



ANNUAL

PERFORMANCE PLAN



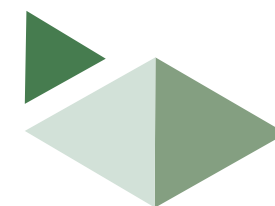


Table of Contents

PART A: OUR MANDATE		14
1	VISION	16
2	MISSION	16
3	VALUES	16
4	UPDATES TO THE RELEVANT LEGISLATIVE AND POLICY MANDATES	16
5	UPDATES TO INSTITUTIONAL POLICIES AND STRATEGIES	18
PART B: NMISA STRATEGIC FOCUS		20
6	UPDATED SITUATIONAL ANALYSIS	22
6.1	ORGANISATIONAL STRUCTURE	22
6.2	PERFORMANCE DELIVERY ENVIRONMENT (EXTERNAL)	24
6.2.1	International and Regional Participation	25
6.2.2	The Technical Measurement Environment	25
6.2.3	The National Function	25
6.3	ORGANISATIONAL DELIVERY ENVIRONMENT (INTERNAL)	26
6.3.1	The Organisation	26
6.3.2	Technical Activities	26
PART C: MEASURING OUR PERFORMANCE		28
7	NMISA PROGRAMMES	30
7.1	RESEARCH PROGRAMME CONTRIBUTIONS	30
7.2	PROGRAMME BUDGETS	39
8	PROGRAMME RESOURCE CONSIDERATIONS	39
8.1	2021/22 TO 2023/24 BUDGET ESTIMATES	39
9	NMISA PERFORMANCE INDICATORS	46
9.1	OUTCOMES, OUTPUTS, PERFORMANCE INDICATORS AND TARGETS	48
9.1.1	Programme Performance Indicators 2021/22	48
9.1.2	Quarterly Targets 2021/22	50
9.1.3	NMISA's contribution to the joint KPIs of the dtic	52
10	UPDATED KEY RISKS	57
11	INFRASTRUCTURE PROJECTS	57
PART D: TECHNICAL INDICATOR DESCRIPTIONS		58
12.1	INDICATOR PROFILES	60
12.2	DETAILED INDICATOR DESCRIPTIONS	61

Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
AFRIMETS	Intra-Africa Metrology System
AMD	Applied Metrology Division
APP	Annual Performance Plan
BIPM	International Bureau of Weights and Measures
CC	Consultative Committee
CEO	Chief Executive Officer
CFTA	Continental Free Trade Area
CGPM	General Conference on Weights and Measures
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capabilities
CRM	Certified Reference Material
CSIR	Council for Scientific and Industrial Research
EHS	Environment, Health and Safety
EXCO	Executive Committee
HCD	Human Capital Development
HR	Human Resources
IR	Ionising Radiation
ISO	International Standards Organisation
KCDB	Key Comparison Database
KPI	Key Performance Indicator
LED	Light Emitting Diode
MAT	Materials Characterisation
MRA	Mutual Recognition Arrangement
MTEF	Medium Term Expenditure Framework
NMI	National Metrology Institute

NMISA	National Metrology Institute of South Africa
NMS	National Measurement Standard
NRCS	National Regulator for Compulsory Specifications
OH&S	Occupational Health and Safety
OHSAS	Occupational Health and Safety Assessment Series
PEM	Physical and Electrical Metrology
PFMA	Public Finance Management Act
POP	Persistent Organic Pollutant
PPP	Public Private Partnership
PTS	Proficiency Testing Schemes
RIID	Regional, International Liaisons and Innovation Division
RMO	Regional Metrology Organisation
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
SANAS	South African National Accreditation System
SANS	South African National Standards
SHEQ	Safety Health Environment and Quality
SI	International System of Units
SKA	Square Kilometre Array
SME	Small, Medium Enterprises
SMME	Small, Medium and Micro Enterprises
SOE	State-Owned Enterprise
TBT	Technical Barrier to Trade
TC	Technical Committee
the dtic	Department of Trade, Industry and Competition
TI	Technical Infrastructure



FOREWORD BY THE MINISTER

– MR EBRAHIM PATEL

“The NMISA Annual Performance Plan sets out the Institutions ambitions and targets for the year ahead.”

This Annual Performance Plan (APP) of the National Metrology Institute of South Africa (NMISA) has been prepared by the management for consideration by the Executive Authority and tabling in Parliament. The Annual Performance Plans (APP) of public entities identify the outputs, output indicators and targets that an entity aims to achieve in the new financial year. The Executive Authority is responsible to ensure the APP is aligned with the Strategic Plan, the institution's mandate and government's priorities and to provide direction on the development and implementation of strategic priorities and policies.

The Covid-19 pandemic changed the landscape within which DTIC-entities operate and they are therefore expected to adjust their operations to address the new environment and new priorities. There is an urgent need to boost levels of economic growth and economic recovery, support transformation and build a capable state.

In particular, the APP for the 2021/22 financial year will need to reflect the policy priorities set out in Budget Vote statements tabled in Parliament during this Administration and those that arise from:

- The Economic Recovery and Reconstruction Plan tabled in Parliament in October 2020 by President Ramaphosa;
- The priorities set out in the 2021 State of the Nation Address;
- The new performance compacts between members of the Executive and the Presidency signed in November 2020; and
- The New District Development Model as an integration of development efforts at local level.

This APP is tabled and updates to the Plan – when these are effected – will be tabled in Parliament in due course, taking account of the above.

As the practical means to ensure alignment between APPs and policy priorities, the Annual Performance Plan for the DTIC itself has sets out the requirement to ensure integration between the work of the department and all public entities that report to it. Seven new Joint-Indicators (J-KPIs) have been developed for the DTIC that contain the major policy priorities and these are expected to be included in the work of the NMISA, with progress against these to be reported to the Ministry on a quarterly basis.

NMISA will be expected to show how, within its legal mandate, it has contributed to the achievement of the outcomes for the following seven Joint Indicators (details of which are contained in more detail in the APP of the department itself):

- Joint Indicator 1: Integrated Support to Drive Industrialisation
- Joint Indicator 2: Contribution to the development of an AfCFTA Export Plan
- Joint Indicator 3: Investment Facilitation and Growth
- Joint Indicator 4: Development Model and Spatial Equity
- Joint Indicator 5: Actions to Promote Transformation
- Joint Indicator 6: The Green Economy and Greening the Economy
- Joint Indicator 7: Strengthening and Building a Capable State

In this way, the combined efforts of all public entities will begin to be aligned to the national priorities in a more

explicit manner. The Joint-Indicators cover, among others, the work of sector masterplans, initiatives to boost levels of investment and localisation in the economy, expanding trade within the continent, enabling better local economic development, supporting the growth of new industries (in the green economy and through beneficiation) and building a capable state. In respect of Joint-Indicator 7 for example, all public entities will be required to review their procedures, timeframes for delivery, forms to be filled in and public communication of services to simplify these, make processes expeditious where possible, remove unnecessary red-tape where these exist and make it easier for users to access services. Greater coordination between technical regulators and the sharing of resources and expertise is also required, to build excellent institutions.

This APP is therefore not about many new objectives but rather on a new way of implementation, with the focus on integration, to enhance the development impact of the work. I therefore endorse the work to align the APP of NMISA with the national priorities and accordingly table the APP for NMISA in accordance with the request by the Speaker.

Mr Ebrahim Patel
*Minister of Trade,
Industry and Competition*

Date: 31 March 2021



OVERVIEW BY THE CHAIRPERSON

– MS JABU MOGADIME

“The NMISA Strategic Plan and APP are aligned with the implementation and acceleration of the dtic’s Reimagined Strategy.”

NMISA, an entity of **the dtic**, underpins all accurate measurements for the country and region. The organisation was established by government under the Measurement Act to link South Africa to the International System of Units (SI). This link is crucial in providing the necessary quality assurance to South Africa’s trading partners, regionally and internationally, and is crucial in negating technical barriers to trade. As part of the South African quality infrastructure, NMISA keeps, develops, maintains, and disseminate the National Measurement Standards. The role of this Institute will become more pronounced with the AfCFTA coming into effect, as the need for continental leadership in measurement science will be vital to protect South Africa and the region from an influx of sub-standard products into this lucrative, newly unified market.

“This is Africa’s moment to build resilient, innovative economies on the back of the large markets that the free trade agreement puts in place. It will take dedication and disciplined implementation over the next few years to fully realise the benefits” Minister Ebrahim Patel (4 January 2021)

NMISA is in its 3rd year of implementing its 5-year strategy for the period 2019/24. The key focus for 2021/22 is to develop Applied Metrology, which expands on the entity’s core scientific metrology product and service offerings.

NMISA is on track to realising its strategic objectives for this period, although faster progress is needed in the efforts to entrench metrology as key support infrastructure in the regulatory environment.

The year 2020/21 brought unexpected challenges as the response to the COVID-19 pandemic forced the organisation to implement remote working for most of its employees, whilst maintaining a safe working environment for necessary onsite work. This has been done successfully and the productivity gains from a more flexible work environment will be incorporated into post-pandemic work processes.

The organisation will continue working with the various government departments and regulators to provide fit-for-purpose measurement services in support of local manufacturing, health and safety, food safety, energy security, telecommunications, and environmental protection.

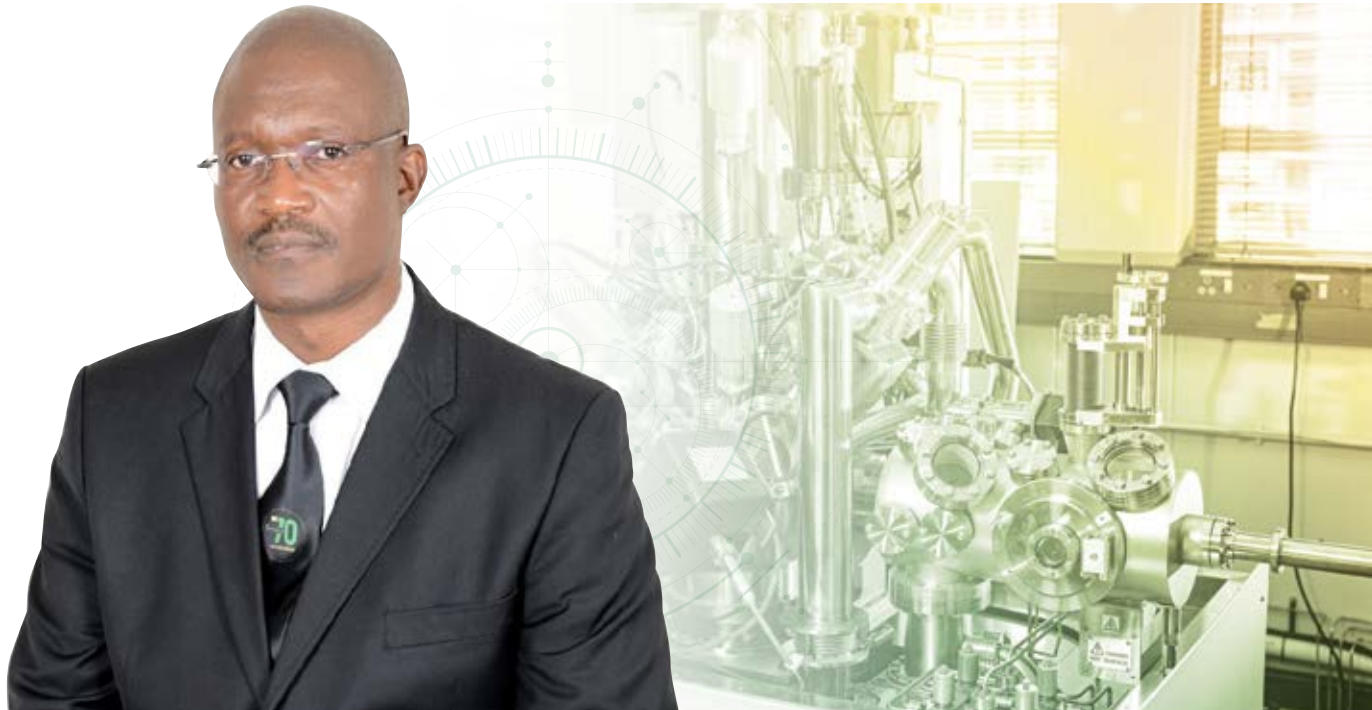
The NMISA Strategy is aligned with the implementation and acceleration of **the dtic’s** Reimagined Strategy, with a specific focus on the following;

- Employment orientated strategic localisation, reindustrialisation and export promotion
- Energy security

- Green economy interventions
- Strengthening agriculture and food security
- Strengthening the capacity of the State
- Skills development
- Economic Diplomacy, and further integration into the African Continent

The Board is committed to ensure that NMISA makes a valuable contribution to the 6th Administration’s plans to grow South Africa’s economy through industrial development and strengthening of South Africa’s trade and investment links with key economies.

Ms Jabu Mogadime
Accounting Authority



EXECUTIVE SUMMARY BY THE CEO – MR NDWAKHULU MUKHUFHI

“ Good decisions depend on good measurements in almost all aspects of social and economic activity: from production to trade, from science to education to job creation, from medical diagnosis to treatment, from regulation to law enforcement.”

This year, the National Metrology Institute of South Africa enters the third year of growing its business under its ambitious five-year strategic plan defined in 2019/20. Its objectives of: enhancing measurement services for regulatory development and compliance; consolidating metrology support for SOEs to ensure efficient shared services; expanding its capabilities to provide new, niche measurement solutions - beyond calibration - to industry and especially SMEs; aligning with the legal metrology function in South Africa to support the Legal Metrology Act; and leading the development of internationally recognised measurement infrastructure on the continent to support the implementation of the AfCFTA; have already delivered significant returns. NMISA achieved increased value to its clients and stakeholders, resulting in an 83% increase in income from rendering of services from 2016 to 2020. This whilst being committed to good governance, maintaining an unqualified audit opinion with no findings for 4 years.

This deliberate change in strategic direction has positioned NMISA well, as a capable state entity, to

contribute meaningfully to the Government's Economic Reconstruction and Recovery Plan. I echo President Cyril Ramaphosa's statement to Parliament on 15 October 2020: "Our recovery will be propelled by swift reforms to unleash the potential of the economy and supported by an efficient state that is committed to clean governance. It will be transformative. It will be inclusive. It will be digital, green and sustainable, and it will invest in our human capital to lay the foundations for the future."

Good decisions depend on good measurements in almost all aspects of social and economic activity: from production to trade, from science to education to job creation, from medical diagnosis to treatment, from regulation to law enforcement. As the highest authority on accurate measurement in South Africa, NMISA's focus for 2021/22 will be to apply measurement science to enhance local industrial capability, reducing reliance on imported commodities and expertise, in the following sectors:

- **Materials Metrology and Services**
(supporting local, additive manufacturing, and materials beneficiation)
- **Agriculture, Food and Environmental Monitoring**
(enabling local farmers and producers to meet food safety and export regulations; aiding reliable air pollution data)
- **Health and Safety**
(providing for reliable results obtained from medical instrumentation to facilitate accurate diagnosis and correct treatment, especially in response to the COVID-19 pandemic)
- **Energy Efficiency**
(measurement support for the evaluation and implementation of energy saving and clean energy technologies; measurement services to assist in assuring the stability of the national electricity grid)
- **Digital Economy**
(reliable telecommunication devices; high-accuracy time synchronisation of digital events; data consumption measurement)
- **Law Enforcement**
(accurate blood alcohol measurements, accurate speed measurements, reference materials for forensic analysis (illicit drugs) and contributing to consumer protection in trade)

- **Conformity Assessment Support**
(reference measurements and standards for agricultural processing activities, food safety, medical audits and quality control, and safety in industrial processes)

- **A National Training Centre**
(training and consultancy services to local scientists, engineers and technologists, and professionals from other regional measurement institutes)

The COVID-19 pandemic brought unprecedented changes to the operations of NMISA. A robust IT system allowed the Institute to implement remote working almost instantaneously while safety protocols were developed and implemented to ensure that NMISA can keep laboratories operational to continue measurement support for essential national services. Technical projects have been reprioritised to aid the national response to the pandemic, allocating resources to projects on ultraviolet germicidal disinfection studies, guidance on accurate infrared temperature screening for COVID-19, reference mixtures for medical gasses, chemical analysis of sanitiser solutions and the calibration of ventilators. These measures will continue into the 2021/22 financial year.

Maintaining the year-on-year growth rate in performance outputs whilst responding to the pandemic within the financial constraints, is achieved through accelerated implementation of a matrix organisational system, as well as implementation of a new enterprise resource planning system effective 1 April 2021. This allows the organisation to apply its resources optimally, upskilling employees where needed, in order to respond to changes in its business environment faster and more effectively.

While acknowledging the severe economic impact brought about by the pandemic, we are mindful of the opportunities that it presented to review and adapt our way of work to be more efficient and conducive to transformation into a digital economy. Our resilience is driven by dedicated employees working together and joining all South Africans in proudly building local and regional capacity.


Mr Ndwakhulu Mukhufhi
Accounting Officer, NMISA

OFFICIAL SIGN-OFF


It is hereby certified that this Annual Performance Plan:

- Was developed by the management of NMISA under the guidance of the Board and the Board Chair, Ms J Mogadime.
- Takes into account all the relevant policies, legislation and other mandates for which the NMISA is responsible.
- Accurately reflects the impact, outcomes and outputs which NMISA will endeavour to achieve given the resources made available in the budget for 2021/22 – 2023/24.

Dr Jayne de Vos
Director AMD



Mrs Natasha van der Walt
Director SBDG



Mr Teboho Mthombeni
Director CS



Mr Mogau Sehlapelo
Chief Financial Officer



Dr Wynand Louw
Director RIID



Mr Ndwakhulu Mukhufhi
Accounting Officer



Mr Benjamin van der Merwe
Director PEM



Ms Jabu Mogadime
Accounting Authority

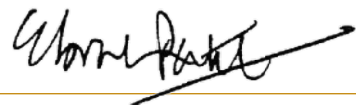


Dr Jessie Pillay
Acting Director CMM



Approved by:

Mr Ebrahim Patel
Executive Authority



“The successful execution of NMISA’s mandate relies on a competent, healthy, and sustainable workforce.”

PART A

OUR MANDATE

1. Vision

To be the leading metrology and measurement centre of excellence on the African continent, connecting Africa to the World

2. Mission

To consistently deliver outstanding innovative and internationally comparable measurement solutions that support regional and international trade, people's quality of life, and enable the protection of the environment

3. Values

- Quality
- Measurement excellence
- Social responsibility
- Economic prosperity
- Good governance

4. Updates to the Relevant Legislative and Policy Mandates

NMISA was established and is fulfilling its legal mandate under the Measurement Units and Measurement Standards Act, Act No. 18 of 2006. In 2018, the international metrology world took a unanimous decision to revise the SI, which came into effect on 20 May 2019, internationally recognised as World Metrology Day. In accordance with the Act, Measurement Units and National Measurement Standards, including new updates, are gazetted. NMISA is responsible for maintaining the Measurement Units in accordance with the revised SI and ensuring that all international developments in units are appropriately legislated.

The dtic has initiated a revision of the Measurement Act to align it with the latest international and local best practises. The main aspects to be addressed include: the role of NMISA in providing measurement services and traceability to government departments; measurement facilities (police forensics, department of health forensic laboratories, department of transport law enforcement agencies, etc.); and the provision of metrology shared services to SOEs. Finally, better alignment with the Legal Metrology Act will be considered.

ACT	PURPOSE
Legal Metrology Act, (Act No. 9 of 2014)	The Legal Metrology Act provides for the administration and maintenance of legal metrology technical regulations to promote fair trade, for public health and safety, the protection of the environment and to provide for matters connected therewith. NMISA has extensive metrology laboratories, standards, and equipment, together with a solid base of scientific metrology skills, knowledge, and capacity to support Legal Metrology in health, safety and environment measurements.
The Disaster Management Act No. 57 of 2002	Since the outbreak of the COVID-19 pandemic in South Africa, NMISA re-prioritised its technical projects to allocate resources to projects on ultraviolet germicidal disinfection studies, guidance on accurate infrared temperature screening for COVID-19, reference mixtures for medical gasses, chemical analysis of sanitiser liquids and gels and the calibration of ventilators. These measurement service offerings enable local manufacturers to meet product specifications and quality standards to reduce dependence on international supply. The pandemic has highlighted the importance of a quality infrastructure and the need for reliable metrology services.

ACT	PURPOSE
Hazardous Substances Act, No. 15 of 1973, Regulation No. R. 247, 26 February 1993	NMISA provides measurement traceability and calibration of equipment used for monitoring of ionising radiation.
The Civil Aviation Act No. 13 of 2009	NMISA provides measurement traceability contributing to safety and security throughout the civil aviation industry as well as measurement training courses for aviation technicians.
The Foodstuffs, Cosmetics and Disinfectant Act 54 of 1972 as amended	NMISA value assigns elements in food matrices and provides proficiency testing schemes in support of food labelling as required and published by the Department of Health regulations relating to the labelling and advertising of foodstuffs.
Independent Communications Authority of South Africa Amendment Act 2 2014	The introduction of remote working arrangements to minimise physical contact between people while the COVID-19 pandemic is prevalent, has increased the demand for stable and reliable mobile data services at an affordable cost. Those employees, students and learners who have ready access to mobile data in sufficient quantities to support their work or learning activities, have a distinct advantage over those that do not. NMISA has signed an MOU with ICASA to establish a joint project to investigate and develop a verifiable mobile data measurement solution to enable independent end user verification of the accuracy of mobile data usage statements.
Court Rulings	
The Hendrik's Judgement in the Western Cape High Court in September 2011 led to the newly revised SANS 1793: 2013 (The specification for evidential breath analysers).	The Hendriks Judgement meant that no evidential breathalysers were calibrated in South Africa from 2011. Following on this review, tests were completed on a new generation breathalyser required by the SANS regulations and NMISA now calibrates the new breathalysers in support of law enforcement.
The withdrawal of all criminal proceedings against a motorist caught speeding using a specific measuring device in the case of the State vs Zabeer Khan in May 2019.	To address the requirement for measurement traceability for speed measurement devices, NMISA established a facility to calibrate such equipment as there is no other local facility that can calibrate to the new specification.

5. Updates to Institutional Policies and Strategies

NMISA is a Type 3A public entity, managed by a Chief Executive Officer (CEO), supported by an executive management team and governed by the NMISA Board. The organisational structure is shown in Figure 1 (Part B). The structure of the Executive Management level was changed to reflect the Strategic Goals set out in the Strategic Plan 2019-2024:

- Strategic Goal 1: Metrology for Regulatory purposes and in support of government laboratories: for compliance and for development of regulations.
- Strategic Goal 2: Metrology consolidation for SOEs to provide efficient shared services.
- Strategic Goal 3: Metrology for Industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation and export.
- Strategic Goal 4: Strategic alignment with the legal metrology function in the country to enhance the application of advanced scientific and applied metrology to support the implementation of the Legal Metrology Act.

NMISA has identified and prioritised measurement projects that support the quality assurance of locally manufactured and imported products essential in the national effort to respond to the COVID-19 pandemic. It supports the fight against the COVID-19 pandemic at all levels that require accurate measurement and is at the disposal of any national project where it can make a substantial contribution with its international networks and access to expertise worldwide.

NMISA is developing health screening scanners that will incorporate different health measurement parameters beyond only surface temperature in the screening process. The NMSs for these different parameters are ready to support measurement for the development of locally manufactured devices. NMISA also offers the following services that can contribute towards the fight against COVID-19: ultraviolet germicidal irradiation measurements; analytical services for evaluating sanitising solutions; primary gas (oxygen) reference mixtures (oxygen as required in treatment protocols, etc.); calibrate oxygen flow; provide advice on the procurement and use of screening devices; and provide assistance and calibration for and acts as a consultant to the procurement and use of temperature and other measurement devices to government and the private sector.

The successful execution of NMISA's mandate relies on a competent, healthy, and sustainable workforce. To provide for the safety of all employees, NMISA implemented new protocols including remote working for most employees, while maintaining a safe environment for necessary onsite work. The pandemic also highlights the importance of adaptability and the urgency of South Africa's move towards the 4th Industrial Revolution.



“Competitive manufacturing relies on accurate, internationally comparable measurement. Without a measurement infrastructure it is difficult for the country to manufacture to international specifications.”

PART B

NMISA
STRATEGIC
FOCUS

6. Updated Situational Analysis

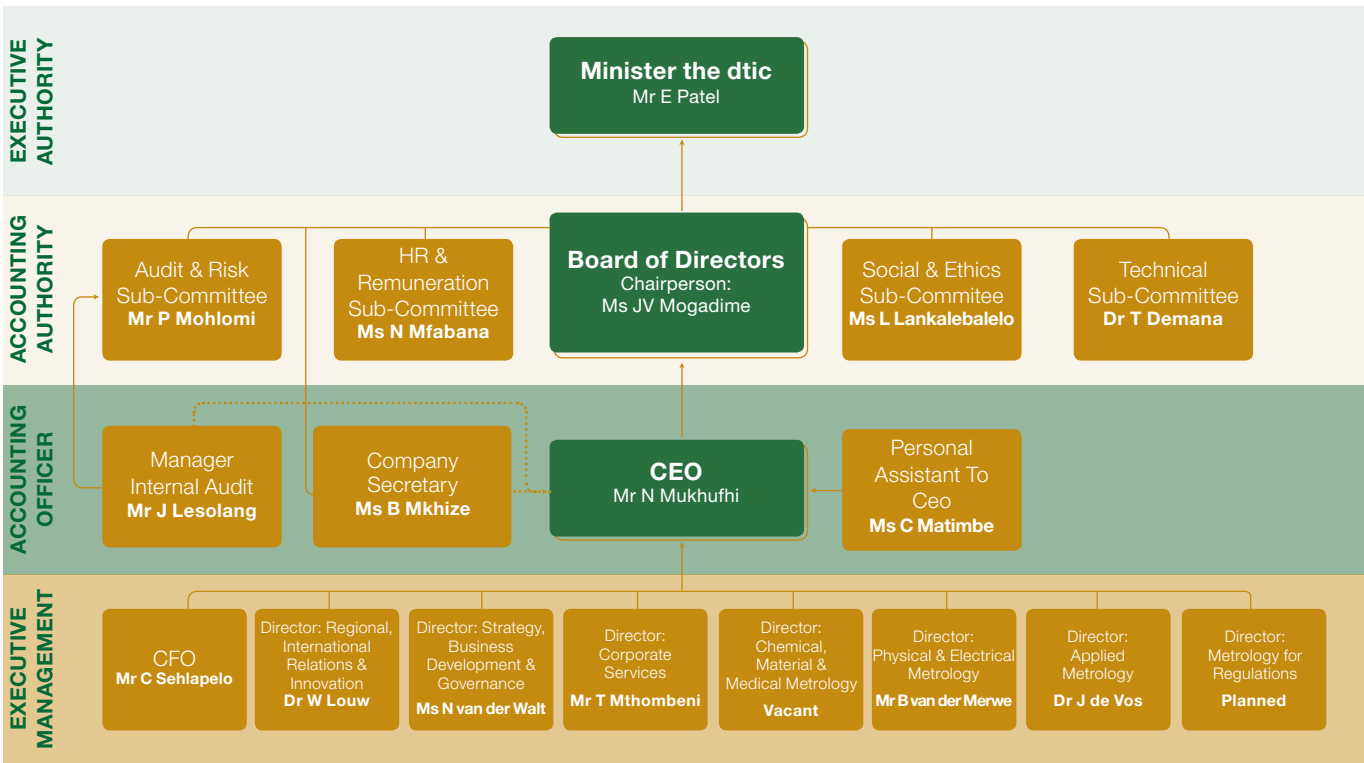
6.1 Organisational Structure

One of the roles of NMISA is to ensure that measurements performed nationally (and regionally) are accurate and internationally acceptable. This enables trade, component manufacturing, the legal acceptance of measurement results for law enforcement, accurate measurement in environmental monitoring and safety, and health care.

NMISA was established under the Measurement Units and Measurement Standards Act, No. 18 of 2006 (The Measurement Act) to provide for the use of measurement units of the International System of Units (SI) and to designate other measurement units for use; to provide for the designation of the national measurement standards (NMS); and to provide for the keeping and maintenance of the NMS.

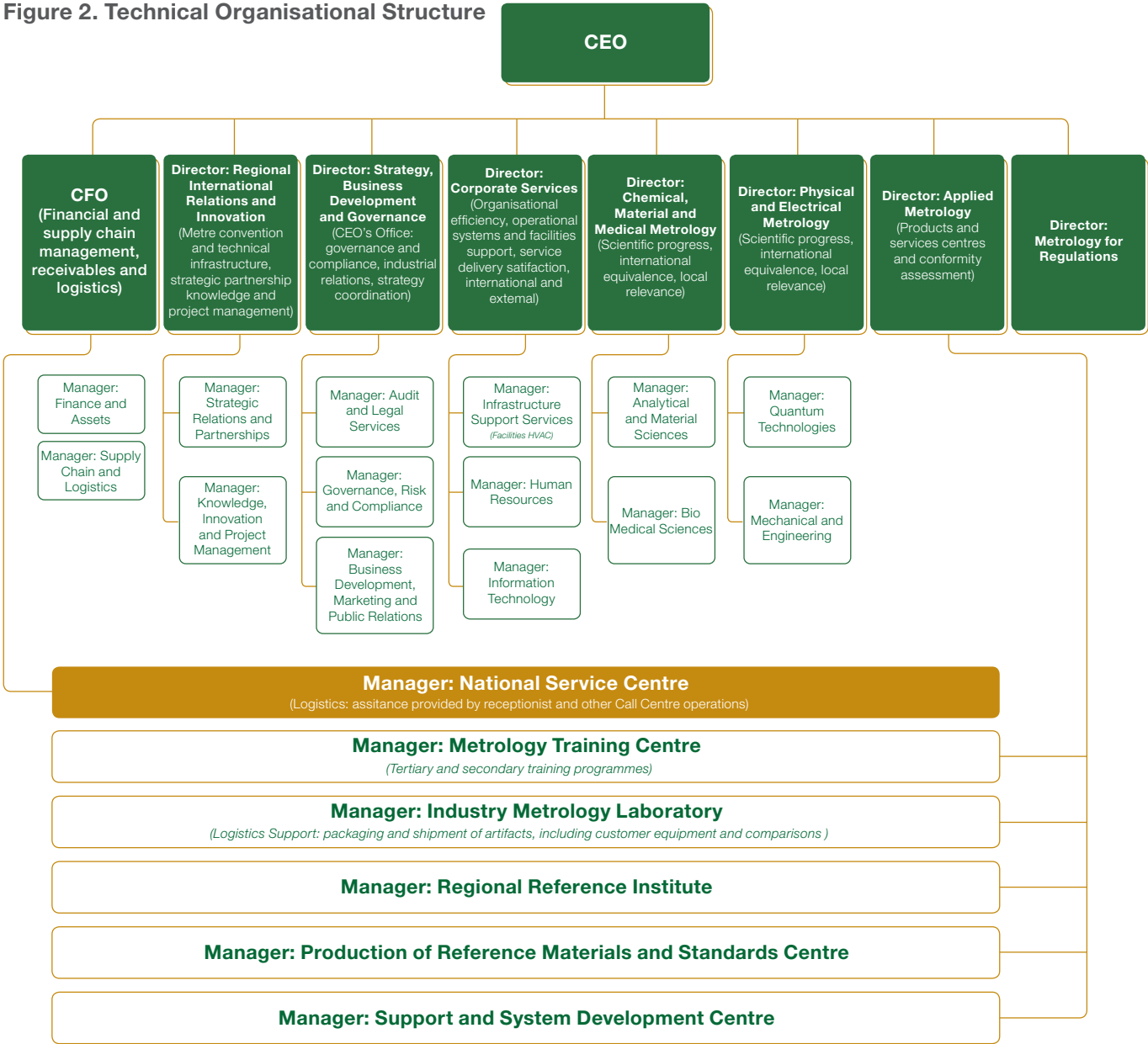
NMISA has established an organisational structure that supports the effective delivery of this mandate and reflects the Strategic Goals set out in the NMISA Strategic Plan 2019-2024. The organisations current Governance Structure is presented in Figure 1.

Figure 1. Governance Structure



NMISA's management has restructured the organisation's strategic goals into functional areas (divisions) within its matrix structure to ensure the maintenance of the National Measurement Standards (NMS) in support of Scientific Metrology and to optimise the dissemination, standardisation, reference measurement and calibration to industry by streamlining Applied Metrology into a separate division with dedicated centres. This is necessary to ensure confidence in measurement and underpins a client centric approach, by aligning the organisation and projects to deliver on the new client strategy. This is facilitated through its calibration, measurement, and training programmes to ensure traceability to internationally recognised standards, through mutual recognition agreements with many other countries and organisations and in support of Legal Metrology and our South African Regulatory Framework.

Figure 2. Technical Organisational Structure



NMISA will continue to perform research and develop activities in thematic programmes to deliver outcomes such as improved NMS, certified reference materials and measurement solutions to industry in a matrix structure. Benchmarking at regional and international level to establish the required level of NMS and services for the South African and regional economy is also captured in the thematic programmes.

The Strategy, Business Development and Governance Division guides new business development, provides market and impact information that is required for decision making, facilitates client service delivery and ensures legislated reporting to the shareholder.

The dissemination and measurement services are coordinated in dedicated sector-based Centres under the Applied Metrology Division. Quality infrastructure interaction, international liaison, and regional integration are conducted by the Regional, International Relations and Innovation.

6.2 Performance Delivery Environment (external)

The trade of goods and services around the world is the lifeblood of the global economy, and is increasingly important to domestic economic growth, productivity and investment opportunities. For customers to consider trade to be fair and benefit from it, for component manufacturing to be effective and efficient and for effective health care and the protection of the environment, measurements taken in different parts of the world need to be accurate, equivalent to each other, and accepted by each country. Important decisions (economic, environmental, social and medical) are based on measurement results.

Recently the COVID-19 pandemic has shown the important role of NMIs and the global measurement network to quickly respond to challenges of locally producing treatment or protective equipment. NMISA contributes to these national priority programmes, all government key priorities and the National Development Plan (NDP) and has aligned its key programmes to the re-imagined Industrial Strategy and the goal of the National Industrial Policy Framework to “help prevent” industrial decline and support the growth and diversification of South Africa’s manufacturing sector. NMISA has a very specific role in this context: without a measurement infrastructure it is difficult for the country to manufacture to international specifications and tolerances, and to ensure the integrity of commodities, locally and for the export market. Competitive manufacturing relies on accurate, internationally comparable measurement that is achieved through the establishment of the “traceability” of the measurement result to the SI or internationally agreed references.

South Africa is a signatory to the Metre Convention, a treaty dating back to 1875. Under this Convention the International Bureau of Weights and Measures (BIPM) was created to act in matters of world metrology, particularly concerning the demand for measurement standards of ever-increasing accuracy, range and diversity, as well as to address the need to demonstrate equivalence between national measurement standards. The SI was also established under the Metre Convention and is overseen by the International Committee for Weights and Measures (CIPM). The whole system is governed by the General Conference on Weights and Measures (CGPM), whose members are the states that signed the Metre Convention. South Africa acceded to the treaty in 1964 and in 1999 NMISA signed the CIPM Mutual Recognition Arrangement (MRA). The CIPM MRA gives users reliable quantitative information on the comparability of national metrology services and provides the technical basis for wider

agreements negotiated for international trade, commerce, and regulatory affairs. It is the basis for the international acceptance of National Measurement Standards and for calibration and measurement capabilities (CMCs) and calibration and analysis certificates issued by NMIs.

As the custodian of the South African NMS, NMISA develops and maintains primary and secondary standards for South Africa and establishes their comparability to other national measurement standards. These standards are disseminated to South African industry through a range of services and products and in the case of a measurement dispute, reference analyses are provided to ensure conformity.

Regionally NMISA is the main provider of traceability to the SI for Sub-Saharan Africa and in response to the African Continental Free Trade Area, is developing measurement capabilities that would be required nationally and for Africa, in a custom-free trade area.

Nationally NMISA aligned its activities to the Re-imagined Industrial Strategy Plan of the 6th Administration, with a specific focus to support **the dtic’s** goal of building mutually beneficial regional and global relations to advance South Africa’s trade, industrial policy and economic development and build the state’s capacity. NMISA has aligned its activities with Government’s Economic Reconstruction and Recovery Plan, as well as with the District Development Model to assist government in improving inclusion.

NMISA strategic goals (page 18) as planned in the Strategic Plan 2019/24 were designed to support 6th Administration efforts to accelerate economic growth, support regulation to build a capable state, consolidate shared resources and assist SMEs. The Goals align to the National Development Plan and **the dtic** Strategic Objectives, and contribute to the MTEF. This is done through NMISA’s 8 Applied Metrology Centres (Client Offerings), deriving traceability from the NMS realised within the two Technical Divisions and enabled by the output from the research and development projects in the Thematic Programmes.

Technological advances over the past decade are placing stringent demands on metrology. New areas in metrology, such as nanotechnology, optical techniques, quantum-based technologies, and material sciences, are developing rapidly and require new measurement methods and measurement standards. In response, NMISA is investing in and actively pursuing opportunities for collaboration with their international partners and peers to pool resources.

6.2.1 International and Regional Participation

NMISA ensures that the interests of South Africa, SADC and Africa are protected at the highest possible level internationally. The CIPM has established ten Consultative Committees (CCs) to oversee and arrange for the comparison of national measurement standards. The CCs bring together the world’s experts in their specified fields as advisers on scientific and technical matters and are pivotal in the arrangement of key comparisons that compare the measurement capabilities and determine the measurement equivalence of national measurement standards. NMISA has full membership of nine of the 10 (ten) CCs, guest membership of the 10th (Consultative Committee for Units) and membership of the CIPM. NMISA’s position has further been strengthened through NMISA’s own Dr Wynand Louw holding the strategic position of Presidency of the CIPM.

Membership of the CCs allows NMISA to give input to strategies and participate in the comparison of NMS and measurement capability at the highest international level, i.e., a direct comparison to the NMS of developed countries and developing countries, which includes all the major trading partners of South (and Southern) Africa. In the absence of membership of a CC and its working groups, NMISA will have to wait for a second round of comparisons in a Regional Metrology Organisation (RMO) such as AFRIMETS, where the “second tier” NMIs compare their standards. As the only NMI in Africa with membership of all the CCs, NMISA provides the link to the international measurement system for Africa and thus plays a leading role in the development of metrology infrastructure in Africa, especially in support of South Africa’s immediate neighbours in the SADC. This is crucial for successful implementation of regional free trade agreements. This role is emphasised in **the dtic’s** strategic goals and South Africa’s contribution towards mutual acceptance of testing results in the region (Regional Integration).

NMISA uses its leadership role in SADCMET and AFRIMETS, the sub-regional and continental RMOs, to ensure that the interests of the country are protected and that trade deals are fair and just.

6.2.2 The Technical Measurement Environment

Participation in international activities at Consultative Committee and Technical Committee (CC and TC) levels serves to benchmark South Africa’s capability to compete in measurement equivalence that directly impacts on our

ability to disseminate traceability to the country. To do this, metrologists must be extremely proficient at measurement science and techniques. It also requires sophisticated techniques, time, funding and planning to respond to the international call for participation with assured availability of scientists and laboratory resources. This must be balanced with national collaborative projects and research projects that are on-going as part of the performance requirements for each laboratory.

Training and development of young scientists remains critical as metrology skills are not readily available in the market, especially among young black professionals. An integrated training and development plan was created to assist each metrologist, whether experienced or new in the field, in improving skills and ensuring a pipeline of young metrologists through the bursary program, training in metrology and internships. These young professionals are provided with skills suited to industry and where possible appointed as metrologists. It is in the ambit of those young professionals to grasp the learning opportunities afforded them.

6.2.3 The National Role

The NMSs maintained and disseminated by NMISA directly or indirectly underpin the daily activities of South Africa on almost all levels. As one of **the dtic’s** Technical Infrastructure (TI) entities, the activities of NMISA are critical to the success of the other TIs. Standardisation, metrology, conformity assessment and accreditation are the key factors in the implementation of free trade agreements between countries or economic trading blocks. NMISA develops new NMSs and services in line with industrial requirements and contributes to the implementation of the AfCFTA. NMISA provides measurement services to enable several acts and regulations, ranging from the Occupational Health and Safety Act (Act 85 of 1993) to the Atomic Energy Act (Act 90 of 1967). It serves the more than 1 300 accredited commercial laboratories in South Africa and provides measurement and measurement assistance to over 400 industrial companies.

The national significance of NMISA is illustrated by the fact that South Africa has a credible, domestic measurement system that facilitates and ensures trade, commerce, manufacturing, services and consumer and environmental protection.

6.3 Organisational Delivery Environment (internal)

6.3.1 The Organisation

NMISA manages its Research and Development activities through a matrix structure and programmes.

Maintenance of the national measurement standards is performed in two technical Divisions, namely:

- Chemical, Materials & Medical Metrology; and
- Physical & Electrical Metrology.

The dissemination activities (products and services) are delivered by the Applied Metrology Division through the centres whose main clients are government laboratories, SOEs, academia, industrial and regional laboratories (refer to Figure 2), as well as businesses that require traceability services.

The research and development of new products and services (including new and improved NMS) is coordinated through projects that are run in the NMISA thematic programmes and handed over to either the Applied Metrology Division (Service to Clients) or the Technical Divisions (Maintenance of NMS) upon conclusion. The multi-disciplinary Project Teams are constituted from the different NMISA technical areas and support services in order to fully benefit from the advantages of a Matrix Organisational Structure.

The thematic programmes are:

- Green Economies
- Manufacturing Competitiveness
- Quality of Life
- Reference Materials
- Revision of the SI
- Energy Efficiency
- Advanced Measurement Solutions
- Regional Integration

The strategic partnerships with organs of the Metre Convention, Higher Education Institutions, Research Institutes, the Technical Infrastructure, regional and international institutes, and knowledge management, are managed by the Regional, International Liaisons and Innovation Division. RIID ensures that NMISA is appropriately linked to the international metrology fraternity, fosters collaboration with other NMIs and source funding from development partners. It coordinates the

activities of NMISA in the other Technical Infrastructure institutions and manages the relationship with the sub-regional (SADC MET) and regional (AFRIMETS) metrology organisations.

The Strategy, Business Development and Governance Division coordinates the implementation of the NMISA strategy plan, guides new business development, monitors client service and satisfaction, gathers market intelligence and coordinates marketing and sales. The Division supports the products and services disseminated through the Scientific and Applied Metrology Divisions. The technical activities are further guided and supported by the Finance and Corporate Services Divisions.

NMISA adheres to a total quality management system managed by the SHEQ office; that coordinates all matters relating to accreditation of technical competencies, health and safety of staff, and the environment. A total of 19 laboratories are accredited to ISO/IEC 17025:2017 by SANAS. In addition, two laboratories are accredited against ISO 17034 to produce certified reference materials. Accreditation to ISO/IEC 17043 (for conducting proficiency testing schemes) has been attained for the laboratories providing PTs. NMISA has further achieved certification of its occupational health and safety (OH&S) and EHS management system guided by ISO 14001 and OHSAS 18001.

6.3.2 Technical Activities

NMISA delivers its services through:

Calibrations: Delivering direct traceability to the national measurement standards (NMS), NMISA serves the accredited calibration and testing laboratories by performing calibrations to the highest accuracy (smallest uncertainty). Calibration is also provided directly to industry in cases where there are no accredited calibration laboratories, or when the desired accuracy can only be provided by NMISA, or where a new service is needed in a very short time.

Reference Measurements and Certification of Reference Materials: NMISA provides reference measurements and analysis according to its calibration range and services. In addition, NMISA has built capability to value assign chemical samples and gas mixtures for customers, including purity. This capability allows NMISA to produce pure standard CRMs or calibration solutions and Primary Reference Gas Mixtures (PRGMs) that are internationally recognised and accepted.

Measurements, Testing and Analysis: NMISA offers advanced measurement services to industry. This includes method development for customers to assist with problem solving and performing analysis in support of research projects.

Training and Consultancy: The expertise residing in the staff of NMISA is an important contribution to the development of a skilled and capable workforce through training in measurement science. NMISA assists SADC and Africa in capacity building by providing consultation services and training to their metrologists and providing a national metrology Training Centre for South African metrologists and analysts. Special development projects to assist SMEs have been created. NMISA staff also participate as invited lecturers in graduate courses at numerous universities, and NMISA is the official partner of the Metrology and Applied Science Research Unit (MeASURE) of the University of Cape Town.



“NMISA has adopted the balanced scorecard approach, measuring performance in four key areas - international agreements and participation, stakeholders and customers, organisational development, and financial and business processes.”

PART C

MEASURING OUR PERFORMANCE

7. NMISA Programmes

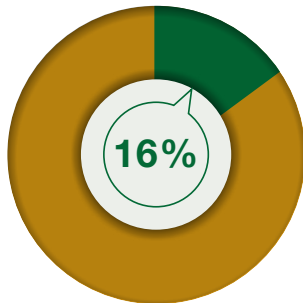
7.1 Research Programme Contributions

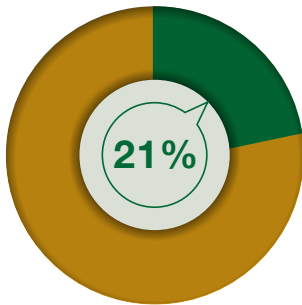
NMISA contributes to Government’s key priorities and the national outcomes and has aligned its key programmes to the Re-imagined Industrial Strategy, the Master Plans, the Economic Reconstruction and Recovery Plan and NSI goals with a special focus on the following 8 strategic programmes for Applied Metrology Services:

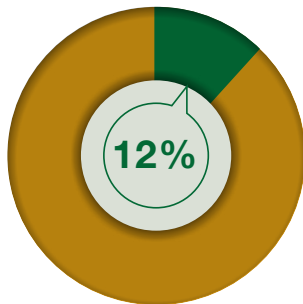
- Material Science and Services
- Agriculture, Food and Environmental Monitoring
- Health and Safety
- Energy Efficiency
- Digital Economy
- Conformity Assessment Support
- Law Enforcement
- Training and Knowledge Services

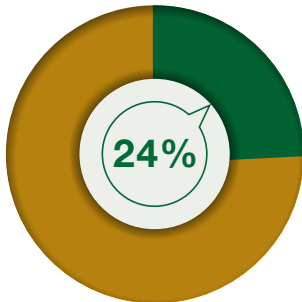
The purpose of each of these programmes, their strategic deliverables, links to the NMISA strategic objectives, and in turn their links to the strategic objectives of **the dtic**, are presented in the following tables. These 8 programmes are enabled by traceability to the relevant NMS and output from research and development projects. The estimated operational cost for the period 2021/22 for each programme is displayed as a percentage of the total operational cost of all 8 programmes.¹

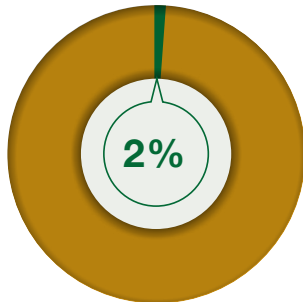
¹The budget allocations given in the accompanying tables are estimates obtained from operational plans. Following the implementation of an Enterprise Resource Management System in 2021/22, more accurate information will be available for inclusion in the Annual Performance Plan for the next financial year.

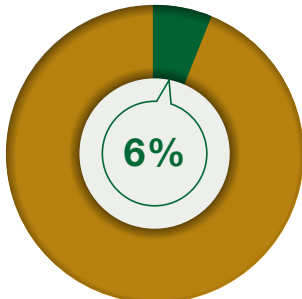
MATERIAL SCIENCE AND SERVICES			
Sub-Programmes:		1. Materials Characterisation 2. Advance Materials Development 3. Materials Property Testing	
Purpose: Materials Characterisation unit is equipped to provide services to industry in support of additive manufacturing, automotive industry, mining sector, nano metrology and electrochemistry among other commercial businesses. Materials Metrology assists industry and academia in gaining deeper knowledge and understanding of manufactured materials, through state-of-the-art characterisation techniques. NMISA provides working solutions to real problems for both industry and academia.			
STRATEGIC DELIVERABLES:		LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:
1. A suite of Materials Characterisation services provided to industry for compositional, structure of the surface, powder or bulk material.		Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export	Economic transformation and job creation
2. Developmental work which complements the Materials Characterisation project, some of which will include Thin Films and Bio Sensors.			
3. Non-destructive testing of materials, failure analysis, quality control; and vibration testing (accelerated life testing). Testing capabilities will include CT scanning (computed topography scanning), coordinate measuring and tensile and stress testing.			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T1N5002	iMAT NMS	22T1A2310	Materials Characterisation (surface and structure)
22T1N3013	NMS for Ultra-sound and Underwater Acoustics System	22T1R2202	Advanced Materials
22T1N3002	NMS for force and torque	22T1R3202	Hydrostatic Weighing
22T1N3014	NMS for vibration	22T1B6013	SARIR Material Characterisation Initiative
22T1N3007	Optical Radiation NMS	22T1A2304	Vibrations Calibrations
Explanation of Planned Performance: Materials Characterisation presents a service offering where the primary focus is revenue generation. Currently, the analyses of materials extend across numerous local sectors, but the planned performance is also dependant on service offerings to an international market. On the local front, support is provided to industry where failure analyses, identification of elements in bulk or nano- material, surface characterisation for quality control and optimisation for sensor technology contributes to the GDP. International participation in comparative testing ensures relevance of the local service offering which translates into additional revenue. Furthermore, the planned accreditation of the particle size distribution (PSD) laboratory promises increased revenue for this service offering.		Funding Allocation (2021/22): Opex Budget ¹ : R3 450 100 	

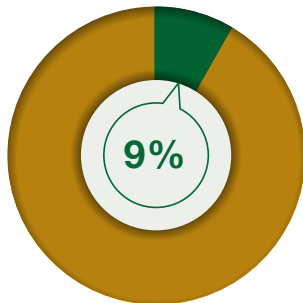
AGRICULTURE, FOOD AND ENVIRONMENTAL MONITORING			
Sub-Programmes:		1. Food and Feed Safety and Labelling 2. Environmental Monitoring and Waste Management	3. Agricultural Production and Processing 4. Pharmaceuticals and Cosmetics 5. Earth Observation
Purpose: Supports food safety and feed-and-food trading in the AfCFTA. In addition to filling gaps in regional testing capabilities, and provision of Reference Measurements, provides SOEs and Government laboratories with support and shared services. The list of potentially hazardous chemicals that we are exposed to (both naturally occurring and anthropogenic) is ever increasing. NMISA is developing the capability to provide comparable data that will assist Government to address compliance matters that are becoming critical in trade negotiations and overcoming technical barriers to trade (TBTs). The existing reference materials and measurements, in addition to those that are being developed or enhanced, supports the agricultural, manufacturing, consumer protection and trade sectors by being available to commercial laboratories that provide industry with reliable measurement values.			
STRATEGIC DELIVERABLES:		LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:
1. Establishing the Regional Reference Institute (RRI) Analytical Reference Laboratory (ARL) to provide analytical reference measurements/standards in support of Food and Feed Reference Materials and Reference Measurements		Metrology for Regulatory purposes and in support of government laboratories: for compliance and for development of regulations	Building a capable, ethical, and developmental state
2. The RRI ARL to provide analytical reference measurements/standards for Environmental Monitoring			
3. Reference measurement/calibration for new product development in agricultural production and processing and support for small farmers (SMMEs)			
4. Reference measurement/calibration for new product development, support for SMMEs and importers of raw materials (cosmetics, pharmaceuticals and essential oils)			
5. Reference measurement/calibration in support of satellite imaging and environmental impact (climate change)			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T2N5004	Organic NMS	22T2R2101	Food contaminants
NMISA TQM ORG\ GEN-0020 Rev 9	Register of primary reference materials		
Explanation of Planned Performance: Fill gaps in the national and regional measurement capabilities, increase measurement accuracy through the provision of reference materials, standards and proficiency testing to facilitate broad-based economic participation and effective trade. There is a shortage of reference materials and measurements that would allow testing laboratories to better assess the accuracy of measurement results, continuously monitor performance of analytical procedures utilising appropriate matrix reference materials. These shortages have been addressed through the establishment of NMISA's RRI and reference material programme.		Funding Allocation (2021/22): Opex Budget ¹ : R4 331 000 	

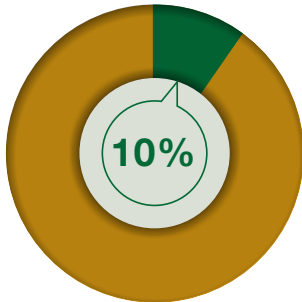
HEALTH AND SAFETY			
Sub-Programmes:		1. Medical Instruments and Devices 2. Healthcare 3. Radiation Safety and Laboratory Medicine	4. Air, Surface and Water Disinfection 5. Medical Gasses 6. Safety
Purpose:			
In the medical profession, inaccurate measurement can result in death. Whether from a medical device measuring inaccurately to a clinical measurement that results in a false positive or false negative, the accuracy of the measurement has dire implications. In cancer treatment, incorrect dose from a scan or from radiation therapy can result in a life altering event. Providing accurate reference measurement in clinical medicine and calibration of diagnostic equipment has far reaching effects on the populations trust in the field of medicine and clinical diagnostics - without which, medical results would have no impact in society. NMISA is expanding its measurement service and calibration offerings to enable local manufacturers to meet product specifications and quality standards in the nation's quest to respond to the public expectation and minimising the dependence on international supply chains.			
STRATEGIC DELIVERABLES:		LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:
1. Reference measurement and calibration in support of medical equipment and devices used in the fight against Covid-19		Metrology consolidation for SOEs to provide efficient shared services Metrology for Regulatory purposes and in support of government laboratories: for compliance and for development of regulations	Education, skills and health
2. Reference measurement, standards (gas) and calibration in support of medical and environmental measurements for health care in hospitals and diagnostics			
3. Reference measurement and calibration in support of radiation safety and laboratory medicine (nuclear safety)			
4. Reference measurement and calibration in support of ultrasound, vibration and acoustic systems (medical and industrial safety)			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T3N3008	NMS for pressure	22T3A2303	Calibration of Ear Thermometers
22T3N5001	NMS for dosimetry	22T3R5103	Testing and Verification of Low Flow Meters
22T3N5005	NMS for Radioactivity Standards	22T3R5109	Postal Dosimetry Audit for Reference Beams
22T3N3009	NMS for radiometry (including ultraviolet germicidal disinfection)	22T3R5106	Reliable Temperature Screening for COVID-19
		22T3R5107	Health Scanner
Explanation of Planned Performance:		Funding Allocation (2021/22): Opex Budget ¹ : R2 516 505	
In support of the fight against Covid-19, NMISA is providing measurement support for health products such as ultraviolet germicidal irradiation disinfection, reliable screening devices for temperature and breathing rate , safer and more accurate radioactive measurements in hospitals through audits and ensuring the medical safety and traceability of medical gases and diagnostics. Concomitantly this translates to environmental safety of nuclear devices and the provision of safe nuclear energy to society.			

ENERGY EFFICIENCY			
Sub-Programmes:		1. Energy Efficient Lighting 2. Liquid Natural Gas 3. Renewable Energy 4. Smart Grid Metrology	
Purpose:			
To provide measurement solutions and standards that enables South Africa to optimise the use of its energy sources. Specifically, these measurement capabilities: aid verification of the performance of energy saving products (such as LED lighting); support accurate measurements in a smart grid, which facilitates grid stability and acceptable network power quality (especially with the introduction of renewable energy through independent power producers); allow accurate tracking of atmospheric emission trends and climate change monitoring; and permits reliable analysis of liquid natural gas to determine the content of hydrocarbons (which yield the energy output) for fair trade.			
STRATEGIC DELIVERABLES:		LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:
1. New measurement services for the characerisation of energy efficient lamps and luminaires		Metrology for Regulatory purposes and in support of government laboratories: for compliance and for development of regulations Applicable regulations: minimum energy performance standards for lighting (planned) and appliances; national grid connection codes; national air quality act	Building a capable, ethical, and developmental state Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner
2. New measurement services to determine the calorific values of natural gasses			
3. New reference gasses for air polution			
4. New calibration service for current transformers used in the national power grid			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T4N5003	Maintenance of NMS for gases	22T4A2303	New/improved methods and standards for LED light sources
22T4N3011	Maintenance of NMS for temperature and humidity	22T4R2201	New/improved standards for industrial and emission gasses
22T4N3001	Maintenance of NMS for dc low frequency and radio frequency	22T4R2203	Development of environmental and ambient air gasses
22T4A2308	Dissemination of primary reference gas mixtures	22T4R4204	Establishment of a calibration service for current transformers
22T4N3004	LED NMS	22T4R4201	Realisation of the ITS-90 scale for contact thermometry
Explanation of Planned Performance:		Funding Allocation (2021/22): Opex Budget ¹ : R4 890 300	
Universally accepted measurement results for calorific values (CV) traceable to the NMS maintained by NMISA, enables reliable billing. Internationally comparable air pollution data enables regulatory decision making and its achieved by using reference gas mixtures supplied by NMISA. Verification of energy saving claims of LED lamps and luminaires through a measurement service provided by NMISA, enables lock-out of low-quality imports locally and on the continent. The reliability and stability of the national power grid is dependent on performance verification of connected devices, which rely on the national power and energy measurement standards maintained by NMISA.			

DIGITAL ECONOMY			
Sub-Programmes:		1. Standard Frequencies and Time Signals 2. Telecommunication Metrology	
Purpose:			
To provide reference high-accuracy time and frequency signals for SARAO (SKA) and telecommunications to support the transition to a digital economy.			
STRATEGIC DELIVERABLES:	LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:	
1. Time reference signals to for strategic projects in the country and region	Metrology consolidation for SOEs to provide efficient shared services	A better Africa and world	
2. Development of a mobile data measurement application		Economic transformation and job creation	
3. Characterisation of imaging sensors			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T5N3012	Time, Frequency and Fibre Optic NMS	22T5A2311	Mobile Data Application
22T5N3003	Metrology for Imaging Sensors	22T5A2312	Support and Systems Development
Explanation of Planned Performance:		Funding Allocation (2021/22): Opex Budget ¹ : R297 215	
The global interconnected economy relies on IT systems based on synchronised clocks. Many functions, including financial transactions, require precise agreement between devices on when information was sent and received. Time reference signals are currently provided to Telkom, HARTAO, SARAO and SABC. The feasibility of expanding the service to financial entities will be investigated.			

CONFORMITY ASSESSMENT SUPPORT			
Sub-Programmes:		1. PT Schemes 2. Reference Materials and Standards Productions 3. Production and High Technology Centre	
Purpose: Important decisions are based on results of measurements. The outcome of establishing a centre focused on underpinning traceability and accurate measurement has culminated in the provision of certified reference materials, reference standards and proficiency testing schemes and a facility dedicated to the preparation and packaging of reference materials and standards as identified as a key priority in support of agricultural processing activities, food safety, providing the Forensic Laboratories with drug CRMs; in general, any matrix where accurate analysis is required.			
STRATEGIC DELIVERABLES:	LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:	
1. NMISA provides South Africa and Africa relevant PT schemes in support of food and feed safety and environmental monitoring in a cost-effective manner.	Metrology for Industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation and export	Economic Development and Job Creation Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner	
2. NMISA established a Reference Material Production Facility to mass produce matrix reference materials and standards.			
3. The Production and High Technology Centre offers mixing and packaging services to external clients and partners that have a vested interest in utilising NMISA's capability.			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
(22T2N5004)	(Organic NMS reported under Agriculture, Food and Environmental Monitoring)	22T6R2114	Inorganic elements in food
		22T6R2106	Mycotoxins
		22T6R2103	Organic Calibrators
Explanation of Planned Performance: NMISA has invested in a fully equipped Reference Materials Production Facility and have expanded their reference material products portfolio to include value assignment and production of reference aqueous solutions and matrix reference materials that are more accessible and more affordable. NMISA continues to expand the number of Proficiency Testing schemes as required for regulatory purposes and to ensure that laboratories demonstrate continued analytical performance with evidence that their measurement results are reliable. To further expand our services and products, NMISA invested in a patented mixing technology (Resodyn Acoustic® Mixer) providing a competitive edge for producing matrix CRMs. By allowing clients access to using the acoustic mixer and equipment in the RMPF, this capability allows NMISA to service Southern Africa, as well as the rest of Africa and will contribute to solving CRM homogeneity problems with our trading partners.		Funding Allocation (2021/22): Opex Budget¹: R1 199 000 	

LAW ENFORCEMENT			
Sub-Programmes:		1. Forensic Metrology 2. Road Safety 3. Consumer Protection	
Purpose: In support of law enforcement and consumer protection, NMISA assists with accurate blood alcohol measurements, accurate speed measurements, reference materials for forensic analysis (illicit drugs) and contributes to consumer protection in trade. NMISA is expanding its service offerings in the fields of reference testing and calibration. All reference measurements will be consolidated under the Regional Reference Institute (RRI). RRI aims to serve as a point of dispute resolution in support of compliance with regulations for various government departments, including the Department of Agriculture, Land Reform and Rural Development (DALRRD), Department of Environment, Forestry and Fisheries (DEFF), Department of Health (DoH), South African Police Services (SAPS) and Department of Mineral Resources and Energy (DMRE).			
STRATEGIC DELIVERABLES:	LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:	
1. Provide Illicit drug, pesticide and other environmental reference materials and reference solutions for use in local laboratories.	Strategic alignment with the legal metrology function in the country to enhance the application of advanced scientific and applied metrology to support the implementation of the legal metrology act.	<i>Building a capable, ethical, and developmental state</i> Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner	
2. Calibration and measurement services for radar (laser) speed trapping, speed trapping equipment (Lidar) and speed guns. Alternative methods for evidential breath alcohol testing.			
3. Certified reference materials for detecting food fraud and for food authenticity testing.			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T7A2305	Calibration of Evidential Breathalysers	22T7R2104	Reference materials for food labelling (salt, sugar, protein, vitamins, fats)
22T7A2311	RRI Analytical Services (Illicit drug analysis and profiling)	22T7R2105	Certified reference materials for blood alcohol analysis
22T7N3005	NMS for length		
22T7N3010	NMS for sound		
22T7N3006	NMS for mass		
Explanation of Planned Performance: Certified reference materials provide forensic laboratories with a means to perform quality control and accuracy assessments. Law enforcement is highly dependent on verified, accurate measurements. A lack of comparable measurement results produced between testing laboratories raises doubts about the accuracy of the food label content. This in turn affects decisions made by the consumer and dietary health practitioners.		Funding Allocation (2021/22): Opex Budget ¹ : R1 910 380 	

TRAINING AND KNOWLEDGE SERVICES			
Sub-Programmes:		1. Training Short Courses 2. Training Programmes	3. Consultancy and Strategic Liaisons
Purpose:			
NMISA's Metrology Training Centre is a newly established centre dedicated to providing apposite training in the fields of chemical and physical metrology, including instrumental separation science techniques required for providing reference measurement services to industry. It provides a set of training courses that can be used to enhance students' knowledge and provide scientists with increased problem-solving skills, who are then more capable of meeting the requirements of their employers. This also includes qualified scientists who have a vested interest in improving their skills in the workplace. The Training Centre also provides consultancy services and engages with strategic partners to ensure efficient trade and continued metrology collaboration. Accurate measurement supports the globalisation of trade in manufactured / raw materials / feed and food, lean manufacturing and market acceptance of cultivated and manufactured products and underpins the importance of consultancy and strategic liaisons locally, regionally and internationally.			
STRATEGIC DELIVERABLES:		LINK TO NMISA STRATEGIC OBJECTIVES:	LINK TO THE DTIC STRATEGIC OBJECTIVES:
1. Online short courses developed to ensure knowledge transfer and capacity building covering specific metrology subjects to improve calibration and analytical capability for accurate measurement.		Metrology consolidation for SOEs to provide efficient shared services Metrology for Industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation and export	<i>Education, skills and health</i> Facilitate broad-based economic participation through targeted interventions to achieve more inclusive growth <i>A better Africa and world</i> Build mutually beneficial regional and global relations to advance South Africa's trade, industrial policy and economic development objectives
2. NMISA Training Programmes are intended for marketing, upskilling and capacity building in the organisation and also to support SMMEs.			
3. Consultancy and strategic liaison activities harmonise metrology activities in Africa through the intra-Africa metrology system (AFRIMETS) that ensures traceability to the SI in accordance with international and national rules.			
Input from Technical Projects:			
TRACEABILITY LINKS TO NMS:		DEVELOPMENT PROJECTS:	
22T8A2307	Training Centre: inhouse course development by NMISA experts	22T8R3203	Development of a Kibble Balance
22T8B6009	Regional Integration	22T8R3205	Quantum Optical Metrology
		22T8R3204	Weighing in vacuum
Explanation of Planned Performance:		Funding Allocation (2021/22): Opex Budget ¹ : R2 093 000	
As the most prominent NMI in the SADC region, NMISA is positioned to provide training and consultancy services to other NMIs and Measurement Institutes. NMISA assists African countries to improve their testing facilities and to identify the most crucial measurements to ensure intra-Africa trade (AfCFTA). This includes identifying gaps in testing capabilities for continent export products and to help establish testing hubs for export products. NMISA also contributes towards a services database for metrology institutes (peer reviewed acceptance of capabilities for intra-Africa trade).			

7.2 Programme Budgets

Research programme budgets and outputs are shown for the MTEF period, i.e., 2022 to 2024. The project details with specific deliverables and dates are available in the Scientrix planning system and the Programme Business Plans for 2021/22.

8. Programme Resource Considerations

8.1 2021/22 to 2023/24 Budget Estimates

NMISA CONSOLIDATED BUDGET 2021/22-2023/24			
	2021/22 R'000	2022/23 R'000	2023/24 R'000
	5.5% (existing)		5.5% (existing)
Revenue	292 882	301 456	310 897
Transfers received	261 716	268 576	276 208
Rendering of service	24 994	26 369	27 819
Investment income	6 172	6 511	6 870
Expenditure	292 882	301 456	310 897
Administrative and operating expenditure	76 821	81 046	85 503
Employee cost	149 225	149 898	153 143
Repairs and maintenance	8113	8 559	9 030
Recapitalisation project	57 673	60 845	62 052
Audit fees	1 050	1 108	1 169

Expenditure Estimates

	AUDITED OUTCOME	AUDITED OUTCOME	AUDITED OUTCOME	APPROVED BUDGET		AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)
R thousand	2017/18	2018/19	2019/20	2020/21		2017/18-2020/21		2021/22	2022/23	2023/24	2020/21 - 2023/24	
Administration	74 424	76 397	71 188	97 649		9,5%	35,0%	101 849	100 721	101 127	1,2%	43,0%
Keep, maintain and disseminate national measurements	149 859	170 881	169 065	112 957		-9,0%	65,0%	133 360	139 890	147 718	9,4%	57,0%
Total expense	224 283	247 278	240 253	210 606		-2,1%	100,0%	235 209	240 611	248 845	5,7%	100,0%

Statement of historical financial performance

STATEMENT OF FINANCIAL PERFORMANCE	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME		BUDGET ESTIMATE	APPROVED BUDGET	OUTCOME/ BUDGET AVERAGE %	AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)
R thousand	2017/18		2018/19		2019/20			2020/21					2021/22	2022/23	2023/24		2020/21 - 2023/24
Revenue																	
Non-tax revenue	36 010	31 499	40 372	34 731	51 018	38 972		55 621	32 467	75,2%	1,0%	12,6%	31 166	32 880	34 689	2,2%	11,4%
Sale of goods and services other than capital assets of which:	20 010	16 365	31 561	21 424	38 018	21 843		39 957	19 467	61,1%	6,0%	7,3%	24 994	26 369	27 819	12,6%	8,5%
Administrative fees	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Sales by market establishment	20 010	16 365	31 561	21 424	38 018	21 843		39 957	19 467	61,1%	6,0%	7,3%	24 994	26 369	27 819	12,6%	8,5%
Other sales	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Other non-tax revenue	16 000	15 134	8 811	13 307	13 000	17 129		15 664	13 000	109,5%	-4,9%	5,4%	6 172	6 511	6 870	-19,2%	2,9%
Interest, dividends and rent on land	16 000	14 445	8 811	13 195	13 000	16 986		15 664	13 000	107,8%	-3,5%	5,3%	6 172	6 511	6 870	-19,2%	2,9%
Transfers received	252 803	252 803	232 784	232 784	245 036	245 328		254 379	223 291	96,9%	-4,1%	87,4%	261 716	268 576	276 208	7,3%	88,6%
Tax benefit	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Outside shareholders Interest	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Total revenue	288 813	284 302	273 156	267 515	296 054	284 300		310 000	255 758	93,5%	-3,5%	100,0%	292 882	301 456	310 897	6,7%	100,0%
Expenses																	–
Current expenses	184 262	224 283	204 798	247 278	222 317	240 253		236 352	210 606	108,8%	-2,1%	100,0%	235 209	240 611	248 845	5,7%	100,0%
Compensation of employees	111 302	114 554	122 653	123 365	141 906	121 432		151 840	131 884	93,1%	4,8%	53,5%	149 225	149 898	153 143	5,1%	62,5%
Goods and services	72 960	75 010	82 145	80 693	80 411	81 059		84 512	78 722	98,6%	1,6%	34,3%	85 984	90 713	95 702	6,7%	37,5%
Depreciation	–	34 719	–	43 220	–	37 750		–	–	–	-100,0%	12,2%	–	–	–	–	–
Interest, dividends and rent on land	–	–	–	–	–	12		–	–	–	–	0,0%	–	–	–	–	–
Transfers and subsidies	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Tax payment	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Outside shareholders Interest	–	–	–	–	–	–		–	–	–	–	–	–	–	–	–	–
Total expenses	184 262	224 283	204 798	247 278	222 317	240 253		236 352	210 606	108,8%	-2,1%	100,0%	235 209	240 611	248 845	5,7%	100,0%
Surplus/(Deficit)	104 551	60 019	68 358	20 237	73 737	44 047		73 648	45 152		-9,1%		57 673	60 845	62 052	11,2%	

Statement of historical cash flow

CASH FLOW DATA	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME		BUDGET ESTIMATE	APPROVED BUDGET	OUTCOME/ BUDGET AVERAGE %	AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)
R thousand	2017/18		2018/19		2019/20			2020/21		2017/18-2020/21			2021/22	2022/23	2023/24	2020/21 - 2023/24	
Cash flow from operating activities	104 551	86 814	68 358	74 188	73 737	53 376		73 648	45 152	81,0%	-19,6%	105,0%	57 673	60 845	62 052	11,2%	100,0%
Receipts																	
Non-tax receipts	36 010	27 688	40 372	33 554	51 018	36 703		55 621	32 467	71,3%	5,5%	12,0%	31 166	32 880	34 689	2,2%	11,4%
Sales of goods and services other than capital assets of which:	20 010	12 697	31 561	20 247	38 018	19 677		39 957	19 467	55,6%	15,3%	6,7%	24 994	26 369	27 819	12,6%	8,5%
Administrative fees	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Sales by market establishment	20 010	12 697	31 561	20 247	38 018	19 677		39 957	19 467	55,6%	15,3%	6,7%	24 994	26 369	27 819	12,6%	8,5%
Other sales	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Other tax receipts	16 000	14 991	8 811	13 307	13 000	17 026		15 664	13 000	109,1%	-4,6%	5,4%	6 172	6 511	6 870	-19,2%	2,9%
Transfers received	252 803	252 803	232 784	232 784	245 036	245 328		254 379	223 291	96,9%	-4,1%	88,0%	261 716	268 576	276 208	7,3%	88,6%
Tax benefit	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Outside shareholders interest	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Total receipts	288 813	280 491	273 156	266 338	296 054	282 031		310 000	255 758	92,9%	-3,0%	100,0%	292 882	301 456	310 897	6,7%	100,0%
Payment																	
Current payments	184 262	193 677	204 798	192 150	222 317	228 655		236 352	210 606	97,3%	2,8%	100,0%	235 209	240 611	248 845	5,7%	100,0%
Compensation of employees	111 302	106 780	122 653	121 636	141 906	126 078		151 840	131 884	92,2%	7,3%	59,0%	149 225	149 898	153 143	5,1%	62,5%
Goods and services	72 960	86 897	82 145	70 514	80 411	102 577		84 512	78 722	105,8%	-3,2%	41,0%	85 984	90 713	95 702	6,7%	37,5%
Interest and rent on land	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Transfers and subsidies	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Tax payment	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Outside shareholders interest	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Total payment	184 262	193 677	204 798	192 150	222 317	228 655		236 352	210 606	97,3%	2,8%	100,0%	235 209	240 611	248 845	5,7%	100,0%
Cash flow from advancing activities (Financial Institutions only)	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Loan disbursements	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Loan principal repayments	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Other	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Cash flow from investing activities	(104 551)	(95 650)	(68 358)	(83 599)	(73 737)	(71 347)		(73 648)	(45 152)	92,3%	-22,1%	100,0%	(57 673)	(60 845)	(62 052)	11,2%	100,0%
Acquisition of property, plant, equipment and intangible assets	(101 871)	(95 229)	(65 176)	(80 865)	(72 733)	(73 122)		(72 593)	(44 500)	94,0%	-22,4%	99,3%	(57 002)	(60 167)	(61 373)	11,3%	98,8%
Investment property	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Acquisition of software and other intangible assets	(2 680)	(1 095)	(3 182)	(2 747)	(1 004)	(1 347)		(1 055)	(652)	73,7%	-15,9%	1,9%	(671)	(678)	(679)	1,4%	1,2%
Proceeds from the sale of property, plant, equipment and intangible assets	—	—	—	13	—	3 122		—	—	—	—	-1,1%	—	—	—	—	—
Other flows from investing activities	—	674	—	—	—	—		—	—	—	-100,0%	-0,2%	—	—	—	—	—
Cash flow from financing activities	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Deferred income	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Borrowing activities	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Repayment of finance leases	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Other flows from financing activities	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
Net increase / (decrease) in cash and cash equivalents	—	(8 836)	—	(9 411)	—	(17 971)		—	—	—	-100,0%	—	—	—	—	—	—

Statement of historical financial position

FINANCIAL POSITION	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME		BUDGET ESTIMATE	APPROVED BUDGET	OUTCOME/ BUDGET AVERAGE %	AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)
R thousand	2017/18		2018/19		2019/20			2020/21		2017/18-2020/21			2021/22	2022/23	2023/24	2020/21 - 2023/24	
Carrying value of assets of which:	104 551	406 163	68 358	445 146	73 737	478 298		73 648	45 152	429,2%	-51,9%	76,0%	57 673	60 845	62 052	11,2%	100,0%
Acquisition of assets	(101 871)	(95 229)	(65 176)	(80 865)	(72 733)	(73 122)		(72 593)	(44 500)	94,0%	-22,4%	-34,3%	(57 002)	(60 167)	(61 373)	11,3%	-98,8%
Investments	-	-	-	605	-	605		-	-	-	-	0,0%	-	-	-	-	-
Inventory	-	172	-	5 062	-	8 591		-	-	-	-100,0%	0,5%	-	-	-	-	-
Loans	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Accrued investment interest	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Receivables and prepayments	-	22 825	-	17 998	-	33 118		-	-	-	-100,0%	2,8%	-	-	-	-	-
Cash and cash equivalents	-	189 882	-	180 471	-	162 500		-	-	-	-100,0%	20,6%	-	-	-	-	-
Non-current assets held for sale	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Defined benefit plan assets	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Taxation	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Derivatives financial instruments	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Total assets	104 551	619 042	68 358	649 282	73 737	683 112		73 648	45 152	623,4%	-58,2%	100,0%	57 673	60 845	62 052	11,2%	100,0%
Accumulated surplus/(deficit)	104 551	585 580	68 358	605 818	73 737	649 865		73 648	45 152	589,0%	-57,4%	95,8%	57 673	60 845	62 052	11,2%	100,0%
Capital and reserves	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Capital reserve fund	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Borrowings	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Finance lease	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Accrued interest	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Deferred income	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Trade and other payables	-	10 628	-	17 747	-	16 944		-	-	-	-100,0%	1,7%	-	-	-	-	-
Benefits payable	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Capitalised value of pensions	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Taxation	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Provisions	-	22 834	-	25 717	-	16 303		-	-	-	-100,0%	2,5%	-	-	-	-	-
Managed funds (e.g. poverty alleviation fund)	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Derivatives financial instruments	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Total equity and liabilities	104 551	619 042	68 358	649 282	73 737	683 112		73 648	45 152	623,4%	-58,2%	100,0%	57 673	60 845	62 052	11,2%	100,0%
Contingent liabilities	-	-	-	-	-	-		-	-				-	-	-		

9. NMISA Performance Indicators

NMISA has adopted the balanced scorecard approach to set and measure performance targets. The scorecard addresses the maintenance of the National Measurement Standards and the administrative support provided to ensure the organisation achieves its. Four key components are addressed, namely international agreements and participation, stakeholder/ customer (technical), organisational development (learning and growth), and financial and business process perspective.

National obligations: NMISA provides for the use of the measurement units of the SI and certain other units, the designation of national measurement standards and units, and for keeping and maintaining the national measurement units and standards. This also includes improving existing NMS and methods and developing new NMS, secondary standards and new reference methods.

International participation and equivalence: As part of the Metre Convention system, NMISA ensures international measurement comparability by participating in the activities of the CIPM. This includes active participation in the Consultative Committees and demonstrated measurement capabilities as published in the BIPM Key Comparisons Database (KCDB).

Internal organisation (learning and growth) perspective: Internal growth perspective addresses human resources, thereby demonstrating the organisation's capacity to deliver on its mandate by maintaining a skilled, competent and transformed work force. Key priorities include:

- Improve core skills and qualifications
- Reduce employee turnover
- Transformation
- Improve job satisfaction
- Improve internal communications in the HR function

Stakeholder/customer perspective (technical):

Includes scientific and technical outputs, products and services developed to support South African commerce and industry in a fast-paced global economy.

Financial and business process perspectives: The focus is on the financial performance and sustainability of the organisation. Key priorities that are addressed include:

- Financial growth and stability are ensured by broadening the revenue mix
- Effective financial controls
- Develop and update policies and procedures
- Improving of internal processes, aligning and integrating systems and processes
- Improving internal communications
- Establishing long-term multi-divisional research programmes
- Implementing systems to manage and protect NMISA's intellectual property

The performance indicators of the balanced scorecard are supported by Operational Plans.

9.1 Outcomes, Outputs, Performance Indicators and Targets

NMISA has aligned its key performance indicators to support the new strategic thrusts for the organisation and the new business model.

9.1.1 Programme Performance Indicators 2021/22

OUTPUT	OUTCOME INDICATOR		ACTUAL PERFORMANCE				ESTIMATED PERFORMANCE 2020/21	MEDIUM TERM TARGETS		
			2017/18	2018/119	2019/20			2021/22	2022/23	2023/24
Outcome 1: Shorten the Traceability Chain for Africa by Maintaining the Units and NMS at an Internationally Recognised Level										
Implementation of the revised International System of Units (SI)	1.	Number of SI base units realised	New KPI	New KPI	6		6	6	6	6
	2.	Number of new and improved NMS and reference materials and reference methods	15	19	21		17	25	17	19
Linking the national and regional measurement system internationally	3.	Number of memberships maintained and active participation in the CIPM and its consultative committees	10	9	10		10	10	10	10
	4.	Number of ILCs and PTS organised and completed	New KPI	New KPI	9		15	26	16	15
	5.	Percentage metrological services covered by CMCs	New KPI	New KPI	81 %		80 %	80 %	83 %	85 %
Outcome 2: Ensure an Effective Dissemination of the Units and NMS to National and Regional Laboratories										
Provide for the measurement needs of RSA and the region	6.	Number of accredited laboratories and new laboratory accreditations	20	21	23		24	24	25	25
	7.	Number of metrologists trained	66	96	120		60	92	246	261
	8.	Number of courses provided including SMEs	14	24	18		14	20	44	46
	9.	Number of interns and in-service trainees hosted	15	20	25		15	28	24	23
	10.	Income generated	R20 642 033	R22 147 616	R20 799 163		R19 466 680	R24 994 554	R26 369 000	R27 819 000
	11.	Percentage actual expenditure to budget	New KPI	98 %	98 %		98 %	98 %	98 %	98 %
Outcome 3: To provide Metrology for Regulatory Purposes										
Efficient National Regulations.	12.	Revised Measurement Act to support and contribute to national regulation	New KPI	New KPI	NMISA reviewed the Act and submitted to the dtic		Participate in the dtic Technical Infrastructure (TI) review	Participate in the dtic Technical Infrastructure (TI) review	-	-
Outcome 4: Metrology Services for Government and State-Owned Enterprises										
Shared Metrology Services for Government Departments and SOEs.	13.	Number of government departments and SOEs serviced by NMISA	New KPI	New KPI	3		2	4	6	-
	14.	Percentage increase in visibility of NMISA	New KPI	New KPI	49 % increase in visibility		20 % increase in visibility	20 % increase in visibility	20 % increase in visibility	20 % increase in visibility
	15.	Percentage customer satisfaction	Less than 5 %	≥95 %	99 %		≥95 %	≥95 %	≥95 %	≥95 %

9.1.2 Quarterly Targets 2021/22

OUTPUT	PERFORMANCE MEASURE OR OUTCOME INDICATOR	BASELINE	ANNUAL TARGET 2021/22		1 ST QUARTER MILESTONE	2 ND QUARTER MILESTONE	3 RD QUARTER MILESTONE	4 TH QUARTER MILESTONE
Outcome 1: Shorten the Traceability Chain for Africa by maintaining the Units and NMS at an Internationally Recognised Level								
Implementation of the Revised International System of Units (SI)	Number of SI base units realised	6	Realise 6 Base Units of the SI		Project plans for realisation of 6 base units	Progress reports on realisation of 6 base units	Progress reports on realisation of 6 base units	Six (6) base units realised
	Number of new and improved NMS and reference materials and reference methods	21	25		0	0	0	25
Linking the national and regional measurement system Internationally	Number of memberships maintained	10 CCs	Maintain membership of 10 consultative committees		10 maintained	10 maintained	10 maintained	10 maintained
	Number of interlaboratory comparisons and Proficiency Testing Schemes organised and completed	9	Organise and complete 26 ILCs and Proficiency testing schemes		Submit protocols for the ILCs and PTS	Progress Reports on ILCs and PTS	Progress Reports on PTS and ILCs	26
	Percentage of metrological services covered by CMCs (i.e., internationally accepted)	81 %	80% of Metrological Services covered by CMCs		70 %	73 %	79 %	80 %
Outcome 2: Ensure an Effective Dissemination of the Units and NMS to National and Regional Laboratories								
Provide for the measurement needs of RSA and the region	Number of accredited laboratories maintained and new laboratory accreditations	23	24 Maintained		24 Maintained	24 Maintained	24 Maintained	24 Maintained
	Number of metrologists trained	120	92 Metrologists Trained		0	0	0	92
	Number of courses provided including SMEs	18	20 Courses provided including SMEs		0	0	0	20
	Number of interns and in-service trainees hosted	25 hosted	28 hosted		15 hosted	15 hosted	28 hosted	28 hosted
	Amount of income generated	R20 799 163	R24 994 554		R2 724 455	R4 454 019	R7 126 431	R10 689 647
	Percentage actual expenditure to budget	98 %	98 %		10 %	40 %	60 %	98 %
Outcome 3: To provide Metrology for Regulatory Purposes								
Efficient National Regulations	Revised Measurement Act to support and contribute to national regulation	Participation in the dtic Technical Infrastructure (TI) review	Participate in the dtic Technical Infrastructure (TI) review		-	Update to NMISA Board of Directors	-	Update to the Board on the review of the Act
Outcome 4: Metrology Services for Government and State-Owned Enterprises								
Shared Metrology Services for Government Departments and SOEs	Number of government departments and SOEs serviced by NMISA	3	4		0	1	1	2
	Percentage increase in visibility of NMISA	49 %	20 % increase in visibility of the NMISA in South Africa and the region		5 % increase	5 % increase	5 % increase	5 % increase
	Percentage customer satisfaction	96 %	≥95 %		≥95 %	≥95 %	≥95 %	≥95 %

9.1.3. NMISA's contribution to the joint KPIs of the dtic

The following Joint Indicators set out areas of focus that National Metrology Institute of South Africa will report to on a quarterly basis to the Executive Authority. The areas of focus represent key priorities of government that are set out in more detail in the Annual Performance Plan for 2021/22 for the dtic. National Metrology Institute of South Africa will contribute to achievement of the Joint indicators and the output required is a report to the Executive Authority that sets out the actions taken by National Metrology Institute of South Africa highlighting the contributions to achievement of the dtic outcomes.

the dtic defined seven Joint Key Performance Indicators to facilitate closer integration between its entities, enabling joint implementation and reporting on its key objectives. NMISA contributes to all the Joint-KPIs, either directly or indirectly, through its 8 Applied Metrology Programmes. The Institute will be reporting quarterly to the dtic on its achievements against the following Joint-KPIs:

- 1. Integrated Support to Drive Industrialisation
- 2. The AfCFTA Export Plan
- 3. Investment Facilitation and Growth
- 4. District Development Model and Spatial Equity
- 5. Actions to Promote Transformation
- 6. The Green Economy and Greening the Economy
- 7. Strengthening and Building a Capable State

JOINT INDICATOR 1			
Outcome:	Increased industrialisation and localisation opportunities implemented	Performance period	2021/2022
Output /s:	Report documenting the integrated support to drive industrialisation through master plans in national priority sectors; increased and diversified localisation through government and private sector procurement; and promotion of beneficiation		
Indicator title:	Report on integrated support across DTIC to drive industrialisation that supports economic recovery; covering industry Master Plans, localisation initiatives across the economy, COVID-Industrial Interventions and beneficiation		
Indicator definition:	Integrated support across DTIC to drive industrialisation that supports economic recovery; covering industry Master Plans, localisation initiatives across the economy, COVID-Industrial Interventions and beneficiation.		
Annual dtic Target/s		Contribution by the National Metrology Institute of South Africa	
Integrated support to drive industrialisation that supports economic recovery; covering industry Master Plans, localisation initiatives across the economy, COVID-Industrial Interventions and beneficiation		Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to drive industrialisation that supports economic recovery; covering industry Master Plans, localisation initiatives across the economy, COVID-Industrial Interventions and beneficiation. NMISA will develop and improve NMSs to support industrialisation, local production and beneficiation ensuring locally produced products are on par with its international peers for the purposes of trade. Provide proficiency Testing schemes in alignment with the poultry, sugar and steel sectors.	

JOINT INDICATOR 2			
Outcome:	Increased export-readiness by South African firms, measured by knowledge of market opportunities and firm-level actions to utilise these opportunities	Performance period	2021/2022
Output /s:	A clear plan that indicates the potential opportunities to grow exports in terms of the AfCFTA, with responsibilities assigned to facilitate implementation		
Indicator title:	Completed AfCFTA Export Plan to grow value-added exports to the rest of Africa, setting out the opportunities by product, sector and country		
Indicator definition:	AfCFTA export plan to grow value-added exports to the rest of Africa setting out the opportunities by product, sector and country		
Annual dtic Target/s		Contribution by the National Metrology Institute of South Africa	
Completed AfCFTA export plan to grow value-added exports to the rest of Africa setting out the opportunities by product, sector and country completed		Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to contribute to an AfCFTA export plan to grow value-added exports to the rest of Africa. NMISA makes a significant contribution to linking the national and regional measurement systems internationally in support of AfCFTA and to remove (regional and international) technical barriers to trade. Measurement services, certified reference materials and proficiency testing schemes are offered by the NMISA Regional Reference Institute to complement and enhance the capabilities of regional laboratories in niche applications of strategic importance to the region	

JOINT INDICATOR 3			
Outcome:	Strategic investment by enterprises (private and public) to support growth of South African economy	Performance period	2021/2022
Output /s:	Investment projects facilitated and investment directed towards key sectors of the economy		
Indicator title:	Report on Investment facilitation and growth: steps taken to support new investment in key sectors		
Indicator definition:	Investment facilitation and growth through steps taken to support new investment in key sectors		
Annual dtic Target/s	Contribution by the National Metrology Institute of South Africa	Resourcing (MTEF Budget Allocation)	
Report on investment facilitation and growth: steps taken to support new levels of investment in key sectors developed	Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to support investment in South Africa The consolidation of metrology services for SOEs to provide efficient and cost-effective shared services. Work with regulators and government departments to assist with measurement requirements and address issues of non-compliance.	This indicator will be resourced within current entity resources	

JOINT INDICATOR 4			
Outcome:	Contribute to intergovernmental action in implementation of the District Development Model towards district economic development	Performance period	2021/2022
Output /s:	District integrated report with district development economic maps		
Indicator title:	Report on District Development Model and Spatial equity including incorporating all work within the District Model		
Indicator definition:	District Development Model and Spatial equity including incorporating all work within the District Model		
Annual dtic Target/s	Contribution by the National Metrology Institute of South Africa	Resourcing (MTEF Budget Allocation)	
District Development Model and Spatial equity including incorporating all work within the District Model	Four quarterly reports by National Metrology Institute of South Africa which set out how the NMISA's work contribute to the economic development in each of the Districts and Metropolitan Areas of South Africa Metrology services are made accessible to SMEs, enabling such enterprises to recognise the importance of accurate measurements in quality assurance of products. Measurement services are provided to law enforcement agencies, supporting road traffic management and forensic analysis.	This indicator will be resourced within the current entity resources	

JOINT INDICATOR 5			
Outcome:	Promoting a growing and inclusive economy	Performance period	2021/2022
Output /s:	Report on actions to promote transformation through structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups, using the range of public tools such as procurement, incentives, technical support and enabling opportunities		
Indicator title:	Report on actions to promote transformation through structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups, using the range of public tools such as procurement, incentives, technical support and enabling opportunities		
Indicator definition:	Actions to promote transformation through structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups, using the range of public tools such as procurement, incentives, technical support and enabling opportunities		
Annual dtic Target/s	Contribution by the National Metrology Institute of South Africa	Resourcing (MTEF Budget Allocation)	
Actions to promote transformation through both structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups, using the range of public tools such as procurement, incentives, technical support and enabling opportunities	Four quarterly reports on the contributions made by the National Metrology Institute of South Africa to promote transformation through structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups Four quarterly reports on the contributions made by the National Metrology Institute of South Africa to promote transformation through structural changes in the economy to enable greater inclusion and growth; and empowerment of designated groups. Training courses (online) are provided on a wide range of topics related to accurate measurement and chemical analysis, to assist with skills development in industry, both locally and regionally, especially for young professionals and SMEs. Adoption of previously disadvantaged schools to give support, mentorship and exposure within STEM field and providing bursaries to highly qualifying students. Formal collaborative agreements with universities provides for skills transfer on key research projects.	This indicator will be resourced within the current entity resources	

JOINT INDICATOR 6			
Outcome:	Growing the Green Economy and greening the economy	Performance period	2021/2022
Output /s:	Report on growing the Green Economy and greening the economy		
Indicator title:	Report on growing the Green Economy and greening the economy through actions to support project facilitation, policy development, investment promotion, new product development or industrial processes		
Indicator definition:	Actions to green the economy		
Annual dtic Target/s	Contribution by the National Metrology Institute of South Africa	Resourcing (MTEF Budget Allocation)	
Actions to grow the Green Economy and greening the economy, through measures such as support for project facilitation, policy development investment promotion, new product development or industrial processes	<p>Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to support the green economy or the greening of the economy</p> <p>Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to support the green economy or the greening of the economy,</p> <p>New measurement standards and services are developed to enable energy efficiency, and energy transformation to renewable sources and environmental monitoring.</p>	This indicator will be resourced within current entity resources	

JOINT INDICATOR 7			
Outcome:	Functional, efficient and integrated services within the DTIC to improve economic development and ease of doing business	Performance period	2021/2022
Output /s:	Actions to promote functional, efficient and integrated government and measures to reduce red tape across DTIC and entities		
Indicator title:	Report on strengthening and building capabilities and agility in the DTIC and its entities, to improve efficiencies in programmes and entities, to contribute to economic development and ease of doing business		
Indicator definition:	Strengthening and building capabilities and agility in the DTIC and its entities, to improve efficiencies in programmes and entities, to contribute to economic development and ease of doing business		
Annual dtic Target/s	Contribution by the National Metrology Institute of South Africa	Resourcing (MTEF Budget Allocation)	
Review of unnecessary red tape and compliance reporting requirements in DTIC entities and programmes; monitoring implementation times of DTIC services	<p>Four quarterly reports on measures enacted by National Metrology Institute of South Africa to improve the ease of clients using its services, including forms and procedures reviewed for simplicity and necessity</p> <p>Four quarterly reports on measures enacted by the National Metrology Institute of South Africa to improve the ease of clients using its services. A Client Service Centre will be established to provide improved access to the NMISA for the public and to facilitate responses to enquiries received. Client satisfaction is measured, and targets have been set</p>	This indicator will be resourced within the current entity resources	

10. Updated Key Risks

Outcome	Key risk	Risk mitigation
A sustainable organisation	Sustainability risk	NMISA will implement its marketing strategy, NMISA programmes also speak to revenue generation, the revenue targets have been increased
Regulators, government and SOEs using NMISA services enhancing trade	Regulators, government laboratories and SOEs not using NMISA services	Revision of the Measurement Act
Achievement of NMISA strategy	Inability to deliver effectively on the revised direction	NMISA has implementation plans with clear objectives for the strategy
COVID-19 free work environment	Personnel risk	Developed protocols to ensure safety of employees in the organisation
Protection of organisation information	Cyber/IT risk	Business continuity policy, IT security measures and backup storage facility

11. Infrastructure Projects

Recapitalisation

The NMS and other standards are continually reviewed to ensure that they still meet the needs of the South African industry through engagement with industry and stakeholders through technical advisory forums and participation in national interest forums. "Typically, the accuracy required of national measurement standards doubles every ten years."

NMISA is located on the CSIR's Scientia Campus, occupying the metrology laboratories. NMISA became a tenant of the premises in 2007. With no major building infrastructure investment in its history, the building infrastructure has reached its technical limit of modifications. Infrastructure related incidents over the years hamper NMISA's ability to develop new NMS and to maintain and/or improve the existing NMS to levels required by industry.

In response, NMISA motivated for a recapitalisation of the NMS and new building infrastructure and a PPP Project was registered at National Treasury. The transaction advisor and the project officer were appointed for preparation of a feasibility study towards re-capitalisation. With the assistance of the PPP Unit of National Treasury, a feasibility study was finalised for the best model for the new building infrastructure, and for a sustainable model for the continuous upgrade and maintenance of the NMS.

No.	Project name	Programme	Description	Outputs	Start date	Completion date	Total cost estimated	Current year expenditure
1	NMISA Training Centre	RRI	Renovation for Metrology Training Centre in building 4 of the CSIR campus	Establishment of a training centre to provide metrology related training	2020	March 2022	R833 500	N/A
2.	RRI Analytical Lab	RRI	A service will be established to support industry, academia forensic services and research institutes to solve challenging analysis problems	Provision of analytical services to support industry	2020	March 2024	R1 045 700	N/A



PART D

TECHNICAL INDICATOR DESCRIPTIONS

12.1 Indicator Profiles

A summary of Performance Indicators developed for NMISA appears in section 7.1 with a more detailed overview in the following sections:

Table 1. Performance Indicators

NUMBER	INDICATOR DESCRIPTION	STRATEGIC OUTCOME-ORIENTED GOAL
1	Realisation of the SI base Units	Shorten the Traceability Chain for Africa by maintaining the Units and NMS at an Internationally Recognised level
2	New and improved national measurement standards and reference materials and methods	
3	Represent the Region Internationally at the organs of the Metre Convention & other Measurement Treaties	
4	Number of ILCs and PTS organised and completed	
5	Calibration and Measurement Capabilities (CMCs) Recognised Internationally	
6	Activities to support laboratories accredited to ISO 17025, Laboratories accredited to ISO 17034 and laboratory for running PT scheme on the requirements of ISO 17043	Ensure an Effective Dissemination of the Units and NMS to National and Regional laboratories
7	Number of Metrologists trained	
8	Number of courses presented	
9	Number of interns and in-service trainees hosted	
10	Income generated from dissemination activities	
11	Actual expenditure to Budget	To provide Metrology for Regulatory Purposes
12	Update Measurement Act to support and contribute to national regulation	
13	Service Provider for Government Departments and SOEs	
14	Increase visibility of NMISA	Metrology Services for Government and State-Owned Enterprises
15	Percentage customer satisfaction	
16	Integrated Support to Drive Industrialisation	Joint KPIs
17	The AfCFTA Export Plan	
18	Investment Facilitation and Growth	
19	District Development Model and Spatial Equity	
20	Actions to Promote Transformation	
21	The Green Economy and Greening the Economy	
22	Strengthening and Building a Capable State	

12.2 Detailed Indicator Descriptions

Indicators were defined according to the *Revised Framework for Strategic Plans and Annual Performance Plans* document, published by National Treasury.

KPI 1: REALISATION OF THE SI BASE UNITS	
Indicator title	Realisation of the SI base units
Definition	Realisation of the 6 base SI units; Mass, Time, Length, Temperature, Candela and Ampere. Phase in new primary methods as they become available.
Source of data	Plans for the development and/or realisation of the SI, quarterly progress reports on the 6 base units.
Method of calculation / Assessment	Simple count
Means of verification	Plans and reports
Assumptions	Equivalence to international standards, Implementation of the Revised International System of Units (SI)
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The South African measurement units need to be equivalent internationally
Indicator responsibility	Physical and Electrical Metrology division

KPI 2: NEW AND IMPROVED NMS AND REFERENCE MATERIALS AND REFERENCE METHODS	
Indicator title (Output)	New and improved NMS and reference materials and reference methods
Definition	The number of new and improved NMS, reference methods and reference materials developed. NMISA will develop and/or improve National Measurement Standards (NMS).
Source/collection of data	New NMS, improved NMS and/or procedure/method validation report, reference materials, measurements register and validation report/procedure.
Method of calculation	Simple count
Means of verification	Verification/Validation report, procedures, NMI report, measurement register
Assumption	Implementation of the Revised International System of Units (SI) including NMISA adhering to legislative requirements
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative year end
Reporting cycle	Quarterly
Desired performance	Does not necessarily increase from year to year. This indicator is in response to periodic industry requirements for CRMs and reference methods to be developed and for NMS to be improved
Indicator responsibility	Technical divisions

KPI 3: NUMBER OF MEMEBERSHIPS MAINTAINED	
Indicator title (Output)	Number of memberships maintained
Short definition	Maintain membership of, and active participation in the CIPM and its consultative committees. The work done in the related committees feeds into the CIPM MRA.
Source/collection of data	Membership of the Committees and CIPM as listed in the BIPM website; appointment and invitation to the measurement treaties for participation and/or country reports
Method of calculation	Simple count
Means of verification	Confirmation of NMISA's membership as listed in the BIPM website
Assumptions	Membership of the 10 CCs and Participation in the CIPM and link to the international system of units
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	Active participation in international committees to ensure NMISA's adherence to international standards and impact policy decisions
Indicator responsibility	RIID

KPI 4: NUMBER OF ILCs AND PTS ORGANISED AND COMPLETED	
Indicator title (Output)	Number of ILCs and PTS organised and completed
Short definition	Interlaboratory comparisons (ILCs) or Proficiency Testing Scheme (PTS) Initiated and administered by NMISA. To ensure NMISA is comparable with other NMIs and to assist SADC NMIs to obtain equivalence with South Africa inter-regional trade. To assist National and Regional Laboratories in providing confidence in their measurement capabilities. The ILCs and PTS can run over several financial years.
Source/collection of data	Project plans, progress reports and/or final reports (draft A, B and final report)
Method of calculation	Simple count
Means of verification	Submission of Project plans, progress reports and/or draft A, B and final reports
Assumptions	Accuracy and confidence in measurement results for South Africa and the Region
Disaggregation	None
Spatial transformation	Detailed plans and reports
Type of indicator	Output
Calculation type	Cumulative
New indicator	Yes
Reporting cycle	Quarterly
Desired performance	To build capability in identified parameters
Indicator responsibility	Technical divisions

KPI 5: PERCENTAGE METROLOGICAL SERVICES COVERED BY CALIBRATION AND MEASUREMENT CAPABILITIES (CMCS)	
Indicator title (Output)	Percentage of Metrological services covered by Calibration and Measurement Capabilities (CMCs)
Short definition	To determine the percentage of services offered by NMISA that are covered by CMCs in the KCDB. A measurement capability claim that has been reviewed and accepted by international peers, and then published in the BIPM international metrology database (key comparison database appendix C). Provides stakeholders with confidence that a claimed measurement capability which is internationally accepted and internationally equivalent.
Source/collection of data	SHEQ report showing the number of CMCs in Appendix C of the international (BIPM) key comparison database (KCDB), published at www.bipm.org , NMISA scopes of accreditation and calibration certificates
Method of calculation	Number of services linked to the official number of active CMCs published in the KCDB for South Africa as at 31 March (screen print and date); simple calculation
Means of verification	Certificates issued against services rendered
Assumptions	Claimed measurement capability which is internationally acceptable and equivalent
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Capabilities that meet stakeholder needs
Indicator responsibility	Director RIID together with SHEQ

KPI 6: NUMBER OF ACCREDITED LABORATORIES AND NEW LABORATORY ACCREDITATIONS	
Indicator title (Output)	Number of accredited laboratories and new laboratory accreditations
Short definition	Activities to support maintenance of the TQMS at an internationally acceptable level (peer-reviewed quality system), peer review for new accredited QMS. Maintain 24 accredited laboratories
Source/collection of data	Confirmation of continued accreditation; or peer review reports or schedule of accreditation or certificate of accreditation
Method of calculation	Simple count
Means of verification	Certificates, peer review reports or schedule of accreditation
Assumptions	Quality Assurance requirement for NMISA
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	Maintained Total Quality Management System and maintained schedule of accreditation or self-declared parameters under the CIPM MRA
Indicator responsibility	SHEQ

KPI 7: NUMBER OF METROLOGISTS TRAINED

Indicator title (Output)	Number of metrologists trained in accurate measurement
Short definition	Practical training of metrologists to ensure knowledge transfer to industry, commercial calibration labs and regional NMIs. To develop skills and competencies required to provide essential measurement support to industry, commercial calibration labs and NMIs in the region. Training can be provided at NMISA or other laboratories.
Source/collection of data	NMISA Certificate of Training and an official report
Method of calculation	Simple count (people)
Means of verification	Certificates/ attendance register
Assumptions	Knowledge transfer to industry and regional NMIs
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Capacity building for the region as mandated by the measurement act
Indicator responsibility	Director RIID together with Technical Directors

KPI 8: NUMBER OF COURSES PROVIDED

Indicator title (Output)	Number of courses presented to industry, SMEs and other institutes
Short definition	To develop skills and competencies required to provide essential measurement support to industry, SMEs and other institutes.
Source/collection of data	Official signed attendance list of participants attending the course or workshop given or letter from institute hosting course
Method of calculation	Simple count (courses)
Means of verification	Attendance registers or letters from host institute
Assumption	Proof of the dissemination of the NMS and usage of Units to industry and the user community at large
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Increased industry training and SMEs trained in support of the quality infrastructure
Indicator responsibility	Director Applied Metrology and all divisions

KPI 9: NUMBER OF INTERNS AND IN-SERVICE TRAINEES HOSTED

Indicator title (Output)	Number of interns and in-service trainees hosted
Short definition	Number of interns (minimum of six months) and in-service trainees (period as described by the academic institution) hosted. To provide work experience for graduates in line with their studies and improve their employability. To build pipeline of skilled and competent professionals to address current and future skills needs and transform the organisation.
Source/collection of data	Internship contracts, training/work plans, certificates
Method of calculation	Simple count, (total number of interns and in-service trainees hosted/trained during the financial year)
Means of verification	Appointment contracts
Assumptions	A skilled, competent and transformed workforce
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Well trained interns who can be placed in NMISA or other organisations
Indicator responsibility	Human Resources

KPI 10: AMOUNT OF INCOME GENERATED

Indicator title (Output)	Income generated through services dissemination activities
Short definition	Income generated through calibration, services (PTS and reference measurements), sales (CRMs), consultation, research funds and donor projects (REVENUE) excluding interest.
Source/collection of data	A report of income is downloadable from NMISA financial system and provided by Finances
Method of calculation	Simple count (Revenue in line with GRAP)
Means of verification	Finance report submitted every quarter
Assumptions	Measurement traceability to industry through calibration, measurement services, analysis, consultation, research grants and donor projects
Disaggregation	None
Spatial transformation	None
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Meet and exceed annual financial revenue target for sustainability
Indicator responsibility	EXCO and finance

KPI 11: ACTUAL EXPENDITURE TO BUDGET

Indicator title (Output)	Actual expenditure to budget
Short definition	Percent of revenue received, expensed and commitments. Establish financial systems and processes to ensure compliance with regulatory frameworks.
Source/collection of data	Statement of financial performance and other financial reports
Method of calculation	Actual spending including commitments/ income received
Means of verification	Finance report
Assumption	Established systems and processes to ensure compliance with regulatory frameworks (PFMA)
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Full compliance with regulatory frameworks and unqualified audit report
Indicator responsibility	CFO, together with EXCO

KPI 12: UPDATE OF THE MEASUREMENT ACT	
Indicator title (Output)	Revised Measurement Act to support and contribute to National Regulation
Short definition	The participation of NMISA in the technical infrastructure review geared towards the revision of the Measurement Act to support regulation.
Purpose/importance	NMISA provides traceability to the international measurement system (the SI) for the protection of the state by ensuring accurate measurements within the Country and Region
Source of data	Reports and/or minutes of the meetings held
Method of Calculation / Assessment	Reviewed Measurement Act
Means of verification	Communication between the dtic and NMISA on progress either via email, minutes or reports, proof of submission to the Board
Assumptions	The revised Measurement Act will ensure that industry, government and SOEs use the services of NMISA as an entity developed to support the country
Disaggregation	No disaggregation
Spatial Transformation	Not applicable
Calculation type	Non-cumulative
Reporting Cycle	Quarterly
Desired performance	Amendment of the Measurement Act
Indicator Responsibility	Directors; RIID and SBDG

KPI 13: METROLOGY SERVICE PROVIDER TO GOVERNMENT AND SOE'S	
Indicator title (Output)	Metrology service provider for government services and State-Owned Enterprise
Short definition	NMISA providing metrology related services to government and/or SOEs
Source/collection of data	Service level Agreements/contracts, with Government or SOE Customers
Method of calculation	Simple count
Means of verification	Signed contracts/SLAs
Assumption	Consolidation of metrological services in government and SOEs to save costs
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Saving government costs by creating effectiveness
Indicator responsibility	SBD

KPI 14: INCREASE VISIBILITY OF NMISA	
Indicator title (Output)	Increase visibility of NMISA in South Africa and the region
Short definition	Increase visibility of NMISA in order to provide traceability within SA and the region by shortening the traceability, ensuring growth in industrialisation, employment within SA and not exporting jobs.
Source/collection of data	Statistical report showing progress throughout the quarters
Method of calculation	Using Advertising Value Equivalence calculations done by a contracted service provider, total amount of print, online and broadcast media not including paid advertising.
Means of verification	Advertising Value Equivalent reports
Assumptions	Increased visibility of the organisation
Disaggregation	Not applicable
Spatial transformation	Not applicable
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Increase visibility by 40% of NMISA to our stakeholders
Indicator responsibility	SBGD

KPI 15: PERCENTAGE CUSTOMER SATISFACTION	
Indicator title (Output)	Percentage customer satisfaction
Short definition	Percentage of customer complaints against all service jobs. To provide industry with a sense of ownership and confidence in NMISA measurements by providing a superior service. NMISA strives for less than 5 %.
Source/collection of data	Report on the review of customer complaints taken from the Quality System (Customer Action Requests-CARs)
Method of calculation	Number of customer complaints per quarter/ total jobs per quarter
Means of verification	List of invoices/jobs done from finance / number of customer complaints
Assumptions	External client satisfaction
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	Zero customer complaints are ideal; any customer complaints received to be timeously addressed and cleared satisfactorily
Indicator responsibility	SHEQ

KPI 16: NUMBER OF REPORTS ON J-KPI 1 – INTEGRATED SUPPORT TO DRIVE INDUSTRIALISATION

Indicator title	Report on integrated support for the dtic to drive industrialisation that supports economic recovery, covering industry master plans, localisation initiatives across the economy (including COVID-industrial interventions) ad beneficiation
Definition	Integrated support for the dtic to drive industrialisation that supports economic recovery, covering industry master plans, localisation initiatives across the economy (including COVID-industrial interventions) ad beneficiation
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	Implementations of initiatives for economic recovery
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 17: NUMBER OF REPORTS ON J-KPI 2 – NUMBER OF REPORTS ON NMISA'S CONTRIBUTION/PROGRESS TOWARDS THE AfCFTA

Indicator title	Number of reports on NMISA's contribution towards the AfCFTA and the reduction of technical barriers to trade.
Definition	Reports on NMISA's contribution towards the AfCFTA and the reduction of technical barriers to trade.
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	Implementations of initiatives for economic recovery and the reduction of technical barriers to trade
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 18: NUMBER OF REPORTS ON J-KPI 3 – NUMBER OF REPORTS ON INVESTMENT FACILITATION AND GROWTH

Indicator title	Number reports on Investment facilitation and Growth
Definition	Investment facilitation and growth: steps taken to support new investment in key sectors
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	Economic inclusion and growth
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 19: NUMBER OF REPORTS ON J-KPI 4 – NUMBER OF REPORTS ON DEVELOPMENT MODEL AND SPATIAL EQUITY

Indicator title	Number reports on development model and spatial equity
Definition	District development model and spatial equity, including incorporating all work within the district model
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	Developed district models
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 20: NUMBER OF REPORTS ON J-KPI 5 – NUMBER OF REPORTS ON ACTIONS TO PROMOTE TRANSFORMATION TO ENABLE INCLUSION AND GROWTH, AND EMPOWERMENT OF DESIGNATED GROUPS.

Indicator title	Report on actions to promote transformation
Definition	Action to promote transformation to enable inclusion and growth and empowerment of designated groups
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	Transformed economy
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 21: NUMBER OF REPORTS ON J-KPI 6 – NUMBER OF REPORTS ON GROWING THE GREEN ECONOMY AND GREENING THE ECONOMY	
Indicator title	Report on growing the green economy and greening the economy for policy development, promoting investment, development of new products
Definition	Growing the green economy and greening the economy for policy development, promoting investment, development of new products
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	A Greener economy
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management

KPI 22: NUMBER OF REPORTS ON J-KPI 7 – NUMBER OF REPORTS ON STRENGTHENING AND BUILDING A CAPABLE STATE	
Indicator title	Number reports on strengthening and building a capable state
Definition	Strengthening and building a capable state
Source of data	Reports
Method of calculation / Assessment	Simple count
Means of verification	Reports submitted to the dtic
Assumptions	A capable state South Africa
Disaggregation	None
Spatial transformation	Not applicable
Calculation type	Non-cumulative
Reporting cycle	Quarterly
Desired performance	The dtic's target achieved
Indicator responsibility	NMISA management



PHYSICAL ADDRESS

CSIR Campus
Building 5
Meiring Naudé Road
Brummeria
Pretoria
South Africa

POSTAL ADDRESS

Private Bag X34
Lynnwood Ridge
Pretoria
0040
South Africa

CONTACT

Calibration Office: +27 12 841 2102
Reception: +27 12 841 4152
Fax: +27 841 2131
Web: www.nmisa.org
Email enquiries: info@nmisa.org

RP384/2019
ISBN: 978-0-621-48915-6