBENBERG-ENSLIN, H., **RAUTENBACH, H.**, VON GRUENEWALDT, R. and BURGER, L. 2017. Understanding the Atmospheric Circulations that Lead to High Particulate Matter Concentrations on the West Coast of Namibia. *Clean Air Journal*, **27**(2), pp. 66-74. http://dx.doi.org/10.17159/2410-972X/2017/v27n2a9

19. MAFANYA, M., TSELE, P., **BOTAI, J.**, MANYAMA, P., SWART, B. AND MONATE, T. 2017. Evaluating Pixel and Object Based Image Classification Techniques for Mapping Plant Invasions from UAV Derived Aerial Imagery: *Harrisia pomanensis* as a case study. *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 129, Jul, pp. 1-11. https://doi.org/10.1016/j.isprsjprs.2017.04.009

20. **MARTIN, L. G., LABUSCHAGNE, C., MKOLOLO, T**., SLEMR, F. AND **BRUNKE, E.G.E.** 2017. Increasing Mercury Trend Observed at Cape Point Global Atmosphere Watch (GAW) Station from 2007-2015. The Clean Air Journal, vol. 27, no. 2, Nov/Dec, pp. 7-8. http://dx.doi.org/10.17159/2410-972X/2017/v27n2a4

21. MASHABA, Z., CHIRIMA, G., **BOTAI, J.O.,** COMBRINK, L., MUNGHEMEZULU, C. AND DUBE, E. 2017. Forecasting Winter Wheat Yields Using MODIS NDVI Data for the Central Free State region. *South African Journal of Science*, vol. 113, no. 11/12, Nov/Dec, Art#2016-0201, 6 pp. http://dx.doi.org/10.17159/sajs.2017/20160201

22. MENGISTU TSIDU, G., **KRUGER, A**. AND **MCBRIDE, C.** 2017. Southern Africa [in "State of the Climate in 2016"]. *Bulletin of the American Meteorological Society,* vol. 98, no. 8, pp. S196-S198. http://dx.doi.org/10.1175/2017BAMSStateoftheClimate.1

23. SCHLEGEL, R.W., OLIVER, E.C.J., PERKINS-KIRKPATRICK, S., **KRUGER, A**. AND SMIT, A.J. 2017. Predominant Atmospheric and Oceanic Patterns During Coastal Marine Heatwaves. *Frontiers in Marine Science, vol. 4*, Article 323, 15 pp. http://dx.doi.org/10.3389/fmars.2017.00323

24. SCHMEISSER, L., ANDREWS, E., OGREN, J. A., SHERIDAN, P., JEFFERSON, A., SHARMA, S., KIM, J. E., SHERMAN, J. P., SORRIBAS, M., KALAPOV, I., ARSOV, T., ANGELOV, C., MAYOL-BRACERO, O. L., **LABUSCHAGNE, C.**, KIM, S.-W., HOFFER, A., LIN, N.-H., CHIA, H.-P., BERGIN, M., SUN, J., LIU, P. AND WU, H. 2017. Classifying Aerosol Type Using in situ Surface Spectral Aerosol Optical Properties. *Atmospheric Chemistry and Physic*s, vol. 17, no. 19, Oct, pp. 12097-12120. https://doi.org/10.5194/acp-2017-38

25. **SINGH, J**. AND **KRUGER, A**. 2017. Is the Summer Season Losing Potential for Solar Energy Applications in South Africa? *Journal of Energy in Southern Africa*, vol. 28, no. 2, pp. 52-60. http://dx.doi.org/10.17159/2413-3051/2017/v28i2a1673

26. **SINGH, J**., TYAGI, B., **NTSANGWANE, L.** AND **BOTAI, J**. 2017. Analysis of Aggregated Solar PV Output in South Africa. *Journal of Clean Energy Technologies* (JOCET), vol. 5, no. 5, Sep, pp. 378-382. http://dx.doi.org/10.18178/jocet.2017.5.5.401 ; http://www.jocet.org/vol5/401-CE054.pdf

27. THOMPSON, A. M., WITTE, J. C., STERLING, C., JORDAN, A., JOHNSON, B. J., OLTMANS, S.J., FUJIWARA, M., VÖMEL, H., ALLAART, M., PITERS, A., **COETZEE, G.J.R.**, POSNY, F., CORRALES, E., DIAZ, J.A., FÉLIX, C., KOMALA, N., LAI, N., NGUYEN, H.T.A., MAATA, M., MANI, F., ZAINAL, Z., OGINO, S., PAREDES, F., PENHA, T.L.B., DA SILVA, F.R., SALLONS-MITRO, S., SELKIRK, H.B., SCHMIDLIN, F.J., STÜBI, R. AND THIONGO, K. First Reprocessing of Southern Hemisphere Additional Ozonesondes (SHADOZ) Ozone Profiles (1998–2016): 2. Comparisons with Satellites and Ground-Based Instruments. *Journal of Geophysical Research-Atmospheres,* vol. 122, no. 23, 16 Dec, pp. 13000-13025. https://doi.org/10.1002/2017JD027406

28. TRAVNIKOV, O., ANGOT, H., ARTAXO, P., BENCARDINO, M., BIESER, J., D'AMORE, F., DASTOOR, A., DE SIMONE, F., DIÉGUEZ, M. D. C., DOMMERGUE, A., EBINGHAUS, R., FENG, X. B., GENCARELLI, C. N., HEDGECOCK, I. M., MAGAND, O., **MARTIN, L.,** MATTHIAS, V., MASHYANOV, N., PIRRONE, N., RAMACHANDRAN, R., READ, K. A., RYKKOV, A., SELIN, N. E., SENA, F., SONG, S., SPROVIERI, F., WIP, D., WÄNGBERG, I. AND YANG, X. 2017. Multi-Model Study of Mercury Dispersion in the Atmosphere: Atmospheric Processes and Model Evaluation. *Atmospheric Chemistry and Physics*, vol. 17, no. 8, Apr, pp. 5271-5295. http://dx.doi.org/10.5194/acp-17-5271-2017

29. VENKATACHALAM, S., ANSORGE, I.J., MENDES, A., **MELATO L.I.**, MATCHER, G.F. AND DORRINGTON, R.A. 2017. A Pivotal Role for Ocean Eddies in the Distribution of Microbial Communities Across the Antarctic Circumpolar Current. PLoS ONE, vol. 12, no. 8, e0183400, 6 pp. https://doi.org/10.1371/journal.pone.0183400

30. WITTE, J.C., THOMPSON, A.M., SMIT, H.G.J., FUJIWARA, M., POSNY, F., **COETZEE, G.J.R.**, NORTHAM, E.T., JOHNSON, B.J., STERLING, C.W., MOHAMAD, M., OGINO, S-Y., JORDAN, A. and DA SILVA, F.R. 2017. First Reprocessing of Southern Hemisphere ADditional OZonesondes (SHADOZ) Profile Records (1998-2015): 1. Methodology and Evaluation. *Journal of Geophysical Research Atmospheres*, vol. 122, no. 12, 27 Jun, pp. 6611-6636. http://dx.doi.org/10.1002/2016JD026403

CONFERENCE ABSTRACTS/PAPERS/NEWSLETTERS

1. **BECKER, E., GIJBEN, M., LANDMAN, S. AND MASEKO, B**. 2017. Utilising Radar and Satellite Based Nowcasting Tools for Aviation Purposes in South Africa. Book of Short Abstracts: Oral Sessions: *WMO Aeronautical Meteorology Scientific Conference*, 6-10 November 2017, Centre International de Conférences, Météo France, Toulouse, France, p. 28 of 60. http://www.meteo.fr/cic/meetings/2017/aerometsci/docs/book_of_abstracts_oral.pdf (Last viewed: 6 Dec 2017)

2. **BOTAI, C.M., BOTAI, J.O., DE WIT, J. AND NCONGWANE, K.P.** 2017. Trend Characteristics of rainfall and Streamflow in the Vaal River Catchment, in the *33rd Annual Conference of the South African Society for Atmospheric Sciences,* 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 11-14. https://www.sasas.org/conference-extended-abstract

3. LALLA, D., BRADSHAW, A., **KHAMBULE, G**. AND **MOLOTO, A**. 2017. Integration of Meteorological Data in the ATM System. Book of Short Abstracts: Oral Sessions: *WMO Aeronautical Meteorology Scientific Conference,* 6-10 November 2017, Centre International de Conférences, Météo France, Toulouse, France, p. 43 of 60. http://www.meteo.fr/cic/meetings/2017/aerometsci/docs/book_of_abstracts_oral.pdf (Last viewed: 6 Dec 2017)

4. LIEBENBERG-ENSLIN, H., VON GRUNEWALDT, R., **RAUTENBACH, H**. AND BURGER, L. 2017. Understanding the Synoptic Systems that Lead to Strong Easterly Wind Conditions and High Particulate Matter Concentrations on the West Coast of Namibia, in *Proceedings of the 2017 Conference of the National Association for Clean Air,* 4-6 October 2017, Sandton, Gauteng, p. 24.

5. **MASEKO, B**., FEIG, G. AND BURGER, R. 2017. Lightning NOx Emission over South Africa: The Importance of Lightning Compared to other Natural and Anthropogenic Sources, in *Proceedings of the 2017 Conference of the National Association for Clean Air*, 4-6 October 2017, Sandton, Gauteng, p. 27.

6. MBATHA, N., **MKOLOLO, T.**, SIVAKUMAR, V. AND **COETZEE, G.** 2017. Stratosphere-Troposphere Exchange over Irene as Observed by Ozonesonde, Satellites and Models, in the 33rd Annual Conference of the South African Society for Atmospheric Sciences, 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 54-57. https://www.sasas.org/conference-extended-abstract

7. **PHAKULA, S.** 2017. Evaluation of SAWS Multi-Model System in Predicting DJF Rainfall Frequency over Southern Africa, in the *33rd Annual Conference of the South African Society for Atmospheric Sciences*, 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 78-81. https://www.sasas.org/conference-extended-abstract

8. **SINGH, J.**, **MABASA, B**. AND **ZWANE, N**. 2017. Understanding the Variation in Meteorological Parameters over Cape Point for Renewable Energy Applications, in the *33rd Annual Conference of the South African Society for Atmospheric Sciences*, 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 94-97. https://www.sasas.org/conference-extended-abstract

9. **SINGH, J., ZWANE, N.**, **MABASA, B**. AND **BOTAI, J.** 2017. Analysis of Meteorological variables influencing photovoltaic energy output over Upington, in the *33rd Annual Conference of the South African Society for Atmospheric Sciences*, 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 90-93. https://www.sasas.org/conference-extended-abstract

10. **VAN DER MESCHT, D.** 2017. Mountain Waves Observed in the Lee of the Tsitsikamma Mountains, in the *33rd Annual Conference of the South African Society for Atmospheric Sciences*, 21-22 September 2017, Protea Hotel Ranch Resort, Polokwane, pp. 98-101. https://www.sasas.org/conference-extended-abstract

THESIS:

1. Title: Towards a heat-watch warning system for South Africa for the benefit of the health sector.
Author: Mulovhedzi, Patience Tlangelani
Publication Date: 2017
Pages: 100

Summary:	
Journal Publications:	36
Conference papers:	10
Thesis:	1
TOTAL:	**47**

SAWS' performance information for the 2017/18 financial year is aligned to the performance indicators and targets in the organisation's Annual Performance Plan 2017/18.

SAWS' performance information for the 2017/18 financial year is aligned to the performance indicators and targets in the organisation's Annual Performance Plan 2017/18. SAWS' performance against strategic targets is tabulated below:

STRATEGIC GOAL 1: PROVISION OF PRODUCTS AND SERVICES

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
1.1.1 Develop and provide meteorological and related products and services for targeted communities nationally	Provision of innovative meteorological and related products and services will serve targeted communities to empower them to become weather-smart (weather resilient) through the development and Implementation of a community weather-smart products and services	% completion of the 'As is' community weather-smart Needs Analysis Report across all targeted communities for the development of products and services to improve weather resilience	Public Good Strategy	100% completion Public Good Strategy	**Partially Achieved** 100 % The Integrated Service Strategy (ISS) and its corresponding Implementation plan are finalised and awaiting board approval	The Public Good Strategy was translated into the Integrated Services Strategy due to mid-year strategic review to include commercial aspects of the business
	Provide targeted community segments with products and services to minimize weather risks on a day-to-day basis	Number of community segmented products and/or services provided (cumulative target)	Community segmented products and services in the market	Maintenance of 5 existing community products and services	**Achieved** As part of SAWS operational obligations towards communities the following products and services were provided: 1. Public Weather Forecast 2. Severe Weather Warnings 3. Services to the Aviation and Marine Sectors 4. Historic Weather Reports 5. Seasonal Climate Forecasts	

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
1.1.2 Develop and market meteorological and related products and services for specific economic sectors	Provide sector specific decision-making products on weather and climate. These will assist targeted business sectors in decision making to minimise weather risks on day-to-day business operations	Number of sector specific products provided	Sector Specific products. Product release certificates. Quarterly Reports	5 Sector specific products provided	**Achieved** 1. Agricultural sector specific product (Chill Units Maps) 2. Health sector specific product (Heat Stress Watch Index) 3. Water sector specific product (Drought Propagator) 4. Energy sector product (Direct Normal Radiance Index) 5. Media product was launched – (SAWS WeatherSMART APP for mobile phones) 6. Air Quality Health Index (AQHI) service is available on SAAQIS system	The AQHI has been developed to support DEA enforcement initiative, however it will only be used once DEA has verified and accepted it, hence we don't see it as over-achievement
	Develop and implement 5-year marketing plans for sector specific products on weather and climate aimed at minimizing weather risks on day-to-day business operations	% implementation of annual milestones for Sector specific 5-year marketing plans	New KPI	% Implimentation of annual milestones for Sector specific 5-year markerting plans; 100%: agricultural sector	**Not Achieved**	100% of annual milestones in value achieved, i.e an equivalent of R2 million from sales of Agro-Hydro Products was secured

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
2.1.1 Upgrade, expand and optimise infrastructure	Provide optimal infrastructure and systems support in the development of advanced technologies for observations, information dissemination and exchange that enables SAWS to achieve its mandate	% availability of radar data	Radar Data Availability Report	Radar data availability = 80%	**Not Achieved** Average Radar Availability for the 2017/18 = 72,17% Operational Radar performance is 73.16%	Unavailability of supporting infrastructure and frequent power outages in Ermelo, Irene, East London, Ottosdal and Bloemfontein which affected the performance of the radar network. These challenges were highlighted in the Radar Business case. We have since enhanced the network redundacy by increasing diesel tanks capacity, installing additional UPS which provided additional backup. These interventions have stabilised the power challenges we were experiencing
		% Lightning Detection Network (LDN) data availability	LDN data availability report	LDN data availability = 80%	**Achieved** LDN Availability = 95.11%	Power supply supporting sensors have been more stable during this period as we have increased by installing UPS
		% SAAQIS availability	SAAQIS availability report	SAAQIS availability = 90%	**Achieved** SAAQIS Data Availability = 99.94%	Power supply to air quality stations has been stable during this period as we have increased our redundancy by installing UPS

STRATEGIC GOAL 2: CAPABILITY AND CAPACITY DEVELOPMENT

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
2.2.1 Position SAWS as an employer of choice	Develop programmes which create a supportive environment for high performance, employee wellness, career development, attraction and retention of core competencies	% implementation of annual milestones for the SAWS dual career pathing programme	Dual Career pathing implementation reports	Implement 80% of annual plan/ targets of the dual career pathing programme. This programme was revised to include Job Profiling and Evaluation and Salary Parity as a means of building career paths and levels.	**Achieved** **80 %** A budget of R6m has been allocated for the project for implementation in 2017/18 financial year. Salary parity for level 9 - 12 employees was implemented in quarter 4 at a cost of R1,7 million. R4 million of the budget was spent for salary parity for employees in level 3-8 which was implemented in quarter 3 of 2017/18 financial year. It should be noted that the project will be implemented over a period of three years from 2017/18 financial year. Salary parity will further assist with Career-Pathing programme and other talent management strategies line up	
		Percentage employee retention rate for core/ critical skills	Employee retention reports	92% employee retention rate for core/ critical skills	**Achieved** 92% employee retention rate for core and critical skills	
	Develop programmes which create a supportive environment for high performance, employee wellness, career development, attraction and retention of core competencies in line with the transformation agenda	% achievement of Employment Equity (EE) targets as per the organisational EE plan	EE Plan EE Reports	70% Blacks 2% People with Disabilities 40% women in core 42% women in management	**Partially Achieved** 70% Africans - Achieved 2% People with Disabilities – Achieved 40% Women in core – Not achieved, only 34% 40% Women in management – Not achieved, only 35%	The initial target of 40% women in core position and 42% in management was set too high for annual achievement. SAWS has scarcity of skills in core positions and development of females into senior positions will take about three years of committed accelerated development

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
2.2.3 Build a talent pool for atmospheric and related science as a national imperative	Build the talent pipeline for atmospheric and related sciences to address the national priorities of the country related to weather and climate	Stakeholder Engagements for funding and implementation	NEP Implementation Reports	Engagement of two potential partners for funding	Two proposals were submitted to two potential funders	
		% Implementation of annual commercial targets of the Regional Training Centre (RTC) strategy	Achieved as per the strategy milestone	Achievement of 80% of the RTC targets	**Achieved** RTC targets include curriculum development for meteorological studies, assessment and moderation of leaners. RTC 2017 Courses completed 2018 courses commenced	
		% of bursars absorbed by SAWS % Implementation of Doctoral Programme milestones	Appointment letters of absorbed bursars and contracts of employment	60% of bursars absorbed	**Achieved** 66.6 % 9 Students completed their studies. 6 were appointed	
			Report on progress of implementation of the doctoral programme	20% of the doctoral programme annual milestones achieved	**Achieved** 66 % Annual milestones: Total of 10 MSc students and 6 PhD Reached 12 MSc and 7 PhD Students 1 MSC Completed	

STRATEGIC GOAL 3: ENGAGED STAKEHOLDERS

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
3.1.1 Position SAWS as a relevant meteorological institution	Development and maintenance of various platforms for engagement with stakeholders to extend the reach and increase awareness of the SAWS brand	% completion of annual targets as set out in the corporate communications strategy	Implemented programmes and campaigns that promote the organisation as per Communications Strategy and Implementation Plan	80% of communications programmes implemented as per the communications strategy for 2017/18	**Achieved** Corporate Communications plan in place Implementation at 80% as per Communications Plan	N/A
	Evaluation of the use of communication platforms used to promote SAWS programmes and brand	% increase in traffic volumes on media platforms (website/ Facebook, Twitter, YouTube)	Reports on traffic volumes of Facebook,Twitter	10% increase in Traffic volumes across media platforms from the 2016/17 volumes	**Achieved** SAWS actively grew its Facebook and Twitter accounts from the baseline established at the end of March 2017. The followership for Facebook was 2000 at the beginning of the financial year and grew to 26414 (1200% growth – due to the very low baseline) by the end of the fourth quarter. Twitter grew from 33000 to 70089 (112%). The growth was organic, based on SAWS' regular placings of crucial information associated with severe weather events and day-to-day weather	This was due to Severe Weather events around the country including discussions around the Cape Town drought
	Evaluation of the use of communication platforms used to promote SAWS programmes and brand	Rand Value-Advertising Value Equivalent (AVE) (cumulative)	Progress reports on AVE Media monitoring reports	Advertising Value Equivalent (AVE) R25m	**Achieved** Cumulatively SAWS achieved Advertising Value Equivalent of R 251,758,296 million for the current financial year	

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
3.2.1 Manage and leverage strategic relations	Engagement of stakeholders for mutual benefit	Number of engagement programmes for targeted stakeholder groups as per SES (2017/18) % implementation of stakeholder programmes for targeted stakeholder groups as per (SES) (2018-20)	New KPI	Engagement programmes for 8 targeted stakeholder groups (SES)	**Achieved** SAWS engaged all 8 stakeholder groups 1) Disaster Management Centres (DMCs) 2) Aviation 3) Corporates/ Companies 4) Media (TV, Radio & Print) 5) Government Departments/ Parastatals 6) Universities 7) International Buyers 8) Utilities	
		Overall stakeholder satisfaction rating (expressed as a percentage)	Achieved - 84% Stakeholder Satisfaction rating	Overall stakeholder satisfaction rating - 86%	**Achieved** Overall stakeholder satisfaction rating = 86%	

STRATEGIC GOAL 4: RESEARCH AND KNOWLEDGE / INTELLIGENCE CREATION

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
4.1.1 Grow weather and climate knowledge base	Generate new scientific insights and continuous evaluation in collaboration with relevant stakeholders. Enhance the existing knowledge base and intelligence related to climate change Identify tangible socio-economic benefits to key sectors and society of a national weather service	Completion of Scoping and cost benefit study	Report on Socio Economic Benefit study	Scoping and cost benefit report	**Achieved** Report on Socio Economic Benefit Study Complete	There is no deviation. The target was achieved. Senior Manager: Research approved the final report for implementation
		National Framework for Climate Services (NFCS) implementation per key sector	NFCS developed and approved	Implementation of NFCS facilitated for 4 key climate sensitive sectors	**Achieved** A report from the SAWS-DEA workshop to evaluate the extent to which the Umgeni Resilient Project can be scaled-up and replicated in other areas. Umgeni Resilient has led to the development of a Multi-hazard early warning system for the Umgungundlovu District Municipality (Sectors targeted are Agriculture, Health-LDN, Water, Disaster Risk Reduction)	Over and above achieving the target, SAWS also developed a 5-year implementation plan for the National Climate Centre with DEA
		Number of peer- reviewed articles published in accredited national or international scientific journals where SAWS scientists are the leading author or co-author (cumulative target)	28 scientific publications	30 publications (14 Articles; 18 conference papers; 8 Theses)	**Achieved** 47 Articles: 36 Thesis: 1 Conference papers: 10	Some scientists have been appointed student supervisors hence they co-authored some of the publications

STRATEGIC GOAL 5: GROWTH AND SUSTAINABILITY

Strategic Objective	Objective Statement	Key Performance Indicator	Means of Verification	Target 2017/18	Result	Comment on Deviation
5.1.1 Grow Revenue Streams	To secure adequate parliamentary grant funding for the execution of public good services as per the SAWS mandate	Parliamentary grant funding excluding SAAQIS	MTEF allocation letter Audited Financial Statements	R188.49m	**Achieved** R188,49m Grant revenue was on par budget amounting to R188,49m for the financial year	
	Secure regulated commercial income from the aviation industry on a cost recovery basis as regulated by the Regulatory Committee on Meteorological Services	Growth in year-on-year aviation revenue	Achieved R130,54 million aviation income	R130.54m	**Not Achieved** R129,30m	This was due to lower Air-Traffic Volumes when compared to the budget
	Secure non-regulated commercial income from specialised weather related services	Growth in commercial revenue as per set target (annual total revenue)	Achieved R21,60 million commercial income	R21.69m	**Achieved** R25,69m	Full year target has been exceeded

PART C
GOVERNANCE

1. Introduction

The Board regards corporate governance as vitally important to the success and sustainability of SAWS and subscribes to the principles of good corporate governance. The Board is established in terms of section 5 of the South African Weather Service Act, No. 8 of 2001 (the SAWS Act) as amended; and its mandate is derived from section 6 of the Act.

The Board provides strategic direction, leadership and vision to SAWS in a way that enhances the Shareholder value and ensures the long term sustainable development and growth of the organisation. The Public Finance Management Act, No. 1 of 1999 as amended makes provision for Public Entities to establish Boards as Accounting Authorities and provides for their fiduciary and general responsibilities. The King Report on Governance for South Africa, 2009 (King III) recommends that the Boards of Public Entities comply as far as possible with the recommendations and principles of good corporate governance as set out in the King IV Code.

2. Portfolio Committees

The Board respects the supremacy of the letter and spirit of the Constitution of the Republic of South Africa and continues to abide by the rules, guidance and directives of Parliament, more specifically those of the Parliamentary Portfolio Committee of DEA and of the Standing Committee on Public Accounts (SCOPA).

The Annual Report for the 2016/2017 financial year was tabled before the Portfolio Committee within the timelines prescribed by the provisions of the PFMA and Treasury Regulations. The Quarterly Performance Reports for the 2017/2018 financial year were also tabled before and discussed by the Portfolio Committee during this reporting period.

The Annual Financial Statements for the 2016/2017 financial year were also duly submitted and the entity was not summonsed during this reporting period to appear before SCOPA for the purposes of explaining the Annual Financial Statements and External Audit Reports.

The Board attended 3 (three) meetings of the Portfolio Committee during the reporting period including the following:

Table 4: Attendance of Portfolio Committe meetings

No.	Date	Purpose
1	4 October 2017	SAWS Board resposibility for CEO termination.
2	13 March 2018	South Africa Weather Service's response to whistle blowers.
3	20 March 2018	

3. Executive Authority

The Executive Authority's corporate governance responsibility as Shareholder involves ensuring that, through the Board, all necessary and appropriate corporate governance structures, procedures, practices, controls and safeguards are established and properly implemented and operate effectively within SAWS.

The Executive Authority and the Minister of Finance represent the Government's ownership interest in SAWS. The Executive Authority acts as Shareholder, while the Minister of Finance and National Treasury are responsible for financial oversight. The Executive Authority is also the policymaker and concerned with policy implementation in service delivery, and acts as a regulator. These responsibilities are vested in Cabinet as policymaker, the Executive Authority and the Department of Environmental Affairs.

A Shareholder meeting was held with the Board on 16 March 2018 in which the Board was guided on pertinent strategic issues by the Minister of Environmental Affairs. Some of the critical issues for discussion were the Integrated Service Strategy which incorporates the Marine Strategy; the agility of the Commercial Strategy in terms of products and services provided by SAWS; the Human Resources Framework and the policies that have been developed in pursuance of the objectives thereof.

4. The Board

4.1 Introduction

The Board of Directors of the South African Weather Service is appointed by the Minister of Environmental Affairs in terms of the provisions of the Act and in their personal capacities. The Minister must ensure that the needs of the following stakeholders are taken into account when appointing the members of the Board:

a. Water resource management;
b. Agriculture;
c. Subsistence farmers and disadvantaged communities;
d. The media, which may include radio, television and newspapers;
e. Disaster management;
f. The aviation industry;
g. The maritime industry;
h. The legal profession and insurance industry;
i. Any other weather sensitive industry or occupation;
j. The atmospheric science education and research community; and
k. Air quality management.

During this reporting period, the Board discharged its fiduciary duties as stipulated in the Act within the policy determined by the Minister in terms of section 2A(i) and in compliance with any norms and standards issued in terms of section 2B(b) and any directive issued in terms of section 2B(c) by:

a. Ensuring the financial viability and development of SAWS commercial services;
b. Ensuring an efficient, cost-effective and high quality weather service;
c. Setting policies, standards and objectives within the framework issued by the Minister and ensuring that Executive Management implements these policies, standards and objectives;
d. Facilitating succession and providing guidance in the appointment of senior managers;
e. Ensuring that the Weather Service has adequate systems of internal control, both operational and financial;
f. Monitoring the performance of the Weather Service and making adjustments to the conditions of service of the personnel with due regard to the applicable labour legislation;
g. Recommending any necessary budget proposals or adjustments and submitting them to the Minister;

h. Setting policies for recruitment and training and for the transformation of the Weather Service;
i. Approving a business plan for the Weather Service annually for the next three years and submitting it to the Minister for final approval;
j. Ensuring that the majority of the South African population benefits from the public goods services of the Weather Service; and
k. Performing any other function assigned to it by the Minister.

4.2 Board Charter

The Charter of the Board sets parameters within which the Board will operate to ensure that all Board members are aware of their duties and responsibilities as derived from the applicable legislation and governance frameworks and the various pieces of legislation and regulations related to their conduct. The Board Charter also ensures that the principles of good corporate governance are applied by the Board in all its dealings in respect of and on behalf of SAWS. The Charter is intended as a guide for the Board and is not to be taken as a substitute for general legislative requirements or as being exhaustive

The Board Charter guides the Board in terms of its duties in compliance with the provisions of section 6 of the Act and the provisions of sections 50, 51, 56, 83 and 84 of the PFMA and compliance with Treasury Regulations. The Charter provides, amongst others, that the Board is responsible for the following:

a) Approving the SAWS Strategic and Annual Performance Plans and any subsequent material changes in strategic direction or material deviations in the Annual Performance Plans and Budget;
b) Making recommendations to the Minister on the approval of any material departure from strategic objectives, including significant realignment of areas in which SAWS operates;
c) Making recommendations to the Minister on the approval of any major or significant transactions outside the ordinary course of SAWS business;
d) Materiality and Significance Framework;
e) Approving any significant changes to or departure from the accounting policies and practices of SAWS;
f) Approving SAWS policies; and
g) Ensuring the submission by SAWS of all reports, returns, notices and other information to Parliament and to the Minister or National Treasury, as may be required by the PFMA.

The Charter charges the Board with the responsibility of the governance of risk; the documentation of risk governance in the Risk Management Policy and Plan; determining the levels of SAWS' risk tolerance; and ensuring that the identified top strategic risks are taken into consideration during the review of the SAWS Strategic and Annual Performance Plans. Furthermore, the Board has the duty to ensure that there is a Communication Policy and a process for the selection, orientation and evaluation of directors.

4.3 Composition of the Board

The Board Members, in line with the requirements of the Act, are suitably qualified persons who provide effective corporate governance and are able to bring their special expertise and knowledge to bear on the strategy, enterprise and innovative ideas and business planning of the Weather Service.

All Members of the Board with the exception of the Chief Executive Officer, Mr Jerry Lengoasa, and the Senior Official of the Department of Environmental Affairs, Ms Judy Beaumont, are non-executive Directors. The Chairperson of the Board is Ms Ntsoaki Mngomezulu and the position of Deputy Chairperson remained vacant since the resignation of Dr Lulama Gwagwa on 13 January 2017.

Table 5: Board Composition

No.	Name	Designation	Date Appointed	Date resigned	Qualifications	Board Directorship
1.	Ms Ntsoaki Mngomezulu	Chairperson of the Board	1/9/2015	Still serving	BA Social Sciences; Neuro-Linguistic Programming (NLP).	SAWS
2.	Prof Elizabeth Mokotong	Member of the Board	1/9/2015	Still serving	BA Social Sciences (Social Work); BA Hons Social Sciences; Certificate course in adult education; Diploma in adult education.	SAWS
3.	Ms Judy Beaumont	Member of the Board (DEA representative)	01/09/2015	Still serving	M Phil Environmental Science; BA Hons African Studies; BA English and Industrial Psychology.	SAWS
4.	Ms Nandipha Madiba	Member of the Board	1/9/2015	Still serving	Hons BCompt; CTA (NDP); MSc Fin Management.	SAWS
5.	Ms Sally Mudly-Padayachie	Member of the Board	1/9/2015	Still serving	B.Pharm; Masters Medical Science.	SAWS
6.	Mr David Lefutso	Member of the Board	1/9/2015	Still serving	B Com (Wits); MBA (Rhodes); M Phil (Stellenbosch).	SAWS
7.	Adv Derick Block	Member of the Board	1/9/2015	Still serving	B. Iuris; LLB; H Dip Tax; admitted Advocate	SAWS
8.	Dr Jasper Rees	Member of the Board	1/9/2015	31/7/2017	BA Hons Biochemistry; MA; DPhil.	SAWS
9.	Mr Jerry Lengoasa	Member of the Board ex officio	08/05/2017	Still serving	BA Hons; MA Management Public & Development Management	SAWS
10.	Dr Jonty Tshipa	Member of the Board	1/9/2015	2/11/2017	PhD Financial Management Science; Masters Finance & Investment (cum laude); MB Electrical Engineering; Project Management in IT; GRP.	SAWS
11.	Dr Keabetswe Modimoeng	Member of the Board	1/9/2015	19/2/2018	MBA; PMBOK; PR Diploma; PhD in Technology.	SAWS
12.	Mr Rowan Nicholls	Member of the Board	1/9/2015	Still serving	CA (SA); BComm; CIA and MICS (UK).	SAWS University of Stellenbosch

4.4 Attendance: Board Meetings

The Act stipulates that meetings of the Board must be held at least four times a year at such times and places as the Board may determine. The Board is also permitted in terms of the Act to hold special meetings, as the Chairperson is empowered by the provisions of section 10(3)(a) of the Act to at any time convene a special meeting of the Board to be held at such time and place as determined by the Chairperson. Notwithstanding the provisions of section 10(3)(a), subsection (b) of the aforesaid section provides that the Chairperson of the Board must also convene a special meeting of the Board if the majority of Board Members request in writing that such a meeting be held. A majority of the Board members forms a quorum at any Board meeting. The Board must consist of a minimum of ten (10) and a maximum of twelve (12) members, which includes the CEO and DEA representative in each case.

Table 6: Board Meetings

No.	Members	21/4/17 Special meeting	31/5/17	28/6/17 Special meeting	31/7/17	2/11/18	31/1/18	19/3/18 Special meeting	Total out of 7
1.	Ms Ntsoaki Mngomezulu	√	√	√	√	√	√	√	7
2.	Prof. Elizabeth Mokotong	√	√	√	√	√	√	√	7
3.	Ms Judy Beaumont	√	√	√	√	√	√	√	7
4.	Ms Nandipha Madiba	√	√	√	√	√	√	√	7
5.	Ms Sally Mudly-Padayachie	√	√	√	√	√	√	√	7
6.	Mr David Lefutso	√	√	√	√	√	√	√	7
7.	Adv Derick Block	x	√	√	√	x	√	√	5
8.	Dr Jasper Rees*	√	√	√	√	x	x	x	4
9.	Mr Jerry Lengoasa**	x	√	√	√	√	√	√	6
10.	Dr Jonty Tshipa***	√	√	√	√	√	x	x	5
11.	Dr Keabetswe Modimoeng****	√	√	√	√	√	√	x	6
12.	Mr Rowan Nicholls	√	√	√	√	√	√	√	7
Total		10	12	12	12	10	10	9	

*Dr Jasper Rees resigned on 31 July 2017
**Mr Jerry Lengoasa was appointed on 8 May 2017
***Dr Jonty Tshipa resigned on 2 November 2017
****Dr Keabetswe Modimoeng resigned on 19 February 2018

4.5 Committees

The Board has the discretion, in terms of the provisions of section 11 of the Act, to establish one or more Committees to perform the functions of the Board as the Board may determine. A Committee so established must perform its functions subject to the instructions of the Board. Any Committee so established may be dissolved or reconstituted at any time. The Board is required in terms of the provisions of the PFMA to establish an Audit Committee.

The Board continued with the following established Committees during the reporting year:

a. Human Resources & Remuneration Committee;
b. Strategic Programmes Committee; and
c. Audit & Risk Committee.

The following two Task Teams were also established under the Strategic Programmes Committees:

a. Radar Tender Forensic Task Team; and
b. Lease Task Team.

4.5.1 Human Resources & Remuneration Committee

The Committee is accountable to the Board for the discharge of its responsibilities which include the following:

a. Fulfilling all of its responsibilities related to governance and strategic leadership matters within its scope;
b. Overseeing the quality, integrity and reliability of SAWS' Human Capital Management processes and strategy;
c. Assisting the Board in discharging its duties, thereby ensuring that SAWS has an approved Human Resource Strategy and that adequate human resource related policies and systems are in place in compliance with all applicable legislation, regulations and governance frameworks;
d. Ensuring that the SAWS Human Capital Strategy is aligned with SAWS' business objectives;
e. Reviewing Human Capital Management policies and processes, including the adequacy of organisational staffing plans and compliance with occupational health and safety regulations;
f. Considering and making recommendations to the Board on remuneration policies for all levels of personnel; setting remuneration policies in line with responsibilities; and making recommendations to the Shareholder on the Board's Remuneration Framework should it be deemed necessary;
g. Scrutinising all benefits including pensions, benefits in kind and other financial arrangements to ensure that they are justified, correctly valued and suitably disclosed;
h. Overseeing performance management processes;
i. Facilitating succession planning for the position of Chief Executive Officer;
j. Facilitating the annual performance assessment of the Chief Executive Officer and the Board;
k. Ensuring that significant human capital related risks are addressed and suitably managed;
l. Reviewing and approving any Divisional Business Plans and Frameworks that fall within its scope and monitoring the implementation thereof;
m. Assisting the Board in ensuring that ethics are managed effectively within SAWS and that SAWS maintains the highest standard of ethical business conduct;
n. Ensuring that SAWS fulfils its human rights and labour related responsibilities emanating from the 10 Principles of the United Nations Global Compact and the OECD recommendations regarding anti-corruption; and
o. Overseeing Management's implementation of key strategic programmes within the scope of the Committee.

Table 7 : Human Resources and Remuneration Committee meetings

No.	Members	20/4/17 Special SPC	15/5/17	14/7/17	18/10/17	26/10/17	18/1/18	Total number of meetings attended per Member
1.	Mr David Lefutso	√	√	√	√	√	√	6
2.	Dr Keabetswe Modimoeng	√	√	√	√	√	√	6
3.	Dr Jonty Tshipa*	√	x	√	√	√	x	4
4.	Ms Ntsoaki Mngomezulu	√	√	√	√	√	√	6
Total number of members per meeting		4	3	4	4	4	3	

**Resigned as a member of the Board on 2 November 2017*

4.5.2 Strategic Programmes Committee

The Committee is accountable to the Board for the discharge of its responsibilities which include the following:

a. Fulfilling all its responsibilities related to governance and strategic leadership matters within its scope;
b. Assisting the Board in discharging its duties by ensuring that appropriate research, scientific and commercial programmes are undertaken by SAWS;
c. Reviewing strategies/business plans related to key scientific and technical programmes, including but not limited to:
    i. Public good and commercial initiatives, including research;
    ii. Air quality and climate change; and
    iii. Any other strategic programmes and projects as may be identified from time to time.
d. Reviewing and monitoring the implementation of the Infrastructure Recapitalisation Programme;
e. Providing input on SAWS' Strategic Plan, Annual Performance Plan and budget processes; and making approval recommendations to the Board, including approval in terms of the utilisation of capital budget;
f. Considering and making recommendations to the Board on any capital projects or procurement of any capital items that fall within its scope;
g. Monitoring the implementation of the Total Quality Management System;
h. Reviewing and approving any Divisional Business Plans and Frameworks that fall within its scope, in line with the Delegation of Authority, and monitoring the implementation thereof;
i. Encouraging SAWS to invest in operations that protect and enhance the well-being of the economy, society and the natural environment within which it operates, in line with the environment development and implementation of environmentally friendly technologies;
j. Assisting the Board in its oversight of environmental sustainability aspects of the integrated reporting; and
k. Overseeing the implementation of any key strategic programme(s) within the scope of the Committee; and
l. Performing any other activities as may be requested by the Board from time to time.

Table 8: Strategic Programmes Committee meetings

No.	Members	19/5/17	20/7/17	23/10/17	22/1/18	Total Number of meetings attended per Member
1.	Dr Keabetswe Modimoeng*	√	√	√	√	4
2.	Dr Jonty Tshipa**	√	√	√	x	3
3.	Prof Elizabeth Mokotong	√	x	√	√	4
4.	Dr Jasper Rees***	x	√	x	x	1
5.	Ms Judy Beaumont	√	x	√	√	3
Total number of Members per meeting		4	4	4	3	

**Resigned as a member of the Board on 19 February 2018*
***Resigned as a member of the Board on 02 November 2017*
****Resigned as a member of the Board on 31 July 2017*

4.5.3 Audit & Risk Committee

The Committee is accountable to the Board for the discharge of its responsibilities which include the following:

a. Reviewing and recommending for Board approval the SAWS budget for the financial year;
b. Monitoring SAWS' financial performance (Management Accounts) against the approved Budget and Annual Performance Plan;
c. Reviewing the appropriateness of and compliance with accounting policies;
d. Reviewing the appropriateness of assumptions made by Management in preparing the Financial Statements;
e. Reviewing the significant accounting and reporting requirements and their impact on the Financial Statements;
f. Reviewing the integrity of financial reporting, including the Management Report to the Committee on important decisions taken in the course of preparing the Financial Statements;
g. Reviewing the Annual Financial Statements for completeness and consistency with the prescribed accounting principles prior to recommending them for Board approval;
h. Reviewing, together with Management and the external auditors, the outcome of the external audit, including any significant issues identified;
i. Governance of risk;
j. Governance of Information and Communication Technology (ICT);
k. Monitoring internal controls and compliance;
l. Managing performance information;
m. Reviewing and approving the Internal Audit Plan budget, scope and any major changes to it, and ensuring that it covers the key risks and that there is appropriate coordination with the external auditor;
n. Ensuring that the external auditors provide an assurance report on the contents of summarised financial information;
o. Regularly reporting to the Board about Committee activities, issues and related recommendations; and
p. Whistle blowing and reporting fraud.

Table 9: Audit & Risk Committee meetings

No.	Members	27/5/17	14/6/17	25/7/17	20/10/17	26/1/18	Total number of meetings attended per Member
1.	Mr Rowan Nicholls	√	√	√	√	√	5
2.	Ms Nandipha Madiba	√	√	√	√	x	4
3.	Ms Sally Mudly-Padayachie	√	√	√	√	√	5
4.	Adv. Derick Block	√	x	√	√	√	4
Total number of Members per meeting		4	3	4	4	3	

4.6 Remuneration of Board Members

Section 9 of the Act provides that any Member of the Board, other than the Chief Executive Officer and the Senior Official of the Department designated by the Director General with the approval of the Minister to serve on the SAWS Board, must be paid such remuneration and allowances as the Minister, with the concurrence of the Minister of Finance, may determine.

The Director General of National Treasury annually publishes a Notice of Adjustment of the remuneration levels and service benefit packages for office bearers in certain statutory and other institutions. This Notice is also applicable to SAWS as a Schedule 3A public entity. SAWS is classified further for that purpose as a Category A Sub-category A1 entity.

The Minister of Finance approved a 5.5% cost of living adjustment for the 2017/2018 financial year with meeting attendance fees as shown below:

Table 10: Remuneration of Board Members

Category A	Meeting Fee per Day	Meeting Fee per hour
Sub-category A1		
Chairperson	R4 957	R620
Vice-Chairperson	R4 213	R527
Member	R3 685	R461

The Schedule indicating remuneration paid to each Board Member can be found on page 203 of the Annual Report.

4.7 Risk Management

SAWS adopted an enterprise wide risk management approach to ensure the overall management of risks in the achievement of strategic objectives. The Audit & Risk Committee is responsible for reviewing the Risk Management Framework for the identification, assessment, monitoring and management of significant risks. The Board and Executive Management held an annual strategic workshop for the identification of strategic risks on 28 June 2017. The management of the strategic and operational risks identified at the workshop was monitored during the reporting period.

4.8 Business Continuity Management Programme

As part of its broader risk management SAWS has developed a Business Continuity Management (BCM) programme which is aligned with relevant international standards and integrates existing response and contingency measures. The purpose of the programme is to reduce the impact of a disruption on the organisation's ability to continue with an acceptable level of service delivery and to enable it to recover speedily from a disruption.

The BCM programme and the policy were reviewed and approved in the period under review. Testing of the validity of the processes is being conducted by various departments.

4.9 Internal Audit Control Unit

During the period under review, SAWS conducted a co-sourced internal audit (IA). The Internal Control Unit utilises a co-sourcing strategy in order to ensure that skills and competencies are available for the internal auditing of complex areas. The section is headed by a Chief Audit Executive from SizweNtsalubaGobodo (SNG) who is accountable to the SAWS CEO and the Board through the SAWS Audit & Risk Committee (ARC). This reporting ensures the effectiveness of the internal audit by guaranteeing that its work is done objectively and independently.

The audit is governed by the PFMA, Treasury regulations, the King Report and the Standards for the Professional Practice of Internal Auditing.

The purpose of the internal audit is to provide an independent, objective assurance and consulting service that is designed to add value and improve the organisation's operations. The activity will help SAWS accomplish its objectives by bringing a systematic, disciplined approach to evaluating and improving the effectiveness of governance, risk management and control processes.

The internal audit activities are detailed in the annual Internal Audit Plan that was approved by the ARC. They include:

- Considering the scope of work of the external auditors to ensure optimal audit coverage;
- Assessing the adequacy and effectiveness of internal control and risk management systems;
- Analysing and evaluating business processes and associated controls;
- Evaluating the effectiveness of controls over the reliability and integrity of management information;
- Ascertaining the level of compliance with relevant policies, plans, procedures, laws and regulations; and
- Recommending appropriate corrective actions.

All audit issues identified are reported to the ARC and are tracked until resolved by Management.

Summary of audit work done

The following audit reviews were conducted in the period under review:

- Information Technology;
- Performance Information;
- Governance;
- Follow-up audits; and
- Ad hoc.

PART D

HUMAN RESOURCE MANAGEMENT

This report communicates SAWS' key human capital management (HCM) priorities for the 2017/18 financial year which are underpinned by the strategic objective of ensuring that the organisation attracts, develops, motivates and retains the best people. It also includes information on employee wellness, rewards and benefits, and employee relations.

CHAPTER 1 RAISING THE BAR ON TALENT MANAGEMENT AND BUILDING KEY CAPABILITIES

Three key appointments were made in the period under review. All of these were Africans and two were women. The appointments are in line with and support the organisation's short and long term employment equity targets.

Key appointments made in the period under review

1.1 Key Leadership Pipeline

SAWS has created a leadership and innovation driven environment to support the implementation of its mandate based on the constant need to adopt best practice talent management strategies. The organisation needs masterful leadership that engages people and nurtures an understanding of both strategy and implementation processes. Developing competencies at all levels from junior to executive is therefore an integrate part of SAWS' Competency Development Strategy.

Mancosa Business School has been appointed to facilitate SAWS' Leadership Development programme which is aimed at nurturing and unleashing the leadership ability of high potential professionals at SAWS for the executive and senior management levels. The scope has been extended to include middle management and the programme will commence in Quarter 4 of the 2018/19 financial year. The focus of the programme is on building leadership competencies in line with SAWS' strategic goals. These competencies include but are not limited to strategic thinking; the creation of synergies through collaborations; providing inspirational leadership; business acumen; and strategic project management.

The RTC team continued to represent SAWS internationally, as a member of the Executive Committee for Education and Training for the WMO and as a core member of the Expert Team for Education (Training and Competencies) for the WMO. SAWS attended the JCOMM 5 Woman's Marine Leadership Workshop which is aimed at building communication, strategic, conflict management, negotiation and consensus building skills among women leaders and potential leaders. SAWS was also represented at the Symposium for Education and Training organised by WMO. SAWS received requests to train forecasters in the use of satellite data in Tokyo.

1.2 Retention of Scarce and Critical Skills

SAWS' scarce and critical skills retention target in the 2017/18 financial year was 92%. This target was achieved. The competency realignment exercise which is underway will assist with the identification of key skills required for SAWS operations. There were a number of terminations during the period under review, with reasons including retirement, ill health, the expiry of contracts and resignations to pursue better prospects.

The Learning and Development Programme has yielded relatively good results in terms of building the leadership pipeline and organisational bench strength. Candidates who participated in the programme experienced growth in meeting their development needs and some had the opportunity to move into other roles that will provide growth opportunities. SAWS remains committed to the development and implementation of key retention strategies to ensure talent growth and the availability of strategy-driven human capital.

1.3 Salary Parity

The organisation embarked on a salary parity exercise aimed at ensuring that employees are paid within a managed pay scale that is competitive within the labour market and implemented fairly and consistently for all employees. Historically there has been a considerable salary gap between employees within the organisation due to, amongst others, historical factors pre-dating SAWS' agentisation, limited annual salary progression (excluding annual inflationary adjustments) and significant differences between SAWS pay scales and the market in the remuneration of certain positions especially in the core competencies. The exercise has been approved for implementation over three years, starting in the 2017/18 financial year and with implementation taking place in three phases. Phase 1 took place in the 2017/18 financial year and will continue in 2018/19.

1.4 Employment Equity

SAWS aims to have a workforce that reflects the demographics of the South African population. Diversity and inclusion are entrenched in the organisation' talent management strategy as well as a learning and development agenda aimed at improving the talent pipeline for designated groups. The representation of women in management and core skills is as follows:

Women in management	Core
33%	34%

Table 11: Employment Equity Status as at 31st March 2018

Occupational Levels	Gender										Total
	Male				Female				Foreign Nationals		
	A	C	I	W	A	C	I	W	Male	Female	
Top management	2	-	-	-	2	-	-	-	-	-	4
Senior management	9	-	1	-	4	-	-	2	-	-	16
Middle management	38	4	2	25	24	1	-	9	5	1	109
Junior management	65	6	5	25	40	6	2	17	1	-	167
Semi-skilled	48	8	-	7	47	7	1	3	1	-	122
Unskilled	15	4	-	-	8	-	-	-	-	-	27
Total	**177**	**22**	**8**	**57**	**125**	**14**	**3**	**31**	**7**	**1**	**445**
Temporary employees	6	-	-	2	9	-	-	-	-	-	17
Grand Total	**183**	**22**	**8**	**59**	**134**	**14**	**3**	**31**	**7**	**1**	**462**

A-African, C-Coloured, I-Indian, W- White

Table 12: Comparison of SAWS and national demographic profile

Race	National Demographics	Baseline as at 31/03/2017	SAWS Target as at 31/03/2018	SAWS Performance	Deviation from targets
Africans	80.2%	67%	74%	69%	-5%
Whites	8.4%	20.19%	14.70%	20%	5%
Coloureds	8.8%	8.45%	8.80%	8%	-1%
Indians	2.5%	2.35%	2.50%	2%	0%
Foreigners	0%	2.11%	0%	2%	0
Total	**100%**	**100%**	**100%**	**100%**	**0**
PWD	2%	2%	3%	2%	-1%

A-African, C-Coloured, I-Indian, W- White

1.5 People with Disabilities

As at 31 March 2018, there were 10 persons with known disabilities within the organisation, including two learners appointed through SAWS' Learnership Programme. The aim is to increase the intake of employees with disabilities through recruitment and the Learnership Programme over the next two financial years.

CHAPTER 2 GRADUATE PROGRAMME

"Finding out that I made it to the SAWS Graduate Programme was overwhelming, not many people get such an opportunity. I would like to thank SAWS for continuously making a difference in my life by providing an opportunity to create an employment opportunity for me".

Graduates during 2017/18

SAWS sees graduates as crucial to growing the talent pipeline in order to meet future core capability needs and to drive the organisation forward. SAWS' Graduate Programme seeks to:

- Build a healthy 'home-grown' talent pool for business sustainability and growth (both technical and non-technical in line with each division's future skills requirements);
- Identify, attract, recruit, develop and promote graduates who possess scarce and/or critical skills or have potential as part of broader succession planning;
- Fast-track the development of on board graduates by preparing them for more demanding roles through 'fit for purpose' programmes aimed at strengthening both the technical and leadership skills bench in the organisation; and
- Actively participate in addressing the socio-economic challenges associated with the high youth unemployment rate in Africa.

"We received over 500 applications for the 2017 intake and 24 high calibre and diverse graduates were selected. The graduates started their journey in August and were exposed to various functional areas at SAWS on a rotational basis. Plans are in place to continue with the intake to bolster our pipeline in the organisation".

2.1 Bursary Scheme

To promote life-long learning and to develop a talent pool that can meet the SAWS mandate and national imperatives, SAWS extends educational assistance to full-time students and to its employees for part time studies. In the year under review, six full time bursars were absorbed and appointed within the organisation. SAWS takes pride in the fact that by employing young people, it contributes to the alleviation of poverty in the country and improving the status and quality of education.

Table 13: SAWS Bursars

Item	Full-time	Part-time	Total
Number of bursars	32	30	62
Bursaries granted (R)	1,971,945	624, 820	3,422,523
Number of bursars absorbed	6	0	6

3.2 Internship Programme

SAWS is helping to address youth unemployment and the skills shortage through its Learnership Programme. Internships offer graduates an opportunity to extend their academic qualifications through structured workplace exposure and specialised training. The programme focuses on the marketing, finance, legal, business administration, human resources management and commercial fields, offering both a learning and work experience component over a period of 12 months. Thereafter learners are either considered for vacant positions in the organisation or made available to the market. In the 2017/18 financial year, there were 24 graduates on the SAWS Internship Programme.

Table 14: SAWS Internship Programme

Female	Male	Total	Black	Disabled
12	12	24	20	2
50%	50%	100%	83%	8%

CHAPTER 3 SKILLS DEVELOPMENT

SAWS offers a number of training and development programmes across all levels in the organisation which include mentorships, partnerships with accredited institutions and various online courses that are available to all employees. In the year under review, the focus was on developing the leadership capabilities, commercially related skills and other core business skills needed for SAWS to deliver on its mandate. These programmes are structured to ensure brand differentiation, offer premium customer experience, improve performance and retain employees. Over 245 SAWS employees received training in the 2017/18 financial year.

3.1 Regional Training Centre (RTC)

SAWS is committed to developing capacity to support the organisation's strategic objectives and to grow the talent pool for the country. As SAWS' capacity building wing, the RTC was established to identify the skills needs of SAWS and the SADC region and to make the relevant training available to public entities, NGOs, and private organisations and corporates. In line with WMO requirements, the RTC offers longer formal courses, short courses or workshops and technical distance learning, amongst other international activities. The training programmes are structured around existing human capital training demands and anticipated future needs in the meteorological arena.

In the 2017/18 financial year, the RTC has done well within its means to build the skills required for an effective organisation. In terms of long-term courses, seven Forecasting students were trained by the RTC, with six passing and the seventh student scheduled to write his exam in the 2018/19 financial year. Eight Meteorological Technicians (including one private student) were also trained by the RTC. Three passed in the 2017/18 financial year. The 2018 intake included five Forecasters (all women) and eleven Meteorological Technicians.

Fruitful engagements resulted in further international collaborations which have contributed to SAWS' global exposure and positioning. During the year under review, an international course for Forecasters on the use of satellite data was held at the RTC and two South Africans and 17 Climatologists from elsewhere in Africa successfully completed a course in climate applications.

CHAPTER 4 EMBEDDING A SAFETY CULTURE

SAWS continues to strive for zero fatalities and injuries in the workplace. In the coming financial year, all SAWS-owned vehicles will be fitted with first aid kits and fire extinguishers and will be subjected to inspections before and after every trip. The evacuation procedure was reviewed, approved and uploaded into E-QMS for access by all employees. The implementation of and adherence to SAWS rules remain mandatory, with consequence management being applied in the case of any breach.

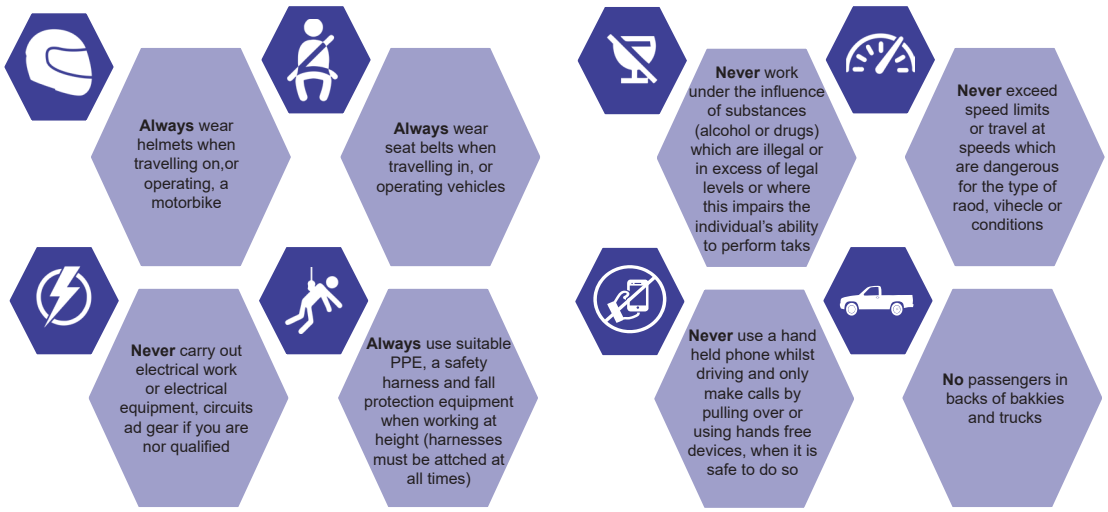


Figure 1: Embedding a safety culture

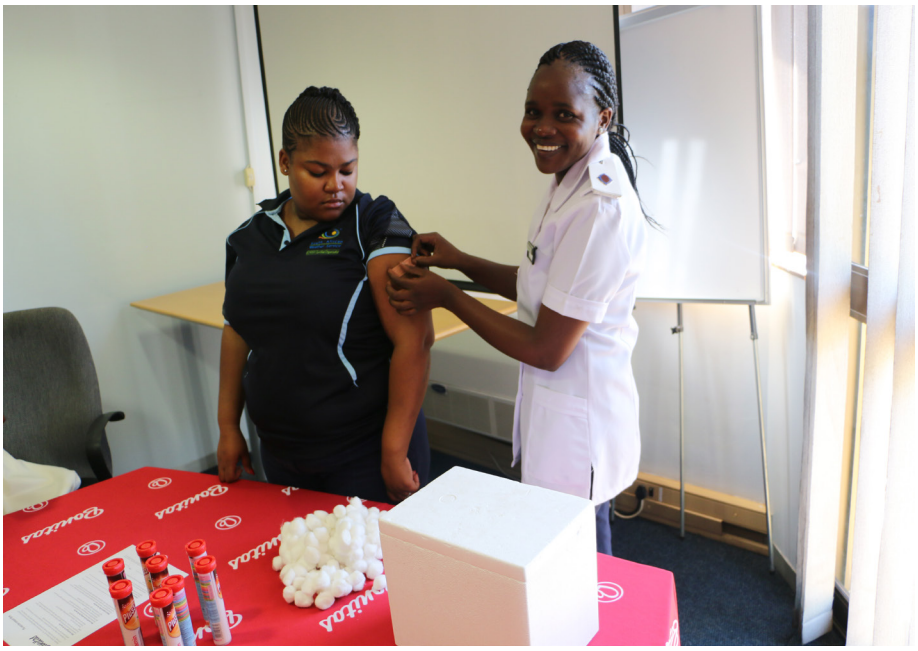
Table 15: Incidents Total

Fatalities	0
Major incidents	1
Minor incidents	8
Near-miss incidents	None reported
Environmental incidents	None reported
Total	9

CHAPTER 5 EMPLOYEE WELLNESS

5.1 Employee Assistance Programme (EAP)

Psychosocial support is available to employees through the EAP, both telephonically and face-to-face and on or off-site. Financial wellness is a strong component of the service offering. Employees are encouraged to formally or informally refer themselves for this programme which is available on an ad hoc basis. Annual agreements have been shown to have a negative cost impact due to the limited number of referrals per annum.



Staff participation in various employee wellness programme

5.2 Risk Determination and Mitigation

Employee participation in Wellness Days provides a comprehensive view of the key health risks among SAWS employees. In the year under review, successful Wellness Days were held at all the regional offices and employees received various forms of assistance including:

- Free exercise programmes;
- Financial management advice;
- Blood pressure and blood tests;
- Health risk tests;
- Registration on the Discovery Vitality medical scheme;
- HIV testing; and
- HIV-related advice, treatment and management through medical aid registration.

CHAPTER 6 CULTURE AND CHANGE MANAGEMENT

6.1 Culture Change

SAWS seeks to activate and reinvigorate a winning mentality and drive for innovation, to ensure accountability and to inculcate the SAWS behaviours of a customer-centric focus, agility, collaboration and trust throughout the organisation.

6.2 Improving Human Capital Management (HCM) Visibility

A total of 15 roadshows were conducted in SAWS' regional offices across the country, affording employees an opportunity to engage directly with HCM leadership and business partners and obtain quick and direct responses to people-related queries on matters such as the salary parity exercise, performance management and career growth at SAWS. The Remuneration and Benefits Team and service providers also held sessions across the country to showcase some of SAWS' benefits including its medical aid and pension fund.

6.3 Building a Lean and Effective Organisation through Organisational Design

To ensure sustainability and maintain SAWS' competitive edge, it is imperative that the organisation is supported by technologically advanced infrastructure; efficient processes and systems; competent human capital with the right set of skills, attitude and behaviour; and a supportive organisational structure.

In light of this, SAWS embarked on a realignment and restructuring exercise aimed at achieving business optimisation, efficiency and effectiveness. The exercise included a review of the organisational structure, specifically at executive and senior management level, to ensure that it supports SAWS' integrated strategic plan and direction. This review was carried out in two phases, with Phase 1 looking at the Executive and Phase 2 at Senior Management and Management. As a result of the review, 19 new positions were introduced at the levels of Middle Management to Executive.

The realignment was accompanied by a job evaluation process to ensure appropriate placement in the structure and appropriate responsibility allocation and remuneration. A total of 59 positions have been evaluated to date, with the remainder to be evaluated as the project progresses.

SAWS has also reviewed and changed its operating model to Human Capital Management (Business Partnering). The changes have yielded positive results in terms of organisational efficiency and led to a change in the organisational mindset around meeting strategic objectives while continuing to reduce the cost base.

CHAPTER 7
RECOGNITION PROGRAMMES

7.1 Employee Excellence Awards

As part of SAWS' winning formula, the organisation takes pride in its people and continually recognises internal role models who embody the SAWS values in everything they do. Celebrating successes together is an important way in which these individuals are motivated and rewarded for their contribution to the business, and SAWS' Employee Excellence Awards are a fitting way to acknowledge and honour achievements without which the organisation's strategic goals and sustainability cannot be assured. The Awards ceremony held in November 2017 recognised employees that have provided exceptional service and go the extra mile.

The Employee Excellence Awards categories are to be reviewed to ensure that they are aligned with SAWS' strategic goal of creating an innovation, leadership and transformation driven culture.

Employee Exellence Awards ceremony

7.2 Long Service Awards

SAWS has a strong team of loyal, dedicated and committed employees who have helped chart the organisation's journey of success and devoted their entire working lives to educating, training and providing services to the younger generation. Through its Long Service Awards SAWS continuously salutes and applauds employees with years of dedicated service to the organisation. At the awards ceremony held in November 2017, employees who have completed 10, 15, 20 and 30 years' of service were recognised.

CHAPTER 8 DISCIPLINARY PROCESSES

Four cases of employee misconduct were reported in the period under review and the finalisation of disciplinary enquiries resulted in the issuing of final written warnings and alcohol abuse counselling at a rehabilitation centre. The cases primarily involved unauthorised absence from work, intoxication at work and dishonesty. Actions taken to mitigate the risk of such behaviour recurring include making employees aware of what constitutes serious misconduct during training on prevalent forms of misconduct.

Two matters were referred to the CCMA by employees, one of which was settled amicably outside the CCMA. The other is yet to be finalised. In a litigation matter referred to the Labour Court by a former employee, the court ruled in favour of SAWS but the employee has referred the matter for appeal.

PART E

FINANCIAL INFORMATION

REPORT OF THE AUDIT AND RISK COMMITTEE

For the financial year ended 31 March 2018, the Committee complied with its responsibilities, arising from section 77 of the Public Finance Management Act, 1999 (No. 1 of 1999 as amended) (PFMA) and Treasury Regulation 27.1.8 including the review and adoption of the Charter that regulates the Committee's mandate and the execution thereof.

Audit and Risk Committee Membership and Attendance of Meetings

The composition of the Committee and the attendance of meetings during the period under review are listed under the Governance Section of the Annual Report.

Audit and Risk Committee's Responsibilities

The main responsibilities of the Committee, as outlined in the Committee's Charter include amongst others:

- A review of the financial management processes and the adequacy of internal controls;
- A review of the Annual Financial Statements, the Annual Report and related regulatory reports before these are released, in order to consider the accuracy and completeness of the information;
- The governance of risk;
- The governance of Information Communication Technology (ICT);
- Overseeing the effectiveness of the organisation's assurance functions and services, with particular focus on combined assurance arrangements, including external service providers, the internal and external audit functions and related audit processes;
- A review of SAWS' compliance with the performance management and reporting systems; and
- Ensuring that all the disclosures and/or reporting requirements to the Board, the Shareholder, the National Treasury and the Auditor-General are adhered to.

The Effectiveness of Internal Control

The implementation of effective and efficient internal controls and procedures is an ongoing process.

The Committee reviewed the reports from both Internal and External Auditors and notes the systems of internal control for the year under review needed attention. Where weaknesses were identified, management committed to put corrective measures. All other areas of weaknesses in relation to internal control deficiencies emanating from the final report of the Auditor-General were discussed by the members and internal audit and will be included as part of the Annual Internal Audit Plan for 2018/19.

Review and Monitoring of Monthly/ Quarterly/ Annual Performance Information

The Committee reviewed the actual performance of SAWS against the strategic objectives and targets set in the Annual Performance Plan for 2017/18 and was satisfied with the content and quality of the quarterly performance reports prepared and issued by the Chief Financial Officer (CFO) and Chief Executive Officer (CEO) during the year under review. Where required, the Committee made recommendations for enhancements of the reports.

Evaluation of the audited Annual Financial Statements

The Committee reviewed and discussed the audited Annual Financial Statements to be included in the Annual Report in consultation with the CEO, the Internal Auditor and the Auditor-General.

REPORT OF THE AUDIT AND RISK COMMITTEE

Summary of Main Activities undertaken by the Committee during the Financial Year under Review

The Audit and Risk Committee attended to the following matters:

- The quarterly review of performance (SAWS' Financial Report) against the 2017/18 budget and a review of the annual budget for 2017/18 financial year for the Board's consideration and approval;
- A review of the Annual Financial Statements for the year ended 31 March 2018;
- A review of Financial Management and Supply Chain Management Policies;
- Review of the Internal Auditors' report;
- Monitoring the implementation of the Risk Management, Information Communication Technology Strategy and Legal activities, with reports on these submitted as standing items at all Committee meetings; and
- Keeping the Board informed of key issues within the Committee's scope, with Committee Reports submitted and presented at all Board meetings.

Governance and Risk Management

The committee notes that the annual audit revealed weaknesses in governance which the organisation will address in the new year. The organisation did not have a Risk Officer in place in the year under review which affected this aspect of management negatively. The responsibilities for risks were delegated to the office of the Company Secretary during the year.

Internal Audit

During the year under review, a fixed term Internal Audit resource was appointed while we went out on tender to acquire the services of the Internal Audit Service Provider. SizweNtsalubaNgobodo was appointed in January 2018 as SAWS Internal Auditors. An Annual Audit Plan was prepared for the year under review, and was approved by the Audit and Risk Committee.

SizweNtsalubaNgobodo (SNG) is an independent firm that provides assurance on the effectiveness of the SAWS's system of internal control. The fixed term Internal Auditor and the internal audit service provider were staffed by qualified and experienced personnel. During the year under review the committee considered and approved the internal audit charter.

At the end of the 2017/18 financial year, the Internal Auditors reported that they had executed most of the activities as directed by the Committee and management.

External Audit

The audit findings issued by the Auditor-General (AG) from the 2016/17 audits were to the extent possible addressed by SAWS; and some findings either partially resolved or not resolved and the associated risks were accepted by SAWS. The report of the Auditor-General confirmed that there were material repeat audit findings emanating from the previous financial year.

REPORT OF THE AUDIT AND RISK COMMITTEE

Other Audits

Operating lease liability- rental of the building with JR 209 Investment (Pty) Ltd.
Refer to Note 16 of the Annual Financial Statements for the year ended 31 March 2018.

Date the Audit and Risk Committee recommended AFS be approved

The Committee recommended the approval of the audited Annual Financial Statements at the Board meeting held on 31 July 2018 for submission thereof to National Treasury; the Department of Environmental Affairs; the Accountant General; and the Auditor-General.

Dr P. Dexter
Chairperson of the Audit and Risk Committee
Date: 31 July 2018

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE SOUTH AFRICAN WEATHER SERVICE

Report on the audit of the financial statements

Opinion

1. I have audited the financial statements of the South African Weather Service set out on pages 130 to 210, which comprise the statement of financial position as at 31 March 2018, the statement of financial performance, statement of changes in net assets, cash flow statement and statement of comparison of budget and actual amounts for the year then ended, as well as the notes to the financial statements, including a summary of significant accounting policies.

2. In my opinion, the financial statements present fairly, in all material respects, the financial position of the South African Weather Service as at 31 March 2018, and its financial performance and cash flows for the year then ended in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA).

Basis for opinion

3. I conducted my audit in accordance with the International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the Auditor-General's responsibilities for the audit of the financial statements section of this auditor's report.

4. I am independent of the public entity in accordance with the International Ethics Standards Board for Accountants' *Code of ethics for professional accountants* (IESBA code) and the ethical requirements that are relevant to my audit in South Africa. I have fulfilled my other ethical responsibilities in accordance with these requirements and the IESBA code.

5. I believe that the audit evidence I have as obtained is sufficient and appropriate to provide a basis for my opinion.

Emphasis of matter

6. I draw attention to the matter below. My opinion is not modified in respect of this matter.

Material impairments

7. As disclosed in note 9 to the financial statements, indicates a material impairment of R4 574 711 to radar equipment.

Responsibilities of the accounting authority for the financial statements

8. The accounting authority is responsible for the preparation and fair presentation of the financial statements in accordance with the SA Standards of GRAP and the requirements of the PFMA, and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

9. In preparing the financial statements, the accounting authority is responsible for assessing the public entity's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the intention is to liquidate the public entity or to cease operations, or there is no realistic alternative but to do so.

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE SOUTH AFRICAN WEATHER SERVICE

Auditor-general's responsibilities for the audit of the financial statements

10. My objectives are to obtain reasonable assurance about whether the financial statements s a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

11. A further description of my responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

Report on the audit of the annual performance report

Introduction and scope

12. In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof, I have a responsibility to report material findings on the reported performance information against predetermined objectives for selected objectives presented in the annual performance report. I performed procedures to identify findings but not to gather evidence to express assurance.

13. My procedures address the reported performance information, which must be based on the approved performance planning documents of the public entity. I have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. My procedures also did not extend to any disclosures or assertions relating to planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, my findings do not extend to these matters.

14. I evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected objectives presented in the annual performance report of the public entity for the year ended 31 March 2018:

Objectives	Pages in annual performance report
Strategic objective 1.1 – develop and provide meteorological and related products and services for targeted communities nationally	87
Strategic objective 1.2 – develop and market meteorological and related products and services for specific economic sectors	88
Strategic objective 2.1 – upgrade, expand and optimise infrastructure	89
Strategic objective 4.1 – grow weather and climate knowledge base	94

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE SOUTH AFRICAN WEATHER SERVICE

15. I performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. I performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.

16. The material findings in respect of the usefulness and reliability of the selected objectives are as follows:

Strategic Objective 1.2 – develop and market meteorological and related products and services for specific economic sectors.
Indicator: % implementation of annual milestones for sector specific 5-year marketing plans.

17. I was unable to obtain sufficient appropriate audit evidence to support the reported achievement of the target % implementation of annual milestones for sector specific 5-year marketing plans: 100%. This was due to inadequate technical indicator descriptions and proper performance management systems and processes that predetermined how the achievement would be measured, monitored and reported. I was unable to confirm the reported achievement of the indicator by alternative means. Consequently, I was unable to determine whether any adjustments were required to the achievement of not achieved as reported in the annual performance report.

Strategic Objective 2.1 – upgrade, expand and optimise infrastructure
Indicator: % availability of radar data

18. I was unable to obtain sufficient appropriate audit evidence to support the reason for the variance between the planned target of radar data availability = 80% and the achievement of average radar availability for the 2017 – 18 = 72,17% reported in the annual performance report. This was due to the entity not keeping records of the events that led to radar unavailability. I was unable to confirm the reported reason for the variance by alternative means. Consequently, I was unable to determine whether any adjustments were required to the reported reason for the variance. The reasons for the variances between the planned targets and the reported achievements were not supported by sufficient appropriate audit evidence.

19. I did not raise any material findings on the usefulness and reliability of the reported performance information for the following objectives:

- Strategic objective 1.1 – develop and provide meteorological and related products and services for targeted communities nationally
- Strategic objective 4.1 – grow weather and climate knowledge base

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE SOUTH AFRICAN WEATHER SERVICE

Other matters

20. I draw attention to the matters below.

Achievement of planned targets

21. Refer to the annual performance report on pages x to x and x to x for information on the achievement of planned targets for the year and explanations provided for the underachievement of a significant number of targets. This information should be considered in the context of the material findings on the usefulness and reliability of the reported performance information in paragraphs 17 and 18 of this report.

Adjustment of material misstatements

22. I identified material misstatements in the annual performance report submitted for auditing. These material misstatements were on the reported performance information of all the selected strategic objectives referenced in paragraph 14. As management subsequently corrected only some of the misstatements, I raised material findings on the usefulness and reliability of the reported performance information. Those that were not corrected are reported above.

Report on the audit of compliance with legislation

Introduction and scope

23. In accordance with the PAA and the general notice issued in terms thereof, I have a responsibility to report material findings on the compliance of the public entity with specific matters in key legislation. I performed procedures to identify findings but not to gather evidence to express assurance.

24. The material findings on compliance with specific matters in key legislations are as follows:

Annual financial statements, performance report and annual reports

25. The financial statements submitted for auditing were not prepared in accordance with the prescribed financial reporting framework, as required by section 55(1)(b) of the PFMA. Material misstatements identified by the auditors in the submitted financial statements were subsequently corrected, which resulted in the financial statements receiving an unqualified opinion.

Revenue management

26. Effective and appropriate steps were not taken to collect all revenue due, as required by section 51(1)(b)(i) of the PFMA.

Expenditure management

27. Effective and appropriate steps were not taken to prevent irregular expenditure amounting to R 1 698 564 as disclosed in note 33 to the annual financial statements, as required by section 51(1)(b)(ii) of the PFMA. This resulted mainly from the extension of a contract beyond its original bid specification and contracted period without obtaining the required approval from the National Treasury.

Consequence management

28. Disciplinary steps were not taken against the officials who had permitted irregular expenditure, as required by section 51(I)(e)(iii) of the PFMA.

Other information

29. The accounting authority is responsible for the other information. The other information does not include the financial statements, the auditor's report thereon and those selected objectives presented in the annual performance report that have been specifically reported on in the auditor's report.

30. My opinion on the financial statements and findings on the reported performance information and compliance with legislation do not cover the other information and I do not express an audit opinion or any form of assurance conclusion thereon.

31. In connection with my audit, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements and the selected objectives presented in the annual performance report, or my knowledge obtained in the audit or otherwise appears to be materially misstated.

Annual report or parts thereof were not received before the auditor's report was finalised

32. The other information I obtained prior to the date of this auditor's report is a message from the Minister and Deputy Minister of Environmental affairs, the foreword by the Board Chairperson and an overview by the Chief Executive Officer on the performance of the entity. The publishable annual report is expected to be made available to me after 2 August 2018.

33. If, based on the work I have performed on the other information that I obtained prior to the date of this auditor's report, I conclude that there is a material misstatement of this other information, I am required to report that fact.

34. When I do receive and read the executive report, and if I conclude that there is a material misstatement therein, I am required to communicate the matter to those charged with governance and request that the other information be corrected. If the other information is not corrected, I may have to retract this auditor's report and re-issue an amended report as appropriate. However, if it is corrected this will not be necessary.

Internal control deficiencies

35. I considered internal control relevant to my audit of the financial statements, reported performance information and compliance with applicable legislation; however, my objective was not to express any form of assurance on it. The matters reported below are limited to the significant internal control deficiencies that resulted in the findings on the annual performance report and the findings on compliance with legislation included in this report.

REPORT OF THE AUDITOR-GENERAL TO PARLIAMENT ON THE SOUTH AFRICAN WEATHER SERVICE

Financial and performance management

- Management did not review the reported information against supporting evidence to ensure the reliability of the information contained in the financial statements and performance information. As a result, material adjustments were required to the financial statements and annual performance report submitted for auditing.
- Management did not review and monitor compliance to ensure compliance with applicable laws and regulations, resulting in the entity incurring irregular expenditure and not keeping record of the consequence management processes followed.

Governance

- The governance structures did not ensure that a resourced and functioning internal audit unit was constituted throughout the financial year. Therefore, frequent risk assessments, identification of internal control deficiencies, and recommendations for corrective action were not provided continuously and effectively.

Auditor General

Pretoria

2 August 2018

AUDITOR-GENERAL
SOUTH AFRICA

Auditing to build public confidence

ANNEXURE – AUDITOR-GENERAL'S RESPONSIBILITY FOR THE AUDIT

1. As part of an audit in accordance with the ISAs, I exercise professional judgement and maintain professional scepticism throughout my audit of the financial statements, and the procedures performed on reported performance information for selected objectives and on the public entity's compliance with respect to the selected subject matters.

Financial statements

2. In addition to my responsibility for the audit of the financial statements as described in this auditor's report, I also:

- identify and assess the risks of material misstatement of the financial statements whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control

- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the public entity's internal control

- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors, which constitutes the accounting authority

- conclude on the appropriateness of the use of the going concern basis of accounting by the board of directors, which constitutes the accounting authority, in the preparation of the financial statements. I also conclude, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the South African Weather Service's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements about the material uncertainty or, if such disclosures are inadequate, to modify the opinion on the financial statements. My conclusions are based on the information available to me at the date of this auditor's report. However, future events or conditions may cause a public entity to cease continuing as a going concern

- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation

- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion

Communication with those charged with governance

3. I communicate with the accounting authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

4. I also confirm to the accounting authority that I have complied with relevant ethical requirements regarding independence, and communicate all relationships and other matters that may reasonably be thought to have a bearing on my independence and, where applicable, related safeguards.

STATEMENT OF FINANCIAL POSITION AS AT MARCH 31, 2018

	Note(s)	2018 R	2017 R
Assets			
Current Assets			
Inventories	3	3,475,093	2,487,200
Receivables from exchange transactions	4	12,476,264	11,633,275
Statutory receivables	5	17,820,168	14,194,455
Prepayments	6	9,233,433	9,130,886
Cash and cash equivalents	7	100,626,617	90,224,298
		143,631,575	**127,670,114**
Non-Current Assets			
Investment property	8	67,487,940	65,614,150
Property, plant and equipment	9	319,306,840	312,430,176
Intangible assets	10	16,147,204	16,866,906
		402,941,984	**394,911,232**
Non-Current Assets		402,941,984	394,911,232
Current Assets		143,631,575	127,670,114
Total Assets		**546,573,559**	**522,581,346**
Liabilities			
Current Liabilities			
Operating lease liability	16	2,475,517	2,012,191
Payables from exchange transactions	11	30,774,533	21,108,062
Short term employee benefits	12	4,717,707	4,274,569
Unspent conditional grants and receipts	14	14,616,603	10,289,828
Provisions	15	15,500,000	13,500,000
		68,084,360	**51,184,650**
Non-Current Liabilities			
Operating lease liability	16	1,358,559	1,516,690
Employee benefit obligation	13	4,866,964	11,319,964
Provisions	15	457,491	442,548
		6,683,014	**13,279,202**
Non-Current Liabilities		6,683,014	13,279,202
Current Liabilities		68,084,360	51,184,650
Total Liabilities		**74,767,374**	**64,463,852**
Assets		546,573,559	522,581,346
Liabilities		(74,767,374)	(64,463,852)
Net Assets		**471,806,185**	**458,117,494**
Reserves			
Revaluation reserve		53,218,890	51,710,858
Accumulated surplus		418,587,295	406,406,636
Total Net Assets		**471,806,185**	**458,117,494**

STATEMENT OF FINANCIAL PERFORMANCE

	Note(s)	2018 R	2017 R
Revenue			
Revenue from exchange transactions			
Sale of goods		154,956,083	162,287,683
Miscellaneous other revenue		1,109,806	738,593
Interest received - investment	17	6,730,004	3,912,133
Total revenue from exchange transactions		**162,795,893**	**166,938,409**
Transfer revenue			
Government grants & subsidies	18	240,482,000	204,985,000
Public contributions and donations	19	4,048,344	3,002,177
Total revenue from non-exchange transactions		244,530,344	207,987,177
		162,795,893	166,938,409
		244,530,344	207,987,177
Total revenue		**407,326,237**	**374,925,586**
Expenditure			
Employee related costs	21	(222,487,039)	(202,480,457)
Administration	22	(9,315,862)	(7,070,095)
Depreciation and amortisation	23	(35,444,310)	(34,640,531)
Impairment loss		(4,574,712)	-
General Expenses	24	(132,146,739)	(112,653,793)
Total expenditure		**(403,968,662)**	**(356,844,876)**
		-	-
Total revenue		407,326,237	374,925,586
Total expenditure		(403,968,662)	(356,844,876)
Operating surplus		**3,357,575**	**18,080,710**
(Loss) gain on disposal of assets and liabilities		(759,077)	45,000
Loss on foreign exchange		(126,577)	57,865
Fair value adjustments	26	1,874,738	7,801,541
Actuarial gains/losses	13	7,834,000	(2,111,000)
		8,823,084	**5,793,406**
Operating surplus/deficit		8,823,084	5,793,406
Surplus before taxation		12,180,659	23,874,116
Taxation		-	-
Surplus for the year		**12,180,659**	**23,874,116**

STATEMENT OF CHANGES IN NET ASSETS

	Revaluation reserve R	Accumulated surplus R	Total net assets R
Balance at April 01, 2016	**59,460,462**	**382,532,520**	**441,992,982**
Changes in net assets			
Revaluation of Aircraft	(589,449)	-	(589,449)
Revaluation of land and building	(7,160,155)	-	(7,160,155)
Net income (losses) recognised directly in net assets	(7,749,604)	-	(7,749,604)
Surplus / (Deficit) for the year	-	23,874,116	23,874,116
Total recognised income and expenses for the year	(7,749,604)	23,874,116	16,124,512
Total changes	(7,749,604)	23,874,116	16,124,512
Balance at April 01, 2017	**51,710,858**	**406,406,636**	**458,117,494**
Changes in net assets			
Revaluation of land	1,285,410	-	1,285,410
Revaluation of building	800,009	-	800,009
Aircraft Propeller	20,673	-	20,673
Aircraft Airframes	(131,684)	-	(131,684)
Aircraft Engine	(466,376)	-	(466,376)
Net income (losses) recognised directly in net assets	1,508,032	-	1,508,032
Surplus / (Deficit) for the year	-	12,180,659	12,180,659
Total recognised income and expenses for the year	1,508,032	12,180,659	13,688,691
Total changes	1,508,032	12,180,659	13,688,691
Balance at March 31, 2018	**53,218,890**	**418,587,295**	**471,806,185**

Note(s)

CASH FLOW STATEMENT

	Note(s)	2018 R	2017 R
Cash flows from operating activities			
Receipts			
Commercial and other income		154,555,091	144,771,436
Grants		240,482,000	207,987,177
Interest income		6,730,004	3,912,133
		401,767,095	356,670,746
Payments			
Employee costs		(218,647,958)	(189,830,000)
Suppliers		(127,191,584)	(118,454,642)
		(345,839,542)	(308,284,642)
Total receipts		401,767,095	356,670,746
Total payments		(345,839,542)	(308,284,642)
Net cash flows from operating activities	25	**55,927,553**	**48,386,104**
Cash flows from investing activities			
Purchase of property, plant and equipment	9	(42,367,242)	(2,087,955)
(Loss)/gain on disposal of assets		-	83,658
Purchase of other intangible assets	10	(3,157,992)	-
Net cash flows from investing activities		**(45,525,234)**	**(2,004,297)**
Net increase/(decrease) in cash and cash equivalents		**10,402,319**	**46,381,807**
Cash and cash equivalents at the beginning of the year		90,224,298	43,842,491
Cash and cash equivalents at the end of the year	**7**	**100,626,617**	**90,224,298**

STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

Budget on Accrual Basis

	Approved budget R	Adjustments R	Final Budget R	Actual amounts on comparable basis R	Difference between final budget and actual
Statement of Financial Performance					
Revenue					
Revenue from exchange transactions					
Sale of goods	140,140,000	5,002,000	**145,142,000**	154,956,083	**9,814,083**
Miscellaneous other revenue	-	-	**-**	1,089,806	**1,089,806**
Other income	-	-	**-**	20,000	**20,000**
Interest received - investment	-	3,377,000	**3,377,000**	6,730,004	**3,353,004**
Total revenue from exchange transactions	**140,140,000**	**8,379,000**	**148,519,000**	**162,795,893**	**14,276,893**
Revenue from non-exchange transactions					
Transfer revenue					
Government grants	240,482,000	44,860,000	**285,342,000**	240,482,000	**(44,860,000)**
Contributions and donations	-	8,268,000	**8,268,000**	4,048,344	**(4,219,656)**
Total revenue from non-exchange transactions	**240,482,000**	**53,128,000**	**293,610,000**	**244,530,344**	**(49,079,656)**
'Total revenue from exchange transactions'	140,140,000	8,379,000	**148,519,000**	162,795,893	**14,276,893**
Total revenue from non-exchange transactions	240,482,000	53,128,000	**293,610,000**	244,530,344	**(49,079,656)**
Total revenue	**380,622,000**	**61,507,000**	**442,129,000**	**407,326,237**	**(34,802,763)**
Expenditure					
Employee cost	(238,356,000)	-	**(238,356,000)**	(222,487,039)	**15,868,961**
Administration	(11,585,134)	-	**(11,585,134)**	(9,315,862)	**2,269,272**
Depreciation and amortisation	(30,244,000)	(9,756,000)	**(40,000,000)**	(35,444,310)	**4,555,690**
Impairment loss	-	-	**-**	(4,574,712)	**(4,574,712)**
Operating Expenses	(100,436,866)	(51,751,000)	**(152,187,866)**	(132,146,739)	**20,041,127**
Total expenditure	**(380,622,000)**	**(61,507,000)**	**(442,129,000)**	**(403,968,662)**	**38,160,338**
	380,622,000	61,507,000	**442,129,000**	407,326,237	**(34,802,763)**
	(380,622,000)	(61,507,000)	**(442,129,000)**	(403,968,662)	**38,160,338**
Operating surplus	**-**	**-**	**-**	**3,357,575**	**3,357,575**
Loss on disposal of assets and liabilities	-	-	**-**	(759,077)	**(759,077)**
Loss on foreign exchange	-	-	**-**	(126,577)	**(126,577)**
Fair value adjustments	-	-	**-**	1,874,738	**1,874,738**
Actuarial gains/losses	-	-	**-**	7,834,000	**7,834,000**
	-	**-**	**-**	**8,823,084**	**8,823,084**
	-	-	**-**	3,357,575	**3,357,575**
	-	-	**-**	8,823,084	**8,823,084**
Surplus before taxation	**-**	**-**	**-**	**12,180,659**	**12,180,659**
Taxation	-	-	**-**	-	**-**

STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

	Approved budget R	Adjustments R	Final Budget R	Actual amounts on comparable basis R	Difference between final budget and actual R
Actual Amount on Comparable Basis as Presented in the Budget and Actual Comparative Statement	**-**	**-**	**-**	**12,180,659**	**12,180,659**

Refer to note 34 for variance explanations.

ACCOUNTING POLICIES

1. Presentation of Financial Statements

The financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP), issued by the Accounting Standards Board in accordance with section 91(1) of the South African Weather Service Amendment Act, 2013.

These financial statements have been prepared on an accrual basis of accounting and are in accordance with historical cost convention as the basis of measurement, unless specified otherwise. They are presented in South African Rand.

Assets, liabilities, revenues and expenses were not offset, except where offsetting is either required or permitted by a Standard of GRAP.

A summary of the significant accounting policies, which have been consistently applied in the preparation of these financial statements, is disclosed below.

These accounting policies are consistent with the previous period.

1.1 Presentation currency

These financial statements are presented in South African Rand, which is the functional currency of the entity.

1.2 Going concern assumption

These financial statements have been prepared based on the expectation that the entity will continue to operate as a going concern for at least the next 12 months.

1.3 Significant judgements and sources of estimation uncertainty

In preparing the financial statements, management is required to make estimates and assumptions that affect the amounts represented in the financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the financial statements. Significant judgements include:

Trade receivables

The entity assesses its trade receivables for impairment at the end of each reporting period. In determining whether an impairment loss should be recorded in surplus or deficit, the surplus makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flows from a financial asset.

1.3 Significant judgements and sources of estimation uncertainty (continued)

The impairment for trade receivables is calculated on a portfolio basis, based on historical loss ratios, adjusted for national and industry-specific economic conditions and other indicators present at the reporting date that correlate with defaults on the portfolio. These annual loss ratios are applied to loan balances in the portfolio and scaled to the estimated loss emergence period.

Fair value estimation

The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair values. The fair value of financial liabilities for disclosure purposes is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the entity for similar financial instruments.

Impairment testing

The recoverable amounts of cash-generating units and individual assets have been determined based on the higher of value-in-use calculations and fair values less costs to sell. These calculations require the use of estimates and assumptions. It is reasonably possible that the assumption may change which may then impact our estimations and may then require a material adjustment to the carrying value of goodwill and tangible assets.

Provisions

Provisions were raised and management determined an estimate based on the information available. Additional disclosure of these estimates of provisions are included in Note 15 - Provisions.

Post retirement benefits

The present value of the post retirement obligation depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) include the discount rate. Any changes in these assumptions will impact on the carrying amount of post retirement obligations.

The entity determines the appropriate discount rate at the end of each year. This is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the pension obligations. In determining the appropriate discount rate, the entity considers market yields at the reporting date on government bonds. Where there is no deep market in government bonds with a sufficiently long maturity to match the estimated maturity of all the benefit payments, the entity uses current market rates of the appropriate term to discount short term payments, and estimates the discount rate for longer maturities by extrapolating current market rates along the yield curve.

Other key assumptions for pension obligations are based on current market conditions. Additional information is disclosed in Note 13.

1.3 Significant judgements and sources of estimation uncertainty (continued)

Allowance for doubtful debts

Trade receivables which are past due are not automatically considered to be impaired. Management's judgement is used to impair amounts that are past due based on being satisfied that all reasonable steps have been taken to recover the debt or that the recovery of the debt would be uneconomical; or the recovery would cause undue hardship to the debtor or his or her dependents; or it would be to the advantage of the state to effect a settlement or waive the claim.

Revaluations

Significant assumptions, in determining fair values of revalued items of Property, Plant and Equipment; and investment property are applied using industry methodologies to determine valuations based on the entity specific or observable market input coupled with assumptions on future expectations.

Useful lives of property, plant and equipment

The entity's management determines the estimated useful lives and related depreciation charges for property, plant and equipment and other assets. This estimate is based on industry norm. This estimate is based on the pattern in which an asset's future economic benefits or service potential is expected to be consumed by the entity.

1.4 Investment property

Investment property is property (land or a building - or part of a building - or both) held to earn rentals or for capital appreciation or both, rather than for:

- use in the production or supply of goods or services, or for
- administrative purposes, or
- sale in the ordinary course of operations.

Owner-occupied property is property held for use in the production or supply of goods or services or for administrative purposes.

Investment property is recognised as an asset when, it is probable that the future economic benefits or service potential that are associated with the investment property will flow to the entity, and the cost or fair value of the investment property can be measured reliably.

Investment property is initially recognised at cost. Transaction costs are included in the initial measurement.

Where investment property is acquired through a non-exchange transaction, its cost is its fair value as at the date of acquisition.

Costs include costs incurred initially and costs incurred subsequently to add to, or to replace a part of, or service a property. If a replacement part is recognised in the carrying amount of the investment property, the carrying amount of the replaced part is derecognised.

1.4 Investment property (continued)

Fair value

Subsequent to initial measurement investment property is measured at fair value.

The fair value of investment property reflects market conditions at the reporting date.

A gain or loss arising from a change in fair value is included in net surplus or deficit for the period in which it arises.

If the entity determines that the fair value of an investment property under construction is not reliably determinable but expects the fair value of the property to be reliably measurable when construction is complete, it measures that investment property under construction at cost until either its fair value becomes reliably determinable or construction is completed (whichever is earlier). If the entity determines that the fair value of an investment property (other than an investment property under construction) is not reliably determinable on a continuing basis, the entity measures that investment property using the cost model (as per the accounting policy on Property, plant and equipment). The residual value of the investment property is then assumed to be zero. The entity applies the cost model (as per the accounting policy on Property, plant and equipment) until disposal of the investment property.

Once the entity becomes able to measure reliably the fair value of an investment property under construction that has previously been measured at cost, it measures that property at its fair value. Once construction of that property is complete, it is presumed that fair value can be measured reliably. If this is not the case, the property is accounted for using the cost model in accordance with the accounting policy on Property, plant and equipment.

1.5 Property, plant and equipment

Property, plant and equipment are tangible non-current assets (including infrastructure assets) that are held for use in the production or supply of goods or services, rental to others, or for administrative purposes, and are expected to be used during more than one period.

The cost of an item of property, plant and equipment is recognised as an asset when:

- it is probable that future economic benefits or service potential associated with the item will flow to the entity; and
- the cost of the item can be measured reliably.

Property, plant and equipment is initially measured at cost.

The cost of an item of property, plant and equipment is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

Where an asset is acquired through a non-exchange transaction, its cost is its fair value as at date of acquisition.

Where an item of property, plant and equipment is acquired in exchange for a non-monetary asset or monetary assets, or a combination of monetary and non-monetary assets, the asset acquired is initially measured at fair value (the cost). If the acquired item's fair value was not determinable, its deemed cost is the carrying amount of the asset(s) given up.

ACCOUNTING POLICIES

1.5 Property, plant and equipment (continued)

When significant components of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. If a replacement cost is recognised in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognised.

The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located is also included in the cost of property, plant and equipment, where the entity is obligated to incur such expenditure, and where the obligation arises as a result of acquiring the asset or using it for purposes other than the production of inventories.

Recognition of costs in the carrying amount of an item of property, plant and equipment ceases when the item is in the location and condition necessary for it to be capable of operating in the manner intended by management.

Items such as spare parts, standby equipment and servicing equipment are recognised when they meet the definition of property, plant and equipment.

Major inspection costs which are a condition of continuing use of an item of property, plant and equipment and which meet the recognition criteria above are included as a replacement in the cost of the item of property, plant and equipment. Any remaining inspection costs from the previous inspection are derecognised.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses except for Land and Buildings and Aircraft which is carried at revalued amount being the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Property, plant and equipment is carried at revalued amount, being the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Revaluations are made with sufficient regularity such that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

When an item of property, plant and equipment is revalued, any accumulated depreciation at the date of the revaluation is eliminated against the gross carrying amount of the asset and the net amount restated to the revalued amount of the asset.

Any increase in an asset's carrying amount, as a result of a revaluation, is credited directly to a revaluation surplus. The increase is recognised in surplus or deficit to the extent that it reverses a revaluation decrease of the same asset previously recognised in surplus or deficit.

Any decrease in an asset's carrying amount, as a result of a revaluation, is recognised in surplus or deficit in the current period. The decrease is debited directly to a revaluation surplus to the extent of any credit balance existing in the revaluation surplus in respect of that asset.

1.5 Property, plant and equipment (continued)

The revaluation surplus in equity related to a specific item of property, plant and equipment is transferred directly to retained earnings when the asset is derecognised.

Property, plant and equipment are depreciated on the straight line basis over their expected useful lives to their estimated residual value.

Property, plant and equipment is carried at cost less accumulated depreciation and any impairment losses.

Property, plant and equipment is carried at revalued amount, being the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations are made with sufficient regularity such that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

Any increase in an asset's carrying amount, as a result of a revaluation, is credited directly to a revaluation surplus. The increase is recognised in surplus or deficit to the extent that it reverses a revaluation decrease of the same asset previously recognised in surplus or deficit.

Any decrease in an asset's carrying amount, as a result of a revaluation, is recognised in surplus or deficit in the current period. The decrease is debited in revaluation surplus to the extent of any credit balance existing in the revaluation surplus in respect of that asset.

The useful lives of items of property, plant and equipment have been assessed as follows:

Item	Depreciation method	Years
Buildings	Straight line	50
Fence	Straight line	10
Furniture and fittings	Straight line	10-15
Motor vehicles	Straight line	5-20
Office equipment	Straight line	15-20
IT equipment	Straight line	5-10
Library books and equipment	Straight line	10-20
Leasehold improvements	Straight line	10-15
Aicraft - Airframes	Straight line	20
Aicraft - Engines	Straight line	5400 hours
Aircraft - Propellers	Straight line	5-20
Meteoreological equipment	Straight line	10-15
Radar equipment	Straight line	25
Air quality equipment	Straight line	10-15
Tools and equipment	Straight line	10-15

1.5 Property, plant and equipment (continued)

The depreciable amount of an asset is allocated on a systematic basis over its useful life.

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The depreciation method used reflects the pattern in which the asset's future economic benefits or service potential are expected to be consumed by the entity. The depreciation method applied to an asset is reviewed at least at each reporting date and, if there has been a significant change in the expected pattern of consumption of the future economic benefits or service potential embodied in the asset, the method is changed to reflect the changed pattern. Such a change is accounted for as a change in an accounting estimate.

The entity assesses at each reporting date whether there is any indication that the entity expectations about the residual value and the useful life of an asset have changed since the preceding reporting date. If any such indication exists, the entity revises the expected useful life and/or residual value accordingly. The change is accounted for as a change in an accounting estimate.

The depreciation charge for each period is recognised in surplus or deficit unless it is included in the carrying amount of another asset.

Items of property, plant and equipment are derecognised when the asset is disposed of or when there are no further economic benefits or service potential expected from the use of the asset.

The gain or loss arising from the derecognition of an item of property, plant and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from the derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

Assets which the entity holds for rentals to others and subsequently routinely sell as part of the ordinary course of activities, are transferred to inventories when the rentals end and the assets are available-for-sale. Proceeds from sales of these assets are recognised as revenue. All cash flows on these assets are included in cash flows from operating activities in the cash flow statement.

The entity separately discloses expenditure to repair and maintain property, plant and equipment in the notes to the financial statements (see Note 24).

1.6 Intangible assets

An asset is identifiable if it either:

- is separable, i.e. is capable of being separated or divided from an entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable assets or liability, regardless of whether the entity intends to do so; or
- arises from binding arrangements (including rights from contracts), regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

A binding arrangement describes an arrangement that confers similar rights and obligations on the parties to it as if it were in the form of a contract.

ACCOUNTING POLICIES

1.6 Intangible assets (continued)

An intangible asset is recognised when:

- it is probable that the expected future economic benefits or service potential that are attributable to the asset will flow to the entity; and
- the cost or fair value of the asset can be measured reliably.

The entity assesses the probability of expected future economic benefits or service potential using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

Where an intangible asset is acquired through a non-exchange transaction, its initial cost at the date of acquisition is measured at its fair value as at that date.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred. An intangible asset arising from development (or from the development phase of an internal project) is recognised when:

- it is technically feasible to complete the asset so that it will be available for use or sale.
- there is an intention to complete and use or sell it.
- there is an ability to use or sell it.
- it will generate probable future economic benefits or service potential.
- there are available technical, financial and other resources to complete the development and to use or sell the asset.
- the expenditure attributable to the asset during its development can be measured reliably.

Intangible assets are carried at cost less any accumulated amortisation and any impairment losses.

An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows or service potential. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at each reporting date.

Reassessing the useful life of an intangible asset with a finite useful life after it was classified as indefinite is an indicator that the asset may be impaired. As a result the asset is tested for impairment and the remaining carrying amount is amortised over its useful life.

Internally generated brands, mastheads, publishing titles, customer lists and items similar in substance are not recognised as intangible assets.

Internally generated goodwill is not recognised as an intangible asset.

ACCOUNTING POLICIES

1.6 Intangible assets (continued)

Amortisation is provided to write down the intangible assets, on a straight line basis, to their residual values as follows:

Item	Depreciation method	Years
Computer software, other	Straight line	5-10
Servitude	Straight line	25

Intangible assets are derecognised:

- on disposal; or
- when no future economic benefits or service potential are expected from its use or disposal.

The gain or loss arising from the derecognition of an intangible assets is included in surplus or deficit when the asset is derecognised (unless the Standard of GRAP on leases requires otherwise on a sale and leaseback).

1.7 Financial instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or a residual interest of another entity.

The amortised cost of a financial asset or financial liability is the amount at which the financial asset or financial liability is measured at initial recognition minus principal repayments, plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount, and minus any reduction (directly or through the use of an allowance account) for impairment or uncollectibility.

A concessionary loan is a loan granted to or received by an entity on terms that are not market related.

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation.

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates.

Derecognition is the removal of a previously recognised financial asset or financial liability from an entity's statement of financial position.

A derivative is a financial instrument or other contract with all three of the following characteristics:

- Its value changes in response to the change in a specified interest rate, financial instrument price, commodity price, foreign exchange rate, index of prices or rates, credit rating or credit index, or other variable, provided in the case of a non-financial variable that the variable is not specific to a party to the contract (sometimes called the 'underlying').
- It requires no initial net investment or an initial net investment that is smaller than would be required for other types of contracts that would be expected to have a similar response to changes in market factors.
- It is settled at a future date.

ACCOUNTING POLICIES

1.7 Financial instruments (continued)

The effective interest method is a method of calculating the amortised cost of a financial asset or a financial liability (or group of financial assets or financial liabilities) and of allocating the interest income or interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability. When calculating the effective interest rate, an entity shall estimate cash flows considering all contractual terms of the financial instrument (for example, prepayment, call and similar options) but shall not consider future credit losses. The calculation includes all fees and points paid or received between parties to the contract that are an integral part of the effective interest rate (see the Standard of GRAP on Revenue from Exchange Transactions), transaction costs, and all other premiums or discounts. There is a presumption that the cash flows and the expected life of a group of similar financial instruments can be estimated reliably. However, in those rare cases when it is not possible to reliably estimate the cash flows or the expected life of a financial instrument (or group of financial instruments), the entity shall use the contractual cash flows over the full contractual term of the financial instrument (or group of financial instruments).

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable willing parties in an arm's length transaction.

A financial asset is:

- cash;
- a residual interest of another entity; or
- a contractual right to:
  - receive cash or another financial asset from another entity; or
  - exchange financial assets or financial liabilities with another entity under conditions that are potentially favourable to the entity.

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payment when due in accordance with the original or modified terms of a debt instrument.

A financial liability is any liability that is a contractual obligation to:

- deliver cash or another financial asset to another entity; or
- exchange financial assets or financial liabilities under conditions that are potentially unfavourable to the entity.

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

Liquidity risk is the risk encountered by an entity in the event of difficulty in meeting obligations associated with financial liabilities that are settled by delivering cash or another financial asset.

Loan commitment is a firm commitment to provide credit under pre-specified terms and conditions.

Loans payable are financial liabilities, other than short-term payables on normal credit terms.

ACCOUNTING POLICIES

1.7 Financial instruments (continued)

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: currency risk, interest rate risk and other price risk.

Other price risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices (other than those arising from interest rate risk or currency risk), whether those changes are caused by factors specific to the individual financial instrument or its issuer, or factors affecting all similar financial instruments traded in the market.

A financial asset is past due when a counterparty has failed to make a payment when contractually due.

A residual interest is any contract that manifests an interest in the assets of an entity after deducting all of its liabilities. A residual interest includes contributions from owners, which may be shown as:

- equity instruments or similar forms of unitised capital;
- a formal designation of a transfer of resources (or a class of such transfers) by the parties to the transaction as forming part of an entity's net assets, either before the contribution occurs or at the time of the contribution; or
- a formal agreement, in relation to the contribution, establishing or increasing an existing financial interest in the net assets of an entity.

Transaction costs are incremental costs that are directly attributable to the acquisition, issue or disposal of a financial asset or financial liability. An incremental cost is one that would not have been incurred if the entity had not acquired, issued or disposed of the financial instrument.

Financial instruments at amortised cost are non-derivative financial assets or non-derivative financial liabilities that have fixed or determinable payments, excluding those instruments that:

- the entity designates at fair value at initial recognition; or
- are held for trading.

Financial instruments at cost are investments in residual interests that do not have a quoted market price in an active market, and whose fair value cannot be reliably measured.

Financial instruments at fair value comprise financial assets or financial liabilities that are:

- derivatives;
- combined instruments that are designated at fair value;
- instruments held for trading. A financial instrument is held for trading if:
  - it is acquired or incurred principally for the purpose of selling or repurchasing it in the near-term; or
  - on initial recognition it is part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short term profit-taking;
  - non-derivative financial assets or financial liabilities with fixed or determinable payments that are designated at fair value at initial recognition; and
  - financial instruments that do not meet the definition of financial instruments at amortised cost or financial instruments at cost.

ACCOUNTING POLICIES

1.7 Financial instruments (continued)

Classification

The entity has the following types of financial assets (classes and category) as reflected on the face of the statement of financial position or in the notes thereto:

Class	Category
Trade and other receivables from exchange transactions	Financial asset measured at amortised cost
Cash and cash equivalents	Financial asset measured at amortised cost

The entity has the following types of financial liabilities (classes and category) as reflected on the face of the statement of financial position or in the notes there to:

Class	Category
Trade and other payables from exchange transactions	Financial liability measured at amortised cost

Initial recognition

The entity recognises a financial asset or a financial liability in its statement of financial position when the entity becomes a party to the contractual provisions of the instrument.

The entity recognises financial assets using trade date accounting.

Initial measurement of financial assets and financial liabilities

The entity measures a financial asset and financial liability initially at its fair value plus transaction costs that are directly attributable to the acquisition or issue of the financial asset or financial liability.

The entity measures a financial asset and financial liability initially at its fair value.

The entity first assesses whether the substance of a concessionary loan is in fact a loan. On initial recognition, the entity analyses a concessionary loan into its component parts and accounts for each component separately. The entity accounts for that part of a concessionary loan that is:

- a social benefit in accordance with the Framework for the Preparation and Presentation of Financial Statements, where it is the issuer of the loan; or
- non-exchange revenue, in accordance with the Standard of GRAP on Revenue from Non-exchange Transactions (Taxes and Transfers), where it is the recipient of the loan.

Subsequent measurement of financial assets and financial liabilities

The entity measures all financial assets and financial liabilities after initial recognition using the following categories:

- Financial instruments at fair value.
- Financial instruments at amortised cost.
- Financial instruments at cost.

1.7 Financial instruments (continued)

All financial assets measured at amortised cost, or cost, are subject to an impairment review.

Fair value measurement considerations

The best evidence of fair value is quoted prices in an active market. If the market for a financial instrument is not active, the entity establishes fair value by using a valuation technique. The objective of using a valuation technique is to establish what the transaction price would have been on the measurement date in an arm's length exchange motivated by normal operating considerations. Valuation techniques include using recent arm's length market transactions between knowledgeable, willing parties, if available, reference to the current fair value of another instrument that is substantially the same, discounted cash flow analysis and option pricing models. If there is a valuation technique commonly used by market participants to price the instrument and that technique has been demonstrated to provide reliable estimates of prices obtained in actual market transactions, the entity uses that technique. The chosen valuation technique makes maximum use of market inputs and relies as little as possible on entity-specific inputs. It incorporates all factors that market participants would consider in setting a price and is consistent with accepted economic methodologies for pricing financial instruments. Periodically, an entity calibrates the valuation technique and tests it for validity using prices from any observable current market transactions in the same instrument (i.e. without modification or repackaging) or based on any available observable market data.

The fair value of a financial liability with a demand feature (e.g. a demand deposit) is not less than the amount payable on demand, discounted from the first date that the amount could be required to be paid.

Reclassification

The entity does not reclassify a financial instrument while it is issued or held unless it is:

- combined instrument that is required to be measured at fair value; or
- an investment in a residual interest that meets the requirements for reclassification.

Where the entity cannot reliably measure the fair value of an embedded derivative that has been separated from a host contract that is a financial instrument at a subsequent reporting date, it measures the combined instrument at fair value. This requires a reclassification of the instrument from amortised cost or cost to fair value.

If fair value can no longer be measured reliably for an investment in a residual interest measured at fair value, the entity reclassifies the investment from fair value to cost. The carrying amount at the date that fair value is no longer available becomes the cost.

If a reliable measure becomes available for an investment in a residual interest for which a measure was previously not available, and the instrument would have been required to be measured at fair value, the entity reclassifies the instrument from cost to fair value.

1.7 Financial instruments (continued)

Gains and losses

A gain or loss arising from a change in the fair value of a financial asset or financial liability measured at fair value is recognised in surplus or deficit.

For financial assets and financial liabilities measured at amortised cost or cost, a gain or loss is recognised in surplus or deficit when the financial asset or financial liability is derecognised or impaired, or through the amortisation process.

Impairment and uncollectibility of financial assets

The entity assesses at the end of each reporting period whether there is any objective evidence that a financial asset or group of financial assets is impaired.

Financial assets measured at amortised cost:

If there is objective evidence that an impairment loss on financial assets measured at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced directly OR through the use of an allowance account. The amount of the loss is recognised in surplus or deficit.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed directly OR by adjusting an allowance account. The reversal does not result in a carrying amount of the financial asset that exceeds what the amortised cost would have been had the impairment not been recognised at the date the impairment is reversed. The amount of the reversal is recognised in surplus or deficit.

Financial assets measured at cost:

If there is objective evidence that an impairment loss has been incurred on an investment in a residual interest that is not measured at fair value because its fair value cannot be measured reliably, the amount of the impairment loss is measured as the difference between the carrying amount of the financial asset and the present value of estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment losses are not reversed.

Derecognition

Financial assets

The entity derecognises financial assets using trade date accounting.

1.7 Financial instruments (continued)

The entity derecognises a financial asset only when:

- the contractual rights to the cash flows from the financial asset expire, are settled or waived;
- the entity transfers to another party substantially all of the risks and rewards of ownership of the financial asset; or
- the entity, despite having retained some significant risks and rewards of ownership of the financial asset, has transferred control of the asset to another party and the other party has the practical ability to sell the asset in its entirety to an unrelated third party, and is able to exercise that ability unilaterally and without needing to impose additional restrictions on the transfer. In this case, the entity:
  - derecognise the asset; and
  - recognise separately any rights and obligations created or retained in the transfer.

The carrying amounts of the transferred asset are allocated between the rights or obligations retained and those transferred on the basis of their relative fair values at the transfer date. Newly created rights and obligations are measured at their fair values at that date. Any difference between the consideration received and the amounts recognised and derecognised is recognised in surplus or deficit in the period of the transfer.

If the entity transfers a financial asset in a transfer that qualifies for derecognition in its entirety and retains the right to service the financial asset for a fee, it recognises either a servicing asset or a servicing liability for that servicing contract. If the fee to be received is not expected to compensate the entity adequately for performing the servicing, a servicing liability for the servicing obligation is recognised at its fair value. If the fee to be received is expected to be more than adequate compensation for the servicing, a servicing asset is recognised for the servicing right at an amount determined on the basis of an allocation of the carrying amount of the larger financial asset.

If, as a result of a transfer, a financial asset is derecognised in its entirety but the transfer results in the entity obtaining a new financial asset or assuming a new financial liability, or a servicing liability, the entity recognises the new financial asset, financial liability or servicing liability at fair value.

On derecognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received is recognised in surplus or deficit.

If the transferred asset is part of a larger financial asset and the part transferred qualifies for derecognition in its entirety, the previous carrying amount of the larger financial asset is allocated between the part that continues to be recognised and the part that is derecognised, based on the relative fair values of those parts, on the date of the transfer. For this purpose, a retained servicing asset is treated as a part that continues to be recognised. The difference between the carrying amount allocated to the part derecognised and the sum of the consideration received for the part derecognised is recognised in surplus or deficit.

If a transfer does not result in derecognition because the entity has retained substantially all the risks and rewards of ownership of the transferred asset, the entity continues to recognise the transferred asset in its entirety and recognises a financial liability for the consideration received. In subsequent periods, the entity recognises any revenue on the transferred asset and any expense incurred on the financial liability. Neither the asset, and the associated liability nor the revenue, and the associated expenses are offset.

1.7 Financial instruments (continued)

Financial liabilities

The entity removes a financial liability (or a part of a financial liability) from its statement of financial position when it is extinguished — i.e. when the obligation specified in the contract is discharged, cancelled, expires or waived.

An exchange between an existing borrower and lender of debt instruments with substantially different terms is accounted for as having extinguished the original financial liability and a new financial liability is recognised. Similarly, a substantial modification of the terms of an existing financial liability or a part of it is accounted for as having extinguished the original financial liability and having recognised a new financial liability.

The difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid, including any non-cash assets transferred or liabilities assumed, is recognised in surplus or deficit. Any liabilities that are waived, forgiven or assumed by another entity by way of a non-exchange transaction are accounted for in accordance with the Standard of GRAP on Revenue from Non-exchange Transactions (Taxes and Transfers).

Presentation

Interest relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

Losses and gains relating to a financial instrument or a component that is a financial liability is recognised as revenue or expense in surplus or deficit.

A financial asset and a financial liability are only offset and the net amount presented in the statement of financial position when the entity currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis, or to realise the asset and settle the liability simultaneously.

In accounting for a transfer of a financial asset that does not qualify for derecognition, the entity does not offset the transferred asset and the associated liability.

1.8 Statutory receivables

Identification

Statutory receivables are receivables that arise from legislation, supporting regulations, or similar means, and require settlement by another entity in cash or another financial asset.

Carrying amount is the amount at which an asset is recognised in the statement of financial position.

The cost method is the method used to account for statutory receivables that requires such receivables to be measured at their transaction amount, plus any accrued interest or other charges (where applicable) and, less any accumulated impairment losses and any amounts derecognised.

Nominal interest rate is the interest rate and/or basis specified in legislation, supporting regulations or similar means.

ACCOUNTING POLICIES

1.8 Statutory receivables (continued)

The transaction amount (for purposes of this Standard) for a statutory receivable means the amount specified in, or calculated, levied or charged in accordance with legislation, supporting regulations, or similar means.

Recognition

The entity recognises statutory receivables as follows:

- if the transaction is an exchange transaction, using the policy on Revenue from exchange transactions;
- if the transaction is a non-exchange transaction, using the policy on Revenue from non-exchange transactions (Taxes and transfers); or
- if the transaction is not within the scope of the policies listed in the above or another Standard of GRAP, the receivable is recognised when the definition of an asset is met and, when it is probable that the future economic benefits or service potential associated with the asset will flow to the entity and the transaction amount can be measured reliably.

Initial measurement

The entity initially measures statutory receivables at their transaction amount.

Subsequent measurement

The entity measures statutory receivables after initial recognition using the cost method. Under the cost method, the initial measurement of the receivable is changed subsequent to initial recognition to reflect any:

- interest or other charges that may have accrued on the receivable (where applicable);
- impairment losses; and
- amounts derecognised.

Accrued interest

Where the entity levies interest on the outstanding balance of statutory receivables, it adjusts the transaction amount after initial recognition to reflect any accrued interest. Accrued interest is calculated using the nominal interest rate.

Interest on statutory receivables is recognised as revenue in accordance with the policy on Revenue from exchange transactions or the policy on Revenue from non-exchange transactions (Taxes and transfers), whichever is applicable.

Other charges

Where the entity is required or entitled in terms of legislation, supporting regulations, by-laws or similar means to levy additional charges on overdue or unpaid amounts, and such charges are levied, the entity applies the principles as stated in “Accrued interest” above, as well as the relevant policy on Revenue from exchange transactions or the policy on Revenue from non- exchange transactions (Taxes and transfers).

Impairment losses

The entity assesses at each reporting date whether there is any indication that a statutory receivable, or a group of statutory receivables, may be impaired.

1.8 Statutory receivables (continued)

In assessing whether there is any indication that a statutory receivable, or group of statutory receivables, may be impaired, the entity considers, as a minimum, the following indicators:

- Significant financial difficulty of the debtor, which may be evidenced by an application for debt counselling, business rescue or an equivalent.
- It is probable that the debtor will enter sequestration, liquidation or other financial re-organisation.
- A breach of the terms of the transaction, such as default or delinquency in principal or interest payments (where levied).
- Adverse changes in international, national or local economic conditions, such as a decline in growth, an increase in debt levels and unemployment, or changes in migration rates and patterns.

If there is an indication that a statutory receivable, or a group of statutory receivables, may be impaired, the entity measures the impairment loss as the difference between the estimated future cash flows and the carrying amount. Where the carrying amount is higher than the estimated future cash flows, the carrying amount of the statutory receivable, or group of statutory receivables, is reduced, either directly or through the use of an allowance account. The amount of the losses is recognised in surplus or deficit.

In estimating the future cash flows, an entity considers both the amount and timing of the cash flows that it will receive in future. Consequently, where the effect of the time value of money is material, the entity discounts the estimated future cash flows using a rate that reflects the current risk free rate and, if applicable, any risks specific to the statutory receivable, or group of statutory receivables, for which the future cash flow estimates have not been adjusted.

An impairment loss recognised in prior periods for a statutory receivable is revised if there has been a change in the estimates used since the last impairment loss was recognised, or to reflect the effect of discounting the estimated cash flows.

Any previously recognised impairment loss is adjusted either directly or by adjusting the allowance account. The adjustment does not result in the carrying amount of the statutory receivable or group of statutory receivables exceeding what the carrying amount of the receivable(s) would have been, had the impairment loss not been recognised at the date the impairment is revised. The amount of any adjustment is recognised in surplus or deficit.

Derecognition

The entity derecognises a statutory receivable, or a part thereof, when:

- the rights to the cash flows from the receivable are settled, expire or are waived;
- the entity transfers to another party substantially all of the risks and rewards of ownership of the receivable; or
- the entity, despite having retained some significant risks and rewards of ownership of the receivable, has transferred control of the receivable to another party and the other party has the practical ability to sell the receivable in its entirety to an unrelated third party, and is able to exercise that ability unilaterally and without needing to impose additional restrictions on the transfer. In this case, the entity:
  - derecognises the receivable; and
  - recognises separately any rights and obligations created or retained in the transfer.

1.8 Statutory receivables (continued)

The carrying amounts of any statutory receivables transferred are allocated between the rights or obligations retained and those transferred on the basis of their relative fair values at the transfer date. The entity considers whether any newly created rights and obligations are within the scope of the Standard of GRAP on Financial Instruments or another Standard of GRAP. Any difference between the consideration received and the amounts derecognised and, those amounts recognised, are recognised in surplus or deficit in the period of the transfer.

1.9 Tax

Tax expenses

No provision has been made for taxation, as the entity is exempt from income tax in terms of Section 10 of the Income Tax Act, 1962 (No. 58 of 1962).

1.10 Leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

When a lease includes both land and buildings elements, the entity assesses the classification of each element separately.

Operating leases - lessor

Operating lease revenue is recognised as revenue on a straight-line basis over the lease term.

Initial direct costs incurred in negotiating and arranging operating leases are added to the carrying amount of the leased asset and recognised as an expense over the lease term on the same basis as the lease revenue.

The aggregate cost of incentives is recognised as a reduction of rental revenue over the lease term on a straight-line basis.

The aggregate benefit of incentives is recognised as a reduction of rental expense over the lease term on a straight-line basis.

Income for leases is disclosed under revenue in the statement of financial performance.

ACCOUNTING POLICIES

1.10 Leases (continued)

Operating leases - lessee

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments is recognised as an operating lease asset or liability.

The aggregate cost of incentives is recognised as a reduction of rental revenue over the lease term on a straight-line basis.

The aggregate benefit of incentives is recognised as a reduction of rental expense over the lease term on a straight-line basis.

1.11 Inventories

Inventories are initially measured at cost except where inventories are acquired through a non-exchange transaction, then their costs are their fair value as at the date of acquisition.

Subsequently inventories are measured at the lower of cost and net realisable value.

Inventories are measured at the lower of cost and current replacement cost where they are held for;

- distribution at no charge or for a nominal charge; or
- consumption in the production process of goods to be distributed at no charge or for a nominal charge.

Net realisable value is the estimated selling price in the ordinary course of operations less the estimated costs of completion and the estimated costs necessary to make the sale, exchange or distribution.

Current replacement cost is the cost the entity incurs to acquire the asset on the reporting date.

The cost of inventories comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

The cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects is assigned using specific identification of the individual costs.

The cost of inventories is assigned using the weighted average cost formula. The same cost formula is used for all inventories having a similar nature and use to the entity.

When inventories are sold, the carrying amounts of those inventories are recognised as an expense in the period in which the related revenue is recognised. If there is no related revenue, the expenses are recognised when the goods are distributed, or related services are rendered. The amount of any write-down of inventories to net realisable value or current replacement cost and all losses of inventories is recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realisable value or current replacement cost, is recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

ACCOUNTING POLICIES

1.12 Impairment of cash-generating assets

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Impairment is a loss in the future economic benefits or service potential of an asset, over and above the systematic recognition of the loss of the asset's future economic benefits or service potential through depreciation (amortisation).

Carrying amount is the amount at which an asset is recognised in the statement of financial position after deducting any accumulated depreciation and accumulated impairment losses thereon.

A cash-generating unit is the smallest identifiable group of assets managed with the objective of generating a commercial return that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets.

Costs of disposal are incremental costs directly attributable to the disposal of an asset, excluding finance costs and income tax expense.

Depreciation (Amortisation) is the systematic allocation of the depreciable amount of an asset over its useful life.

Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

Recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs to sell and its value in use.

Useful life is either:
(a) the period of time over which an asset is expected to be used by the entity; or
(b) the number of production or similar units expected to be obtained from the asset by the entity.

Identification

When the carrying amount of a cash-generating asset exceeds its recoverable amount, it is impaired.

The entity assesses at each reporting date whether there is any indication that a cash-generating asset may be impaired. If any such indication exists, the entity estimates the recoverable amount of the asset.

Irrespective of whether there is any indication of impairment, the entity also tests a cash-generating intangible asset with an indefinite useful life or a cash-generating intangible asset not yet available for use for impairment annually by comparing its carrying amount with its recoverable amount. This impairment test is performed at the same time every year. If an intangible asset was initially recognised during the current reporting period, that intangible asset was tested for impairment before the end of the current reporting period.

1.12 Impairment of cash-generating assets (continued)

Value in use

Value in use of a cash-generating asset is the present value of the estimated future cash flows expected to be derived from the continuing use of an asset and from its disposal at the end of its useful life.

When estimating the value in use of an asset, the entity estimates the future cash inflows and outflows to be derived from continuing use of the asset and from its ultimate disposal and the entity applies the appropriate discount rate to those future cash flows.

Basis for estimates of future cash flows

In measuring value in use the entity:

- bases cash flow projections on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions that will exist over the remaining useful life of the asset. Greater weight is given to external evidence;
- bases cash flow projections on the most recent approved financial budgets/forecasts, but excludes any estimated future cash inflows or outflows expected to arise from future restructuring or from improving or enhancing the asset's performance. Projections based on these budgets/ forecasts cover a maximum period of five years, unless a longer period can be justified; and
- estimates cash flow projections beyond the period covered by the most recent budgets/forecasts by extrapolating the projections based on the budgets/forecasts using a steady or declining growth rate for subsequent years, unless an increasing rate can be justified. This growth rate does not exceed the long-term average growth rate for the products, industries, or country or countries in which the entity operates, or for the market in which the asset is used, unless a higher rate can be justified.

Composition of estimates of future cash flows

Estimates of future cash flows include:

- projections of cash inflows from the continuing use of the asset;
- projections of cash outflows that are necessarily incurred to generate the cash inflows from continuing use of the asset (including cash outflows to prepare the asset for use) and can be directly attributed, or allocated on a reasonable and consistent basis, to the asset; and
- net cash flows, if any, to be received (or paid) for the disposal of the asset at the end of its useful life.

Estimates of future cash flows exclude:

- cash inflows or outflows from financing activities.

The estimate of net cash flows to be received (or paid) for the disposal of an asset at the end of its useful life is the amount that the entity expects to obtain from the disposal of the asset in an arm's length transaction between knowledgeable, willing parties, after deducting the estimated costs of disposal.

1.12 Impairment of cash-generating assets (continued)

Foreign currency future cash flows

Future cash flows are estimated in the currency in which they will be generated and then discounted using a discount rate appropriate for that currency. The entity translates the present value using the spot exchange rate at the date of the value in use calculation.

Discount rate

The discount rate is a pre-tax rate that reflects current market assessments of the time value of money, represented by the current risk-free rate of interest and the risks specific to the asset for which the future cash flow estimates have not been adjusted.

Recognition and measurement (individual asset)

If the recoverable amount of a cash-generating asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount. This reduction is an impairment loss.

An impairment loss is recognised immediately in surplus or deficit.

Any impairment loss of a revalued cash-generating asset is treated as a revaluation decrease.

When the amount estimated for an impairment loss is greater than the carrying amount of the cash-generating asset to which it relates, the entity recognises a liability only to the extent that is a requirement in the Standard of GRAP.

After the recognition of an impairment loss, the depreciation (amortisation) charge for the cash-generating asset is adjusted in future periods to allocate the cash-generating asset's revised carrying amount, less its residual value (if any), on a systematic basis over its remaining useful life.

Cash-generating units

If there is any indication that an asset may be impaired, the recoverable amount is estimated for the individual asset. If it is not possible to estimate the recoverable amount of the individual asset, the entity determines the recoverable amount of the cash-generating unit to which the asset belongs (the asset's cash-generating unit).

If an active market exists for the output produced by an asset or group of assets, that asset or group of assets is identified as a cash-generating unit, even if some or all of the output is used internally. If the cash inflows generated by any asset or cash- generating unit are affected by internal transfer pricing, the entity uses management's best estimate of future price(s) that could be achieved in arm's length transactions in estimating:

- the future cash inflows used to determine the asset's or cash-generating unit's value in use; and
- the future cash outflows used to determine the value in use of any other assets or cash-generating units that are affected by the internal transfer pricing.

Cash-generating units are identified consistently from period to period for the same asset or types of assets, unless a change is justified.

1.12 Impairment of cash-generating assets (continued)

The carrying amount of a cash-generating unit is determined on a basis consistent with the way the recoverable amount of the cash-generating unit is determined.

An impairment loss is recognised for a cash-generating unit if the recoverable amount of the unit is less than the carrying amount of the unit. The impairment is allocated to reduce the carrying amount of the cash-generating assets of the unit on a pro rata basis, based on the carrying amount of each asset in the unit. These reductions in carrying amounts are treated as impairment losses on individual assets.

In allocating an impairment loss, the entity does not reduce the carrying amount of an asset below the highest of:

- its fair value less costs to sell (if determinable);
- its value in use (if determinable); and
- zero.

The amount of the impairment loss that would otherwise have been allocated to the asset is allocated pro rata to the other cash-generating assets of the unit.

Where a non-cash-generating asset contributes to a cash-generating unit, a proportion of the carrying amount of that non-cash-generating asset is allocated to the carrying amount of the cash-generating unit prior to estimation of the recoverable amount of the cash-generating unit.

Reversal of impairment loss

The entity assesses at each reporting date whether there is any indication that an impairment loss recognised in prior periods for a cash-generating asset may no longer exist or may have decreased. If any such indication exists, the entity estimates the recoverable amount of that asset.

An impairment loss recognised in prior periods for a cash-generating asset is reversed if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. The carrying amount of the asset is increased to its recoverable amount. The increase is a reversal of an impairment loss. The increased carrying amount of an asset attributable to a reversal of an impairment loss does not exceed the carrying amount that would have been determined (net of depreciation or amortisation), had no impairment loss been recognised for the asset in prior periods.

A reversal of an impairment loss for a cash-generating asset is recognised immediately in surplus or deficit.

Any reversal of an impairment loss of a revalued cash-generating asset is treated as a revaluation increase.

After a reversal of an impairment loss is recognised, the depreciation (amortisation) charge for the cash-generating asset is adjusted in future periods to allocate the cash-generating asset's revised carrying amount, less its residual value (if any), on a systematic basis over its remaining useful life.

A reversal of an impairment loss for a cash-generating unit is allocated to the cash-generating assets of the unit pro rata with the carrying amounts of those assets. These increases in carrying amounts are treated as reversals of impairment losses for individual assets. No part of the amount of such a reversal is allocated to a non-cash-generating asset contributing service potential to a cash-generating unit.

1.12 Impairment of cash-generating assets (continued)

In allocating a reversal of an impairment loss for a cash-generating unit, the carrying amount of an asset is not increased above the lower of:

- its recoverable amount (if determinable); and
- the carrying amount that would have been determined (net of amortisation or depreciation) had no impairment loss been recognised for the asset in prior periods.

The amount of the reversal of the impairment loss that would otherwise have been allocated to the asset is allocated pro rata to the other assets of the unit.

Redesignation

The redesignation of assets from a cash-generating asset to a non-cash-generating asset or from a non-cash-generating asset to a cash-generating asset only occurs when there is clear evidence that such a redesignation is appropriate.

1.13 Impairment of non-cash-generating assets

Cash-generating assets are assets managed with the objective of generating a commercial return. An asset generates a commercial return when it is deployed in a manner consistent with that adopted by a profit-oriented entity.

Non-cash-generating assets are assets other than cash-generating assets.

Identification

When the carrying amount of a non-cash-generating asset exceeds its recoverable service amount, it is impaired.

The entity assesses at each reporting date whether there is any indication that a non-cash-generating asset may be impaired. If any such indication exists, the entity estimates the recoverable service amount of the asset.

Irrespective of whether there is any indication of impairment, the entity also tests a non-cash-generating intangible asset with an indefinite useful life or a non-cash-generating intangible asset not yet available for use for impairment annually by comparing its carrying amount with its recoverable service amount. This impairment test is performed at the same time every year. If an intangible asset was initially recognised during the current reporting period, that intangible asset was tested for impairment before the end of the current reporting period.

Value in use

Value in use of non-cash-generating assets is the present value of the non-cash-generating assets remaining service potential.

The present value of the remaining service potential of a non-cash-generating assets is determined using the following approach:

Service units approach

The present value of the remaining service potential of the asset is determined by reducing the current cost of the remaining service potential of the asset before impairment, to conform to the reduced number of service units expected from the asset in its impaired state. The current cost of replacing the remaining service potential of the asset before impairment is determined as the depreciated reproduction or replacement cost of the asset before impairment, whichever is lower.

1.13 Impairment of non-cash-generating assets (continued)

Recognition and measurement

If the recoverable service amount of a non-cash-generating asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable service amount. This reduction is an impairment loss.

An impairment loss is recognised immediately in surplus or deficit.

Any impairment loss of a revalued non-cash-generating asset is treated as a revaluation decrease.

When the amount estimated for an impairment loss is greater than the carrying amount of the non-cash-generating asset to which it relates, the entity recognises a liability only to the extent that is a requirement in the Standards of GRAP.

After the recognition of an impairment loss, the depreciation (amortisation) charge for the non-cash-generating asset is adjusted in future periods to allocate the non-cash-generating asset's revised carrying amount, less its residual value (if any), on a systematic basis over its remaining useful life.

Reversal of an impairment loss

The entity assesses at each reporting date whether there is any indication that an impairment loss recognised in prior periods for a non-cash-generating asset may no longer exist or may have decreased. If any such indication exists, the entity estimates the recoverable service amount of that asset.

An impairment loss recognised in prior periods for a non-cash-generating asset is reversed if there has been a change in the estimates used to determine the asset's recoverable service amount since the last impairment loss was recognised. The carrying amount of the asset is increased to its recoverable service amount. The increase is a reversal of an impairment loss. The increased carrying amount of an asset attributable to a reversal of an impairment loss does not exceed the carrying amount that would have been determined (net of depreciation or amortisation) had no impairment loss been recognised for the asset in prior periods.

A reversal of an impairment loss for a non-cash-generating asset is recognised immediately in surplus or deficit.

Any reversal of an impairment loss of a revalued non-cash-generating asset is treated as a revaluation increase.

After a reversal of an impairment loss is recognised, the depreciation (amortisation) charge for the non-cash-generating asset is adjusted in future periods to allocate the non-cash-generating asset's revised carrying amount, less its residual value (if any), on a systematic basis over its remaining useful life.

Redesignation

The redesignation of assets from a cash-generating asset to a non-cash-generating asset or from a non-cash-generating asset to a cash-generating asset only occurs when there is clear evidence that such a redesignation is appropriate.

1.14 Employee benefits (continued)

Employee benefits are all forms of consideration given by an entity in exchange for service rendered by employees.

A qualifying insurance policy is an insurance policy issued by an insurer that is not a related party (as defined in the Standard of GRAP on Related Party Disclosures) of the reporting entity, if the proceeds of the policy can be used only to pay or fund employee benefits under a defined benefit plan and are not available to the reporting entity's own creditors (even in liquidation) and cannot be paid to the reporting entity, unless either:

- the proceeds represent surplus assets that are not needed for the policy to meet all the related employee benefit obligations; or
- the proceeds are returned to the reporting entity to reimburse it for employee benefits already paid.

Termination benefits are employee benefits payable as a result of either:

- an entity's decision to terminate an employee's employment before the normal retirement date; or
- an employee's decision to accept voluntary redundancy in exchange for those benefits.

Other long-term employee benefits are employee benefits (other than post-employment benefits and termination benefits) that are not due to be settled within twelve months after the end of the period in which the employees render the related service.

Vested employee benefits are employee benefits that are not conditional on future employment.

Composite social security programmes are established by legislation and operate as multi-employer plans to provide post-employment benefits as well as to provide benefits that are not consideration in exchange for service rendered by employees.

A constructive obligation is an obligation that derives from an entity's actions where by an established pattern of past practice, published policies or a sufficiently specific current statement, the entity has indicated to other parties that it will accept certain responsibilities and as a result, the entity has created a valid expectation on the part of those other parties that it will discharge those responsibilities.

Short-term employee benefits

Short-term employee benefits are employee benefits (other than termination benefits) that are due to be settled within twelve months after the end of the period in which the employees render the related service.

Short-term employee benefits include items such as:

- wages, salaries and social security contributions;
- short-term compensated absences (such as paid annual leave and paid sick leave) where the compensation for the absences is due to be settled within twelve months after the end of the reporting period in which the employees render the related employee service;
- bonus, incentive and performance related payments payable within twelve months after the end of the reporting period in which the employees render the related service; and
- non-monetary benefits (for example, medical care, and free or subsidised goods or services such as housing, cars and cellphones) for current employees.

1.14 Employee benefits (continued)

When an employee has rendered service to the entity during a reporting period, the entity recognises the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service:

- as a liability (accrued expense), after deducting any amount already paid. If the amount already paid exceeds the undiscounted amount of the benefits, the entity recognises that excess as an asset (prepaid expense) to the extent that the prepayment will lead to, for example, a reduction in future payments or a cash refund; and
- as an expense, unless another Standard requires or permits the inclusion of the benefits in the cost of an asset.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs. The entity measures the expected cost of accumulating compensated absences as the additional amount that the entity expects to pay as a result of the unused entitlement that has accumulated at the reporting date.

The entity recognises the expected cost of bonus, incentive and performance related payments when the entity has a present legal or constructive obligation to make such payments as a result of past events and a reliable estimate of the obligation can be made. A present obligation exists when the entity has no realistic alternative but to make the payments.

Post-employment benefits

Post-employment benefits are employee benefits (other than termination benefits) which are payable after the completion of employment.

Post-employment benefit plans are formal or informal arrangements under which an entity provides post-employment benefits for one or more employees.

Post-employment benefits: Defined benefit plans

Defined benefit plans are post-employment benefit plans other than defined contribution plans.

Actuarial gains and losses comprise experience adjustments (the effects of differences between the previous actuarial assumptions and what has actually occurred) and the effects of changes in actuarial assumptions. In measuring its defined benefit liability the entity recognises actuarial gains and losses in surplus or deficit in the reporting period in which they occur.

Assets held by a long-term employee benefit fund are assets (other than non-transferable financial instruments issued by the reporting entity) that are held by an entity (a fund) that is legally separate from the reporting entity and exists solely to pay or fund employee benefits and are available to be used only to pay or fund employee benefits, are not available to the reporting entity's own creditors (even in liquidation), and cannot be returned to the reporting entity, unless either:

- the remaining assets of the fund are sufficient to meet all the related employee benefit obligations of the plan or the reporting entity; or
- the assets are returned to the reporting entity to reimburse it for employee benefits already paid.

ACCOUNTING POLICIES

1.14 Employee benefits (continued)

Current service cost is the increase in the present value of the defined benefit obligation resulting from employee service in the current period.

Interest cost is the increase during a period in the present value of a defined benefit obligation which arises because the benefits are one period closer to settlement.

Past service cost is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting in the current period from the introduction of, or changes to, post-employment benefits or other long-term employee benefits. Past service cost may be either positive (when benefits are introduced or changed so that the present value of the defined benefit obligation increases) or negative (when existing benefits are changed so that the present value of the defined benefit obligation decreases). In measuring its defined benefit liability the entity recognises past service cost as an expense in the reporting period in which the plan is amended.

Plan assets comprise assets held by a long-term employee benefit fund and qualifying insurance policies.

The present value of a defined benefit obligation is the present value, without deducting any plan assets, of expected future payments required to settle the obligation resulting from employee service in the current and prior periods.

The return on plan assets is interest, dividends or similar distributions and other revenue derived from the plan assets, together with realised and unrealised gains or losses on the plan assets, less any costs of administering the plan (other than those included in the actuarial assumptions used to measure the defined benefit obligation) and less any tax payable by the plan itself.

The entity accounts not only for its legal obligation under the formal terms of a defined benefit plan, but also for any constructive obligation that arises from the entity's informal practices. Informal practices give rise to a constructive obligation where the entity has no realistic alternative but to pay employee benefits. An example of a constructive obligation is where a change in the entity's informal practices would cause unacceptable damage to its relationship with employees.

The amount recognised as a defined benefit liability is the net total of the following amounts:

- the present value of the defined benefit obligation at the reporting date;
- minus the fair value at the reporting date of plan assets (if any) out of which the obligations are to be settled directly;
- plus any liability that may arise as a result of a minimum funding requirement.

The amount determined as a defined benefit liability may be negative (an asset). The entity measures the resulting asset at the lower of:

- the amount determined above; and
- the present value of any economic benefits available in the form of refunds from the plan or reductions in future contributions to the plan. The present value of these economic benefits is determined using a discount rate which reflects the time value of money.

Any adjustments arising from the limit above is recognised in surplus or deficit.

1.14 Employee benefits (continued)

The entity determines the present value of defined benefit obligations and the fair value of any plan assets with sufficient regularity such that the amounts recognised in the financial statements do not differ materially from the amounts that would be determined at the reporting date.

The entity recognises the net total of the following amounts in surplus or deficit, except to the extent that another Standard requires or permits their inclusion in the cost of an asset:

- current service cost;
- interest cost;
- the expected return on any plan assets and on any reimbursement rights;
- actuarial gains and losses;
- past service cost;
- the effect of any curtailments or settlements; and
- the effect of applying the limit on a defined benefit asset (negative defined benefit liability).

The entity uses the Projected Unit Credit Method to determine the present value of its defined benefit obligations and the related current service cost and, where applicable, past service cost. The Projected Unit Credit Method (sometimes known as the accrued benefit method pro-rated on service or as the benefit/years of service method) sees each period of service as giving rise to an additional unit of benefit entitlement and measures each unit separately to build up the final obligation.

In determining the present value of its defined benefit obligations and the related current service cost and, where applicable, past service cost, an entity shall attribute benefit to periods of service under the plan's benefit formula. However, if an employee's service in later years will lead to a materially higher level of benefit than in earlier years, an entity shall attribute benefit on a straight-line basis from:

- the date when service by the employee first leads to benefits under the plan (whether or not the benefits are conditional on further service); until
- the date when further service by the employee will lead to no material amount of further benefits under the plan, other than from further salary increases.

Actuarial valuations are conducted on an annual basis by independent actuaries separately for each plan. The results of the valuation are updated for any material transactions and other material changes in circumstances (including changes in market prices and interest rates) up to the reporting date.

The entity recognises gains or losses on the curtailment or settlement of a defined benefit plan when the curtailment or settlement occurs. The gain or loss on a curtailment or settlement comprises:

- any resulting change in the present value of the defined benefit obligation; and
- any resulting change in the fair value of the plan assets.

Before determining the effect of a curtailment or settlement, the entity re-measures the obligation (and the related plan assets, if any) using current actuarial assumptions (including current market interest rates and other current market prices).

1.14 Employee benefits (continued)

When it is virtually certain that another party will reimburse some or all of the expenditure required to settle a defined benefit obligation, the right to reimbursement is recognised as a separate asset. The asset is measured at fair value. In all other respects, the asset is treated in the same way as plan assets. In surplus or deficit, the expense relating to a defined benefit plan is presented as the net of the amount recognised for a reimbursement.

Actuarial assumptions

Actuarial assumptions are unbiased and mutually compatible.

Financial assumptions are based on market expectations, at the reporting date, for the period over which the obligations are to be settled.

The rate used to discount post-employment benefit obligations (both funded and unfunded) reflects the time value of money. The currency and term of the financial instrument selected to reflect the time value of money is consistent with the currency and estimated term of the post-employment benefit obligations.

Post-employment benefit obligations are measured on a basis that reflects:

- estimated future salary increases;
- the benefits set out in the terms of the plan (or resulting from any constructive obligation that goes beyond those terms) at the reporting date; and
- estimated future changes in the level of any state benefits that affect the benefits payable under a defined benefit plan, if, and only if, either:
- those changes were enacted before the reporting date; or
- past history, or other reliable evidence, indicates that those stated benefits will change in some predictable manner, for example, in line with future changes in general price levels or general salary levels.

Assumptions about medical costs take account of estimated future changes in the cost of medical services, resulting from both inflation and specific changes in medical costs.

1.15 Provisions and contingencies

Provisions are recognised when:

- the entity has a present obligation as a result of a past event;
- it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation; and
- a reliable estimate can be made of the obligation.

The amount of a provision is the best estimate of the expenditure expected to be required to settle the present obligation at the reporting date.

Where the effect of time value of money is material, the amount of a provision is the present value of the expenditures expected to be required to settle the obligation.

The discount rate is a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability.

1.15 Provisions and contingencies (continued)

Where some or all of the expenditure required to settle a provision is expected to be reimbursed by another party, the reimbursement is recognised when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement is treated as a separate asset. The amount recognised for the reimbursement does not exceed the amount of the provision.

Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate. Provisions are reversed if it is no longer probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation.

Where discounting is used, the carrying amount of a provision increases in each period to reflect the passage of time. This increase is recognised as an interest expense.

A provision is used only for expenditures for which the provision was originally recognised.

Provisions are not recognised for future operating deficits.

If an entity has a contract that is onerous, the present obligation (net of recoveries) under the contract is recognised and measured as a provision.

A constructive obligation to restructure arises only when an entity:

- has a detailed formal plan for the restructuring, identifying at least:
  - the activity/operating unit or part of a activity/operating unit concerned;
  - the principal locations affected;
  - the location, function, and approximate number of employees who will be compensated for services being terminated;
  - the expenditures that will be undertaken; and
  - when the plan will be implemented; and
- has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement that plan or announcing its main features to those affected by it.

A restructuring provision includes only the direct expenditures arising from the restructuring, which are those that are both:

- necessarily entailed by the restructuring; and
- not associated with the ongoing activities of the entity.

No obligation arises as a consequence of the sale or transfer of an operation until the entity is committed to the sale or transfer, that is, there is a binding arrangement.

After their initial recognition contingent liabilities recognised in entity combinations that are recognised separately are subsequently measured at the higher of:

- the amount that would be recognised as a provision; and
- the amount initially recognised less cumulative amortisation.

Contingent assets and contingent liabilities are not recognised. Contingencies are disclosed in Note 28.

ACCOUNTING POLICIES

1.16 Commitments

Items are classified as commitments when an entity has committed itself to future transactions that will normally result in the outflow of cash.

Disclosures are required in respect of unrecognised contractual commitments.

Commitments for which disclosure is necessary to achieve a fair presentation should be disclosed in a note to the financial statements, if both the following criteria are met:

- Contracts should be non-cancellable or only cancellable at significant cost (for example, contracts for computer or building maintenance services); and
- Contracts should relate to something other than the routine, steady, state business of the entity – therefore salary commitments relating to employment contracts or social security benefit commitments are excluded.

1.17 Revenue from exchange transactions

Revenue is the gross inflow of economic benefits or service potential during the reporting period when those inflows result in an increase in net assets, other than increases relating to contributions from owners.

An exchange transaction is one in which the entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of goods, services or use of assets) to the other party in exchange.

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction.

Measurement

Revenue is measured at the fair value of the consideration received or receivable, net of trade discounts and volume rebates.

Sale of goods

Revenue from the sale of goods is recognised when all the following conditions have been satisfied:

- the entity has transferred to the purchaser the significant risks and rewards of ownership of the goods;
- the entity retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits or service potential associated with the transaction will flow to the entity; and
- the costs incurred or to be incurred in respect of the transaction can be measured reliably.

1.17 Revenue from exchange transactions (continued)

Rendering of services

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the reporting date. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- the amount of revenue can be measured reliably;
- it is probable that the economic benefits or service potential associated with the transaction will flow to the entity;
- the stage of completion of the transaction at the reporting date can be measured reliably; and
- the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When services are performed by an indeterminate number of acts over a specified time frame, revenue is recognised on a straight line basis over the specified time frame unless there is evidence that some other method better represents the stage of completion. When a specific act is much more significant than any other acts, the recognition of revenue is postponed until the significant act is executed.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue is recognised only to the extent of the expenses recognised that are recoverable.

Service revenue is recognised by reference to the stage of completion of the transaction at the reporting date. Stage of completion is determined by services performed to date as a percentage of total services to be performed.

Interest and royalties

Revenue arising from the use by others of entity assets yielding interest and royalties or similar distributions is recognised when:

- It is probable that the economic benefits or service potential associated with the transaction will flow to the entity; and
- The amount of the revenue can be measured reliably.

Interest is recognised, in surplus or deficit, using the effective interest rate method.

Royalties are recognised as they are earned in accordance with the substance of the relevant agreements.

Service fees included in the price of the product are recognised as revenue over the period during which the service is performed.

ACCOUNTING POLICIES

1.18 Revenue from non-exchange transactions

Revenue comprises gross inflows of economic benefits or service potential received and receivable by an entity, which represents an increase in net assets, other than increases relating to contributions from owners.

Conditions on transferred assets are stipulations that specify that the future economic benefits or service potential embodied in the asset is required to be consumed by the recipient as specified or future economic benefits or service potential must be returned to the transferor.

Control of an asset arises when the entity can use or otherwise benefit from the asset in pursuit of its objectives and can exclude or otherwise regulate the access of others to that benefit.

Exchange transactions are transactions in which one entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of cash, goods, services, or use of assets) to another entity in exchange.

Non-exchange transactions are transactions that are not exchange transactions. In a non-exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Restrictions on transferred assets are stipulations that limit or direct the purposes for which a transferred asset may be used, but do not specify that future economic benefits or service potential are required to be returned to the transferor if not deployed as specified.

Stipulations on transferred assets are terms in laws or regulation, or a binding arrangement, imposed upon the use of a transferred asset by entities external to the reporting entity.

Transfers are inflows of future economic benefits or service potential from non-exchange transactions, other than taxes.

Recognition

An inflow of resources from a non-exchange transaction recognised as an asset is recognised as revenue, except to the extent that a liability is also recognised in respect of the same inflow.

As the entity satisfies a present obligation recognised as a liability in respect of an inflow of resources from a non-exchange transaction recognised as an asset, it reduces the carrying amount of the liability recognised and recognises an amount of revenue equal to that reduction.

Measurement

Revenue from a non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity.

1.18 Revenue from non-exchange transactions (continued)

When, as a result of a non-exchange transaction, the entity recognises an asset, it also recognises revenue equivalent to the amount of the asset measured at its fair value as at the date of acquisition, unless it is also required to recognise a liability. Where a liability is required to be recognised it will be measured as the best estimate of the amount required to settle the obligation at the reporting date, and the amount of the increase in net assets, if any, recognised as revenue. When a liability is subsequently reduced, because the taxable event occurs or a condition is satisfied, the amount of the reduction in the liability is recognised as revenue.

Transfers

The entity recognises an asset in respect of transfers when the transferred resources meet the definition of an asset and satisfy the criteria for recognition as an asset.

Transferred assets are measured at their fair value as at the date of acquisition.

Debt forgiveness and assumption of liabilities

The entity recognises revenue in respect of debt forgiveness when the former debt no longer meets the definition of a liability or satisfies the criteria for recognition as a liability, provided that the debt forgiveness does not satisfy the definition of a contribution from owners.

Revenue arising from debt forgiveness is measured at the carrying amount of debt forgiven.

Gifts and donations, including goods in-kind

Gifts and donations, including goods in kind, are recognised as assets and revenue when it is probable that the future economic benefits or service potential will flow to the entity and the fair value of the assets can be measured reliably.

Services in-kind

The entity recognises services in-kind that are significant to its operations and/or service delivery objectives as assets and recognise the related revenue when it is probable that the future economic benefits or service potential will flow to the entity and the fair value of the assets can be measured reliably.

Where services in-kind are not significant to the entity's operations and/or service delivery objectives and/or do not satisfy the criteria for recognition, the entity discloses the nature and type of services in-kind received during the reporting period.

1.19 Turnover

Turnover comprises sales to customers and services rendered to customers. Turnover is stated at the invoice amount and is exclusive of value added taxation.

ACCOUNTING POLICIES

1.20 Investment income

Investment income is recognised on a time-proportion basis using the effective interest method.

1.21 Borrowing costs

Borrowing costs are interest and other expenses incurred by an entity in connection with the borrowing of funds. Borrowing costs are recognised as an expense in the period in which they are incurred.

1.22 Translation of foreign currencies

Foreign currency transactions

A foreign currency transaction is recorded, on initial recognition in Rands, by applying to the foreign currency amount the spot exchange rate between the functional currency and the foreign currency at the date of the transaction.

At each reporting date:

- foreign currency monetary items are translated using the closing rate;
- non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction; and
- non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous financial statements are recognised in surplus or deficit in the period in which they arise.

When a gain or loss on a non-monetary item is recognised directly in net assets, any exchange component of that gain or loss is recognised directly in net assets. When a gain or loss on a non-monetary item is recognised in surplus or deficit, any exchange component of that gain or loss is recognised in surplus or deficit.

Cash flows arising from transactions in a foreign currency are recorded in Rands by applying to the foreign currency amount the exchange rate between the Rand and the foreign currency at the date of the cash flow.

1.23 Comparative figures

Where necessary, comparative figures have been reclassified to conform to changes in presentation in the current year.

1.24 Fruitless and wasteful expenditure

Fruitless expenditure means expenditure which was made in vain and would have been avoided had reasonable care been exercised.

All expenditure relating to fruitless and wasteful expenditure is recognised as an expense in the statement of financial performance in the year that the expenditure was incurred. The expenditure is classified in accordance with the nature of the expense, and where recovered, it is subsequently accounted for as revenue in the statement of financial performance.

ACCOUNTING POLICIES

1.25 Irregular expenditure

Irregular expenditure as defined in section 1 of the PFMA is expenditure other than unauthorised expenditure, incurred in contravention of or that is not in accordance with a requirement of any applicable legislation, including -

(a) this Act; or
(b) the State Tender Board Act, 1968 (Act No. 86 of 1968), or any regulations made in terms of the Act; or
(c) any provincial legislation providing for procurement procedures in that provincial government.

National Treasury practice note no. 4 of 2008/2009 which was issued in terms of sections 76(1) to 76(4) of the PFMA requires the following (effective from 1 April 2008):

Irregular expenditure that was incurred and identified during the current financial and which was condoned before year end and/or before finalisation of the financial statements must also be recorded appropriately in the irregular expenditure register. In such an instance, no further action is required with the exception of updating the note to the financial statements.

Irregular expenditure that was incurred and identified during the current financial year and for which condonement is being awaited at year end must be recorded in the irregular expenditure register. No further action is required with the exception of updating the note to the financial statements.

Where irregular expenditure was incurred in the previous financial year and is only condoned in the following financial year, the register and the disclosure note to the financial statements must be updated with the amount condoned.

Irregular expenditure that was incurred and identified during the current financial year and which was not condoned by the National Treasury or the relevant authority must be recorded appropriately in the irregular expenditure register. If liability for the irregular expenditure can be attributed to a person, a debt account must be created if such a person is liable in law. Immediate steps must thereafter be taken to recover the amount from the person concerned. If recovery is not possible, the accounting officer or accounting authority may write off the amount as debt impairment and disclose such in the relevant note to the financial statements. The irregular expenditure register must also be updated accordingly. If the irregular expenditure has not been condoned and no person is liable in law, the expenditure related thereto must remain against the relevant programme/expenditure item, be disclosed as such in the note to the financial statements and updated accordingly in the irregular expenditure register.

1.26 Research and development expenditure

Expenditure on research is recognised as an expense when it is incurred.

An asset arising from development is recognised when:

- it is technically feasible to complete the asset so that it will be available for use or sale.
- there is an intention to complete and use or sell it.
- there is an ability to use or sell it.
- it will generate probable future economic benefits or service potential.
- there are available technical, financial and other resources to complete the development and to use or sell the asset.
- the expenditure attributable to the asset during its development can be measured reliably.

ACCOUNTING POLICIES

1.27 Budget information

An entity is typically subject to budgetary limits in the form of appropriations or budget authorisations (or equivalent), which is given effect through authorising legislation, appropriation or similar.

General purpose financial reporting by the entity shall provide information on whether resources were obtained and used in accordance with the legally adopted budget.

The approved budget is prepared on an accrual basis and presented by economic classification linked to performance outcome objectives.

The approved budget covers the fiscal period from 01 April 2017 to 31 March 2018.

The financial statements and the budget are on the same basis of accounting, therefore a comparison with the budgeted amounts for the reporting period has been included in the Statement of comparison of budget and actual amounts.

1.28 Related parties

The entity operates in an economic sector currently dominated by entities directly or indirectly owned by the South African Government. As a consequence of the constitutional independence of the three spheres of government in South Africa, only entities within the national sphere of government are considered to be related parties.

Management are those persons responsible for planning, directing and controlling the activities of the entity, including those charged with the governance of the entity in accordance with legislation, in instances where they are required to perform such functions.

Close members of the family of a person are considered to be those family members who may be expected to influence, or be influenced by, that management in their dealings with the entity.

Only transactions with related parties not at arm's length or not in the ordinary course of business are disclosed.

1.29 Events after reporting date

Events after reporting date are those events, both favourable and unfavourable, that occur between the reporting date and the date when the financial statements are authorised for issue. Two types of events can be identified:

- those that provide evidence of conditions that existed at the reporting date (adjusting events after the reporting date); and
- those that are indicative of conditions that arose after the reporting date (non-adjusting events after the reporting date).

The entity will adjust the amount recognised in the financial statements to reflect adjusting events after the reporting date once the event occurred.

The entity will disclose the nature of the event and an estimate of its financial effect or a statement that such estimate cannot be made in respect of all material non-adjusting events, where non-disclosure could influence the economic decisions of users taken on the basis of the financial statements.

2. New standards and interpretations

2.1 Standards and Interpretations early adopted

The entity has chosen to early adopt the following standards and interpretations:

2.2 Standards and interpretations not yet effective or relevant

The following standards and interpretations have been published and are mandatory for the entity's accounting periods beginning on or after April 01, 2018 or later periods but are not relevant to its operations:

IGRAP 18: Interpretation of the Standard of GRAP on Recognition and Derecogntion of Land

This Interpretation of the Standards of GRAP applies to the initial recognition and derecognition of land in an entity's financial statements. It also considers joint control of land by more than one entity.

When an entity concludes that it controls the land after applying the principles in this Interpretation of the Standards of GRAP, it applies the applicable Standard of GRAP, i.e. the Standard of GRAP on Inventories, Investment Property (GRAP 16), Property, Plant and Equipment (GRAP 17) or Heritage Assets. As this Interpretation of the Standards of GRAP does not apply to the classification, initial and subsequent measurement, presentation and disclosure requirements of land, the entity applies the applicable Standard of GRAP to account for the land once control of the land has been determined. An entity also applies the applicable Standards of GRAP to the derecognition of land when it concludes that it does not control the land after applying the principles in this Interpretation of the Standards of GRAP.

In accordance with the principles in the Standards of GRAP, buildings and other structures on the land are accounted for separately. These assets are accounted for separately as the future economic benefits or service potential embodied in the land differs from those included in buildings and other structures. The recognition and derecognition of buildings and other structures are not addressed in this Interpretation of the Standards of GRAP.

The effective date of the interpretation is for years beginning on or after April 01, 2019.

The entity expects to adopt the interpretation for the first time in the 2020 financial statements.

It is unlikely that the interpretation will have a material impact on the entity's financial statements.

GRAP 12 (as amended 2016): Inventories

Amendments to the Standard of GRAP on Inventories resulted from inconsistencies in measurement requirements in GRAP 23 and other asset-related Standards of GRAP in relation to the treatment of transaction costs. Other changes resulted from changes made to IPSAS 12 on Inventories (IPSAS 12) as a result of the IPSASB's Improvements to IPSASs 2015 issued in March 2016.

2. New standards and interpretations (continued)

The most significant changes to the Standard are:

- General improvements: To clarify the treatment of transaction costs and other costs incurred on assets acquired in non-exchange transactions to be in line with the principle in GRAP 23 (paragraph .12)
- IPSASB amendments: To align terminology in GRAP 12 with that in IPSAS 12. The term "ammunition" in IPSAS 12 was replaced with the term "military inventories" and provides a description of what it comprises in accordance with Government Finance Statistics terminology

The effective date of the amendment is for years beginning on or after April 01, 2018.

The entity expects to adopt the amendment for the first time in the 2019 financial statements.

It is unlikely that the amendment will have a material impact on the entity's financial statements.

GRAP 16 (as amended 2016): Investment Property

Amendments to the Standard of GRAP on Investment Property resulted from editorial changes to the original text and inconsistencies in measurement requirements in GRAP 23 and other asset-related Standards of GRAP in relation to the treatment of transaction costs. Other changes resulted from changes made to IAS 40 on Investment Property (IAS 40) as a result of the IASB's amendments on Annual Improvements to IFRSs 2011 – 2013 Cycle issued in December 2013.

The most significant changes to the Standard are:

- General improvements: To clarify the treatment of transaction costs and other costs incurred on assets acquired in non-exchange transactions to be in line with the principle in GRAP 23 (paragraph .12); and To clarify the measurement principle when assets may be acquired in exchange for a non-monetary asset or assets, or a combination of monetary and non-monetary assets.
- IASB amendments: To clarify the interrelationship between the Standards of GRAP on Transfer of Functions Between Entities Not Under Common Control and Investment Property when classifying investment property or owner-occupied property.

The effective date of the amendment is for years beginning on or after April 01, 2018.

The entity expects to adopt the amendment for the first time in the 2019 financial statements.

It is unlikely that the amendment will have a material impact on the entity's financial statements.

GRAP 17 (as amended 2016): Property, Plant and Equipment

Amendments to the Standard of GRAP on Property, Plant and Equipment resulted from editorial changes to the original text and inconsistencies in measurement requirements in GRAP 23 and other asset-related Standards of GRAP in relation to the treatment of transaction costs. Other changes resulted from changes made to IPSAS 17 on Property, Plant and Equipment (IPSAS 17) as a result of the IPSASB's Improvements to IPSASs 2014 issued in January 2015 and Improvements to IPSASs 2015 issued in March 2016.

2. New standards and interpretations (continued)

The most significant changes to the Standard are:

- General improvements: To clarify the treatment of transaction costs and other costs incurred on assets acquired in non-exchange transactions to be in line with the principle in GRAP 23 (paragraph .12); and To clarify the measurement principle when assets may be acquired in exchange for a non-monetary asset or assets, or a combination of monetary and non-monetary assets.
- IPSASB amendments: To clarify the revaluation methodology of the carrying amount and accumulated depreciation when an item of property, plant, and equipment is revalued; To clarify acceptable methods of depreciating assets; To align terminology in GRAP 17 with that in IPSAS 17. The term “specialist military equipment” in IPSAS 17 was replaced with the term “weapon systems” and provides a description of what it comprises in accordance with Government Finance Statistics terminology; and To define a bearer plant and include bearer plants within the scope of GRAP 17, while the produce growing on bearer plants will remain within the scope of GRAP 27.

The effective date of the amendment is for years beginning on or after April 01, 2018.

The entity expects to adopt the amendment for the first time in the 2019 financial statements.

It is unlikely that the amendment will have a material impact on the entity’s financial statements.

GRAP 31 (as amended 2016): Intangible Assets

Amendments to the Standard of GRAP on Intangible Assets resulted from inconsistencies in measurement requirements in GRAP 23 and other asset-related Standards of GRAP in relation to the treatment of transaction costs. Other changes resulted from changes made to IPSAS 31 on Intangible Assets (IPSAS 31) as a result of the IPSASB’s Improvements to IPSASs 2014 issued in January 2015.

The most significant changes to the Standard are:

- General improvements: To add the treatment of transaction costs and other costs incurred on assets acquired in non-exchange transactions to be in line with the principle in GRAP 23 (paragraph .12); and To clarify the measurement principle when assets may be acquired in exchange for a non-monetary asset or assets, or a combination of monetary and non-monetary assets
- IPSASB amendments: To clarify the revaluation methodology of the carrying amount and accumulated depreciation when an item of intangible assets is revalued; and To clarify acceptable methods of depreciating assets

The effective date of the amendment is for years beginning on or after April 01, 2018.

The entity expects to adopt the amendment for the first time in the 2019 financial statements.

It is unlikely that the amendment will have a material impact on the entity’s financial statements.

GRAP 103 (as amended 2016): Heritage Assets

Amendments to the Standard of GRAP on Heritage Assets resulted from inconsistencies in measurement requirements in GRAP 23 and other asset-related Standards of GRAP in relation to the treatment of transaction costs. Other changes resulted from editorial changes to the original text.

2. New standards and interpretations (continued)

The most significant changes to the Standard are:

- General improvements: To clarify the treatment of transaction costs and other costs incurred on assets acquired in non-exchange transactions to be in line with the principle in GRAP 23 (paragraph .12); and To clarify the measurement principle when assets may be acquired in exchange for a non-monetary asset or assets, or a combination of monetary and non-monetary assets.

The effective date of the amendment is for years beginning on or after April 01, 2018.

The entity expects to adopt the amendment for the first time in the 2019 financial statements.

It is unlikely that the amendment will have a material impact on the entity's financial statements.

Directive 12: The Selection of an Appropriate Reporting Framework by Public Entities

Historically, public entities have prepared financial statements in accordance with generally recognised accounting practice, unless the Accounting Standards Board (the Board) approved the application of generally accepted accounting practice for that entity. "Generally accepted accounting practice" has been taken to mean Statements of Generally Accepted Accounting Practice (Statements of GAAP), or for certain entities, International Financial Reporting Standards (IFRSs) issued by the International Accounting Standards Board. Since Statements of GAAP have been withdrawn from 1 December 2012, public entities will be required to apply another reporting framework in the future.

The purpose of this Directive is to prescribe the criteria to be applied by public entities in selecting and applying an appropriate reporting framework.

The effective date of the standard is for years beginning on or after April 01, 2018.

The entity expects to adopt the standard for the first time in the 2019 financial statements.

It is unlikely that the standard will have a material impact on the entity's financial statements.

The objective of this Standard is to outline principles to be used by an entity to assess whether it is party to a principal-agent arrangement, and whether it is a principal or an agent in undertaking transactions in terms of such an arrangement. The Standard does not introduce new recognition or measurement requirements for revenue, expenses, assets and/or liabilities that result from principal-agent arrangements. The Standard does however provide guidance on whether revenue, expenses, assets and/or liabilities should be recognised by an agent or a principal, as well as prescribe what information should be disclosed when an entity is a principal or an agent.

It furthermore covers Definitions, Identifying whether an entity is a principal or agent, Accounting by a principal or agent, Presentation, Disclosure, Transitional provisions and Effective date.

The effective date of the standard is not yet set by the Minister of Finance.

The entity expects to adopt the standard for the first time when the Minister sets the effective date for the standard.

The objective of this Standard is: to prescribe the accounting for service concession arrangements by the grantor, a public sector entity.

2. New standards and interpretations (continued)

It furthermore covers: Definitions, recognition and measurement of a service concession asset, recognition and measurement of liabilities, other liabilities, contingent liabilities, and contingent assets, other revenues, presentation and disclosure, transitional provisions, as well as the effective date.

The effective date of the standard is not yet set by the Minister of Finance.

The entity expects to adopt the standard for the first time when the Minister sets the effective date for the standard.

GRAP 108: Statutory Receivables

The objective of this Standard is: to prescribe accounting requirements for the recognition, measurement, presentation and disclosure of statutory receivables.

It furthermore covers: Definitions, recognition, derecognition, measurement, presentation and disclosure, transitional provisions, as well as the effective date.

The effective date of the standard is not yet set by the Minister of Finance.

The entity expects to adopt the standard for the first time when the Minister sets the effective date for the standard.

This Interpretation of the Standards of GRAP provides guidance to the grantor where it has entered into a service concession arrangement, but only controls, through ownership, beneficial entitlement or otherwise, a significant residual interest in a service concession asset at the end of the arrangement, where the arrangement does not constitute a lease. This Interpretation of the Standards of GRAP shall not be applied by analogy to other types of transactions or arrangements.

A service concession arrangement is a contractual arrangement between a grantor and an operator in which the operator uses the service concession asset to provide a mandated function on behalf of the grantor for a specified period of time. The operator is compensated for its services over the period of the service concession arrangement, either through payments, or through receiving a right to earn revenue from third party users of the service concession asset, or the operator is given access to another revenue-generating asset of the grantor for its use.

Before the grantor can recognise a service concession asset in accordance with the Standard of GRAP on Service Concession Arrangements: Grantor, both the criteria as noted in paragraph .01 of this Interpretation of the Standards of GRAP need to be met. In some service concession arrangements, the grantor only controls the residual interest in the service concession asset at the end of the arrangement, and can therefore not recognise the service concession asset in terms of the Standard of GRAP on Service Concession Arrangements: Grantor.

A consensus is reached, in this Interpretation of the Standards of GRAP, on the recognition of the performance obligation and the right to receive a significant interest in a service concession asset.

2. New standards and interpretations (continued)

The effective date of the interpretation is not yet set by the Minister of Finance.

The entity expects to adopt the interpretation for the first time when the Minister sets the effective date for the interpretation.

The definition of 'minority interest' has been amended to 'non-controlling interest', and paragraph .60 was added by the Improvements to the Standards of GRAP issued in November 2010. An entity shall apply these amendments prospectively for annual financial periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107]. If an entity elects to apply these amendments earlier, it shall disclose this fact.

Paragraph .59 was amended by Improvements to the Standards of GRAP issued in November 2010. An entity shall apply these amendments prospectively for annual financial periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107] from the date at which it first applied the Standard of GRAP on Non-current Assets Held for Sale and Discontinued Operations. If an entity elects to apply these amendments earlier, it shall disclose this fact.

The Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers amended paragraphs .03, .39, .47 to .50 and added paragraphs .51 to .58 and .61 to .62. An entity shall apply these amendments when it applies the Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers.

An entity shall apply this amendment for financial statements covering periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107].

The entity expects to adopt the amendment for the first time in the 2016 financial statements.

Paragraphs .03 and .42 were amended by the Improvements to the Standards of GRAP issued in November 2010. An entity shall apply these amendments prospectively for annual financial periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107]. If an entity elects to apply these amendments earlier, it shall disclose this fact.

The Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers amended paragraphs .22, .28 and .38 and added paragraph .24. An entity shall apply these amendments and addition when it applies the Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers.

An entity shall apply this amendment for financial statements covering periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107].

The entity expects to adopt the amendment for the first time in the 2016 financial statements.

2. New standards and interpretations (continued)

Paragraph .04 was amended by the Improvements to the Standards of GRAP issued in November 2010. An entity shall apply these amendments prospectively for annual financial periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107]. If an entity elects to apply these amendments earlier, it shall disclose this fact.

The Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers added paragraph .50 and amended paragraphs .51 and .52. An entity shall apply these amendments and addition when it applies the Standards of GRAP on Transfer of Functions Between Entities Under Common Control, Transfer of Functions Between Entities Not Under Common Control and Mergers.

An entity shall apply this amendment for annual financial statements covering periods beginning on or after the effective date [in conjunction with the effective date to be determined by the Minister of Finance for GRAP 105, 106 and 107].

The entity expects to adopt the amendment for the first time in the 2016 financial statements.

The objective of this Standard is to establish accounting principles for the acquirer and transferor in a transfer of functions between entities under common control. It requires an acquirer and a transferor that prepares and presents financial statements under the accrual basis of accounting to apply this Standard to a transaction or event that meets the definition of a transfer of functions. It includes a diagram and requires that entities consider the diagram in determining whether this Standard should be applied in accounting for a transaction or event that involves a transfer of functions or merger.

It furthermore covers Definitions, Identifying the acquirer and transferor, Determining the transfer date, Assets acquired or transferred and liabilities assumed or relinquished, Accounting by the acquirer and transferor, Disclosure, Transitional provisions as well as the Effective date of the standard.

The effective date of the standard is for years beginning on or after April 01, 2015.

The entity expects to adopt the standard for the first time in the 2016 financial statements.

The objective of this Standard is to establish accounting principles for the acquirer in a transfer of functions between entities not under common control. It requires an entity that prepares and presents financial statements under the accrual basis of accounting to apply this Standard to a transaction or other event that meets the definition of a transfer of functions. It includes a diagram and requires that entities consider the diagram in determining whether this Standard should be applied in accounting for a transaction or event that involves a transfer of functions or merger.

It furthermore covers Definitions, Identifying a transfer of functions between entities not under common control, The acquisition method, Recognising and measuring the difference between the assets acquired and liabilities assumed and the consideration transferred, Measurement period, Determining what is part of a transfer of functions, Subsequent measurement and accounting, Disclosure, Transitional provisions as well as the Effective date of the standard.

The effective date of the standard is for years beginning on or after April 01, 2015.

The entity expects to adopt the standard for the first time in the 2016 financial statements.

2. New standards and interpretations (continued)

An entity may be created to accomplish a narrow and well-defined objective (e.g. to effect a lease, research and development activities or a securitisation of financial assets). Such a special purpose entity ('SPE') may take the form of a corporation, trust, partnership or unincorporated entity. SPEs often are created with legal arrangements that impose strict and sometimes permanent limits on the decision-making powers of their management over the operations of the SPE. Frequently, these provisions specify that the policy guiding the ongoing activities of the SPE cannot be modified, other than perhaps by its creator or sponsor (ie they operate on so-called 'autopilot'). The sponsor (or entity on whose behalf the SPE was created) frequently transfers assets to the SPE, obtains the right to use assets held by the SPE or performs services for the SPE, while other parties ('capital providers') may provide the funding to the SPE. An entity that engages in transactions with an SPE (frequently the creator or sponsor) may in substance control the SPE. A beneficial interest in an SPE may, for example, take the form of a debt instrument, an equity instrument, a participation right, a residual interest or a lease. Some beneficial interests may simply provide the holder with a fixed or stated rate of return, while others give the holder rights or access to other future economic benefits or service potential of the SPE's activities. In most cases, the creator or sponsor (or the entity on whose behalf the SPE was created) retains a significant beneficial interest in the SPE's activities, even though it may own little or none of the SPE's net assets.

The Standard of GRAP on Consolidated and Separate Financial Statements requires the consolidation of entities that are controlled by the reporting entity. However, the Standard of GRAP does not provide explicit guidance on the consolidation of SPEs. The issue is under what circumstances an entity should consolidate an SPE. This interpretation of the Standards of GRAP does not apply to post-employment benefit plans or other long-term employee benefit plans to which the Standard of GRAP on Employee Benefits applies.

A transfer of assets from an entity to an SPE may qualify as a sale by that entity. Even if the transfer does qualify as a sale, the provisions of the Standard of GRAP on Consolidated and Separate Financial Statements and this Interpretation of the Standards of GRAP may mean that the entity should consolidate the SPE. This Interpretation of the Standards of GRAP does not address the circumstances in which sale treatment should apply for the entity or the elimination of the consequences of such a sale upon consolidation.

The effective date of this interpretation is dependent on/in conjunction with the effective date of GRAP105, 106 and 107.

The entity expects to adopt the interpretation for the first time in the 2016 financial statements.

Paragraph .54 in the Standard of GRAP on Interests in Joint Ventures refers to both contributions and sales between a venturer and a joint venture as follows: 'When a venturer contributes or sells assets to a joint venture, recognition of any portion of a gain or loss from the transaction shall reflect the substance of the transaction'. In addition, paragraph 31 in the Standard of GRAP on Interests in Joint Ventures says that 'a jointly controlled entity is a joint venture that involves the establishment of a corporation, partnership or other entity in which each venturer has an interest'. There is no explicit guidance on the recognition of gains and losses resulting from contributions of non-monetary assets to jointly controlled entities ('JCEs').

Contributions to a JCE are transfers of assets by venturers in exchange for an interest in the net asset in the JCE. Such contributions may take various forms. Contributions may be made simultaneously by the venturers either upon establishing the JCE or subsequently. The consideration received by the venturer(s) in exchange for assets contributed to the JCE may also include cash or other consideration that does not depend on future cash flows of the JCE ('additional consideration').

The issues are:

- when the appropriate portion of gains or losses resulting from a contribution of a non-monetary asset to a JCE in exchange for an interest in the net assets in the JCE should be recognised by the venturer in surplus or deficit;
- how additional consideration should be accounted for by the venturer; and
- how any unrealised gain or loss should be presented in the consolidated

This Interpretation of the Standards of GRAP deals with the venturer's accounting for non-monetary contributions to a JCE in exchange for an interest in the net assets in the JCE that is accounted for using either the equity method or proportionate consolidation.

The effective date of this interpretation is dependent on/in conjunction with the effective date of GRAP105, 106 and 107.

The entity expects to adopt the interpretation for the first time in the 2016 financial statements.

	2018 R	2017 R
3. Inventories		
Raw materials and finished goods*	2,648,024	1,792,235
Consumable**	86,802	82,379
Other - Commercial***	740,267	612,586
	3,475,093	**2,487,200**

* Stock components for repairs and maintenance.

**Consumbles stationery

***Commercial components.

4. Receivables from exchange transactions		
Trade receivables	4,162,393	8,532,128
Sundry receivables	9,356,315	4,907,167
Impairment of receivables	(1,042,444)	(1,806,020)
	12,476,264	**11,633,275**

Interest is charged on invoices over 60 days outstanding in the accounts receivable age analysis. Trade receivables are stated at amortised cost using effective interest rate method less impairment of receivables.

SAWS therefore recognises impairment of trade receivables based on individual and collective assessment as follows:

	61-90 Days R	90-120 Days R	Over 120 Days R	Total R
Regulated commercial debtors	11,619	2,336	2,813,416	2,827,371
Subtotal	11,619	2,336	2,813,416	2,827,371
Non-regulated commercial debtors				
Eskom Group	1,489	-	191,580	193,069
Insurance clients	34,634	13,217	678,596	726,447
Others	6,904	1,487	114,537	122,928
Total impairment	**54,646**	**17,040**	**3,798,129**	**3,869,815**

Trade and other receivables past due but not impaired

Trade and other receivables which are less than 3 months past due are not automatically considered to be impaired. Management's judgement is used to impair amounts, as at March 31, 2018, R1,192,510 (2017: 4,543,798) were past due but not impaired. Trade receivables amounting to R1,927,438 (2017: R2,291,443) are neither past due nor impaired and are considered to be fully recoverable.

Trade and other receivables impaired

As of March 31, 2018, trade and other receivables of R1,042,444 (2017: R1,806,020) were impaired and provided for.

Reconciliation of provision for impairment of trade and statutory receivables	2018 R	2017 R
Opening balance	5,804,279	9,229,225
Provision for impairment	3,869,815	(3,424,946)
Unused amounts reversed	(5,804,279)	-
	3,869,815	**5,804,279**

The maximum exposure to credit risk at the reporting date is the carrying amount of each class of trade receivables mentioned above. The entity does not hold any collateral as security. Trade receivables are individually and collectively assessed for impairment, whether significant or not, and are included within the group of trade receivables with similar credit risk characteristics.

	2018 R	2017 R
5. Statutory receivables		
Statutory receivables	20,647,539	18,192,713
Impairment of receivables	(2,827,371)	(3,998,258)
	17,820,168	**14,194,455**

In terms of the SAWS Act, the entity is allowed to provide meteorological services to the airline industry at a rate promulgated by the Minister of Environmental Affairs in the Government Gazette. The Regulating Committee on Meteorological Services facilitates the consultative process between SAWS and the Aviation industry for the recommendation of the tariff to the Minister.

SAWS charges interest on all accounts overdue at a rate determined by the Minister of Finance in the Government Gazette. During the year under review, SAWS charged a rate of 10,5% and 10,25% on all overdue accounts as promulgated. Statutory receivables are stated at amortised cost using effective interest rate method less impairment of receivables. Statutory receivables amounting to R10 973 698 (2017: R13 362 112) are neither past due nor impaired and are considered to be fully recoverable.
Statutory receivables are assessed for impairment on a monthly basis individually. Management's judgement is used to impair amounts that are past due. At 31 March 2018, statutory receivables of R2 827 371 (2017: R3 998 258) were past due but not impaired.

Statutory Receivables Past Due but not Impaired
The ageing of amounts past due but not impaired is as follows:

	31-60 days R	61-90 days R	Over 90 days R	Total R
Statutory receivables - 2018	4,554,450	533,811	1,758,209	6,846,470
Statutory receivables - 2017	1,764,470	299,876	-	2,064,346
	6,318,920	833,687	1,758,209	8,910,816

6. Prepayments	2018 R	2017 R
Prepaid expenses	9,233,433	9,130,88

Prepaid expenses comprise of services paid in advance and staff travel advance payments.

	2018 R	2017 R
7. Cash and cash equivalents		
Cash and equivalents consist of:		
Bank balances and cash on hand	73,729,681	54,422,432
Short-term deposits	26,896,936	35,801,866
	100,626,617	**90,224,298**

8. Investment property

	2018			2017		
	Cost / Valuation R	Accumulated depreciation and accumulated impairment R	Carrying value R	Cost / Valuation R	Accumulated depreciation and accumulated impairment R	Carrying value R
Investment property	67,487,940	-	67,487,940	65,614,150	-	65,614,150

Reconciliation of investment property - 2018

	Opening balance R	Fair value adjustments R	Total R
Investment property	65,614,150	1,873,790	67,487,940

Reconciliation of investment property - 2017

	Opening balance R	Other changes, movements R	Fair value adjustments R	Total R
Investment property	57,813,509	(900)	7,801,541	65,614,150

The investment property (Land) includes portions 411, portion of portion 412 and portion 423 (which are portions of the remaining extent of portion 407) of the farm Garsfontein 374, Registration Division JR, Gauteng. The property is 37,1116 ha, located in the west of N1 National Freeway and immediately north of Rigel Avenue (South) in the Waterkloof Heights suburb of Pretoria.

The property was valued at 31 March 2018 by Mr Jonathan Dateling from DDP Valuers and Advisory Services (Pty) Ltd, a qualified independent professional valuer. DDP Valuers and Advisory Services (Pty) Ltd is not connected to the entity and has recent experience in location and category of the investment property.

The valuer used the market data valuation approach, whereby similar properties' valuations are used as a motivation to value the property, which is an acceptable method to determine the value of this type of property. If the property was stated on the historical cost basis, the amounts would be as follows:

	2018 R	2017 R
Historical cost - Investment property:	26,890,000	26,890,000

Valuations were made on the basis of open-market value. The property was brought to book in 2003. The valuation from independent valuers was accepted to reflect the fair value at 31 March 2002 for comparative purposes

9. Property, plant and equipment

	2018			2017		
	Cost / Valuation R	Accumulated depreciation and accumulated impairment R	Carrying value R	Cost / Valuation R	Accumulated depreciation and accumulated impairment R	Carrying value R
Land - Garsfontein	9,699,780	-	9,699,780	9,626,336	-	9,626,336
Buildings - Irene and Bethlehem	3,820,536	-	3,820,536	1,918,300	(109,739)	1,808,561
Fence	2,576,443	(1,740,032)	836,411	2,537,167	(1,483,690)	1,053,477
Furniture and fixtures	8,038,029	(6,316,510)	1,721,519	7,713,928	(5,926,664)	1,787,264
Motor vehicles	984,236	(712,429)	271,807	844,236	(605,253)	238,983
Office equipment	6,378,468	(3,379,155)	2,999,313	6,415,867	(3,144,991)	3,270,876
Computer equipment	131,825,847	(55,201,896)	76,623,951	93,207,393	(44,053,810)	49,153,583
Leasehold improvements	2,274,481	(2,174,438)	100,043	2,274,481	(2,022,935)	251,546
Aircraft - airframes	2,041,313	(899,521)	1,141,792	2,172,998	(826,390)	1,346,608
Aircraft - engines	2,037,759	-	2,037,759	2,504,136	-	2,504,136
Aircraft - propellers	191,622	(176,139)	15,483	170,949	(170,949)	-
Radar - equipment	273,073,243	(85,622,974)	187,450,269	277,647,954	(74,602,708)	203,045,246
Meteorological equipment	63,061,784	(49,601,599)	13,460,185	62,697,297	(45,483,378)	17,213,919
Air quality equipment	29,974,279	(11,381,554)	18,592,725	29,308,626	(8,859,947)	20,448,679
Tools and other equipment	2,442,344	(1,925,825)	516,519	2,483,841	(1,826,849)	656,992
Library books and equipment	52,309	(33,561)	18,748	52,310	(28,340)	23,970
Total	**538,472,473**	**(219,165,633)**	**319,306,840**	**501,575,819**	**(189,145,643)**	**312,430,176**

9. Property, plant and equipment (continued)

Reconciliation of property, plant and equipment - 2018

	Opening balance	Additions	Disposals	Transfers	Revaluations	Other changes, movements	Depreciation	Impairment loss	Total
	R	R	R	R	R	R	R	R	R
Land - Garsfontein	9,626,336	-	-	(1,211,966)	1,285,410	-	-	-	9,699,780
Buildings - Irene and Bethlehem	1,808,561	-	-	1,211,966	800,009	-	-	-	3,820,536
Fence	1,053,477	39,276	-	-	-	-	(256,342)	-	836,411
Furniture and fixtures	1,787,264	420,574	(126,736)	-	-	116,297	(475,880)	-	1,721,519
Motor vehicles	238,983	140,000	-	-	-	-	(107,176)	-	271,807
Office equipment	3,270,876	210,068	(270,228)	-	-	209,032	(420,435)	-	2,999,313
Computer equipment	49,153,583	39,428,294	(541,772)	-	-	248,198	(11,664,352)	-	76,623,951
Leasehold improvements	251,546	-	-	-	-	-	(151,503)	-	100,043
Aircraft - airframes	1,346,608	-	-	-	131,685)	-	(73,131)	-	1,141,792
Aircraft - engines	2,504,136	-	-	-	(466,377)	-	-	-	2,037,759
Aircraft - propellers	-	-	-	-	20,673	-	(5,190)	-	15,483
Radar - equipment	203,045,246	-	-	-	-	-	(11,020,266)	(4,574,711)	187,450,269
Meteorological equipment	17,213,919	560,115	(371,942)	-	-	419,563	(4,361,470)	-	13,460,185
Air quality equipment	20,448,679	1,553,670	(970,014)	-	-	429,173	(2,868,783)	-	18,592,725
Tools and other equipment	656,992	15,245	(58,423)	-	-	59,902	(157,197)	-	516,519
Library books and equipment	23,970	-	-	-	-	-	(5,222)	-	18,748
	312,430,176	**42,367,242**	**(2,339,115)**	**-**	**1,508,030**	**1,482,165**	**(31,566,947)**	**(4,574,711)**	**319,306,840**

9. Property, plant and equipment (continued)

Reconciliation of property, plant and equipment - 2017

	Opening balance R	Additions R	Disposals R	Revaluations R	Depreciation R	Total R
Land - Garsfontein	16,786,491	-	-	(7,160,155)	-	9,626,336
Buildings - Irene and Bethlehem	1,860,367	-	-	-	(51,806)	1,808,561
Fence	1,307,082	-	-	-	(253,608)	1,053,477
Furniture and fixtures	2,240,909	-	-	-	(453,645)	1,787,264
Motor vehicles	311,651	29,884	-	-	(102,552)	238,983
Office equipment	3,522,345	-	-	-	(251,469)	3,270,876
Computer equipment	58,262,863	1,217,789	(38,658)	-	(10,288,411)	49,153,583
Leasehold improvements	149,342	-	-	102,204	-	251,546
Aircraft - airframes	1,636,529	-	-	(68,220)	(221,701)	1,346,608
Aircraft - engines	2,941,112	-	-	(436,976)	-	2,504,136
Aircraft - propellers	45,107	-	-	(23,247)	(21,860)	-
Radar - equipment	214,069,129	-	-	-	(11,023,883)	203,045,246
Meteorological equipment	21,854,310	110,764	-	-	(4,751,155)	17,213,919
Air quality equipment	22,577,517	717,726	-	-	(2,846,564)	20,448,679
Tools and other equipment	808,615	11,792	-	-	(163,415)	656,992
Library books and equipment	29,207	-	-	-	(5,237)	23,970
	348,402,576	**2,087,955**	**(38,658)**	**(7,586,394)**	**(30,435,306)**	**312,430,176**

9. Property, plant and equipment (continued)

Revaluations

Reconciliation of surplus or (loss) recognised in the revaluation reserve in the statement of changes in net assets:

Revaluation of PPE	2018 R	2017 R
Aircraft - revaluation		
Aircraft Airframes	(131,685)	(133,315)
Aircraft Engines	(466,377)	(436,976)
Aircraft Propellers	20,673	(19,158)
	(577,389)	**(589,449)**
Land and buildings - revaluation		
Bethlehem and Irene property	800,009	-
Garsfontein property	1,285,410	(8,344,851)
Irene property	-	1,184,696
	2,085,419	**(7,160,155)**

Aircraft

The entity's aircraft were revalued at 31 March 2018 by independent valuers, Skycare Maintenance. Valuations were made on the basis of open market value. The revaluation deficit was debited to the revaluation reserve as sufficient credits existed to offset the deficit.

9. Property, plant and equipment (continued)	2018 R	2017 R
Details of properties		
Aircraft		
Cost	9,811,735	9,811,735
Accumulated depreciation	(9,811,735)	(9,811,735)
	-	-

Aircraft - revaluation

The entity's aircraft were revalued at 31 March 2018 by independent valuers, Skycare Maintenance. Valuations were made on the basis of open market value. The revaluation deficit was debited to the revaluation reserve as sufficient credits existed to offset the deficit.

Bethlehem Property
If the property was stated at historical cost basis, the amounts would be as follows:

	2018 R	2017 R
Cost	600,000	600,000
Accumulated depreciation	(192,000)	(180,000)
	408,000	**420,000**

The property was revalued at 31 March 2018 by an independent valuer, Mr Johan Breytenbach, an attorney and professional valuer (board registration number 2669) in terms of the provisions of the Property Valuations Profession Act, 2000 (No. 47 of 2000). Valuations were made on the basis of open-market value. The revaluation surplus was credited to the non-distributable reserve.

The property includes Erf 1997 and Erf 2064 in the town of Bethlehem in the Free State province.
Erf 1997, also known as 8 Dr Clark Street, Bethlehem, has an area of 1,997 square meters and includes a house and outbuildings.

Erf 2064, also known as 19 Gordon Dreyer Street, Bethlehem, has an area of 1,568 square meters and includes a house and outbuildings. The title deed of the Bethlehem property was not registered in the name of SAWS at financial year-end, however, the Minister of Public Works passed all rights, obligations and liabilities to SAWS on the commencement of the SAWS Act, 2001 (No. 8 of 2001).

Irene Property

SAWS utilises Portion 110 of the farm Doornkloof 391 JR for scientific purposes for no consideration, which was fair valued at R2 412 847 on 31 March 2013. Improvements on the property consist of two interconnected offices, workshop, storage wings and some outbuildings and carports. In accordance with the registration of ownership the property may not be transferred to SAWS. The improvements were revalued at 31 March 2018 by Mr Jonathan Dateling from DDP Valuers and Advisory Services (Pty) Ltd. Valuations were made on the basis of open market value.

There were no contractual commitments for the acquisition of property, plant and equipment entered into by SAWS at the reporting date. SAWS does not have assets pledged as security.

Heritage assets

SAWS has acknowledged a heritage asset in line with GRAP 103 based on the historical and significance of its scientific information, and the impact thereof on the environment. SAWS is the only institution legislated by Government in the country to provide early warning, climate and air-quality information to the public as legislated by Parliament through the SAWS Act. The intellectual and scientific information at SAWS' disposal is over 150 years and will benefit future generations and as such needs to be protected and preserved. For an asset to fulfil the requirements of being classified as a heritage asset, it has to meet the recognition criteria as set out in GRAP 103 which include reliable measurement of the cost of the heritage asset. Where an entity is unable to measure reliably the cost of the heritage asset, the statement requires that such an asset should be disclosed in the Annual Financial Statements. SAWS cannot reliably provide an estimate of the cost of its heritage asset.

10. Intangible assets

	2018			2017		
	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value
	R	R	R	R	R	R
Computer software	40,147,819	(25,205,409)	14,942,410	37,430,137	(21,827,985)	15,602,152
Servitude	1,500,000	(295,206)	1,204,794	1,500,000	(235,246)	1,264,754
Total	**41,647,819**	**(25,500,615)**	**16,147,204**	**38,930,137**	**(22,063,231)**	**16,866,906**

Reconciliation of intangible assets - 2018

	Opening balance	Additions	Disposals	Other changes, movements	Amortisation	Total
	R	R	R	R	R	R
Computer software	15,602,152	3,157,992	(298,842)	298,510	(3,817,402)	14,942,410
Servitude	1,264,754	-	-	-	(59,960)	1,204,794
	16,866,906	**3,157,992**	**(298,842)**	**298,510**	**(3,877,362)**	**16,147,204**

Reconciliation of intangible assets - 2017

	Opening balance	Other changes, movements	Amortisation	Total
	R	R	R	R
Computer software	19,693,511	53,905	(4,145,264)	15,602,152
Servitude	1,324,715	-	(59,961)	1,264,754
	21,018,226	**53,905**	**(4,205,225)**	**16,866,906**

Other information

Intangible assets comprise of computer software (including website costs) and a servitude. SAWS acquired the right of use of land for its meteorological equipment for an indefinite period of time from AP Beckely in Bloemfontein. The servitude is amortised over the useful life of the meteorological equipment installed on the land.

11. Payables from exchange transactions

	2018	2017
	R	R
Trade payables	21,852,053	15,985,784
Payroll payables	3,544,269	796,257
Creditors bursary students	1,310,906	1,273,094
Staff subsistence and travel	178,103	162,294
Sundry payables	3,889,202	2,890,633
	30,774,533	**21,108,062**

Trade and other payables are subsequently carried at amortised cost.

Spot rates at period-end.

	2018	2017
	R	R
US Dollar	11.8131	12.9748
EUR	14.5523	17.0134
GBP	16.5754	16.1580

Unrealised foreign exchange gains and losses are calculated using the spot rate at year-end.

11. Payables from exchange transactions (continued)

Included in trade and other payables are foreign creditors	2018 Foreign currency	2017 Foreign currency	2018 R	2017 R
EuMetNet	EUR 1,678	1,255	24,414	17,489
IBL Software Engineering	EUR 5,700	3,775	-	52,583
Springer Nature	EUR 5,700	-	-	-
nteroute	GBP 11,526	-	191,048	-
NOAA GMD	USD 25,370	-	299,708	-
UK Met Office	GBP -	3,465	-	55,990
Copernicus GmbH	EUR -	630	-	8,775
Microsoft Ireland Operations	USD 45,027	204,933	531,911	2,658,974
Selex System Integration	EUR 67,670	215,302	984,754	2,999,006
	-	-	**2,031,835**	**5,792,817**

12. Short term employee benefits

Leave pay accrual	2018 R	2017 R
Opening balance	4,274,669	3,095,938
Leave raised	3,304,209	3,569,508
Leave utilised	(2,861,171)	(2,390,877)
	4,717,707	**4,274,569**

13. Employee benefit obligations

Defined benefit plan

Post retirement medical aid plan

All eligible employees of SAWS, who joined SAWS before 1 November 2008, excluding those that accepted the settlement offer in September 2011, receive a 100% subsidy of medical aid scheme contributions in retirement, provided that the employee belonged to a registered medical scheme before leaving SAWS on grounds of retirement, including early retirement and retirement due to ill-health and death. The subsidy is subject to a maximum cap amount. The Rand cap amount for 2018 is R2 652 (2017: R2 646), irrespective of the number of dependents. The Rand cap is expected to increase with health care cost inflation each year.

During the financial year, the number of employees eligible to receive post-employment medical aid subsidies from the entity was as follows:

Category	2018 Number of Employees	2017 Number of Employees
Current (In service) employees	20	22
Continuation members (pensioners)	31	34
Total	**51**	**56**

The actuarial valuation of the liability in respect of the post-employment medical aid benefit is performed on balance sheet date as summarised below. The 2018 actuarial valuation has been performed by an independent company of Actuarists, One Pangaea Financial, registration number 2013/070734/07.

	2018 R	2017 R
13. Employee benefit obligations (continued)		
Changes in the present value of the defined benefit obligation are as follows:		
Opening balance	8,321,964	8,322,028
Contributions by plan participants	(9,446,000)	(1,019,064)
Net expense recognised in the statement of financial performance	2,967,000	1,019,000
	1,842,964	**8,321,964**

SAWS undertook an investment plan with Momentum, Customised With-Profit Annuity portfolio (Plan Asset) in order to transfer the financial risk associated with this post-retirement medical liability. This investment plan will also provide SAWS with the ability to share in the benefits with regard to the investment and mortality experience underlying the liability through future contributions due to the policy.

Plan Asset	2018 R	2017 R
Return on plan asset	1,633,000	1,660,000
Employer contribution	39,000	290,000
Actuarial (loss) / gain	(586,000)	(931,000)
	1,086,000	**1,019,000**
Accrued Liability		
Current service cost	445,000	365,000
Interest cost	2,608,000	1,886,000
Acturial (gain) / loss	(8,426,000)	1,180,000
	(5,373,000)	**3,431,000**
Movement in the defined benefit obligation		
Balance 01 April	28,821,713	25,844,713
Current service cost	445,000	365,000
Interest cost	2,608,000	2,472,000
Actuarial (gain) / loss	(8,426,000)	1,180,000
Benefits paid	(1,057,000)	(1,040,000)
	22,391,713	**28,821,713**
Changes in the fair value of plan assets are as follows:		
Opening balance	17,501,685	17,522,685
Expected return	1,633,000	1,660,000
Actuarial gains (losses)	(586,000)	(931,000)
Contributions by employer	39,000	290,000
Benefits paid	(1,057,000)	(1,040,000)
	17,530,685	**17,501,685**

The entity expects to contribute 918,000 to its defined benefit plans in the following financial year.

	2018 R	2017 R
13. Employee benefit obligations (continued)		
Key assumptions used		
Assumptions used at the reporting date:		
Discount rates used	8.81 %	9.61 %
Expected rate of return on assets	6.14 %	7.24 %
Medical aid cost trend rates	7.64 %	8.74 %
Expected increase in salaries	100 %	100 %
Normal retirement age	65	65
Proportion of employees married at the retirement	90.00 %	90.00 %

The expected return on plan asset is based on the market expectations at the beginning of the period, for the returns over the entire life of the related obligation.

The two most important variables are the discount and medical aid inflation rates.

Other assumptions

Assumed discount rates have a significant effect on the amounts recognised in surplus or deficit. A one percentage point change in assumed discount rates would have the following effects:

	One percentage point increase	**One percentage point decrease**
Employer's accrued liability	19,243,000	25,105,000
Employer's service cost	302,000	449,000
Employer's interest cost	1,840,000	1,922,000

Assumed healthcare cost trends rates have a significant effect on the amounts recognised in surplus or deficit. A one percentage point change in assumed healthcare cost trends rates would have the following effect:

	One percentage point increase	One percentage point decrease
Employer's accrued liability	25,149,000	19,178,000
Employer's service cost	454,000	298,000
Employer's interest cost	2,172,000	1,647,000
	27,775,000	**21,123,000**

Amounts for the current and previous four years are as follows:

	2018	2017	2016	2015	2014
Defined benefit obligation	21,872,000	28,822,000	25,844,713	26,480,535	23,612,535
Plan assets	(17,531,036)	(17,501,685)	(17,540,239)	(14,629,714)	(10,666,714)
Net liability	4,340,964	11,320,315	8,304,474	11,850,821	12,945,821

The employee benefit obligation is partially funded by the plan assets.

14. Unspent conditional grants and receipts	2018	2017
Unspent conditional grants and receipts comprises of:	R	R
Unspent conditional grants and receipts	14,616,603	10,289,828
Unspent public contributions and donations		

	2018 R	2017 R
14. Unspent conditional grants and receipts (continued)		
Movement during the year		
Balance at the beginning of the year	10,289,828	3,528,065
Additions during the year	7,489,510	9,424,593
Income recognition during the year	(3,162,735)	(2,662,830)
Unspent Donations - 31 March	**14,616,603**	**10,289,828**

Donor funds consist of funding received from various institutions. Memoranda of Understanding (MoUs) are entered into between SAWS and the donors with the aim of utilising SAWS' expertise in meteorology.

15. Provisions

Reconciliation of provisions - 2018

	Opening Balance R	Additions R	Utilised during the year R	Total R
Bonus provision: current	13,500,000	2,000,000	-	15,500,000
Capped leave provision: non-current	442,548	32,515	(17,572)	457,491
	13,942,548	2,032,515	(17,572)	15,957,491

Reconciliation of provisions - 2017

	Opening Balance R	Additions R	Utilised during the year R	Total R
Bonus provision: current	15,764,000	10,349,495	(12,613,495)	13,500,000
Capped leave provision: non-current	430,882	11,666	-	442,548
	16,194,882	10,361,161	(12,613,495)	13,942,548
Non-current liabilities			457,491	442,548
Current liabilities			15,500,000	13,500,000
			15,957,491	**13,942,548**

Provision for Performance Bonus

This is a provision for the performance bonus based on the performance management of SAWS. The actual utilisation is approved by the Board based on a combination of both the entity's and individual staff performance policy against predetermined targets and performance contracts, respectively which are evaluated after year-end. Performance bonuses are payable at the discreation of the Board.

Capped Leave Provision

Capped leave is calculated based on the working days due to each employee, as at 31 July 2001 from the payroll system. Adjustments to this provision relate to increases in salary rates, days claimed or paid out through retirement or death.

	2018 R	2017 R
16. Operating lease liability		
Non-current liabilities	(1,358,559)	(1,516,690)
Current liabilities	(2,475,517)	(2,012,191)
	(3,834,076)	**(3,528,881)**

16. Operating lease liability (continued)

The following lease payments are related to operating leases for the rental of premises, office equipment and motor vehicles:

SAWS leases 10 premises (2017: 10 premises) from various lessors. The rental agreements for the premises include escalation clauses between 8% and 11% per year in rental payments. The duration of the rentals varies between two and ten years. The major lease contract for Bolepi House expired in April 2013 and was renewed for a further 5 years, effective 1 May 2013, with an annual escalation of 9%. SAWS has an agreement with Dihlabeng Municipality which stipulates that SAWS will offer free rental to the municipality in exchange for SAWS incurring no levies and electricity costs on the same.

SAWS entered into a contract with Swartland Municipality and Alkantpan where SAWS provides lighting data in exchange for free rental space. SAWS utilises Portion 110 of the farm Doornkloof 391 JR for scientific purposes for no consideration, which was valued at R2 412 847 on 31 March 2013. Improvements to the property consists of two interconnected offices, a workshop, storage wings and some supporting outbuildings and carports. In accordance with the registration of ownership, the property may not be transferred to SAWS.

SAWS signed a contract for the rental of photocopy machines for SAWS' offices with Itec Business Development (ITECBIZ) for a total amount of R4 337 378 for 3 years, effective from 1 September 2014, the date on which installation and commissioning was completed.

SAWS signed a contract for the rental of motor vehicles with ABSA Vehicle Management Solutions (Pty) Ltd for a total amount of R6 445 750 for 3 years, effective 1 June 2015, the date on which the vehicles were delivered to SAWS.

SAWS entered into a lease agreement for the rental of the buildings with JR 209 Investment (Pty) Ltd . The lease was signed on the 5th December 2017 and is effective from 1st May 2018 until 30 April 2022.

2018	Equipment R	Premises R	Motor Vehicles R	Total R
Future minimum lease payments not later than 1 year	-	11,761,680	714,765	12,476,445
Later than 1 year and not later than 5 years	-	51,649,922	-	51,649,922
	-	63,411,602	714,765	64,126,367

2017	Equipment R	Premises R	Motor Vehicles R	Total R
Future minimum lease payments not later than 1 year	225,672	12,901,392	2,144,294	15,271,358
Later than 1 year and not later than 5 years	-	22,030,339	714,765	22,745,104
Later than 5 years	-	660,520	-	660,520
Current liabilities	**225,672**	**35,592,251**	**2,859,059**	**38,676,982**

Straight lining effect on operating lease liability:

	2018 R	2017 R
Opening balance	3,528,881	2,807,702
Deferred rental	305,195	721,179
Closing balance	**3,834,076**	**3,528,881**

17. Investment revenue	2018 R	2017 R
Interest revenue	6,730,004	3,912,133
Bank	-	-
	6,730,004	3,912,133

	2018 R	2017 R
18. Government grants and subsidies		
Operating grants		
Government grants	240,482,000	204,985,000
	240,482,000	204,985,000

	2018 R	2017 R
19. Public contributions and donations		
TETA SETA Grants	885,609	673,740
Donor funds - Other	3,162,735	1,069,665
Donor funds - Research projects	-	1,258,772
	4,048,344	**3,002,177**
Reconciliation of conditional contributions		
Balance unspent at beginning of year	10,289,828	3,528,065
Current year - receipts	7,489,510	9,424,593
Conditions met - transferred to revenue	(3,162,735)	(2,662,830)
	14,616,603	**10,289,828**

Conditions still to be met - remain liabilities (see note 14)

	2018 R	2017 R
20. Revenue		
Government Grant	240,482,000	189,278,000
Other Grants	-	15,707,000
Revenue from Non-Exchange Transactions - operational	**240,482,000**	**204,985,000**
Contributions and donations		
TETA SETA GRANTS	885,609	673,740
Donations received	3,162,735	1,069,665
Donor funding - research projects	-	1,258,772
	4,048,344	**3,002,177**
Revenue from Non-Exchange transactions	244,530,344	207,987,177
Revenue from Exchange Transactions - Regulated commercial revenue		
Aviation	129,300,614	132,918,492
Non-regulated Commercial Revenue		
Aviation instruments maintenance income	915,434	1,326,540
Air quaility revenue	6,584,065	6,948,003
Information fees	13,638,158	14,026,508
Training - RTC	377,064	747,495
LDN Sales	3,911,606	3,903,607
Selling of Instruments	229,142	2,417,038
	25,655,469	**29,369,191**
Total Commercial Revenue	154,956,083	162,287,683
Other Revenue		
Miscellaneous income	964,163	643,709
Delinquency fees	145,643	94,884
Interest received from Banks	6,730,004	3,912,133
	7,839,810	**4,650,726**
Revenue from exchange Transactions	162,795,893	166,938,409
Total Revenue	407,326,237	374,925,586
21. Employee related costs		
Salaries and wages *	178,125,572	155,054,620
Performance bonus and leave pay	5,170,306	12,581,380
Medical aid contributions	12,812,318	11,397,253
Unemployment Insurance Fund	787,707	738,905
Compensation Commissioner	123,563	362,409
Post retirement medical aid	13,837,779	11,809,882
Overtime and shift allowance	11,629,794	10,536,008
	222,487,039	**202,480,457**

* Refer to note 34 for variance explanation.

	2018 R	2017 R
22. Administrative expenses		
Admin fees	1,496,338	1,456,263
Audit expenses (Internal)	1,006,541	710,314
Sales promotions	387,856	7,740
Public awareness	10,858	2,394
Selling and marketing	103,404	33,000
Commission paid	92,914	204,359
Impairment of trade receivables / (recovered)	(1,703,084)	(3,424,946)
Board expenses	1,407,081	733,483
Conference costs	400,222	431,287
Refreshments	657,251	76,246
Entertainment	264,925	152,452
Entrance fees	8,488	21,127
Legal fees	2,110,868	4,522,855
Printing and stationery	1,302,119	772,817
Training	1,478,071	1,033,881
Bank charges	292,010	336,823
	9,315,862	**7,070,095**
23. Depreciation and amortisation		
Property, plant and equipment	31,566,948	30,435,306
Intangible assets	3,877,363	4,205,225
	35,444,311	**34,640,531**
24. Operating expenses		
Cleaning	871,777	991,486
Key strategic projects	10,307,107	4,451,737
Consumables spares	25,465,553	16,649,166
Insurance	1,820,753	1,693,304
Computer and software	13,350,692	12,470,019
Promotions and sponsorships	4,021,053	5,238,977
Levies	1,962,307	1,820,362
Motor vehicle expenses	1,897,011	1,767,061
Placement fees	1,058,403	783,265
Postage and courier	1,173,051	518,266
Security	1,909,063	2,301,344
Subscriptions and membership fees	2,854,893	4,827,545
Communication costs	11,095,672	11,824,780
Travel	14,778,309	11,323,667
Electricity	3,963,535	4,341,570
Aircraft expenses	225,623	188,042
Leases and rental	20,693,963	19,244,144
Repairs and maintenance	9,568,780	8,071,809
Publications	337,333	449,759
Audit fees	3,241,226	3,697,490
Other expenses	1,550,635	-
	132,146,739	**112,653,793**

	2018 R	2017 R
25. Cash generated from operations		
Surplus	12,180,659	23,874,116
Adjustments for:		
Depreciation and amortisation	35,444,310	34,640,531
(Profit)/Loss on sale of assets and liabilities	-	(45,000)
Fair value adjustments	(1,874,738)	(7,801,541)
Impairment deficit	4,574,712	-
Debt impairment	(1,934,464)	-
Bad debts written off	231,379	-
Movements in operating lease assets and accruals	305,195	721,179
Movements in retirement benefit assets and liabilities	(6,009,862)	4,176,631
Movements in provisions	2,014,943	(2,252,334)
Other non-cash items	441,565	(218,421)
Changes in working capital:		
Inventories	1,131,857	1,376,770
Receivables from exchange transactions	2,087,023	(8,939,235)
Statutory receivables	(3,625,713)	(1,319,331)
Prepayments	(102,547)	(4,306,799)
Payables from exchange transactions	6,736,459	1,717,775
Unspent conditional grants and receipts	4,326,775	6,761,763
	55,927,553	**48,386,104**
26. Fair value adjustments		
Investment property (Fair value model)	1,873,790	7,801,541

27. Commitments

This committed expenditure relates to various contracts and outstanding purchase orders that SAWS entered into and will be financed by available bank facilities and retained surpluses.

Commitments	2018 R	2017 R
- within one year	94,697,335	27,369,904
- in second to fifth year inclusive	24,197,532	4,189,788
	118,894,867	**31,559,692**

28. Contingencies

Contingent liabilities		
	2,452,754	2,146,936

The certainty of the legal matters relates to outcomes yet to be confirmed by legislative outcomes. An amount of R2,368,754 relates to Government Employment Pension Fund liability while R84,000 relates to a claim by a former employee currently at CCMA.

29. Related parties

Relationships

In preparing the Annual Financial Statements for the year ended 31 March 2017, SAWS has identified the related party relations and made the necessary disclosures in the Annual Financial Statements. SAWS is deemed to be under common control with all the entities in the national sphere of government and therefore these entities are considered to be related parties.

Background

Entity structure

SAWS was established in terms of the national legislation as one of the government's essential scientific institutions providing information and services that have a direct impact on the lives of citizens and their properties and contributing greatly to sustainable development in South Africa. SAWS reports functionally to the Department of Environmental Affairs and therefore the Minister of Environmental Affairs is the Executive Authority. SAWS is governed by the Board as appointed by the Minister. The details of the Board members are disclosed below. SAWS receive donor funds from the Department of Science and Technology and The Water Research Council for the financing of some research projects.

SAWS provides weather and climate related services to various entities in national government. This includes provision of services and instruments to public entities.

SAWS further provides aviation services to the national carrier which is controlled by the national government. These services are provided on a cost recovery basis. The transaction amounts are included either in the Statement of Financial Performance as revenue from exchange transactions and related account balances in the Statement of Financial Position as trade and other receivables from exchange transactions or in the respective Notes.

Apart from transactions listed in the previous paragraph, SAWS undertakes the following transactions with other entities in the public sector:

- PAYE, UIF, SDL and other payroll taxes are collected by SAWS and remitted to the revenue authority on a monthly basis;
- Basic services such as electricity, water and sanitation by local municipalities;
- Air travel as supplied by the national carrier which is controlled by national government;
- Post-retirement benefits to former SAWS employees by the Government Pension Fund; and
- The collection of aviation and other related services revenue from entities controlled by national government.
- The provision of air qaulity equipment to municipalities

The transaction amounts for the above services are included either in the Statement of Financial Performance as expenditure and related account balances in the Statement of Financial Position as trade and other payables or the respective Notes.

The following related party transactions occurred during the financial year which were not under arms-length:

	2018	2017
Revenue related	R	R
Government grants & subsidies	240,482,000	204,985,000
Related party expenditure		
Payment to related party		
Department of Environmental Affairs*	(4,176,000)	-

*Purchase of fuel to transport SAWS weather buoys to Sandwich Island using SA Agulhas ship.

29. Related parties (continued)

Remuneration

Non-Executive Directors

2018

Name	Designation	Fees R	Travel R	Total R
Ms. Mngomezulu	Chairperson	431,282	31,401	462,683
Mr. J. Tshipa*	Non-Executive Member	140,675	7,593	148,268
Prof. E. Mokotong	Non-Executive Member	141,108	7,489	148,597
Mr. R. Nicholls	Non-Executive Member	111,160	6,351	117,511
Mr. Lefutso	Non-Executive Member	235,231	54,405	289,636
Adv. D. Block	Non-Executive Member	145,242	20,375	165,617
Ms. S. Muddly-Padayachie	Non-Executive Member	95,812	12,594	108,406
Mr. K Modimoeng**	Non-Executive Member	123,453	7,716	131,169
Ms. N. Madiba	Non-Executive Member	90,287	10,741	101,028
		1 514 250	**158,665**	**1,672,915**

*Resigned in November 2017.

**Resigned in January 2018.

Dr Rees worked for the Public Entity and thus was not remunerated.

2017

Name	Designation	Fees R	Travel R	Total R
Ms N Mngomezulu	Chairperson	282,739	5,548	288,287
Dr NN Gwagwa*	Deputy Chairperson	78,795	730	79,525
Prof EN Mokotong	Non-Executive Member	127,645	3,814	131,459
Mr R Nicholls	Non-Executive Member	84,551	2,450	87,001
Mr J Tshipa	Non-Executive Member	180,386	5,251	185,637
Mr D Lefutso	Non-Executive Member	174,548	2,376	176,924
Adv DJ Block	Non-Executive Member	111,753	4,228	115,981
Ms N Madiba	Non-Executive Member	119,924	18,663	138,587
Mr K Modimoeng	Non-Executive Member	97,050	4,268	101,318
Ms S Mudly-Padayachie	Non-Executive Member	110,671	4,855	115,526
		1,368,062	**52,183**	**1,420,245**

Dr Rees worked for the Public Entity and thus was not remunerated for the services.

*Resigned during the 4th quarter of 2017 Financial Year.

29. Related parties (continued)

Executive management

2018

Name	Designation	Salary R	Medical Aid, UIF & Pension R	Leave Pay R	Cell phone allowance R	Total R
Mrs MM Kgari*	Former Interim CEO	289,155	-	-	-	289,155
Mr J Lengoasa**	Chief Executive Officer	2,572,339	150,220	-	32,323	2,754,882
Mr MF Ndabambi	Executive Infrastructure and Information Systems	1,468,320	156,242	-	36,000	1,660,562
Ms J Mphafudi	Executive Corporate and Regulatory Services	1,520,750	100,765	-	36,000	1,657,515
Ms ME Hogendoorn***	Former CFO	631,472	53,184	121,428	12,000	818,084
Mr L Gumenge	Former Acting CFO	237,627	-	-	-	237,627
Ms B Shongwe****	Chief Financial Officer	477,500	27,526	-	9,000	514,026
Mr J Witi	Acting Executive Weather Services	160,501	-	-	-	160,501
Ms MA Hartslief	Acting GM: Commercial	144,046	-	-	-	144,046
Mr M Majodina	Former Acting GM: Corporate Affairs	83,659	-	-	-	83,659
		7,585,369	**487,937**	**121,428**	**125,323**	**8,320,057**

*Resigned on the 31 May 2017

**Appointed on the 8th May 2017

***Until 31 July 2017

****Appointed on the 2nd January 2018

During the current financial year, SAWS reached a settlement with the former Chief Financial Officer, Ms M Hogendoorn where both parties agreed to mutually end their employment contract.

2017

Name	Designation	Salary R	Medical Aid, UIF & Pension R	Leave Pay R	Cell phone allowance R	Total R
Dr LCN Makuleni*	CEO	2,785,234	152,994	487,408	-	3,425,636
Ms MM Kgari**	GM: Commercial	1,476,789	106,353	139,635	36,000	1,758,777
Mr MF Ndabambi	GM: Operations	1,374,376	156,390	286,464	36,000	1,853,230
Ms J Mphafudi***	GM: Human Capital Management	450,114	39,118	-	11,613	500,845
Ms ME Hogendoorn	CFO	1,770,492	154,678	336,904	36,000	2,298,074
Dr ZZ Majokweni	GM: Corporate Affairs	938,765	78,961	221,913	27,000	1,266,639
Ms K Hanisi	Acting GM: Human Capital Management	8,987	-	-	-	8,987
Ms MA Hartslief*****	Acting GM Commercial	36,498	-	-	-	36,498
Mr M Majodina	Acting GM Corporate Affairs	63,592	-	-	-	63,592
Mr L Gumenge******	Acting CFO	50,080	-	-	-	50,080
		8,954,927	**688,494**	**1,472,324**	**146,613**	**11,262,358**

*Until 01 November 2016

** appointed as interim CEO from 01 November 2016;

29. Related parties (continued)

***Appointed 01 December 2016;

****Appointed January 2017;

*****Appointed 14 January 2017

30. Risk management

Financial risk management

The entity's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk.

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash and marketable securities, the availability of funding through an adequate amount of committed credit facilities and the ability to close out market positions. Due to the dynamic nature of the underlying businesses, entity treasury maintains flexibility in funding by maintaining availability under committed credit lines.

The entity's risk to liquidity is a result of the funds available to cover future commitments. The entity manages liquidity risk through an ongoing review of future commitments and credit facilities.

Cash flow forecasts are prepared and adequate utilised borrowing facilities are monitored.

Prudent liquidity risk management implies maintaining sufficient cash and obtaining the continued commitment from the Department of Environmental Affairs for the government grant and the collection of the aviation income from respective airlines. Due to the nature of the business, management maintains flexibility in funding by maintaining expenses below budget and continuously pursuing additional income via donor funding, information fees and the sale of lightning detection networks.

The table below analyses the entity's financial liabilities and net-settled derivative financial liabilities into relevant maturity groupings based on the remaining period at the statement of financial position to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

	Less than 1 year R
2018 - Trade and other payables	30,774,533
2017 - Trade and other payables	21,108,062

30. Risk management (continued)

Credit risk

Financial assets, which potentially subject the entity to the risk of non-performance by counter parties and thereby subject to credit concentrations of credit risk, consist mainly of cash and cash equivalents, investments and accounts receivable. Credit risk is managed on a group basis.

Credit risk consists mainly of cash deposits, cash equivalents, derivative financial instruments and trade debtors. The entity only deposits cash with major banks with high quality credit standing and limits exposure to any one counter-party.

Trade receivables comprise a widespread customer base. Management evaluated credit risk relating to customers on an ongoing basis. If customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, risk control assesses the credit quality of the customer, taking into account its financial position, past experience and other factors. Individual risk limits are set based on internal or external ratings in accordance with limits set by the board. The utilisation of credit limits is regularly monitored. Sales to retail customers are settled in cash or using major credit cards. Credit guarantee insurance is purchased when deemed appropriate.

Interest Rate Risk

The entity's exposure to market risk (in the form of interest rates risk) arises primarily form the entity's investment in cash and cash equivalents, accounts receivable and payable. The entity manages its interest rate risk by obtaining competitive rates from approved financial institutions on a monthly basis. The entity policy is to manage interest rate risk so that fluctuations in variable rates do not have a material impact on surplus/ (deficit).

The entity's exposure to interest rate risk and the effective interest rates on financial instruments at the Statement of Financial Position date is as follows

	2018 Effective interest rate	2018 R	2017 R
Cash	7.16 %	100,626,617	90,224,298
Accounts receivable	12.41 %	31,236,235	31,632,008
Average rate / Total financial assets	**9.79 %**	**131,862,852**	**121,856,306**

	2018 Effective interest rate	2018 R	2017 R
Financial assets	9.79 %	125,436,548	116,994,139
Financial liabilities	-	(21,852,046)	(15,985,784)
Average rate / Total financial assets	**9.79 %**	**103,584,502**	**101,008,355**

Foreign Currency Risk

The entity does not operate internationally but undertakes certain transactions denominated in foreign currencies, and is exposed to foreign exchange risk arising from fluctuations in foreign currencies. The entity does not hedge against its exposure to foreign exchange risk. Exposure to foreign currency exposure at financial year-end relates to trade payables and is disclosed under Note 11.

	2018 Foreign currency	2017 Foreign currency	2018 R	2017 R
EUR Payables	75,048	220,942	1,092,116	3,077,567
GBP Payables	11,526	3,465	191,048	55,987
USD Payables	70,398	204,933	831,620	2,658,964
			2,114,784	**5,792,518**

30. Risk management (continued)

The entity is mainly exposed to the Euro, US dollar and British Pound currencies.
The following table details the entity's sensitivity to a 5% increase and decrease in Rand against the relevant foreign currencies.
The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at financial year-end for a 5% change in foreign currency rates.
A positive number below indicates an increase in surplus where the Rand strengthens 5% against the relevant currency.

For a 5% weakening of the Rand against the relevant currency, there would be an equal and opposite impact on the surplus and the balances below would be negative.

Euro Impact		GBP Impact		USD Impact	
2018 R	2017 R	2018 R	2017 R	2018 R	2017 R
54,606	153,978	9,552	2,799.00	41,581	132,948

31. Events after the reporting date

Management is not aware of any matter or circumstances arising since the end of the financial period which would affect the figures, as disclosed in the Annual Financial Statements.

32. Fruitless and wasteful expenditure

	2018 R	2017 R
Accomodation and travel	94,580	-
South African Revenue Services	11,528	-
	106,108	**-**

The fruitless and wasteful expenditure relates to cancellation of bookings for accomodation and no show. The expenditure still need to be investigated to determine whether it is recoverable.

During the period under review, management did not detect any fruitless and wasteful expenditure.

An amount of R11,528 relates to late payment of tax to South African Revenue Service and is being disputed by management.

33. Irregular expenditure

	2018 R	2017 R
Opening balance	3,087,620	-
Payments exceeding the original quotation	-	2,262,288
Legal opinion / fees - No prior written approval for deviation / not a qualifying emergency	-	825,332
Professional fees paid - No prior written approval for deviation	145,007	-
Operating lease - No prior approval for deviation	1,553,557	-
	4,786,184	**3,087,620**

No irregular expenditure was condoned during the current financial year.

34. Budget differences

Material differences between budget and actual amounts

Budgetary basis, classification and period of the budget

The budget is approved on an accrual basis by nature classification. The approved budget covers the period 1 April 2017 to 31 March 2018.

The budget and accounting basis are the same; both are on the accrual basis. The Annual Financial Statements are prepared using a classification on the nature of expenses in the Statement of Financial Performance.

34. Budget differences (continued)

Explanation of material differences between Approved Budget and Final Budget

During the year under review, after approval by the Board and subsequent approval by the Minister of Environmental Affairs, SAWS management adjusted its Annual Performance Plan for 2018/19 through the mid-term APP review and consequently its annual budget was also adjusted accordingly.

The following were the major adjustments in the annual budget:

Increase in budget for Donations and Contributions, Investment Income and Commercial Revenue by R8,268,000; R3,377,000 and R5,002,000, respectively.

Increase of R4 756 000 in depreciation and amortisation due to retention of surplus utilised in the upgrade of the High Performance Computer system.

Explanation of material differences between Final Budget and Actual Results Surplus
The entity achieved an operating surplus of R8,82 million before Fair Value Adjustments (Surplus of R12,32 million after Fair Value Adjustments).

Revenue

Total revenue for the year was below budget by R34,80 million (7,87%) mainly due to the adjustment in the budget for Government Grant emanating from the retention of surplus funds as granted by the National Treasury.

The actual expenditure of the amount is not reflected in the statement of financial performance as it was already recognised in the previous financial when the Government Grant was transferred to SAWS consequently resulting in an unfavourable balance in the current financial year.

Revenue from exchange transactions which consists mainly of Regulated Commercial income (Aviation Revenue), and Non- Regulated Commercial income exceeded budget by 4.67% amounting to R162,80 million against the budget of R155,54 million.

Revenue from Aviation was slightly below budget by 0.95% largely due to lower than expected air-traffic volumes, however, this was off-set by the Non-regulated revenue which exceeded target by 17.99%, largely due to improved sales from Air-Quality and Hydronet.

Expenditure

Total expenditure was below budget by 6.24% and the following variances have been noted:

Employee costs were below budget by 6.66%, amounting to R222,49 million (Budget: R238,36 million), as a result of vacancies which were experienced during the current financial year, mainly from the organisational re-alignment with most of these filled towards the end of the current financial year.

Operating expenditure was 9.43% below budget, and mainly due to delays in securing spare parts from overseas partners as a result of internal deficiencies which are being addressed through the Procurement Strategy which will include Strategic Sourcing amongst others, which will assist in effective and timely procurement processes eliminating lead times.

The Administration expenditure is below budget by 19.59% and that is mainly due to Accounts Receivables that were previously impaired and subsequently recovered.

Non-Cash Items

Fair Value Adjustments

SAWS owns a piece of land which is currently undeveloped in Garsfontein, Pretoria. The land was valuated by Independent Valuators as at 31 March 2018 and the value of the portion earmarked for commercial investment increased by R1,87 million from R65,62 million to R67,49 million.

34. Budget differences (continued)

During the current financial year, SAWS assessed the useful life of its Radar equipment and it was established that the C-Band Radars that were acquired over 20 years ago are no longer in a good working condition and are actually obsolete and as a result these Radars were impaired, as their Carrying Amount was below the Fair Value amount resulting in an impairment of R4,57 million.

SAWS realised an actuarial gain of R8,36 million on the Post-retirement medical aid obligation, which is a defined benefit plan. The obligation of SAWS towards this benefit plan on pensioned members and members currently in-service (employed by SAWS) has decreased from R11,32 million in 2017/18 to R4,87 million in the current financial year. The main reason for the decline in the liability is due to a net reduction of two active employees while five pensioners became deceased.

35. Impairment Loss and Assets with zero Carrying Value

During the current financial year, SAWS reviewed its Property, Plant and Equipment in order to assess whether there was any indication that the assets suffered any impairment loss.

The recoverable amount for Radar equipment to the value of R4 574 711 was determined to be below its Carrying Amount and was therefore impaired.

During the current financial period, SAWS assessed its Property Plant and Equipment in order to determine its useful life. Assets with a zero net book value have been included under Property Plant and Equipment and Intangibles. These assets will continue to be used by the entity and will be carried at zero Carrying Amount until they are disposed. The total cost and accumulated depreciation for the these assets amounts to R20 778 143.

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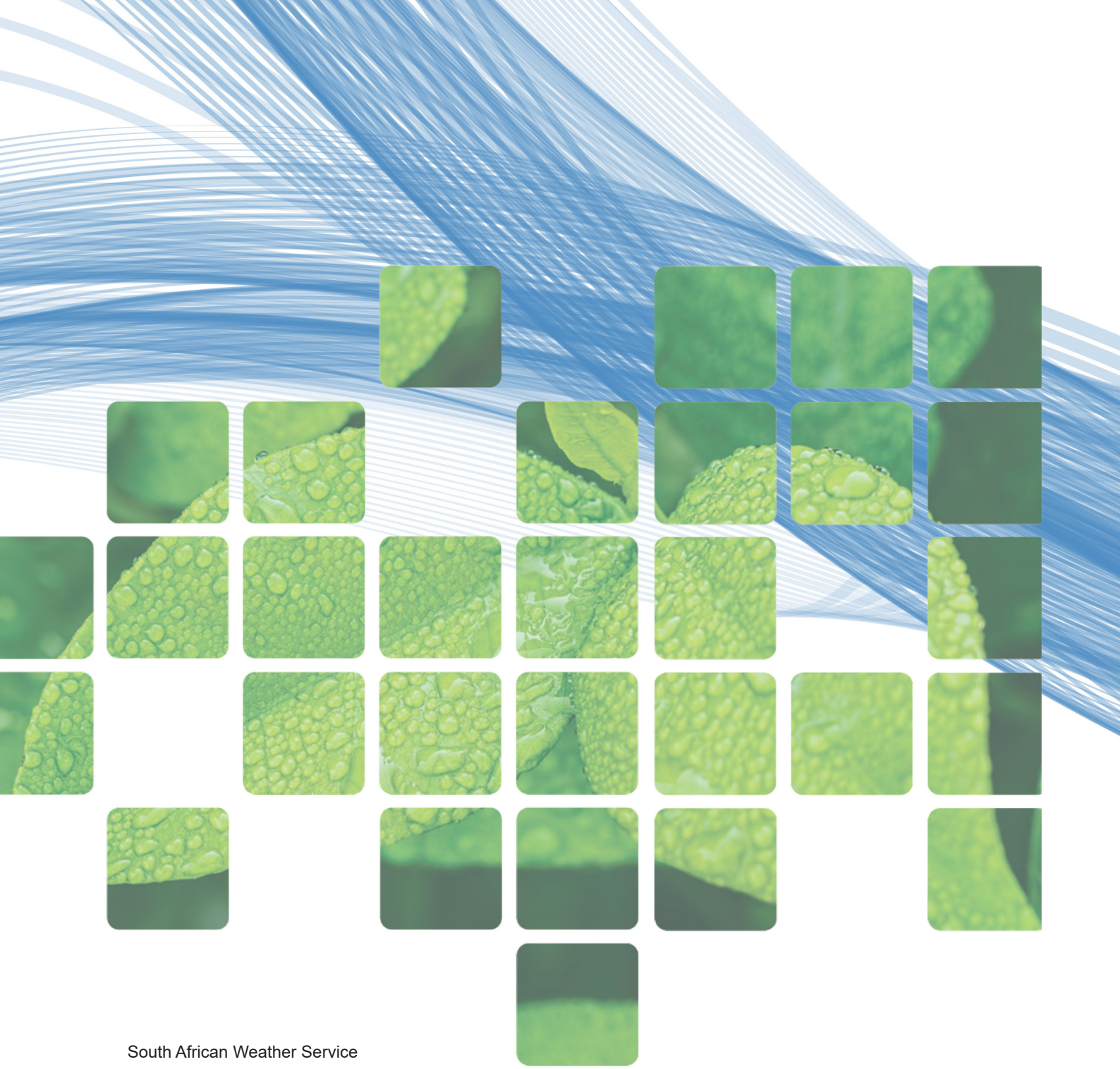

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