



**South African
Weather Service**

SOUTH AFRICAN WEATHER SERVICE



**ANNUAL PERFORMANCE PLAN
2020/2021 FINANCIAL YEAR**

A large, decorative graphic consisting of several overlapping, curved, light blue and white lines that sweep across the lower half of the page, creating a sense of motion and depth.



DOCUMENT CONTROL

Version and Amendment Schedule

Version	Version Date	Author	Description of Amendments
1	2019-07-04	Dithuso Mogapi	Document created. Refinement of Performance Indicators as per MANCO recommendations
2	2019-07-23	Dithuso Mogapi	Amendments as per Audit % Risk Committee recommendations
3	2019-09-30	Dithuso Mogapi	Finalisation of quarterly targets and Inclusion of Technical Indicator Descriptions
4	2020-01-08	Dithuso Mogapi	Alignment with Revised Framework for Strategic Plans and Annual Performance Plans

Approval and Control Schedule

Approved By	Designation	Responsibility	Signature	Date approved	Copy Status
Dr. Jonas Mphepya	Acting Chief Executive Officer	Accounting Officer		06/03/2020	Master
Ms. Nana Magomola	Board Chairperson	Accounting Authority		06/03/2020	Master



Table of Contents

ABBREVIATIONS AND ACRONYMS:	4
EXECUTIVE AUTHORITY STATEMENT	5
ACCOUNTING OFFICER STATEMENT	7
OFFICIAL SIGN-OFF	8
PART A: OUR MANDATE	9
1. UPDATES TO THE CONSTITUTIONAL MANDATE.....	9
2. UPDATES TO THE LEGISLATIVE AND POLICY MANDATE	9
3. RELEVANT COURT RULINGS	9
PART B: STRATEGIC FOCUS	10
4. SITUATIONAL ANALYSIS.....	10
4.1 <i>External Environment Analysis</i>	12
4.2 <i>Internal Environment Analysis</i>	12
PART C: PERFORMANCE MEASURING	15
5. PROGRAMME PERFORMANCE INFORMATION	15
5.1 <i>Outcomes, Outputs, Performance Indicators and Targets</i>	17
5.2 <i>Indicators, Annual and Quarterly Targets</i>	23
6. OVERVIEW OF 2020/21 BUDGET AND MTEF: ESTIMATES	29
6.1 <i>Summary of Income and Expenditure</i>	29
6.2 <i>Relating expenditure trends to strategic outcome-oriented goals</i>	31
6.3 <i>Projected Income and Expenditure – Summary</i>	31
6.4 <i>Projected Income Statement</i>	32
7. KEY RISKS	33
8. INFRASTRUCTURE PROJECTS	35
PART D: TECHNICAL INDICATOR DESCRIPTIONS	42



ABBREVIATIONS AND ACRONYMS:

APP	Annual Performance Plan
DEFF	Department of Environment, Forestry and Fisheries
ICAO	International Civil Aviation Organisation
ICT	Information and Communications Technology
MSP	(ICT) Master System Plan
MTEF	Medium Term Expenditure Framework
SAAQIS	South African Air Quality Information System
SAWS	South African Weather Service
WMO	World Meteorological Organization

Executive Authority Statement

It is a pleasure to present the Annual Performance Plan of the South African Weather Service for 2020/21.

The South African Weather Service (SAWS) is an entity of the Department of Environment, Forestry, and Fisheries and derives its mandate from the South African Weather Service Act, 2001 amended in 2013.

The science-based entity is service-oriented and technology-driven. Its work is aimed at mitigating the impacts of severe weather, natural disasters and climate-related challenges by delivering public and commercial services to all that can be affected by the weather. SAWS is the authoritative voice for weather warnings in South Africa.

The next decade will be characterised by society's needs for environmental solutions, especially the mitigation of, and adapting of climate challenges. The impact of weather and water scarcity will be among the main issues that will continue to affect the world, and South Africa in particular. We also understand that sustainable development is only possible if it is underpinned and informed by an environmentally literate society.

The SA Weather Service will work closely with the Department of Environment, Forestry and Fisheries in engaging various communities in line with the District Delivery Model, in raising awareness about climate change.

With many inter-annual and longer-term changes expected over South Africa, the frequency and intensity of heatwaves, droughts, floods and severe storms will increase, thereby affecting the most vulnerable and socio-economically sensitive sectors of society. Furthermore, growing urbanized populations will have unique needs, challenging our abilities to address food security, water availability, inequality and environmental health.

SAWS is well-positioned to address challenges related to weather, climate and related environmental phenomena with its proactive focus to provide information and user-specific solutions in support of socio-economic development of our diverse population, building resilience to cope, and the protection of life and property.

The next decade will also be an era of rapid science and technology development that can be exploited through innovative science-based approaches to develop and deliver the required solutions. With a fit-for-purpose observational network; regional and international exchange of knowledge and data; appropriate communication and computing infrastructure and an innovative service delivery mechanism, a well-functioning South African Weather Service can ensure that all South Africans benefit. This will require an accelerated investment in research, innovation, enhanced observational networks, revenue generating activities and the attraction and retention of the appropriate skills.

The South African Weather Service is geared towards the provision of solutions related to the impact of extreme weather, natural disasters and climate action. By fine-tuning its products, services, and



the way in which it communicates with the public, the most important outcome will be a well-informed, weather aware and resilient nation, which is regarded as WeatherSmart.

Internationally, SAWS is recognized for its contribution to best business practices and data sharing with members of the World Meteorological Organization, academia and other bodies. While the private sector and other role-players are also moving into this space, the organisation remains at the forefront of technological development, research and innovation, taking advantage of new scientific insights, and following the identified trends that affect businesses worldwide.

Organisational outputs include enhancing its core the of meteorological knowledge; providing solutions that meet user needs; developing an optimal technological capability; and achieving internal excellence to serve the nation in the new decade.

This Plan outlines the organisation's goals and strategies to achieve its mandate of safeguarding life and property for the coming financial year.

Ms. Barbara Creecy, MP

Minister of Environment, Forestry and Fisheries



Accounting Officer Statement

The South African Weather Service (SAWS) provides a weather, climate and air quality monitoring service to the public and weather sensitive industries as determined by the South African Weather Service Act, 2001 (No 8 of 2001 as amended).

The organisation has a dual mandate, as it delivers public good and commercial services to citizens and weather and climate-sensitive industries. It focuses on vulnerable communities and industries; translates messages to audiences through various media platforms; and develops sector specific commercial solutions (such as the water sector, agriculture, insurance, aviation and others). With its most recent Stakeholder Perception Survey at 86%, the organisation continues to provide products and services in such a manner as to maintain these high levels of stakeholder satisfaction.

This Annual Performance Plan (APP) builds on the structural realignment of the organisation, aimed at meeting the emerging needs of weather, climate and air quality services. With increasing competition, environmental challenges, technological development and the impact of climate change, the organisation complies with various regulatory frameworks, national and international priorities. Requirements by the World Meteorological Organization (WMO) and the International Civil Aviation Organization (ICAO) also pose significant opportunities for the South African Weather Service and the country to play a leading role in aviation safety, disaster risk reduction and other key mandate areas within the region, continent and globally.

The South African Weather Service needs to support and enable future socio-economic advances of the country. This can be achieved by, amongst others, optimizing the functioning of its observation network, supported by our ICT infrastructure and skilled human resources.

The SAWS plans for the year takes into consideration the identified priority areas as articulated by the 6th Administration of Government. Interventions include enhancing the agricultural and energy value-chains, growing the ocean economy including coastal tourism and crosscutting areas to reform, boost and diversify the economy in the science and technology space. Interventions furthermore include the provision of reliable scientific information; the development and provision of products and services; the development of applications in support of the agricultural and water sectors and applications for the renewable energy sector. Other key initiatives include the continued implementation of the Marine Strategy and National Education Plan aimed at providing infrastructure and human resources in support of the Blue Economy, as well as, required atmospheric and related science human resources nationally


Dr. Jonas Mphepya
Acting Chief Executive Officer
South African Weather Service

Official Sign-Off

It is hereby certified that this Annual Performance Plan:

- (i) Was developed by the management of the South African Weather Service, under the guidance of the Department of Environment, Forestry and Fisheries.
- (ii) Considers all the relevant policies, legislation and other mandates for which South African Weather Service is responsible.
- (iii) Accurately reflects the Impact, Outcomes and Outputs which the South African Weather Service will endeavour to achieve over the period 2020/2021.

Mr. Tebatso Kekana
Acting Executive: Corporate and Regulatory Services

Signature: 


Mr. Lulama Gumenge
Acting Chief Financial Officer

Signature: 

Mr. Tshepho Ngobeni
Acting Executive: Weather and Climate Services

Signature: 


Mr. Mnikeli Ndabambi
Executive: Infrastructure and Information Systems

Signature: 

Dr. Jonas Mphepya
Acting Chief Executive Officer

Signature: 

Ms. Nana Magomola
Board Chairperson

Signature: 

Approved by:
Ms. Barbara Creecy, MP
Executive Authority

Signature: _____

Part A: Our Mandate

1. Updates to the Constitutional Mandate

In terms of the Constitution of the Republic of South Africa, Act No. 108 of 1996 (as amended) the mandate of the South African Weather Service is aligned to Chapter 2 section 24 on the environment, which reads as follows:

Everyone has the right-

- a) to an environment that is not harmful to their health or well-being; and
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The constitutional mandate of the SAWS remains relevant and as expressed in the strategic plan without any updates for this financial year.

2. Updates to the Legislative and Policy Mandate

The legislative mandate of SAWS is derived from the South African Weather Service Act, Act No. 8 of 2001, as amended through the SAWS Amendment Act, Act No. 48 of 2013, the Public Finance Management Act (PFMA), Act No. 1 of 1999 and associated Treasury Regulations. SAWS is a section 3A entity as per the PFMA and in terms of its enabling Act; Act no 8 of 2001 (as amended), SAWS is mandated to:

- Provide reliable weather services to support public good and its commercial ventures.
- Provide aeronautical and marine meteorological services.
- Provide ambient air quality services.

The above mandate of the entity and its objectives as stipulated in the SAWS Act no. 8 of 2001 (as amended) remains relevant and as expressed in the strategic plan without any updates for this financial year.

3. Relevant Court Rulings

There have not been any recent court rulings with significant impact on the SAWS for this financial year.

Part B: Strategic Focus

4. Situational Analysis

The SAWS is ideally positioned and mandated to respond and contribute towards solutions related to extreme weather, natural disasters and climate. Furthermore, the growing demands for weather, climate and related environmental solutions are creating real opportunities for growth and enhanced relevance for the organisation.

SAWS' strong global and regional linkages, where best business practices and data are shared among Members of the World Meteorological Organization (WMO), academia and other bodies, are considerable strategic advantages. However, more global and local players, including the private sector are moving into this space and therefore SAWS needs to maintain and establish a competitive edge throughout the value chain; from the data obtained from the observational network to the eventually services and products delivery to society. It is quite clear that the Entity will also have to invest in research and innovation as it moves forward to optimally take advantage of new scientific insight, the rapid advancement of computing technology and the identified trends that affect business.

Optimal management of Infrastructure and Information Systems remains key in the Entity's value chain. It would be misleading to dismiss the challenges the Entity has endured with regards to its infrastructure. However, great turnarounds have materialised as a result of the Entity's openness with challenges facing infrastructure; particularly Radar Infrastructure, as well as efforts to be responsive to changes in the landscape within which SAWS operates. It is from challenges such as the above that the Entity must find a balance between its public good responsibilities and revenue-generating activities and keep the situation under constant review to ensure that the Entity remains sustainable and able to serve optimally.

The strategic focus for the next five years will be geared towards achieving outcomes related to the protection of lives and property against meteorological-related risks, as well as organizational sustainability. These outcomes will be derived as a result of outputs in the core operations of the Entity which are focused towards an enhanced Meteorological-Related Body of Knowledge, provision of Meteorological-Related Solutions to meet user needs, an Optimal Technological Capability and Internal Excellence.

In this medium-term, SAWS will be working towards implementing initiatives *vis a vis* each output area considering the results of the internal and external environmental analysis. These initiatives are strategic priorities ranging from developing real-time, value-adding, user friendly meteorological solutions to the increase in non-regulated revenue generation from meteorological solutions. A summary of the strategic priorities includes the below:

Annual Performance Plan for 2020/2021



**South African
Weather Service**

STRATEGIC OUTPUTS	STRATEGIC PRIORITIES
Enhanced meteorological-related body of knowledge	<ul style="list-style-type: none"> Develop real-time, value-adding, user-friendly meteorological solutions
Meteorological-related solutions provided to meet user needs	<ul style="list-style-type: none"> Improve our promotion / marketing of meteorological solutions Increase non-regulated revenue generation from meteorological solutions
Optimal core technological capability	<ul style="list-style-type: none"> Improve life cycle management of technology Improve dissemination platform / channels Leverage emerging technologies for improved solutions and competitiveness
Internal excellence achieved within the organisation	<ul style="list-style-type: none"> Improve corporate governance within the organisation Improve performance management practices within the organisation (business and individual) Leverage unique capability of strategic partners Improve our corporate communication / corporate branding Improve compliance to the quality management system Develop a conducive corporate culture Improve acquisition, development and retention of key skills Improve supply chain management practices within the organisation Improve budget processes within the organisation in line with the strategic plan Improve expenditure management Improve non-core assets management within the organisation (record keeping, Waterkloof land development) Improve knowledge management practices within the organisation

Table 1. Strategic Priorities

4.1 External Environment Analysis

Globally, the next decade will be characterised by the rapid growing needs of society for solutions related to environmental challenges. Many of these needs will center around mitigating and adapting to climate variability and change and the weather and water impact. Over South Africa we can expect inter-annual and longer-term changes in the frequency and intensity of heatwaves, droughts, floods and severe storms as atmospheric circulations patterns shift between years and the atmosphere become more energetic due to long-term warming. In the South African context, these needs should be seen in the context of a growing and urbanizing population, and issues around food security and water availability, inequality and environmental health. These challenges will require enhanced weather, climate and related environmental information and user-specific solutions for wise decisions in support of socio-economic development of our diverse pollution, building resilience to cope and the protection and life and property on land, in the air and over our surrounding oceans.

The next decade will also be an era of rapid science and technology development that can be exploited through innovative science-based approaches to develop and deliver the required solutions. Such solution depends on a fit-for-purpose observational network, the regional and international exchange of knowledge and data, the appropriate communication and computing infrastructure and innovative service delivery mechanism to ensure that all South Africans benefit. The SAWS will require an accelerated investment in research and innovation and the attraction and retention of the appropriate skills. SAWS therefore find itself at a fortunate juncture as it is uniquely placed to be a key role player in this space nationally, regional and even internationally.

SAWS strong global and regional linkages, where best business practices and data are shared among Members of the World Meteorological Organization, academia and other bodies, are considerable strategic advantages. However, more global and local players, including the private sector are moving into this space and therefore SAWS need to maintain and establish a competitive edge throughout the value chain; from the data obtained from the observational network to the eventually services and products delivery to society. It is quite clear that SAWS will also have to invest in research and innovation as it moves forward to optimally take advantage of new scientific insight, the rapid advancement of computing technology and the identified trends that affect business.

4.2 Internal Environment Analysis

As a Meteorological Authority, SAWS is a science based, services-oriented and technology driven organisation tasked with providing weather and climate services to over 56 million South African citizens. In a quest to deliver quality products and services, the Entity relies on the effective implementation of its Integrated Services Strategy (ISS). The integrated view emanating from the ISS will enable SAWS to leverage economies of scale and skill that ensures effective resource allocation for effective implementation of the Strategic Plan and supporting APPs.

Integrated Service Strategy

The Integrated Service Strategy (ISS) concept was borne from primarily the need to refocus SAWS back to its core mandate i.e. dissemination of climate and weather information that improves societal preparedness for severe weather events that are associated with climate variability. SAWS recognised that to sustain the fulfilment of this mandate, it needs to review its services strategy. This review culminated in the ISS whose primary goal is to leverage economies of scale and scarce skills, to address the lack of capacity coupled with the ever-dwindling grant funding. Secondly, through successful implementation of the ISS, SAWS will be well positioned to recover most of its cost of delivering on its mandate.

In the context of the ISS, the SAWS primarily disseminate its core services to citizens with a principle to recover the cost of production for such services as a part-solution for mitigating resource constraints. This cost recovery principle ensures reduced reliance on the ever-diminishing government grant while sustaining the provision of SAWS services. The ISS recognises the need to consolidate and integrate; through collaboration, the way services are developed and disseminated throughout the SAWS value chain. This integrated view of service development and deployment will enable SAWS to leverage economies of scale and skill that ensures effective resource allocation and deployment.

Through ISS SAWS developed its service/operating model which describes the way how the entity will organise itself to deliver the ISS. The service model embodies the interaction or integration of the various functional areas to maximise economies of skill, and scale, clarifying each role and accountability. This further creates focus and addresses the challenge of duplication of effort and building of services that are not linked to a user or interested party’s need or expectation; the requirement SAWS Integrated Services Model describes as informed by the value chain.

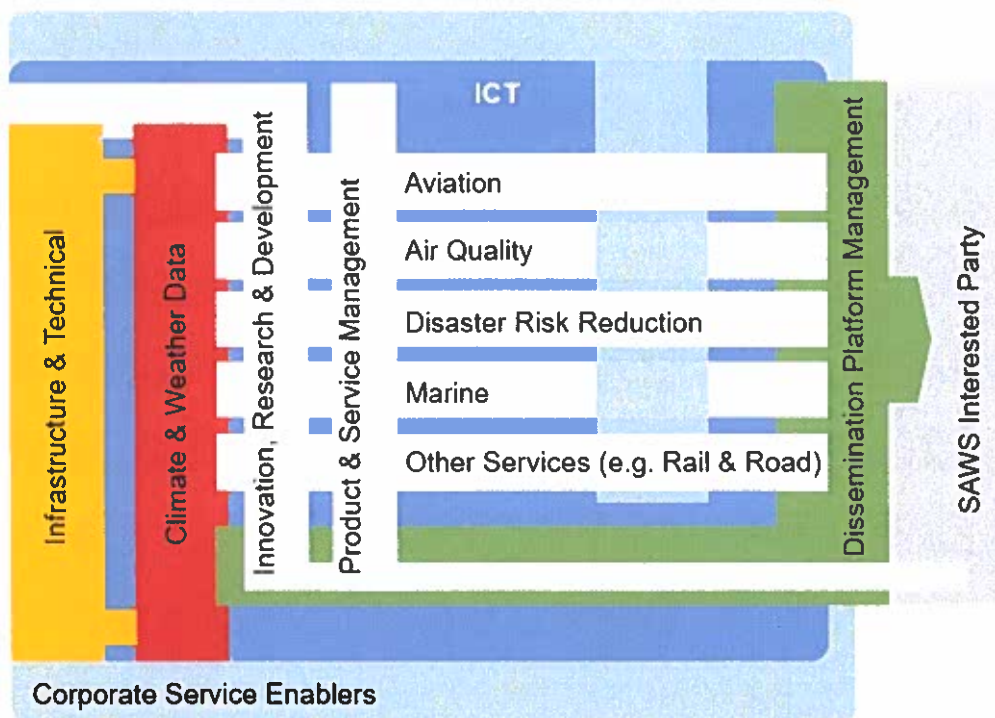


Figure 1: SAWS Integrated Services Model



Revenue generation as part of ISS

As per Section 4.(1) (a) of the SAWS Act of 2001, the Weather Service must provide such meteorological services, including public good services and Commercial services, as are necessary to achieve its objectives, provided it is in the interests of the Weather Service and the State.

For SAWS to remain relevant, revenue generation through the provision of products and services will be important in order to ensure the sustainability of SAWS. SAWS will continue to follow revenue models that focus on the increasing revenue generation internally via various channels to linking with external partners that provide unique capacities and capabilities that are not available in-house. In order to realise sustainable revenue flows, SAWS needs to tap into innovative opportunities and solutions which include, but are not limited to:

- Integrated multi-sector data and infrastructure management
- Weather-Smart research and innovation
- Hosting of the National Framework for Climate Services Centre
- Developing innovative and relevant products and solutions for various sectors including the media
- Link with International agencies and funders to broaden the revenue generating mechanisms

Part C: Performance Measuring

5. Programme Performance Information

The SAWS Strategic Framework put forward an impact whose intention is to obtain an *Improved quality of life for all in South Africa*. The impact will be realised through the attainment of outcomes related to: Lives and property protected against meteorological-related risks, as well as Organisational sustainability.

Furthermore, the entity's Strategic Framework identifies four (4) outputs to which the SAWS will strive to achieve in this APP and throughout the strategic period. These output areas include:

- (i) ENHANCED METEOROLOGICAL RELATED BODY OF KNOWLEDGE
- (ii) METEOROLOGICAL RELATED SOLUTIONS PROVIDED TO MEET USER NEEDS
- (iii) OPTIMAL CORE TECHNOLOGICAL CAPABILITY
- (iv) INTERNAL EXCELLENCE ACHIEVED WITHIN THE ORGANISATION

District model approach and Impact based forecasting

SAWS will also be engaged in the awareness campaigns which will include the roll out of impact-based forecasting and warning service through the district model approach as described by the Presidency. Impact-based approach is needed to alert the communities at risk of the expected adverse impacts that the weather may have on them. This is a paradigm shift from "what the weather will be" to rather, "what the weather will do". Impact-based system will also use simple and plain language, devoid of any meteorological terminology. This has been necessitated by the fact that despite recent major improvements in accuracy and timeliness of warnings, a good response which could lead to safety of life or avoidance of major economic disruptions, cannot be guaranteed. As such, a severe weather warning needs to be tailored provide useful, timeous and relevant information to the users (disaster managers and the general public) on the expected severity and the associated likely level of adverse impact due to the hazard to support their decision-making on the most appropriate actions. Initially, this concept has been started in disaster risk reduction, but can be easily applied to other weather-sensitive spheres. As contribution towards the District Development Model, SAWS will be engaged in the following during the financial year:

Annual Performance Plan for 2020/2021



**South African
Weather Service**

Project/Programme name and description	District Municipality	Focus area/Intended socio-economics outcomes	Project budget	Protect start and end date	Social partners
Impact-based severe weather warning awareness campaign	Quarter 1 1 District	Educate Disaster managers, local government officials and councillors on understanding and responding to Impact-based severe weather warnings.	R2 million	FY 2020-21	Emergency Services and Disaster Management (National, provincial and district), Local Municipalities, Traditional Authorities.
	Quarter 2 1 District				
	Quarter 3 1 District				
	Quarter 4 1 District				
Weather and climate early warning awareness campaign	Quarter 1 1 District	Engaging communities through severe weather awareness campaigns where SAWS can raise awareness and educate communities, enabling them to make informed decisions that save lives and property.	R2 million	FY 2020-21	Emergency Services and Disaster Management (National, provincial and district), Local Municipalities, Traditional Authorities.
	Quarter 2 1 District				
	Quarter 3 1 District				
	Quarter 4 1 District				
	World Met Day & Science Symposium				



5.1 Outcomes, Outputs, Performance Indicators and Targets

PROGRAMME 1: WEATHER AND CLIMATE SERVICES

Purpose: Safeguard life and Property and Provide Meteorological Solutions to all South Africans

SAWS has a mandate to provide reliable weather services to support public good and commercial ventures. Accurate and reliable weather information assists government decision-making, the public and raises awareness about weather-related disasters, which ultimately assists in preparing for disasters and finding ways of preventing them from happening/mitigating their impact and ensure that these activities are carried out safely and efficiently so that long-term plans take full account of any expected changes in the climate. The achievements of accuracy and availability will contribute to the outcome of Lives and property protected against meteorological-related risks. The achievement of the outcome will lead to an improved quality of life for all in South Africa.

Outcome	Outputs	Output Indicators	Audited/Actual performance				Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19	2020/21		2021/22	2022/23	
Lives and property protected against meteorological-related risks	Meteorological related solutions provided to meet user needs	Percentage of national weather (FPZA41) available	98.6%	98.7%	98.3%	98%	98%	98%	98%	98%
		Percentage of Aerodrome warnings accuracy	98.7%	98.7%	98.24%	98%	98%	98%	98%	98%
		Percentage of Terminal Aerodrome Forecast (TAF) accuracy	91.4%	91.8%	91.5%	90% ¹	90%	90%	90%	90%
		Percentage availability of Marine (SOLAS)	New	85%	96.4%	95%	95%	95%	95%	95%

¹ ICAO requirement = 80%



PROGRAMME 2: RESEARCH AND INNOVATION

Purpose: Develop Meteorological Solutions to inform wise socio-economic choices.

The SAWS will place focus on the generation of new scientific insights in atmospheric and related sciences, specifically as related to weather, climate and related environmental matters and developing user relevant and innovative products and services to support socio-economic development and build resilience. The increase in Research Output as well as development of solutions, would enhance meteorological knowledge which in turn would greatly impact on the protection of lives and property against meteorological risks.

Outcome	Outputs	Output Indicators	Audited/Actual performance			Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19		2020/21	2021/22	2022/23
Lives and property protected against meteorological-related risks	Enhanced meteorological related body of knowledge	Number of Research outputs (publications, articles, conference papers, etc.)	26	47	70	45	47	50	50
			N/A	N/A	N/A	1	1	1	
			N/A	N/A	N/A	5	6	7	
		Number of new Climate solutions for climate sensitive sectors							
		Number of Solutions developed							



PROGRAMME 3: INFRASTRUCTURE AND INFORMATION SYSTEMS

Purpose: Upgrade, Expand and Optimise Infrastructure

The Entity plans to upgrade, expand and optimise the SAWS observational infrastructure, as well as the communication, processing and data systems that form the bedrock of the SAWS value chain. Observational infrastructure includes all the observation systems over South Africa and the surrounding oceans, the ICT systems required to run numerical models to ensure that South Africans can benefit from weather and climate services and the communication system to ensure that these services reach the population. As the core technological capacity and capability of SAWS improves, the organisation will make considerable strides towards the protection of lives and property against meteorological risks.

Outcome	Outputs	Output Indicators	Audited/Actual performance				Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19	2020/21		2021/22	2022/23	
Lives and property protected against meteorological-related risks	Optimal core technological capability	Percentage of Surface observation infrastructure availability (AWS and ARS)	New	New	New	85%	85%	85%	85%	
		Percentage of GAW infrastructure availability	New	New	90%	90%	90%	95%	95%	
		Percentage of Remote sensing observation infrastructure availability (Radar)	81.75%	72%	77% ²	80% ³	85%	85%	87%	

² Performance of Tier 1 Radars

³ Performance of Tiers replaced by statistics of holistic network from 2019/2020 onwards

Annual Performance Plan for 2020/2021



**South African
Weather Service**

Outcome	Outputs	Output Indicators	Audited/Actual performance				Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19	2017/18		2020/21	2021/22	2022/23
Lives and property protected against meteorological-related risks	Optimal core technological capability	Percentage of Remote sensing observation infrastructure availability (LDN)	96%	95%	91%	75%	90%	90%	95%	
		Percentage of Air quality observation infrastructure availability (SAAQIS)	99%	90%	98%	90%	95%	95%	95%	
		Percentage of Priority Areas Air Quality Stations available on SAAQIS meeting minimum data requirements	New	New	89%	85%	85%	85%	85%	
		Percentage of climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	New	New	New	80%	82%	83%	85%	



PROGRAMME 4: ADMINISTRATION (INCLUDING CORPORATE AND REGULATORY SERVICES)

Purpose: Provide leadership, strategic, centralised administration, executive support, corporate services and, facilitate effective cooperative governance, international relations and environmental education and awareness.

To ensure that the organisation is sustainable, excellence would have to be achieved on several factors. These factors include ensuring that 65% of the procurement budget is spent locally on affirmative procurement, that the BEE level is improved to be on level 6 in 2020/21 financial year and that commercial revenue is increased to R39,18 million during the period. Furthermore, an unqualified audit opinion must be achieved whilst decreasing the attrition rate.

Outcome	Outputs	Output Indicators	Audited/Actual performance			Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19		2020/21	2021/22	2022/23
Organisational sustainability	Internal excellence achieved within the organisation	Current ratio for Liquidity	2.5	2.1	1.1	1.5	1.5	1.5	1.5
		Percentage of Local Expenditure on affirmative procurement	New	New	New	65%	65%	65%	65%
		Level of BBBEE	New	New	New	7	6	5	4
		Growth in Commercial revenue	R29.37m	R25.68m	R32.4m	R36.19m	R39.18m	R42.35m	R47m
		External audit opinion rating	Unqualified	Unqualified	Qualified	Unqualified	Unqualified	Unqualified	Unqualified
		Percentage of Attrition rate	8%	8%	1%	≤8%	≤8%	≤8%	≤8%

Annual Performance Plan for 2020/2021



South African Weather Service

Outcome	Outputs	Output Indicators	Audited/Actual performance				Estimated performance 2019/20	Medium-term targets		
			2016/17	2017/18	2018/19	2019/20		2020/21	2021/22	2022/23
		Percentage of Workplace Skills Plan (WSP) targets met	New	New	New	95%	95%	95%	95%	
		Percentage rating of External stakeholder perception	85%	86%	86%	N/A ⁴	85%	N/A	85%	

⁴ External stakeholder perception rating conducted every 2nd year

5.2 Indicators, Annual and Quarterly Targets

PROGRAMME1: WEATHER AND CLIMATE SERVICES

Purpose: Safeguard life and Property and Provide Meteorological Solutions to all South Africans

Output Indicators	2020/21 Annual Target	Quarterly Targets				Means of Verification/Evidence
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Percentage of national weather (FPZA41) available	98% FPZA41 availability	98% FPZA41 availability	98% FPZA41 availability	98% FPZA41 availability	98% FPZA41 availability	Quarterly Availability Reports
Percentage of Aerodrome warnings accuracy	98% Aerodrome warnings accuracy	98% Aerodrome warnings accuracy	98% Aerodrome warnings accuracy	98% Aerodrome warnings accuracy	98% Aerodrome warnings accuracy	Quarterly Accuracy Reports
Percentage of Terminal Aerodrome Forecast (TAF) accuracy	90% ⁵ TAF accuracy	90% TAF accuracy	90% TAF accuracy	90% TAF accuracy	90% TAF accuracy	Quarterly Accuracy Reports
Percentage availability of Marine (SOLAS)	95% SOLAS availability	95% SOLAS availability	95% SOLAS availability	95% SOLAS availability	95% SOLAS availability	Quarterly Availability Reports

⁵ ICAO requirement = 80%



PROGRAMME 2: RESEARCH AND INNOVATION

Purpose: Develop Meteorological Solutions to inform wise socio-economic choices.

Output Indicators	2020/21 Annual Target	Quarterly Targets			Means of Verification/Evidence	
		Quarter 1	Quarter 2	Quarter 3		
Number of Research outputs (publications, articles, conference papers, etc.)	47 Research outputs	7 research outputs	20 research outputs	15 research outputs	5 research outputs	Peer- reviewed articles published in national or international Scientific journals, conferences, thesis and dissertations where SAWS scientists are the leading author or co-author.
Number of new Climate solutions for climate sensitive sectors	1 new climate solution	Needs Analysis completed	Methodology developed	Solution developed	Solution signed off	Quarterly Progress Reports. Availability of the solution.
Number of Solutions developed	6 Solutions developed	Needs analysis completed	6 solution prototypes developed as per needs analysis	6 prototypes translated into solutions	6 solutions signed-off	Outcome of needs analysis (Q1). Developed Prototypes signed off (Q2) Progress report (Q3) Solution sign-off.

PROGRAMME 3: INFRASTRUCTURE AND INFORMATION SYSTEMS

Purpose: Upgrade, Expand and Optimise Infrastructure

Output Indicators	2020/21 Annual Target	Quarterly Targets				Means of Verification/Evidence
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Percentage of Surface observation infrastructure availability (AWS, ARS)	85% AWS and ARS availability	85% AWS and ARS availability	85% AWS and ARS availability	85% AWS and ARS availability	85% AWS and ARS availability	Quarterly infrastructure availability reports.
Percentage of GAW infrastructure availability	90% GAW infrastructure availability	90% GAW infrastructure availability	90% GAW infrastructure availability	90% GAW infrastructure availability	90% GAW infrastructure availability	Quarterly infrastructure availability reports
Percentage of Remote sensing observation infrastructure availability (Radar)	85% Radar infrastructure availability	85% Radar infrastructure availability	85% Radar infrastructure availability	85% Radar infrastructure availability	85% Radar infrastructure availability	Quarterly Radar data availability report
Percentage of Remote sensing observation infrastructure availability (LDN)	90% LDN infrastructure availability	90% LDN infrastructure availability	90% LDN infrastructure availability	90% LDN infrastructure availability	90% LDN infrastructure availability	Quarterly LDN data availability report
Percentage of Air quality observation infrastructure availability (SAAQIS)	95% SAAQIS availability	95% SAAQIS availability	95% SAAQIS availability	95% SAAQIS availability	95% SAAQIS availability	SAAQIS availability report

Annual Performance Plan for 2020/2021



**South African
Weather Service**

Output Indicators	Quarterly Targets				Means of Verification/Evidence
	2020/21 Annual Target	Quarter 1	Quarter 2	Quarter 3	
Percentage of Priority Areas Air Quality Stations available on SAAQIS meeting minimum data requirements	85% priority areas air quality stations available on SAAQIS meeting minimum data requirements	85% priority areas air quality stations available on SAAQIS meeting minimum data requirements	85% priority areas air quality stations available on SAAQIS meeting minimum data requirements	85% priority areas air quality stations available on SAAQIS meeting minimum data requirements	WPA, HPA and VPA reports
Percentage of climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	82% climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	82% climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	82% climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	82% climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)	Quarterly Climate Data Availability Reports



PROGRAMME 4: ADMINISTRATION (INCLUDING CORPORATE AND REGULATORY SERVICES)

Purpose: Provide leadership, strategic, centralised administration, executive support, corporate services and, facilitate effective cooperative governance, international relations and environmental education and awareness.

Output Indicators	2020/21 Annual Target	Quarterly Targets			Means of Verification/Evidence
		Quarter 1	Quarter 2	Quarter 3	
Current ratio for Liquidity	1.5 liquidity ratio	1.5 liquidity ratio	1.5 liquidity ratio	1.5 liquidity ratio	Quarterly management reports. Annual Audited financial statements
Percentage of Local Expenditure on affirmative procurement	65% local expenditure on affirmative procurement	65% local expenditure on affirmative procurement	65% local expenditure on affirmative procurement	65% local expenditure on affirmative procurement	Quarterly management reports
Level of BBBEE	Level 6 BBBEE	N/A	N/A	BBBEE Level 6 achieved	BBBEE Certificate
Growth in Commercial revenue	R39,18 mil commercial revenue (unregulated)	R6 mil commercial revenue	R9.2 mil commercial revenue	R11 mil commercial revenue	Quarterly management Reports. Audited Financial Statements
External audit opinion rating	Unqualified audit opinion	N/A	Unqualified audit opinion achieved	N/A	AGSA Audit Report

Annual Performance Plan for 2020/2021



**South African
Weather Service**

Output Indicators	2020/21 Annual Target	Quarterly Targets				Means of Verification/Evidence
		Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Percentage of Attrition rate	≤8% attrition rate	≤8% attrition rate	≤8% attrition rate	≤8% attrition rate	≤8% attrition rate	Quarterly Employee retention reports
Percentage of Workplace skills plan (WSP) targets met	95% WSP targets met	Develop WSP and submit to TETA	30% WSP targets met	60% WSP targets met	95% WSP targets met	WSP Quarterly Report
Percentage rating of External stakeholder perception	85% stakeholder perception rating	N/A	N/A	N/A	85% perception rating achieved	External Stakeholder perception report.

6. Overview of 2020/21 budget and MTEF: Estimates

6.1 Summary of Income and Expenditure

6.1.1 Revenue

Total Revenue budget for 2020/21 is R553,76 million; an increase of 19,38% over the base year (2019/20 financial budget). Over the full MTEF period, total revenue will increase up to R613,74 million in 2022/23.

Government Grant

The Government grant is based on the MTEF (Medium Term Expenditure Framework) allocation for the next 2 (two) years, i.e. 2020/21 to 2021/22, whilst revenue for the outer year, i.e. 2022/23 is based on historical average increases applied year-on-year, as the allocation letter had not yet been received at the time of preparation of this report.

Included under the Government Grant is the following:

- Operational Grant (excluding SAAQIS Grant) of R196,52 million for 2020/21, which has increased by 5,50% against the base year (2019/20). The Government Grant for SAWS is expected to increase to R207,33 million by 2021/22 based on the MTEF Allocation Letter from National Treasury, while the outer year which is 2022/23 is based on projections and will be updated once the allocation letter is received.

SAWS has been granted an additional R100 million in 2020/21 and in 2021/22 for Early Warning which will be utilized towards infrastructure capabilities and early warning and related initiatives.

An amount of R40,63 million for 2022/23 which has been granted in the form of Capital Expenditure budget will be utilized towards the acquisition of capital equipment mainly for the upkeep of existing infrastructure including the acquisition of new assets which will replace those that reached their useful lives including obsolete assets and changes due to technological developments.

The spare parts used to maintain SAWS' infrastructure such as its Radar network, Lightning Detection Network, Automatic Weather Stations/Rainfall-stations, other Meteorological and Air-Quality Equipment ensures that SAWS is able to deliver on its mandate.

The allocated capital expenditure from government for 2021/22 amounts to R42,89 million while the amount of R45,01 for 2022/23 is based on estimates.

- The South African Air Quality Information System (SAAQIS) Grant Income has been increased by 5,50% for 2020/21 to R18,78 million. Over the MTEF period, there is a steady increase of approximately 5% per annum, with revenue projected at R20,80 million in 2022/23.

Commercial Revenue

A distinction is made between Regulated Commercial Income (Aviation) and Non-Regulated Commercial Income.

Regulated Commercial Income (Aviation)

Aviation Income for the MTEF period is based on estimates, since the tariff for 2020/21 will only be finalized in March 2020 based on the outcome of the consultation process between SAWS; the Aviation Industry representatives; and the Regulating Committee on Meteorological Services (RCMS). SAWS does not make any profit from Aviation Revenue in line with the SAWS Act which only allows the entity to recover all its costs related to servicing the aviation industry and to this end SAWS uses the Activity Cost Based Model to calculate all incurred for aviation.

Based on the 2018/19 promulgated tariff, which includes an estimate for the forthcoming 2 years, it is expected that revenue from Aviation will increase to R143,02 million in 2020/21. For the next 2 years there-after, the revenue projections are based on estimates from the Regulating Committee on Meteorological Services as the tariff for 2019/20 has not yet been approved by the Minister. These figures will be revised in the 2020/21 Business Strategy after promulgation of the 2020/21 tariff.

Non-Regulated Income

The general economic environment, the demand for SAWS products and the pricing structure influence the Revenue for Non-Regulated Commercial Income amongst others. Therefore, the budget reflects what can be reasonably achieved given the current economic climate, as well as the available resources at SAWS' disposal.

It is expected that revenue will increase to R39,81 million in 2020/21. SAWS achieved actual revenue of R32,34 million in the 2018/19 financial year, which included revenue from Air-Quality related products sold to various municipalities. The revenue increase in 2020/21 will amount to 10% year-on-year and revenue growth is expected to grow at the same rate per year thereafter until 2022/23 based on the key performance indicators and deliverables outlined in the SAWS and Commercial Strategies respectively.

6.1.2 Expenditure

In the year ending 2020/21 Total Expenditure, excluding Depreciation and Amortisation is expected to increase by 10,28% to R474,49 million in 2020/21 when compared to the budget baseline from 2019/20 of R430,25 million. This increase is in line with the projected revenue.

It is anticipated that Total Expenditure over the MTEF period will increase to R527,06 million in 2022/23.



6.2 Relating expenditure trends to strategic outcome-oriented goals

No.	Strategic Goal	2018/19 Expenditure R'000	2019/20 Expenditure R'000	2020/21 Expenditure R'000	2021/22 Expenditure R'000	2022/23 Expenditure R'000
1	Provision of Products and Services	260,475	269,150	297,295	315,430	329,940
2	Capability and Capacity Development	64,247	64,813	71,294	75,643	79,123
3	Engagement of Stakeholders	19,989	20,916	23,008	24,411	25,534
4	Research and Knowledge Creation Intelligence	8,285	8,217	9,039	9,590	9,974
5	Growth and Sustainability	66,603	67,151	73,852	78,679	82,486
	Total Expenditure	419,599	430,247	474,488	503,753	527,057

Table 2: Relating expenditure trends to strategic outcome-oriented goals

6.3 Projected Income and Expenditure – Summary

Description	Audited Annual Financial Statements	Budget Previous Financial Year	ENE Allocations over MTEF Period 2019/20 to 2020/21		Projected
	2018/19 R'000	2019/20 R'000	2020/21 R'000	2021/22 R'000	2022/23 R'000
Total Revenue	382 764	463 845	553 759	587 193	613 742
Total Expenditure	(419 599)	(430 247)	(474 488)	(503 753)	(527 057)
Operating (Deficit) / Surplus Before Depreciation and Amortisation	(36 835)	33 598	79 271	83 440	86 685
Impairment Loss	(169)	-	-	-	-
Finance Cost	(953)	-	-	-	-
Depreciation and Amortisation	(32 756)	(33 598)	(38 638)	(40 572)	(43 817)
Surplus / (Deficit) before Valuations	(70 713)	-	40 633	42 868	42 868
Gains /(Loss) from Fair Value Adjustments	1 750	-	-	-	-
Surplus / (Deficit) for the year	(68 962)	-	40 633	42 868	42 868

Table 3: Projected Income and Expenditure

6.4 Projected Income Statement

Description	Audited Annual Financial Statements	Budget Previous Financial Year	ENE Allocations over MTEF Period 2019/20 to 2020/21		Projected
	2018/19 R'000	2019/20 R'000	2020/21 R'000	2021/22 R'000	2022/23 R'000
Revenue					
Government Grant - Operational	182 858	186 272	196 517	207 326	217 692
Government Grant - Capex	9 513	38 515	40 633	42 868	45 011
Government Grant - Early Warning	-	40 000	100 000	100 000	100 000
Government Grant - SAAQIS	17 117	17 802	18 781	19 813	20 804
Commercial Income	32 375	36 190	39 809	43 790	48 169
Aviation Income	128 234	130 006	143 019	158 396	166 316
Other income, Interest and Donor Funds	12 667	15 060	15 000	15 000	15 750
Total Revenue	382 764	463 845	553 759	587 193	613 742
Expenditure					
Employee Costs	(261 336)	(272 892)	(297 452)	(318 274)	(334 188)
Administrative and Operating Costs	(158 263)	(157 355)	(177 036)	(185 479)	(192 869)
Total Expenditure	(419 599)	(430 247)	(474 488)	(503 753)	(527 057)
Operating (Deficit) / Surplus Before Depreciation and Amortisation	(36 835)	33 598	79 271	83 440	86 685
Impairment Loss	(169)	-	-	-	-
Finance Cost	(953)	-	-	-	-
Depreciation and Amortisation	(32 756)	(33 598)	(38 638)	(40 572)	(43 817)
Surplus / (Deficit) before Valuations	(70 713)	-	40 633	42 868	42 868
Gains / (Loss) from Fair Value Adjustments	1 750	-	-	-	-
Surplus / (Deficit) for the year	(68 962)	-	40 633	42 868	42 868

Table 4: Projected Income Statement

7. Key Risks

Outcome	Key Risk	Risk Mitigation
Lives and property protected against meteorological-related risks	<p>Insufficient quality education for science, technology, engineering and mathematics</p> <p>Vandalism of infrastructure</p> <p>Inaccurate information provided Un-timeous provision of meteorological information</p> <p>Inadequate education on weather information (both public goods and commercial goods - stakeholders and community)</p> <p>Inadequate and ageing infrastructure used to collect weather data</p> <p>Technological failure(s) of AWS & ARS which will result in loss/inaccurate of data (service disruption)</p> <p>Poor communication with relevant stakeholders</p>	<p>SAWS will engage the Department of Higher Education and Training and learning institutions on the need for an increased Meteorological career path and which subjects should scholars be encouraged to pursue.</p> <p>The Met technicians will regularly do site inspections (ARS and AWS).</p> <p>Improving security measures, e.g. Installation of electrical fence for all ARS and AWS.</p> <p>Proper implementation of ARS and AWS maintenance plan (including buying of parts and spares). Upgrading of Network. Buying and maintenance of backup Generators and UPS (Power outages and Load shedding) at Regional offices where there's a need. Procurement of modern designed Mast(s) Regular communication between SAWS and stakeholders.</p> <p>Weather educational/awareness campaigns for community/stakeholders in all the Provinces. All platforms will be explored in endeavor to reach even rural areas.</p> <p>Proper implementation of ARS and AWS maintenance plan (including buying and replacement of parts and spares). Spending of Budget on infrastructure assets in line with allocation and approved procurement plan/ and Modernisation plan. Proper implementation of ARS and AWS maintenance plan (including buying and replacement of parts and spares).</p> <p>Development and implementation of Year plan/programme for engagements between SAWS and stakeholders.</p>
Organisational sustainability	Inadequate government allocation for public goods	Develop a priority list in line with approved procurement plan. Source funding from other Partners/Agencies.

Annual Performance Plan for 2020/2021



**South African
Weather Service**

Outcome	Key Risk	Risk Mitigation
	Inadequate revenue generation (sales of products and services)	Revise/develop marketing strategy for SAWS products and services. Develop Debtors management policy.
	Diminished competitive edge	An integrated communications and branding strategy implementation.
	Fraud and corruption	Adherence to SCM policy – all Bids. Development of Fraud prevention plan. Regular communication of code of conduct and Ethics to all employees (old and new) (e.g. quarterly via emails, departmental meetings, induction, etc).
	Creditors not paid within 30 days which might lead to litigation claims	Develop Creditors management policy. EXCO will consider Creditors age analysis and Finance will develop a priority list for payment of creditors.

8. Infrastructure Projects

There is growing concern about the impacts on human societies of extreme weather events such as floods, droughts and heat waves. Some of these events cause enormous destruction and loss of life with long-lasting effects. Agriculture, civil aviation, shipping, fisheries, forestry, energy and water resources management, land transport, marine transport, aviation transport, banking, insurance, construction, urban design and many other types of business, depend heavily on modern weather monitoring and prediction to minimize the effect of adverse weather conditions on the effectiveness and efficiency of their operations. Of importance is the impact of weather and climate fluctuations on food production. With access to reliable forecasts farmers can adapt their schedules for planting, harvesting and other activities as needed. Land transport, civil aviation and shipping and tourism can plan travel times and determine routes to avoid the impact or hazards posed by adverse or severe weather conditions. Improved scientific understanding of how the atmosphere, ocean, land and water cycles interact to produce the weather are becoming increasingly important.

SAWS is working on a funding model to address increasing needs which require approximately R690 million over the period ending 2024/25.

The Five-year strategic projects to address the long-term infrastructure requirement and mitigate against the identified risks are estimated in the following:

Annual Performance Plan for 2020/2021



**South African
Weather Service**

No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
1.	Radar midlife refurbishments and upgrades	<ul style="list-style-type: none"> a) Upgrade S-Band Radars into dual polarization (Y1=4, Y2=4, Y3=2) b) X-Band mobile radar for Western Cape (Y2) c) Replace C-band radars with the new S-band radar (Cape Town, De Aar and Skukuza), (Y1=1, Y2=1, Y3=1). 	Modernised infrastructure with the potential of saving lives and generating more revenue	2020/21	2024/25	R240 mil	N/A
2.	Lightning Detection Network upgrades	<ul style="list-style-type: none"> a) Lightning sensor upgrade from LS-7000 and LS-7001 to LS-7002;(Y1=10) b) Replacement of 14 LDN sensors (Y1=10, Y2=4) c) Integration of other lightning detection technologies (Y2=5) d) Network expansion (Y3=6) e) Back-up systems (Y1=10, Y2=10, Y3=10) f) Security fencing (Y1=6, Y2=6) 	Modernised infrastructure with greater detection efficiency and accuracy	2020/21	2023/24	R35 mil	N/A
3.	Surface observation Infrastructure Modernization	<ul style="list-style-type: none"> a) Upgrade of 19 Weather Office AWS's from CR10X to CR1000 (Y1=19) b) Upgrade of 205 AWS network from CR10X to CR310 (Y1=60, Y2=90, Y3=55) 	Modernised infrastructure with greater detection efficiency and accuracy	2020/21	2024/25	R60 mil	N/A

Annual Performance Plan for 2020/2021



No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
		<p>c) Security fencing (Y2 and Y3)</p> <p>d) Upgrade of Manual rainfall stations 1097 (Y1=366, Y2=366, Y3=366)</p> <p>e) Network expansion for closing the gaps (Y2=25, Y3=25)</p>					
4.	Upper Air Sounding Infrastructure	<p>a) Replacement of existing 11 stations (Hogan Hydrogen Generator); (Y1=4, Y2=4, Y3=3)</p> <p>b) Replacement of 10 Hydrogen Storage Vessel (tanks).</p>	Modernised infrastructure with reliable generation of hydrogen	2020/21	2023/24	R30 mil	N/A
5.	Information Technology infrastructure upgrade	<p>Upgrade and Expansion of Disaster Recovery Infrastructure at OR Tambo and Cape Town, as well as replacement of server infrastructure at Main Regional Offices</p> <p>Procurement of MATHLAB software required by Research.</p> <p>Upgrade of data storage for VMWARE Infrastructure</p>	<p>Reliable DR functionality</p> <p>MATHLAB functionality available for entire Research Team</p> <p>Increased storage to cater for growth in data</p>	2020/21	2020/21	R 96.5 mil	N/A

Annual Performance Plan for 2020/2021



South African Weather Service

No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
			due radars, NWP Models and satellite				
		Replacement of UPS at main Regional Offices (Durban and Port Elizabeth)	Reliable power supply for server and office infrastructure	2022/23	2022/23		
		Upgrade of Archive and Backup storage and extension of warranty	Increased storage for backup and archive needs	2022/23	2022/23		
		Replacement of Regional Offices Network Switches	Reliable and high-speed network	2023/24	2023/24		
		Replacement of Research Server Infrastructure	Reliable and high-speed network	2024/25	2024/25		
		Replacement of Operational VMWARE server and storage infrastructure	Server Infrastructure required by Research	2023/24	2023/24		
		Replacement of Operational VMWARE server and storage infrastructure	Server Infrastructure required for operational purposes of SAWS	2024/25	2024/25		
		Ongoing Replacement of old Laptop and Desktops	Reliable up to date laptop and desktop infrastructure	2020/21	2020/21		
				2021/22	2021/22		
				2022/23	2022/23		
				2023/24	2023/24		
				2024/25	2024/25		

Annual Performance Plan for 2020/2021



South African Weather Service

No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
6.	Solar Radiation Infrastructure upgrades	There two important types of instruments used to measure solar irradiance: Pyrheliometer is used to measure direct beam radiation at normal incidence. Pyranometer is used to measure total hemispherical radiation - beam plus diffuse - on a horizontal surface. If shaded, a pyranometer measures diffuse radiation. Added to this, is measurements of solar UV radiation are critical to mitigate against health-related impacts. Cavity radiometers are required to calibrate the radiation network.	Trend analysis graphs, GAW (CO2, GHGs) Bulletins, research outputs, etc.	2020/21	2022/23	R20 mil	N/A
7.	Air Quality Infrastructure enhancement	a) Low cost community-based air quality monitoring network. b) Furniture for commercial entity. c) Computer hardware and software. d) Calibration and testing instrumentation. e) Equipment and tools. f) Office fixtures and fittings. g) Stock of spares and instrumentation.	Fully Operational air quality services commercial entity.	2021/22	2023/24	R45 mil	N/A

Annual Performance Plan for 2020/2021



**South African
Weather Service**

No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
8.	Laboratory Infrastructure	<p>a) New Lab Building (Office space, AQ Lab, Met Lab, Radiation Lab, LDN calibration, R&D Lab, Training room)</p> <p>b) Equipment (Testing, Verification and Calibration)</p> <p>c) Furniture</p>		2020/21	2021/22	R40 mil	N/A
9.	GAW Laboratory instrument upgrades	The Global Atmosphere Watch Programme provides reliable scientific information for a broad spectrum of users, including policymakers, on topics related to atmospheric chemical composition	Trend analysis graphs, GAW (CO ₂ , GHGs) Bulletins, research outputs, etc.	2020/21	2021/22	R30 mil	N/A
10.	Climate Data Management System Development	Re-development of current CDMS (METCAP) to incorporate new requirements.	Reliable World Class CDMS software required by SAWS	2020/21	2022/23	R 10 mil	N/A
11.	Replacement of ageing and under resourced HPC	Replacement of current HPC that is 6 years old and technology 8 years old with more efficient and resourced HPC	Increased resources to meet operational demands for the NWP modelling in SAWS (Unified (NWP and DA), COSMOS, WRF, Wavewatch,	2020/21	2021/22	R83 mil	N/A

Annual Performance Plan for 2020/2021



South African Weather Service

No.	Project Name	Project Description	Outputs	Project Start Date	Project Completion Date	Total Estimated Cost	Current Year Expenditure
			Air Quality, etc.				
		With increased HPC capabilities the old air conditioners needs to be replaced or upgraded depending on HPC needs	Reliable cooling required by HPC	2020/21	2020/21		

Part D: Technical Indicator Descriptions

Indicator Title	Percentage of national weather (FPZA41) available
Definition	% availability of National Public Weather bulletins over a given period. These are issued 2 times daily.
Source of data	Message Handling System
Method of Calculation / Assessment	Quantitative: $((\text{Forecast produced} \div (\text{number of days that month} \times 2)) \times 100)$
Means of verification	Monthly Report (Mrep)
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	98%
Indicator Responsibility	Senior Manager: DRR

Indicator Title	Percentage of Aerodrome warnings accuracy
Definition	This refers to the % accuracy of adverse weather warnings at major airports around the country period. The warnings are aimed at ground handlers, aircraft re-fuelers, aircraft on the ground, and the larger aviation community based at these airports.
Source of data	OPMET Databank, Aviation website
Method of Calculation / Assessment	Quantitative: $((\text{Forecast and Observed} + \text{Not Forecast Not Observed}) \div (\text{Forecast and Observed} + \text{Forecast but Not Observed} + \text{Not Forecast but Observed} + \text{Not Forecast Not observed}) \times 100)$
Means of verification	Monthly Report (Mrep)
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	98%
Indicator Responsibility	Senior Manager: Aviation Services



Indicator Title	Percentage accuracy of meteorological information for flight planning and en-route operations (TAF)
Definition	Refers to the % accuracy of aerodrome weather forecasting over a given period i.e. the accuracy of aviation weather information on OPMET databank and on aviation website for use by its users.
Source of data	OPMET Databank, Aviation website
Method of Calculation / Assessment	Quantitative: $((\text{Forecast and Observed} + \text{Not Forecast Not Observed}) \div (\text{Forecast and Observed} + \text{Forecast but Not Observed} + \text{Not Forecast but Observed} + \text{Not Forecast Not observed}) \times 100)$
Means of verification	Monthly Report (Mrep)
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	90%
Indicator Responsibility	Senior Manager: Aviation Services

Indicator Title	Percentage availability of Marine (SOLAS)
Definition	Refers to the %availability of SOLAS bulletins (FQZA30 and FQZA31) over a given period. Both products are each issued twice daily.
Source of data	Message Handling System
Method of Calculation / Assessment	Quantitative: $((\text{Forecasts produced} \div (\text{number of days that month} \times 2)) \times 100)$ Average for the two (2) products
Means of verification	Monthly Report (Mrep)
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	95%
Indicator Responsibility	Senior Manager: DRR



Indicator Title	Number of Research outputs (publications, articles, conference papers.
Definition	Research output measured in terms of the number of publications published in the following media: <ol style="list-style-type: none"> 1. Peer reviewed articles published in scientific journals 2. Peer reviewed conference papers 3. Thesis (MSc. And PhD) 4. Book Chapters
Source of data	Publications
Method of Calculation / Assessment	Quantitative
Means of verification	Quarterly Report on Journal publications, conference proceedings & thesis.
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	47 Research outputs
Indicator Responsibility	Senior Manager: Research

Indicator Title	Number of new Climate solutions for climate sensitive sectors
Definition	A climate information solution that can be used as a decision-making tool. To provide value-added climate data and services towards building resilience to climate change
Source of data	The information is mainly forthcoming from observational weather data stored on the climate database. In addition, media sources are utilised to summarise significant weather and climate events.
Method of Calculation / Assessment	Quantitative
Means of verification	Quarterly Report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	One (1) climate solution
Indicator Responsibility	Senior Manager: Climate Services



Indicator Title	Number of Solutions developed
Definition	Development of new products and services as well as enhancements to existing, to provide value-added decision-making services for different economic sectors.
Source of data	
Method of Calculation / Assessment	Quantitative
Means of verification	Quarterly Report
Assumptions	Availability of quality data from observation platforms as well as the reliability of computational systems (HPC, Servers).
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	6 solutions developed
Indicator Responsibility	Senior Manager: Research

Indicator Title	Percentage of Surface observation infrastructure availability (AWS and ARS)
Definition	Percentage of Surface observation infrastructure availability (AWS and ARS)
Source of data	Climate Database - five-minute tables
Method of Calculation / Assessment	Quantitative
Means of verification	Quarterly Report
Assumptions	AWS and ARS Infrastructure operational with spares available
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	85%
Indicator Responsibility	Senior Manager: Technical Services



Indicator Title	Percentage of GAW infrastructure availability
Definition	One of the WMO obligations for SAWS, is to manage the GAW station at Cape Point and Regionally to measure background elements of trace gas increases as a result of climate change. This data is utilised as background information to indicate a changing Greenhouse gas loading in the atmosphere as a precursor to climate change.
Source of data	
Method of Calculation / Assessment	Quantitative: (Actual data availability ÷ Predetermined data availability from GAW infrastructure x 100)
Means of verification	Quarterly GAW Data Recovery report
Assumptions	Performance of instrumentation (Infrastructure) + Availability of supporting consumables (gasses)
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	90%
Indicator Responsibility	Senior Manager: Research

Indicator Title	Percentage of Remote sensing observation infrastructure availability (Radar)
Definition	Radar is the critical component for short term forecasting and issuing of weather warnings. It is critical to track Average time of the radar infrastructure availability
Source of data	TITAN
Method of Calculation / Assessment	Quantitative: Uptime measured in 24 hours cycle, monthly average and quarterly average
Means of verification	Quarterly Radar performance report
Assumptions	Network access to files received in a 24 hours system operation, Ravis uptime
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	85%
Indicator Responsibility	Senior Manager: Technical Services



Indicator Title	Percentage of Remote sensing observation infrastructure availability (LDN)
Definition	Average time of the Lightning Detection Network (LDN) infrastructure availability
Source of data	Lightning processing server
Method of Calculation / Assessment	Quantitative: Uptime measured in 24 hours cycle, monthly average and quarterly average
Means of verification	Quarterly LDN performance report
Assumptions	Network access to files received in a 24 hours system operation
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	90%
Indicator Responsibility	Senior Manager: Technical Services

Indicator Title	Percentage of Air quality observation infrastructure availability (SAAQIS)
Definition	The % of SAAQIS uptime over a given period i.e. the availability of full SAAQIS functionality for use
Source of data	External/third party monitoring tool or Envitech – SAAQIS Service Provider
Method of Calculation / Assessment	Quantitative: SAAQIS availability expressed as a percentage, provided by an external electronic website monitoring tool
Means of verification	
Assumptions	N/A
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	95%
Indicator Responsibility	Senior Manager: Air Quality Services

Indicator Title	Percentage of Priority Areas Air Quality Stations available on SAAQIS meeting minimum data requirements
Definition	This indicator refers to the percentage (%) of priority area monitoring stations which are available on SAAQIS that meet minimum (85%) data requirements.
Source of data	SAAQIS report / station monthly reports and Excel Spreadsheet where computation is illustrated
Method of Calculation / Assessment	Quantitative
Means of verification	Quarterly Progress Reports
Assumptions	Only refers to SAWS operated ambient air quality monitoring stations in the National Priority Areas (HPA, VPA and WBPA)
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	85%
Indicator Responsibility	Senior Manager: Air Quality Services

Indicator Title	Percentage of climate data available on National Climate Database meeting minimum data requirements (AWS & ARS)
Definition	As long-term custodian of a reliable national climate record, reliable and quality data must be available on the national database.
Source of data	Climate Database - five-minute tables
Method of Calculation / Assessment	Quantitative: $((\text{Received five-minute values} + \text{by expected values}) \times 100)$ Expected value is number of open stations x 288 records x number of days in month.
Means of verification	Monthly generated availability reports
Assumptions	Lack of spares for AWS and ARS; inadequate sensor uptime.
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	82%
Indicator Responsibility	Senior Manager: Climate Services



Indicator Title	Current ratio for Liquidity
Definition	The indicator measures the ability of the entity on meeting its short-term obligations.
Source of data	Accounting Software (ERP)
Method of Calculation / Assessment	Quantitative: Ratio of current assets to current liabilities
Means of verification	Quarterly financial report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	A ratio of at least 1.5
Indicator Responsibility	Senior Manager: Finance

Indicator Title	Percentage of Local Expenditure on affirmative procurement
Definition	Indicator measures the total affirmative procurement as a percentage of the total expenditure from local suppliers
Source of data	Accounting Software (ERP)
Method of Calculation / Assessment	Quantitative: Total of procurement from BEE Level 1 - 8 suppliers as a percentage of the total procurement from local suppliers
Means of verification	Quarterly procurement report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	65%
Indicator Responsibility	Senior Manager: Finance



Indicator Title	Level of BBBEE
Definition	To measure and improve the BBBEE level of the organisation
Source of data	BBBEE Certificate
Method of Calculation / Assessment	Qualitative: Verification agency report
Means of verification	BBBEE Certificate
Assumptions	Availability of required documentation for the measurement elements
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Annual
Desired performance	BBBEE Level 6
Indicator Responsibility	CFO

Indicator Title	Growth in Commercial revenue
Definition	Growth in commercial revenue (non-regulated) for the financial period compared to the previous financial period
Source of data	NetSuite, Revenue and Pricing Models
Method of Calculation / Assessment	Quantitative
Means of verification	Financial Management Reports and Audited Financials
Assumptions	Quality (accuracy and completeness) as well as availability of the data
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	R39.18 mil
Indicator Responsibility	CFO



Indicator Title	External audit opinion rating
Definition	Measures the effectiveness of developed and implemented internal controls for effective and efficient financial management, organisational performance management. Ensure compliance with relevant laws and regulations to achieve an unqualified audit opinion.
Source of data	Auditor General's Audit Report
Method of Calculation / Assessment	Qualitative: Opinion of Auditor General in report
Means of verification	Auditor General's Audit Report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Annual
Desired performance	Unqualified external audit opinion
Indicator Responsibility	CFO

Indicator Title	Percentage of Attrition rate
Definition	Rate at which employees leave the workforce over a given period
Source of data	HR employee records
Method of Calculation / Assessment	Quantitative: $((\text{Terminations} \div \text{Average \# of employees over the period}) \times 100)$
Means of verification	Quarterly Report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Quarterly
Desired performance	≤8%
Indicator Responsibility	Talent Management



Indicator Title	Percentage of Workplace skills plan targets met
Definition	Refers to the planned skills programmes that will be executed in the financial year
Source of data	Employee Personal Development Plans, RTC Report
Method of Calculation / Assessment	Quantitative: $((\text{The number of people trained} \div \text{the number of people planned to train}) \times 100)$
Means of verification	Quarterly WSP Report
Assumptions	All training needs are identified
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	cumulative (year-to-date)
Reporting cycle	Quarterly
Desired performance	95%
Indicator Responsibility	Senior Manager: Learning and Development

Indicator Title	Percentage rating of external stakeholder perception
Definition	To ascertain overall satisfaction with the quality of service, quality of products/services and image
Source of data	Perception survey report
Method of Calculation / Assessment	Qualitative: SERVQUAL methodology
Means of verification	Perception survey report
Assumptions	None
Disaggregation of Beneficiaries	N/A
Spatial Transformation	N/A
Calculation type	non-cumulative
Reporting cycle	Annual
Desired performance	85%
Indicator Responsibility	Senior Manager: Stakeholder, Marketing and Communication