



ANNUAL PERFORMANCE PLAN **2022–2025**



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ABBREVIATIONS AND ACRONYMS

AfCFTA	African Continental Free Trade Area
AFRIMETS	Intra-Africa Metrology System
APP	Annual Performance Plan
ARI	Africa Reference Institute
BIPM	International Bureau of Weights and Measures
CC	Consultative Committee
CEO	Chief Executive Officer
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capabilities
CRM	Certified Reference Material
CSIR	Council for Scientific and Industrial Research
EXCO	Executive Committee
HCD	Human Capital Development
ILCs	Inter-Laboratory Comparisons
ISO	International Organization for Standardization
J-KPI	Joint Key Performance Indicator
KCDB	Key Comparison Database
KPI	Key Performance Indicator
LED	Light Emitting Diode
MRA	Mutual Recognition Arrangement
MTEF	Medium-Term Expenditure Framework
NDP	National Development Plan
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
PFMA	Public Finance Management Act
PPP	Private Public Partnership
PTS	Proficiency Testing Schemes
RIID	Regional, International Relations and Innovation Division
RMO	Regional Metrology Organisation
RMPF	Reference Materials Production Facility
SABS	South African Bureau of Standards
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
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
SOEs	State-Owned Enterprises
STEM	Science, Technology, Engineering and Mathematics
TC	Technical Committee
the dtic	Department of Trade, Industry and Competition
TI	Technical Infrastructure
VOCs	Volatile Organic Compounds



FOREWORD BY THE MINISTER

– Mr Ebrahim Patel

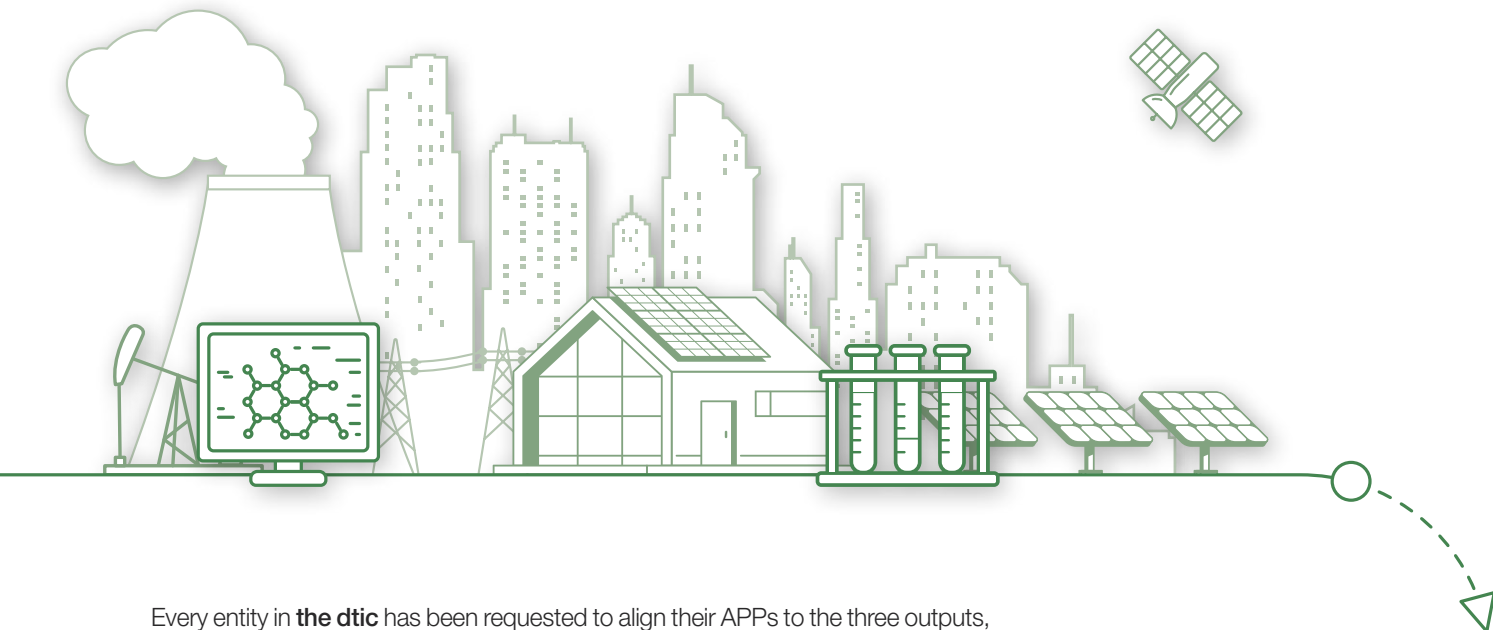
“ Government’s priority focus continues to be the recovery of growth, investment and employment, guided by the Economic Recovery and Reconstruction Plan adopted in 2020, and the tasks outlined by President Ramaphosa in the 2022 State of the Nation Address. ”

The Annual Performance Plan (APP) identifies the outputs, output indicators and targets that an entity aims to achieve in the new financial year. The Executive Authority is responsible for providing direction on the development and implementation of policies and strategic priorities of entities in line with their respective mandates, and to ensure the APP is aligned to government’s priorities.

The environment in which the APPs of the Department of Trade, Industry and Competition (**the dtic**) and our entities have been formulated remains challenging, given the impact of the COVID-19 pandemic, the July 2021 unrest and more recently the Russia/Ukraine war. At the same time, determined efforts by the Administration has seen signs of economic recovery and greater investor confidence in economic prospects. In this light, government’s priority focus continues to be the recovery of growth, investment and employment, guided by the Economic Recovery and Reconstruction Plan adopted in 2020, and the tasks outlined by President Ramaphosa in the 2022 State of the Nation Address.

This APP is expected to take forward the strategic shift initiated in 2021/22 toward strengthened implementation and impact of **the dtic’s** work, through greater integration of efforts within the department and our entities, guided by shared, crosscutting outcomes and joint performance indicators. In this regard, the work of **the dtic** and the entities will be evaluated in relation to three over-arching Outcomes (which incorporate the previous “Joint-KPIs”) namely **Industrialisation; Transformation; and Capable State** (Implementation/Effective Delivery). In this way these Outcomes more deliberately and directly inform respective outputs and KPIs of the department and entities.

In turn, the scope of the outputs collectively still encompass the identified **dtic’s** priorities, which include 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 particular addressing red tape as prioritised by the President in the 2022 State of the Nation Address.



Every entity in **the dtic** has been requested to align their APPs to the three outputs, it being recognised that a particular entity's core business links more clearly and strongly to one or the other of the overarching Outcomes, than to others.

This APP represents the outcome of the work done by the National Metrology Institute of South Africa. Following the tabling of the APP by **the dtic** itself, each entity of the department will be expected to consider such additional refinement and additions to be made and following completion of the review, such an addendum to this APP may be submitted in due course after the tabling.

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 accordingly table the APP for 2022/23 in accordance with the request by the Speaker.

I wish to thank the management and governance structures for the work done and wish them well in executing the APP and aligning their work to government's overall programmes and priorities.

Mr Ebrahim Patel

Minister of Trade, Industry and Competition



BOARD CHAIR FOREWORD

– Ms Jabu Mogadime

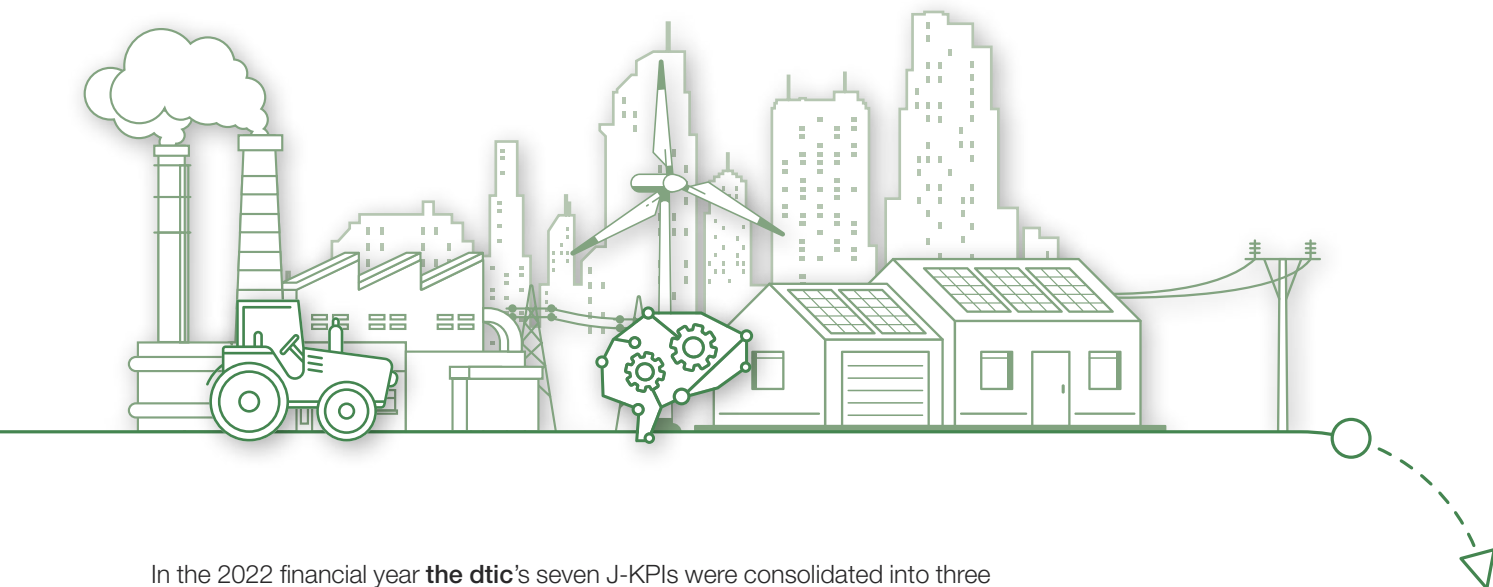
“ The role of this institute will become more pronounced with the African Continental Free Trade Area (AfCFTA) coming into effect, as the need for continental leadership in measurement science will be vital to protect South Africa and the region from an influx of sub-standard products into this lucrative, newly unified market. ”

NMISA was established by the South African Government under the Measurement Units and Measurement Standards 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 essential in negating technical barriers to trade. As part of the South African quality infrastructure, NMISA keeps, develops, maintains, and disseminates the National Measurement Standards. The role of this institute will become more pronounced with the African Continental Free Trade Area (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.

Regulation continues to be a hinderance to NMISA's work in supporting South Africa's quality infrastructure due to the lack of enforcement. It is anticipated that the current review of the Act will result in improved ability for NMISA to support regulators with measurement traceability as mandated.

As NMISA continues to implement its plan for the development of applied metrology, gaps in the application of measurement technologies are being identified in industry and the region that NMISA can fulfil in its bid to shorten the traceability chain for Africa, which in turn will better connect Africa to the world. Reliable measurement results are becoming increasingly urgent in a competitive global market and innovative solutions are needed as technology advances.

In supporting the following Joint Key Performance Indicators (J-KPIs) defined by **the dtic**, NMISA streamlined its activities to ensure proper alignment and reporting on these KPIs. They are aligned with NMISA's strategic goals, especially those that concern the need to consolidate activities within government to ensure efficiency, cut down redundancy and improve service delivery in the efforts of building a capable state.



In the 2022 financial year **the dtic**'s seven J-KPIs were consolidated into three J-KPIs highlighting the need to grow the economy and fostering inclusivity. These are:

J-KPI 1: Industrialisation

J-KPI 2: Transformation and

J-KPI 3: Delivery/Capable state

The need for the appointment of additional members to the Board is becoming pressing; the NMISA Board functioned and discharged its fiduciary duties with difficulty during this period due to operating with five members, down from the initial eight members. This was raised as a finding by the Auditor-General. NMISA trusts that this will be corrected in the 2022 financial year.

Ms Jabu Mogadime
Accounting Authority



EXECUTIVE SUMMARY BY THE CEO

– Mr Ndwakhulu Mukhufhi

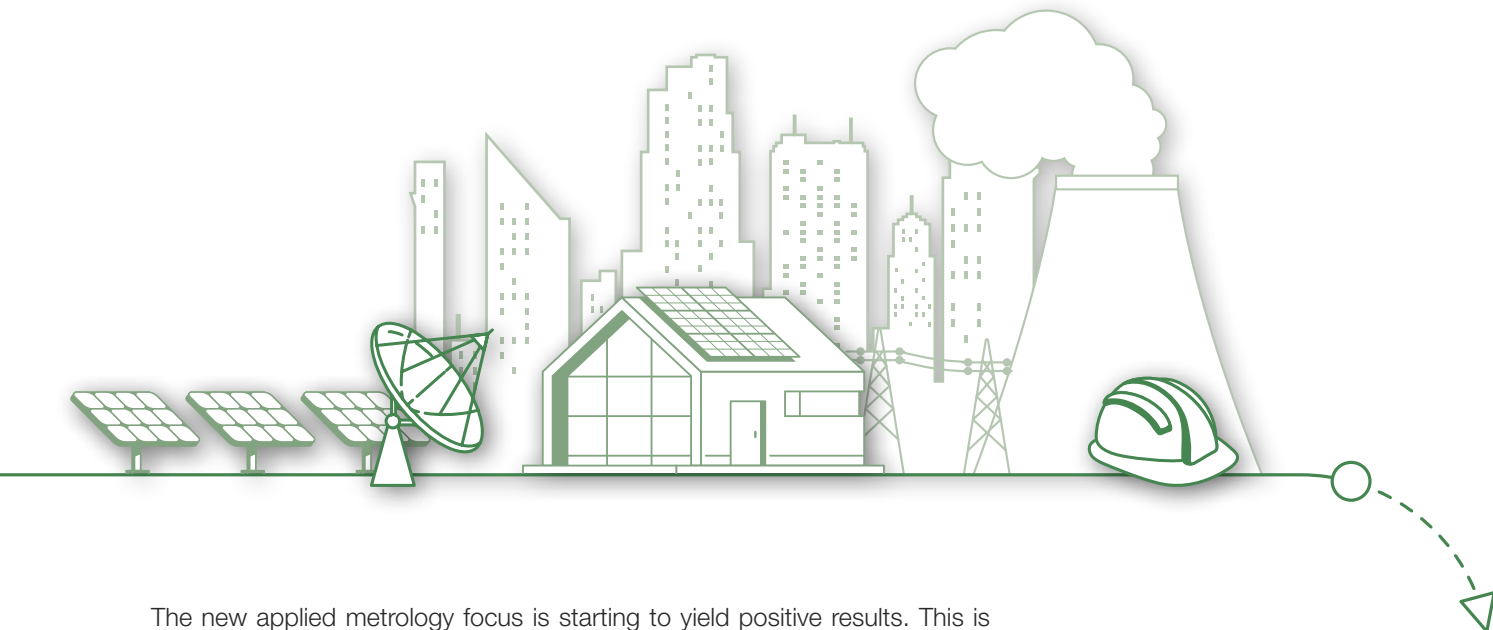
In accordance with the planning processes of the South African Government, NMISA presents its Annual Performance Plan (APP) for the 2022/23 financial year.

NMISA's strategic goals and programmes are aligned with the J-KPIs as initiated and stated in the APP for the 2021/22 financial year. NMISA directly and indirectly contributes to all aspects of three broad J-KPIs and the expanded areas of focus for each. The institute is prioritising the consolidation of metrological resources in support of government's plans to address poverty, inequality, unemployment, and ultimately to ensure inclusive growth. In line with the National Development Plan (NDP) 2030; NMISA has created a model for human capital development that incorporates mentoring, training and work-based experience, to the benefit of young South Africans from disadvantaged backgrounds. It aims to address not only the current unemployment rate, but also the future needs of metrology and the science, technology, engineering and mathematic (STEM) fields in general. This is done in the context of developing capability in the state.

Industrialisation is supported through the development and improvement of National Measurement Standards, which forms the basis of the measurement products and services offered to industry. The principle "measured once, measured everywhere" applies as NMISA links its National Measurement Standard to the international SI (system of units) ensuring international acceptance. Accurate measurements are key in facilitating trade, blocking counterfeit goods, and dumping of low quality products, removing technical barriers to trade and eliminating border rejections.

The main focus for NMISA in the planning period will be to grow the recently developed Applied Metrology Division. The aim of this development is to respond to the increasing need for measurement solutions in all spheres of the economy. The accuracy of the measurement solutions is becoming increasingly stringent as a result of a high pace of technological advancements and associated new innovations. This has become even more critical in the context of the global COVID-19 pandemic and the imperative to diagnose, treat and manage the global pandemic. The measurement solutions are also required as South Africa and the rest of the world are focusing on post-pandemic economic stimulation.

“Accurate measurements are key in facilitating trade, blocking counterfeit goods, and dumping of low quality products, removing technical barriers to trade and eliminating border rejections.”



The new applied metrology focus is starting to yield positive results. This is especially true in the agriculture sector, as the NMISA-produced reference materials facility is achieving international recognition. The NMISA focus for the strategic planning cycle will therefore be to build on these early successes and further equip the Applied Metrology Division to support Legal Metrology and the quality infrastructure in general.

Mr Ndwakhulu Mukhufhi

Accounting Officer of the National Metrology Institute of South Africa

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 that NMISA will endeavour to achieve given the resources made available in the budget for 2022/23–2024/25.



Dr Jayne de Vos

Director Applied Metrology Division



Ms Natasha van der Walt

Director Strategy, Business Development and Governance Division



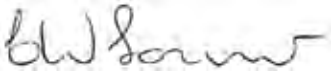
Mr Teboho Mthombeni

Director Corporate Services



Mr Mogau Sehlapelo

Chief Financial Officer



Dr Wynand Louw

Director Regional, International Relations and Innovation Division



Mr Ndwakhulu Mukhufhi

Accounting Officer



Mr Benjamin van der Merwe

Director Physical and Electrical Metrology



Ms Jabu Mogadime

Accounting Authority

Approved by:



Dr Jessie Pillay

Director Chemical, Material and Medical Metrology Division



Mr Ebrahim Patel

Executive Authority





PART A

NMISA MANDATE

OUR MANDATE

NMISA was established and is fulfilling its legal mandate under the Measurement Units and Measurement Standards Act, Act No. 18 of 2006.

- To provide for the use of measurement units of the International System of Units (SI)
- To designate other measurement units for use and to provide for the designation of the National Measurement Standards (NMS)
- To develop, keep, maintain and disseminate the NMS reference measurements, reference standards, and reference materials.

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

Integral to the quality infrastructure of South Africa, NMISA fully adheres to the principles of quality and contributes to the infrastructure for the implementation of quality in Society.

MEASUREMENT EXCELLENCE

The pinnacle of measurement accuracy and excellence is traceability to the International System of Units and the connection of the regional measurement system internationally. NMISA not only provides this link to the region, but lives excellence in the measurements it conducts for the community.

SOCIAL RESPONSIBILITY

The mandate to establish and maintain the national measurement standards is augmented by NMISA's leadership role in all measurement issues and awareness creation and training of society.

ECONOMIC PROSPERITY

NMISA provides accurate measurement and an internationally accepted measurement system that is a prerequisite for production, trade, the provision of health services and is the building block for economic prosperity.

GOOD GOVERNANCE

The moral basis on which all activities of NMISA and its international status are based, as evidenced by its performance and its record of clean audits.

4 | UPDATES TO THE RELEVANT LEGISLATIVE AND POLICY MANDATES

In 2018, the international metrology world took a unanimous decision to revise the SI. This revision came into effect on 20 May 2019, which is internationally recognised as World Metrology Day. In accordance with the Measurement Units and National Measurement Standards Act, 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 Units and Measurement Standards Act (the Measurement Act) to align it with the latest international and local best practise. 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 state-owned enterprises (SOEs). Finally, better alignment with the Legal Metrology Act will be considered.

4.1 APPLICABLE ACTS

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.
Public Finance Management Act (PFMA) (Act No.1 of 1999) as amended	To regulate financial management in the national government and provincial governments; to ensure that all revenue, expenditure, assets and liabilities of those governments are managed efficiently and effectively; to provide for the responsibilities of persons entrusted with financial management in those governments; and to provide for matters connected therewith. The NMISA is an extension of government and therefore prescribes to the PFMA.
The Disaster Management Act (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.
Hazardous Substances Act (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 (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 (Act No. 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 (Act No. 2 of 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 a memorandum of understanding with the Independent Communications Authority of South Africa 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.

ACT	PURPOSE
National Road Traffic Act (Act No. 93 of 1996)	NMISA supports section 59 of the Act in that it offers speed measurement calibrations including calibration to the new specification. Section 65 of the Act is supported through the calibration of breathalysers required by SANS regulations in support of law enforcement.
Air Quality Act (Act No. 39 of 2004)	NMISA supports the Act through the provision of reference gas mixtures for air pollution and environmental monitoring.

4.2 LEGISLATIVE FRAMEWORK

Legislative framework applicable to NMISA as a schedule 3A entity.

FRAMEWORK	PURPOSE
King codes	Provides a benchmark of best practices and accountability standards for organisations.
Frameworks for Managing Programme Performance Information	Sets out the planning processes as mandated in Section 215 and 216 of the Constitution of South Africa; strategic plans and annual performance plans.
National Treasury Regulations	Provides guidance to NMISA on matters of compliance and good governance in an evolving economy.

5 | UPDATES TO THE RELEVANT COURT RULINGS

NMISA has no specific court rulings that have a significant impact on its operations or service delivery.

6 | UPDATES TO INSTITUTIONAL POLICIES AND STRATEGIES

NMISA is a Schedule 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. The structure of the Executive Management level was changed in 2019/20 to reflect the strategic goals from 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 small and medium enterprises (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.



PART B

NMISA STRATEGIC FOCUS

7 | UPDATED SITUATIONAL ANALYSIS

The impact of COVID-19

The COVID-19 pandemic has had an effect on NMISA operations as with the entire country and world at large. NMISA operates under strict protocols to ensure the safety of employees since the National Disaster Act, 2002 (Act No. 57 of 2002) was invoked, imposing a lockdown of the country. The need to adapt to a new working environment was evident during the outbreak and lockdown period.

The organisation 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. The NMS for different parameters are ready to support measurement for the development of locally manufactured devices.

NMISA has the following services that can contribute towards the fight against COVID-19:

- Ultraviolet germicidal irradiation measurements, analytical services for evaluating sanitising solutions
- Primary gas reference mixtures (oxygen as required in treatment protocols, etc.)
- Calibration of oxygen flow
- Provide advice on the procurement, use of screening devices, and provide assistance
- Calibration and act as a consultant to the procurement and use of temperature and other measurement devices to government and the private sector.

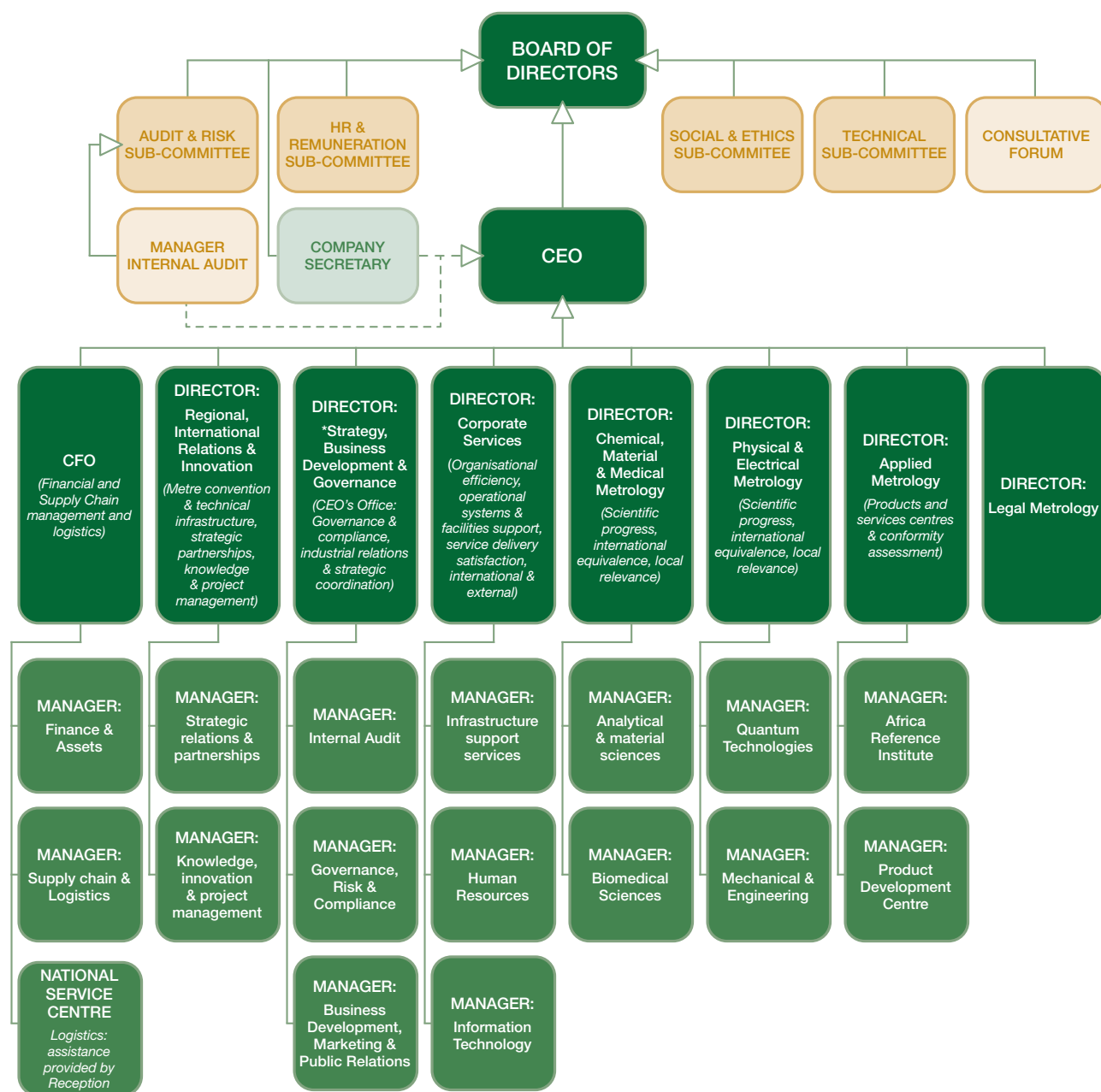
Organisational Structure

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 healthcare.

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

NMISA's management has restructured the organisation's strategic goals into functional areas (divisions) within its matrix structure to ensure the maintenance of the 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 underpinning 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 1. Organisational Structure



* Director: Strategy, Business Development & Governance is responsible administratively for the Company Secretary and Internal Audit functions

NMISA performs research and development activities in thematic programmes to deliver outcomes such as improved NMS, certified reference materials (CRMs) 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 in the Regional, International Relations and Innovation Division (RIID).

7.1 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 healthcare 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 national metrology institutes (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 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, whose members are the states that signed the Metre

Convention. South Africa acceded to the treaty in 1964 and NMISA in 1999 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 the 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. In response to the African Continental Free Trade Area (AfCFTA), NMISA 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 sixth 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 building 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 15) as planned in the Strategic Plan 2019/24 were designed to support sixth administration efforts to accelerate economic growth, support regulation to build a capable state, consolidate shared resources and assist SMEs. It aligns the National Development Goals, **the dtic** Strategic Objectives, and contribute to the Medium-Term Expenditure Framework (MTEF). This is done through NMISA's eight 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, material sciences, etc. are developing rapidly and require new measurement methods and measurement standards. In response, NMISA is investing and actively pursuing opportunities for collaboration with its international partners and peers to pool resources.

7.1.1 International and Regional Participation

NMISA ensures that the interests of South Africa, the Southern African Development Community (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 9 of the 10 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 President 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 upcoming developing countries, that 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 the Intra-Africa Metrology System (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 the SADC Cooperation in Measurement Traceability (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.

7.1.2 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 ongoing 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 has been developed to assist each metrologist, whether experienced or new in the field, in improving skills and ensuring a pipeline of young metrologists through the bursary programme, 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.

7.1.3 The National Function

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 No. 85 of 1993) to the Nuclear Energy Act (Act No. 46 of 1999).

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.

7.2 ORGANISATIONAL DELIVERY ENVIRONMENT (INTERNAL)

7.2.1 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 and Medical Metrology
- Physical and 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 1), 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 undertaken within 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 TI, regional and international institutes, and knowledge management, are managed by the RIID. The RIID ensures that NMISA is appropriately linked to the international metrology community, fosters collaboration with other NMIs and source funding from development partners. It coordinates the activities of NMISA in the other TI institutions and manages the relationship with the sub-regional (SADCMET) and regional (AFRIMETS) metrology organisations.

The Strategy, Business Development and Governance Division coordinates the implementation of the NMISA strategic 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 Safety Health Environment and Quality (SHEQ) office, which coordinates all matters relating to accreditation of technical competencies, health and safety of staff, and the environment. A total of 20 laboratories are accredited to ISO/IEC 17025:2017 by the South African National Accreditation System. In addition, two laboratories are accredited against ISO 17034 to produce CRMs. Accreditation to ISO/IEC 17043 (for conducting proficiency testing schemes (PTS)) has been attained for the laboratories providing PTS. NMISA has further achieved certification of its occupational health and safety (OH&S Management System) and environmental management system guided by ISO 14001 and ISO 45001.

7.2.2 Technical Activities

NMISA delivers its services through:

Calibrations: Delivering direct traceability to the 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 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 through the NMISA Training Centre. 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 of the University of Cape Town.

7.3 STAKEHOLDER ANALYSIS

EXTERNAL STAKEHOLDERS				
Stakeholders	Attributes	Influence	Interest	Linkages with other stakeholders
National Government	Key implementer of the National Development Plan	High	High	Key player in legislative and regulatory environment
the dtic	Shareholder	High	High	Provide guidance in terms of master plans and economic recovery
NMISA Board of Directors	Independent control oversight body	High	High	Controlling and oversight
The BIPM	Acts in matters of world metrology	High	High	Concerned with measurement standards and the demonstration of equivalence between national measurement standards
Experts (local and international)	Provide expertise in the field of Metrology	High	High	Metrology matter experts
Labour (Central Bargaining Forum)	Bargaining forum formed to protect the collective interest of the labour force	High	High	Negotiators of working conditions and terms of employment between employer and employees
Academia	Key producers of knowledge, research, new skills, and capabilities	Low	High	Collaborations for generation of knowledge and dissemination of the curriculum on the revised SI
AGSA/external auditors	Tasked with responsibility of oversight accountability and governance	High	High	Audit for compliance with legislation





PART C

MEASURING OUR PERFORMANCE

8 | NMISA PERFORMANCE INDICATORS

NMISA adopted the balanced scorecard approach to set and measure performance targets. The scorecard addresses the maintenance of the NMS and the administrative support provided to ensure that the organisation achieves its strategic objectives.

Five key components are addressed, namely international agreements and participation, stakeholder/customer (technical) perspective, 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 CCs 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 Human Resources function.

Stakeholder/customer perspective (technical): includes scientific and technical outputs, products and services developed to support the 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 | NMISA PROGRAMMES

9.1 RESEARCH CONTRIBUTIONS

NMISA contributes to government key priorities, the national outcomes and has aligned its key activities to the Re-imagined Industrial Strategy, the master plans, the Economic Reconstruction and Recovery Plan and National System of Innovation goals. The organisation performs research and development activities in a matrix structure through thematic cross-cutting research programmes to provide fit for purpose measurement solutions.

9.2 JOINT KEY PERFORMANCE INDICATORS

Seventy-five years ago, a metrology laboratory was the first facility to be established under the newly founded CSIR, as a key enabler for industrialisation. Today, as South Africa is building a new model of inclusive economic growth, driven by **the dtic**, the existing modern metrology infrastructure developed by NMISA over many years, is well-integrated over all local economic sectors, with well-established networks on the continent, and internationally equivalent measurement capabilities. In conjunction with all TI entities, metrology forms one of the foundations of strategies to increase the country's productive capacity and trade.

A local manufacturer cannot compete successfully with high quality imported products unless it considers the accuracy, reliability and speed of production, in addition to operating costs. Reliable measurement, as the basis of real-time data for instant decisions in production lines, is indispensable to efficient, high-technology manufacturing. Conformance to product specifications is demonstrated through measurement results that are demonstrated to be accurate. In South Africa, it requires traceability to the NMS maintained by NMISA.

Transitioning to a green economy is also dependent on an effective quality infrastructure. The certified reference materials, gas mixtures, proficiency testing schemes and reference analysis provided by NMISA underpins environmental monitoring by enabling local testing laboratories to demonstrate the accuracy of their results from tests performed on food, feed, water, soil, and air samples. It also enables regulation and prosecution of polluting agencies in a court of law.

All aspects of modern life are underpinned by metrology: food safety and nutritional content; time, navigation, and accurate positioning; telecommunication; national power supply; medical diagnosis and treatment; safe transport; environmental impact and protection; renewable energy; research and innovation; agriculture; manufacturing; trade; consumer protection; etc. Metrology support for regulators and the consolidation of measurement services for SOEs responsible for these sectors, are strategic objectives for NMISA. The institute therefore uses the number of active contractual agreements with other public entities that ensure effective support services, as a key performance measure.

An initiative to enhance metrology support to municipalities resulted in agreements with several metropolitans to obtain measurement traceability for equipment used in traffic law enforcement, including evidential breathalysers and speed measuring equipment. These services allow the traffic departments of these municipalities to successfully prosecute traffic offenders, thereby enhancing road safety. During 2022/23 a mobile laboratory will be built to deliver measurement and calibration services onsite to those smaller municipalities that do not have the necessary infrastructure or funding to send law enforcement devices to Gauteng for calibration, while maintaining backup instruments in operation. Public hospitals in the provinces obtain certified reference gas mixtures for medical gases, as well as measurement traceability for oncology treatment from NMISA.

Research commissioned by the Competition Commission in the report *"Measuring concentration and participation in the South African Economy: Levels and trends,"* emphasised the need for structural reforms to reduce economic concentration in certain sectors of the economy and to allow for inclusive growth and enhanced localisation. Prominent levels of concentration by dominant firms makes it difficult for SMEs to enter and stay in the market or to transition into medium or large firms.

NMISA supports SMEs operating at all levels of the value chain: from basic measurements supporting traditional trade (mass and volume), to sophisticated measurement systems supporting leading edge research and enhancing

export opportunities for local producers. In addition to measurement services, NMISA provides a suite of training courses (including a measurement toolkit for SMEs) to local and African technologists, scientists and engineers working in the field, through its Training Centre. Hands-on practical training in NMISA laboratories is offered as part of some courses or on request for specialised guidance.

NMISA manages a formal internship programme, not only in scientific fields but also for many support functions such as quality management, supply chain, marketing, communications, internal audit, legal services, and more. These young graduates gain experience in the working environment while being guided by experienced professionals in the field. The Human Capital Development (HCD) programme includes bursaries for students in STEM fields related to metrology. These programmes aim to enhance the skills and employability of young professionals, especially of women.

Globally, metrology is considered a key enabler for realising the Sustainable Development Goals. In November 2018 at the 26th General Conference on Weights and Measures, Bernardo Calzadilla-Sarmiento, Director of UNIDO's Department of Trade, Investment and Innovation summarised the impact of metrology as follows: "metrology is essential to protect the planet, ensure dignified lives for all people, and achieve inclusive economic growth and prosperity".

There is an increasing need for consolidation of efforts by **the dtic** and its entities to build a capable state. In the 2021/22 financial year NMISA was reporting on seven J-KPIs which were consolidated into three J-KPIs. The three J-KPIs are a means to address industrialisation, transformation and building a capable state. The integrated KPIs will bring about a consolidated framework within **the dtic** and its entities whilst working towards the National Development Plan. These are aimed at inclusive growth, jobs, the fight against poverty, and inequality. As elaborated above, the four strategic goals of NMISA are in support and are aligned to the strategy of **the dtic**. It aims to contribute to the growth of the South African economy and consolidation of efforts to build a capable state. Details regarding the specific interventions are given in the table that follows.

Table 1: NMISA interventions aligned to the dtic's Joint-KPIs

JOINT KPI	DTIC'S PRIORITY AREA	NMISA INITIATIVE	PROJECT	
Industrialisation	Sector partnerships: Masterplans Sugar Value Chain Master Plan	Reference Materials	Food Labelling, Reference Measurement, PTS	
	Automotive Industry Master Plan	Manufacturing Competitiveness	Industrial Dimensional Calibrations, Length NMS and Inspections	
		Material Science and Services	Material Characterisation	
		Physical and Electrical Metrology	Force and Torque NMS	
		Material Science and Services	Vibration NMS and Calibration	
	Poultry Sector Master Plan	Agriculture, Food and Environmental Monitoring	ARI Dioxin Analysis in Food and Feed Products	
		Reference Materials	Food Contaminants	
		Agriculture, Food and Environmental Monitoring	ARI Light Emitting Diodes (LED)	
	Steel and Metal Fabrication Master Plan	Material Science and Services	Surface and Structure Characterisation	
		Physical and Electrical Metrology	Mass NMS	
	Retail, Clothing, Textiles, Footwear and Leather Value Chain Master Plan	Agriculture, Food and Environmental Monitoring	NMS for Material Properties (spectrophotometry and tensile strength)	

	NMISA'S STRATEGIC OBJECTIVES	NMISA PROJECT OUTPUT	NMISA KPI (REFER TO PAGES 68–78)
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	The measurements, reference materials and PTS offerings all support food labelling regulations. The services assist laboratories testing these parameters to demonstrate measurement comparability and confidence in the measurement result obtained.	KPI 15 KPI 14
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Provide dimensional calibration and inspection services to cover length and angle/level measurements in the automotive and related industries.	KPI 1 KPI 2 KPI 14 KPI 17 KPI 18
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	NMISA provides business solutions through materials-based fault-finding activities within the automotive sector.	KPI 10
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export	Maintain internationally comparable national measurement standards to ensure force and torque measurements performed within the country and the sub-region are traceable to the SI.	KPI 2 KPI 14
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Support of local, regional and African industries to perform vibration and shock measurements that are traceable to the SI and internationally acceptable.	KPI 2
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	Reference measurement services for the animal feed industry to comply with local safety standards and enable conformity assessment that is internationally accepted.	KPI 17 KPI 1 KPI 2
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	PTS, CRMs and reference measurements of antibiotic residue in poultry meat.	KPI 3
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	Support the local industry requirements for reliable traceable measurement of LED parameters of the lights used in poultry production.	KPI 14 KPI 17 KPI 1 KPI 2
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	The materials characterisation services of NMISA support the materials-based activities within South Africa's industry and research institutions.	KPI 2
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	To ensure mass, volume and density measurements performed within the country and the region are traceable to the NMS and internationally comparable.	KPI 2 KPI 17
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Enable trade and support manufacturing by establishing internationally comparable national measurement standards and disseminate to SMEs.	KPI 2

JOINT KPI	DTIC'S PRIORITY AREA	NMISA INITIATIVE	PROJECT	
Industrialisation (continued)	Master Plan for the Commercial Forestry Sector	Physical and Electrical Metrology	Imaging Sensors (earth observation)	
	Localisation programmes	Energy Efficiency	NMS for LEDs (maintenance project)	
		Manufacturing Competitiveness	Industrial Dimensional Calibrations, Length NMS and Inspections (automotive plan)	
	COVID Industrial Production	Health and Safety	Ultra Violet Germicidal Irradiance (UVGI) for COVID-19	
		Health and Safety	Ear Thermometer	
		Chemical and Medical Metrology	Gas Analysis (medical gases)	
	African and Global Exports	Reference Materials	Mycotoxins and Organic Calibrators	
		Agriculture, Food and Environmental Monitoring	Development of a method for identification and quantification of microplastics in food matrices	

	NMISA'S STRATEGIC OBJECTIVES	NMISA PROJECT OUTPUT	NMISA KPI (REFER TO PAGES 68–78)
	Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services.	The calibration of the EO-SAT1 satellite cameras that will be used to monitor food security, track land use, and offer disaster management capabilities.	
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	NMISA is the only calibration laboratory in South Africa that is SANAS accredited to perform LED related calibrations. The capability was set up to provide traceability to support the energy saving drive and encourage the use of LEDs. To shorten the traceability chain and assist with the regulation of LED and enforcement of standards by the standardisation bodies.	KPI 2 KPI 10
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	NMISA through the Automotive laboratory, support the local automotive industry. Providing traceability for coordinating measuring instruments (3D measurements) and the testing of conformance of locally manufactured automotive parts and components.	
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Provide services for UVGI air and surface disinfection used against COVID-19.	KPI 2 KPI 14 KPI 16 KPI 17
	Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services. 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.	Provide calibration services for ear thermometers that are used for measuring body temperature.	KPI 10
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Supporting the activities of gas manufacturers, who provide gases to the medical, food and metallurgical industries. It provides traceability for medical gasses as an essential part of quality control.	KPI 2 KPI 15
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	To support the multi-disciplinary approaches aimed at sustaining a predominantly agricultural export-based economy and solving the problem of mycotoxin contamination on the continent by improving food safety and food security.	KPI 2 KPI 15
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance, development, and implementation of regulations.	Capability to identify and quantify microplastics in food matrices and develop method validation to support the export of fish internationally.	

JOINT KPI	DTIC'S PRIORITY AREA	NMISA INITIATIVE	PROJECT	
Industrialisation (continued)	African Global Exports (continued)	Training and Knowledge Services	Regional Integration and Strategic Relations and Partnerships	
		Product Development Centre	Reference Materials Production Facility (RMPF)	
		Administration	Hosting of AFRIMETS- and SADC MET Secretariat	
	Green Economy Initiatives	Green Economies Programme	Industrial Emissions and Energy Gases	
			Environmental and Ambient Air Gases	
			Volatile Organic Compounds (VOCs) from recycled plastics	
	Investment Initiatives	Maintenance, Development of the NMS	Physical and Electrical Metrology & Chemical, Material and Medical Metrology NMS	
		Agriculture, Food and Environmental Monitoring	Africa Reference Institute (cannabis analysis)	

	NMISA'S STRATEGIC OBJECTIVES	NMISA PROJECT OUTPUT	NMISA KPI (REFER TO PAGES 68–78)
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Representing South Africa regionally and internationally in SADC, Africa and other RMOs of importance to South Africa. It also coordinates all metrology activities and provides a leadership role in the SADC region and Africa through the hosting of the Secretariats of SADC MET and AFRIMETS respectively. Participation through Pan African Quality Infrastructure in the AfCFTA technical barriers to trade and ensure South Africa has the measurement capabilities for intra and inter African trade. Assistance to African NMIs, creating modern metrology legislation, building capacity, training of scientist and engineers. Inter-Laboratory Comparisons programme, to assist in proving comparability.	KPI 15 KPI 16 KPI 17 KPI 2
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Support innovative product development in South Africa and the region and contribute towards reducing the reliance of the continent on international supply chains.	KPI 2
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Assistance to African NMIs by supporting the establishment and maintenance of fit-for-purpose metrology facilities on the continent, and building capacity through training of scientists and engineers in metrology. This support enables local entities to obtain reliable, internationally recognised measurement traceability, which is needed to enable and enforce legislation and regulations.	KPI 15 KPI 16 KPI 17
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Support air quality monitoring industry (stack emission, automotive monitoring and ambient air monitoring)	KPI 2 KPI 14
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Development or provision of primary gas mixtures (low mole fraction reactive gases, greenhouse gases, sulphur containing compounds and VOC-non-methane hydrocarbons, hazardous air pollutants and benzene, toluene, ethyl benzene and (o,m,p) xylene) for environmental and air quality monitoring.	KPI 2 KPI 14
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Implement an analytical method for the determination of VOCs released from weathered plastics.	Supports or enables KPI 14
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Keep, maintain, develop and disseminate the NMS to ensure traceability to the international SI. Improving the climate for investment through reducing technical barriers to trade.	KPI 14 KPI 15
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Reference measurement services of cannabinoids, pesticides, heavy metals, mycotoxins on plants and products to support regulation and provide assurance in the growing sector.	KPI 2 KPI 14

JOINT KPI	DTIC'S PRIORITY AREA	NMISA INITIATIVE	PROJECT	
Transformation	BEE Promotion and Review	Administration	Improvement of NMISA overall B-BBEE score card	
		Applied Metrology	Essential Oils	
	Worker Empowerment	Skills Development	Training (Personal Development Programme)	
		HCD programme	Bursars, experiential training, and internships	
	Special Economic Zones (SEZs) and Industrial Parks	Green Economies Programme	Environmental and Ambient Air Gases	
	Township economy	Digital Economy	Data Application	
	District Model reporting: all work to be reported into 52 spatial units	Law Enforcement	Traffic Law Enforcement (evidential breath alcohol testing and speed monitoring)	

	NMISA'S STRATEGIC OBJECTIVES	NMISA PROJECT OUTPUT	NMISA KPI (REFER TO PAGES 68–78)
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Improved B-BBEE score as a result of B-BBEE promotion through supplier development; provide support and assistance to suppliers through procurement, early payment and favourable credit terms.	KPI 12
	Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	Develop testing capability/facility through extending the accreditation scope; to support SMEs and testing laboratories who enter the essential oil market. The testing facility will assist with removing technical barriers to trade for the local producers of essential oils (SMEs) to access international markets.	KPI 2
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Develop a qualification profile for staff that enables NMISA to execute its mandate, through personal development, training and study support. NMISA has an adopt a school programme in previously disadvantaged areas as part of its human capital development programme where students are mentored through high school, awarded bursaries to study further and work during school holidays. These students then become interns with the possibility of being absorbed into the organisation.	KPI 1
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations. Strategic goal 3: Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.	NMISA services SEZs and the country at large, through the provision of traceable primary reference gas mixtures, the purpose of which is to support the monitoring of air quality for long-term sustainable growth in a region.	KPI 2 KPI 9 KPI 10
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	NMISA is collaborating with ICASA, through a memorandum of understanding, to develop measurement solutions to address consumer complaints, especially with regards to the consumption and/or depletion rates of data bundles and related services. Further to this, NMISA supports students from the informal sector which will contribute to economic growth in the sector in the long-term.	Supports or enables KPI 7
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Support traffic law enforcement in district municipalities and metros by collaborating with the Road Traffic Management Corporation, providing measurement traceability for evidential breathalysers, speed measurement equipment and other devices used for traffic management.	KPI 2

JOINT KPI	DTIC'S PRIORITY AREA	NMISA INITIATIVE	PROJECT	
Delivery/capable state	The dtic institutional capacity: building a strong capacity within staff	Administration	HCD Programme and Employee Wellness Programme	
	Building entity staffing, governance and quick response	Administration	Total Quality Management	
			SLA Management	
	Shared services from the dtic to smaller entities (cost saving) and across all e.g. new anti-corruption unit	Administration	IT – creating economies of scale for all the dtic 's departments and all entities reporting to the dtic (ICT – consolidation of services) NMISA leads the Cyber Security Work Group	
	Integration of the work on the three core focus areas across the dtic institutions	Administration	Integration of the work done by the four TI entities (SABS, SANAS, NRCS, NMISA) on projects of key national interest.	
	Addressing red tape and compliance in internal processes	Administration	Implementation of an Enterprise Resource Planning System	
	Review of legislation and regulations	Administration	Legal Metrology Act (managing) Measurement Act (review)	

	NMISA'S STRATEGIC OBJECTIVES	NMISA PROJECT OUTPUT	NMISA KPI (REFER TO PAGES 68–78)
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	In-laboratory training of recently qualified scientists and engineers to achieve SANAS Technical Signatory status in their fields, allowing independent authorisation of measurement, test and calibration certificates. Improved operational efficiency by operating within a matrix structure to respond faster to emerging industry or public sector needs.	
	Strategic goal 1: Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.	Maintain accreditation for 19 calibration laboratories accredited to ISO 17025, 1 technique accredited to ISO 17025, 1 proficiency testing accredited to ISO 17043, 2 CRM production accredited to ISO 17034 and 1 peer review on ISO 17025.	KPI 13 KPI 4
	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	SLAs with SOEs, government, municipalities, SMEs to provide fit-for-purpose measurement services directly meeting their needs in the execution of their duties and service delivery obligations to the public.	KPI 7 KPI 8
	Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services.	Cost saving on common ICT matters.	KPI 7
	Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services.	To better support the country ensuring that measurement provided are accurate and traceable internationally to facilitate trade and reduce technical barriers to trade. Integration of work on the following key projects: - Expand export opportunities for the fish sector under the AfCFTA enabled by the TI entities - TI contribution towards the South African Hydrogen Road Map	KPI 15 KPI 20 KPI 21
	Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services.	Integration of all internal processes into one platform, including a Customer Management System. Digitalisation of Certificates of Calibration, Measurement and Analysis allows clients to retrieve these online. Reduced need for hard copy printing leading to cost saving and reducing wastage.	KPI 6
	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. Strategic goal 2: Metrology consolidation for SOEs to provide efficient shared services.	A coherent and effective national quality infrastructure in accordance with internationally agreed practices. Review of the Measurement Act to ensure that the State is empowered in issues of trade and protection through traceability to the NMS as provided by NMISA. NMISA is the link to the international Measurement System set by the Metre convention. Regulators must ensure that measurement traceability to the NMS is enforced and adhered to through the regulations under their control to enable successful implementation. Potential misalignment needs to be identified and corrected through the review process.	KPI 9

9.3 OUTCOMES, OUTPUTS, PERFORMANCE INDICATORS AND TARGETS

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

9.3.1 Programme Performance Indicators 2022/23

OUTCOME	OUTPUT	OUTCOME INDICATOR	
Programme 1: Administration			
<u>Delivery/Capable State:</u> <i>(Addressing red tape and compliance in internal processes)</i> Ensure effective dissemination of the units and NMS to national and regional laboratories	Provide for the measurement needs of South Africa and the region	Number of interns and in-service trainees hosted	
		Amount of income generated	
		Percentage actual expenditure to budget	
		Number of accredited laboratories and new laboratory accreditations	
<u>Delivery/Capable State:</u> <i>(Building entity staffing, governance, and quick response)</i> Metrology services for government and SOEs	Shared Metrology Services for government departments and SOEs	Percentage increase in visibility of NMISA	
		Percentage customer satisfaction	
<u>Industrialisation:</u> <i>(Localisation programmes)</i> Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.		Number of government departments and SOEs serviced by NMISA	
		Percentage increase of NMISA clients from the private sector	
<u>Delivery/Capable State:</u> <i>(Review of legislation and regulations)</i> To provide metrology for regulatory purposes	Revised Measurement Act to support and contribute to national regulation	Participate in the dtic TI review	
<u>Delivery/Capable State:</u> <i>(Building entity staffing, governance, and quick response)</i> Ensure effective dissemination of the units and NMS to national and regional laboratories <u>Transformation:</u> <i>(BEE promotion and review)</i>	Provide for the measurement needs of South Africa and the region	Percentage of filled funded vacancies	
		Turnaround times for filling vacancies in line with the approved recruitment plan	
		Compliance with B-BBEE score	

	ACTUAL PERFORMANCE			ESTIMATED PERFORMANCE	MEDIUM-TERM TARGETS		
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	20	25	15 interns hosted	28	30	30	30
	R22 147 616.13	R20 799 163.24	R14 203 999	R24 994 554	R26 697 333	R28 598 370	R30 696 463.50
	98 %	98 %	100 %	98 %	98 %	98 %	98 %
	21	23	24	24	24 maintained and 2 new accreditations (26)	Maintain 26	Maintain 26
	New KPI	New KPI	49 % increase in visibility	20 % increase in visibility	20 % increase in visibility	20 % increase in visibility	20 % increase in visibility
	Less than 5 %	≥95 %	99 %	≥95 %	≥95 %	≥95 %	≥95 %
	New KPI	3	2	4	4	-	-
	New KPI	New KPI	New KPI	New KPI	5 % increase in the number of clients from the private sector served	5 % increase in the number of clients from the private sector served	5 % increase in the number of clients from the private sector served
	New KPI	NMISA reviewed the Act and submitted to the dtic	NMISA participated in the dtic TI review. Submission with potential changes was made to the Board. NMISA awaits the finalisation of the dtic process	Participate in the dtic TI review	Participate in the dtic TI review	-	-
	New KPI	New KPI	New KPI	New KPI	6 %	5 %	4 %
	New KPI	New KPI	New KPI	New KPI	4 months for job levels C5 and higher 3 months for lower job levels	4 months for job levels C5 and higher 3 months for lower job levels	3 months for job levels C5 and higher 2 months for lower job levels
	New KPI	New KPI	New KPI	New KPI	Attain level 8 compliance status	Improve B-BBEE level	Improve B-BBEE level

OUTCOME	OUTPUT	OUTCOME INDICATOR	
Programme 2: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support			
<u>Industrialisation:</u> <i>(Localisation programmes; Green economy initiatives; African and global exports; COVID industrial production)</i> Shorten the traceability chain for Africa by maintaining the units and NMS at an internationally recognised level	Implementation of the revised SI	Number of SI base units realised	
		Number of new and improved NMS and reference materials and reference methods	
	Linking the national and regional measurement system internationally	Number of inter-laboratory comparisons (ILCs) and PTS organised and completed	
<u>Transformation:</u> <i>(Structure of the economy: economic concentration; SME promotion)</i> Ensure effective dissemination of the units and NMS to national and Regional laboratories	Provide for the measurement needs of South Africa and the region	Number of metrologists trained	
		Number of courses provided including SMEs	
<u>Industrialisation:</u> <i>(African and global exports)</i> Shorten the traceability chain for Africa by maintaining the units and NMS at an internationally recognised level <u>Delivery/Capable State:</u> <i>(Integration of the work of the three core focus areas across the dtic institutions)</i>	Linking the national and regional measurement system internationally Integration of work between the four TI entities on two key projects: contributing directly to green economy initiatives and exports under the AfCFTA respectively.	Number of memberships maintained and active participation in the CIPM and its consultative committees	
		Percentage metrological services covered by CMCs	
		Number of reports on actions to contribute towards the South African Hydrogen Road Map	
		Number of reports on the expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure entities	

	ACTUAL PERFORMANCE			ESTIMATED PERFORMANCE	MEDIUM-TERM TARGETS		
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	New KPI	6 base units realised	6	6	6	6	6
	19	21	25	25	17	19	24
	New KPI	9	23	26	30	14	22
	96	120	0	92	133	139	137
	24	18	10	20	24	20	23
	9	10	10	10	10	10	10
	New KPI	81 %	80 %	80 %	85 %	85 %	85 %
	New KPI	New KPI	New KPI	New KPI	4 quarterly reports on actions to contribute towards the South African Hydrogen Road Map	-	-
	New KPI	New KPI	New KPI	New KPI	4 quarterly reports on the expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure entities	-	-

9.3.2 Quarterly targets 2022/23

OUTPUT	PERFORMANCE MEASURE OR OUTCOME INDICATOR	BASELINE	ANNUAL TARGET 2022/23	
Programme 1: Administration				
Provide for the measurement needs of South Africa and the region	Number of interns and in-service trainees hosted	28 interns hosted	30 interns/in-service trainees hosted	
	Amount of income generated	R24 994 554	R26 697 333	
	Percentage actual expenditure to budget	98 %	98 %	
	Number of accredited laboratories and new laboratory accreditations	23	24 maintained and 2 new accreditations	
	Percentage increase in visibility of NMISA		20 % increase in visibility	
	Percentage customer satisfaction	≥95 %	≥95 %	
	Number of government departments and SOEs services by NMISA	4	4	
	Percentage increase of NMISA clients from the private sector	New KPI	5 % increase in the number of clients from the private sector served	
	Participate in the dtic TI review	Participated in the dtic TI review	Participate in the dtic TI review	
	Percentage of filled funded vacancies	6 %	6 %	
	Turnaround times for filling vacancies	New KPI	Turnaround times for filling vacancies in line with the approved recruitment plan	
	Compliance with B-BBEE score	Non-complaint	Attain level 8 compliance status	

	1 ST QUARTER MILESTONE	2 ND QUARTER MILESTONE	3 RD QUARTER MILESTONE	4 TH QUARTER MILESTONE
	2	4	10	14
	R3 690 000	R6 497 000	R8 097 000	R8 413 333
	10 %	40 %	60 %	98 %
	24 maintained	24 maintained	24 maintained	24 maintained and 2 new accreditations
	5 %	10 % (5 %)	15 % (10 %)	20 % (15 %)
	≥95 %	≥95 %	≥95 %	≥95 %
	1	1	1	1
	-	-	-	5 % increase in the number of clients served from the private sector
		Report to the Board on progress on the review		Report to the Board on progress on the review
	12 %	10 %	8 %	6 %
	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels 4 months for job levels C5 and higher 3 months for lower job levels	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels 3 months for job levels C5 and higher 2 months for lower job levels	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels 4 months for job levels C5 and higher 3 months for lower job levels
		Assessment of NMISA BEE status		Certificate of compliance

OUTPUT	PERFORMANCE MEASURE OR OUTCOME INDICATOR	BASELINE	ANNUAL TARGET 2022/23	
Programme 2: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support				
Implementation of the revised SI	Number of SI base units realised	6	4 reports on the 6 base units of the SI realised	
	Number of new and improved NMS and reference materials and reference methods	21	17	
	Number of inter-laboratory comparisons and PTS organised and completed	9	Organise and complete 30 ILCs and PTS	
Linking the national and regional measurement system internationally	Number of metrologists trained	120	133 metrologists trained	
	Number of courses provided including SMEs	18	24 courses provided including SMEs	
	Number of memberships maintained	10 CCs	Maintain membership of 10 consultative committees	
	Percentage of metrological services covered by CMCs (i.e. internationally accepted)	81 %	85 % of metrological services covered by CMCs	
	Number of reports on actions to contribute towards the South African Hydrogen Road Map	New KPI	4 reports on actions towards green hydrogen	
	Number of reports on the expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure Entities	New KPI	4 reports on actions related to measurement standards for fish exports	

	1 ST QUARTER MILESTONE	2 ND QUARTER MILESTONE	3 RD QUARTER MILESTONE	4 TH QUARTER MILESTONE
	1	1	1	1
	1	1	0	15
	8	4	3	15
	0	30	48	55
	0	4	5	15
	10	10	10	10
	-	-	-	85 %
	Report on joint thought leadership seminar series on green hydrogen	Report on conceptualisation of TI entity roles	Report on feedback seminar to the stakeholders	Report on joint implementation plan
	First quarter report on NMISA contribution to enabling fish export	Second quarter report on NMISA contribution to enabling fish export	Third quarter report on NMISA contribution to enabling fish export	Fourth quarter report recommendations for new metrology projects supporting the fish export sector

9.4 APPLIED METROLOGY CONTRIBUTIONS

The dissemination and measurement services are coordinated in dedicated sector-based centres under the Applied Metrology Division through the following programmes:



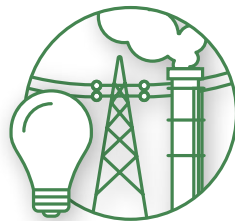
Material Science
and Services



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, strategic deliverables, links to the NMISA strategic objectives, in turn linked to the strategic objectives of **the dtic**, are given in the tables that follow. These programmes are enabled by traceability to the relevant NMS and output from research and development projects.

PROGRAMME 1: ADMINISTRATION

FOCUS AREAS:

1. Finance and Supply Chain
2. Human Resources and Information Technology Services
3. Strategy, Business Development and Governance

PURPOSE:

Provide strategic leadership management and support services to the entity for financial, human, social and environmental sustainability of the organisation.

STRATEGIC DELIVERABLES:

1. Strategic budgeting, cost containment, cash flow management, accurate record keeping and compliance with the PFMA and treasury regulations.
2. Promoting innovation, mitigating business risks, enhancing transparency, and identifying business opportunities.
3. Process improvements through full implementation of an Enterprise resource planning systems (among others), which allow managers to review revenue generated, costs and other operating metrics on one integrated software platform, in real time.
4. Develop a fit for purpose organisational culture and improve business performance.

LINK TO NMISA STRATEGIC OBJECTIVES:

Supports all four strategic objectives.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

Economic transformation and job creation, strengthening and building capabilities and agility in **the dtic** entities to improve efficiencies, to improve efficiencies in programmes and entities to contribute to economic development and ease of doing business.

EXPLANATION OF PLANNED PERFORMANCE:

Aligning people to processes and systems to drive organisational performance and therefore create an inculcated culture conducive to an effective and efficient working environment which delivers ethically.

FUNDING ALLOCATION (2022/23):

Budget*: R37 257 679



* Budget for development projects

PROGRAMME 2: APPLIED MEASUREMENT SERVICES AND PRODUCTS FOR INDUSTRY, SOEs AND REGULATORY SUPPORT

SUB-PROGRAMME 2.1: MATERIAL SCIENCE AND SERVICES



FOCUS AREAS:

1. Materials Characterisation
2. Advance Materials Development
3. Materials Property Testing

PURPOSE:

The 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:

1. A suite of Materials Characterisation services provided to industry for compositional, structure of the surface, powder or bulk material.
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.

LINK TO NMISA STRATEGIC OBJECTIVES:

Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

The interventions to support economic transformation and job creation through beneficiation and localisation (J-KPI 2).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T1N5002	iMAT NMS
23T1N5002	iMAT NMS
23T7N3005	Length NMS

DEVELOPMENT PROJECTS:

23T1A2307	Materials Characterisation (surface and structure)
23T1R6001	SARIR Material Characterisation
23T1R3102	Industrial Dimensional Calibrations
23T1R3103	Industrial Dimensional Inspections
23T9R3106	Tape Tunnel
23T9R3105	Rapid Development
23T9R3104	Length Automation and Instrument Development

EXPLANATION OF PLANNED PERFORMANCE:

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 gross domestic product. 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 laboratory promises increased revenue for this service offering.

FUNDING ALLOCATION (2022/23):

Budget*: R6 365 560



* Budget for development projects

SUB-PROGRAMME 2.2: AGRICULTURE, FOOD AND ENVIRONMENTAL MONITORING



FOCUS AREAS:

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, provide 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. The existing reference materials and measurements, in addition to those that are being developed or enhanced, support the agricultural, manufacturing, consumer protection and trade sectors by being available to commercial laboratories that provide industry with reliable measurement values.

STRATEGIC DELIVERABLES:

1. Establishing the Africa Reference Institute (ARI) Analytical Reference Laboratory (ARL) to provide analytical reference measurements/standards in support of Food and Feed Reference Materials and Reference Measurements.
2. The ARI 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).

LINK TO NMISA STRATEGIC OBJECTIVES:

Metrology for regulatory purposes and in support of government laboratories: for compliance and for development of regulations.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

In support of building a capable, ethical, and developmental state in readiness for AfCFTA for value added exports, interventions to support product development and growing the green economy as well as monitoring the environment (J-KPI 1).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T2N5003	Organic NMS
23T7A2315	Gas NMS
23T7A2315	Gas flow NMS

DEVELOPMENT PROJECTS:

23T6R2101	Food Contaminants
23T7A2306	Africa Reference Institute
23T2N5002	Gas Analysis
23T7A2315	Gas Flow
23T2R2203	Environment and Ambient Gases
23T2R2201	Industrial emissions and Energy Gases
23T7A2316	Essential Oils
23T2R2202	Microplastics
23T2R2204	Volatile Organic Compounds (VOCs) from Recycled Plastic

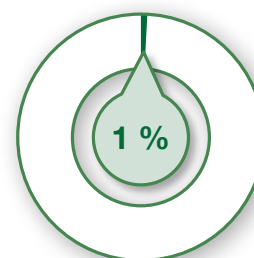
EXPLANATION OF PLANNED PERFORMANCE:

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 ARI and reference material programme.

The provision of primary gas mixtures for air quality monitoring and climate monitoring industries. The plastics for powering the economy and creating ease for doing business.

FUNDING ALLOCATION (2022/23):

Budget*: R3 898 100



* Budget for development projects

SUB-PROGRAMME 2.3: HEALTH AND SAFETY



FOCUS AREAS:

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 population 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:

1. Reference measurement and calibration in support of medical equipment and devices used in the fight against COVID-19.
2. Reference measurement, standards (gas) and calibration in support of medical and environmental measurements for healthcare 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).

LINK TO NMISA STRATEGIC OBJECTIVES:

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.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

Education, skills and health.

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T4N3011	NMS for Temperature and Humidity
23T3N5000	NMS for Dosimetry
23T3N3008	Pressure NMS
23T3N3009	NMS for Radiometry and Spectrometry
23T3N5001	Radioactivity NMS
23T1N3014	NMS for vibration

DEVELOPMENT PROJECTS:

23T3A2304	Calibration of Ear Thermometers
23T3R5101	Establishment of a Low Volume Liquid Flow Calibration Capability
23T3R5102	Postal Dosimetry Audit for Reference Beams
23T3N3009	Radiometry and Spectrometry (UVGI for COVID-19)
23T3N5001	Radioactivity
23T1A2309	Vibrations Calibrations

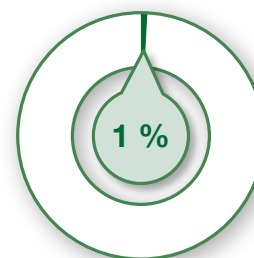
EXPLANATION OF PLANNED PERFORMANCE:

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 screening devices, 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.

To support primary healthcare in achieving reliability of measuring instruments such as blood pressure increased accuracy and reducing misdiagnosis.

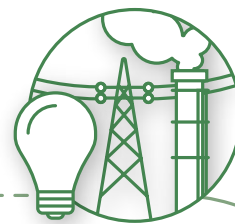
FUNDING ALLOCATION (2022/23):

Budget*: R2 531 536



* Budget for development projects

SUB-PROGRAMME 2.4: ENERGY EFFICIENCY



FOCUS AREAS:

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:

1. New measurement services for the characterisation of energy efficient lamps and luminaires.
2. New measurement services to determine the calorific values of natural gasses.
3. New reference gasses for air pollution.
4. New calibration service for current transformers used in the national power grid.

LINK TO NMISA STRATEGIC OBJECTIVES:

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.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

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 (J-KPI 3).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T4N3004	LED NMS
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DEVELOPMENT PROJECTS:

23T4A2313	ARI for LEDs
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EXPLANATION OF PLANNED PERFORMANCE:

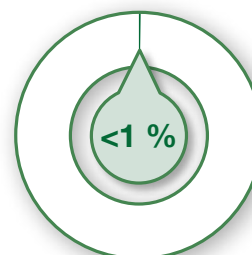
Universally accepted measurement results for calorific values traceable to the NMS maintained by NMISA, enables reliable billing. Internationally comparable air pollution data enable regulatory decision-making and it's achieved by using reference gas mixtures supplied by NMISA.

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.

FUNDING ALLOCATION (2022/23):

Budget*: R52 000



* Budget for development projects

SUB-PROGRAMME 2.5: DIGITAL ECONOMY



FOCUS AREAS:

1. Standard Frequencies and Time Signals
2. Telecommunication Metrology

PURPOSE:

To provide reference high-accuracy time and frequency signals for SARAO (Square Kilometre Array – SKA) and telecommunications to support the transition to a digital economy.

STRATEGIC DELIVERABLES:

1. Time reference signals to for strategic projects in the country and region.
2. Development of a mobile data measurement application.
3. Characterisation of imaging sensors.

LINK TO NMISA STRATEGIC OBJECTIVES:

Metrology consolidation for SOEs to provide efficient shared services.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

A better Africa and world.

Economic transformation and job creation (J-KPIs 2 and 3).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T5N3012	Time, Frequency and Fibre Optic NMS
23T4N3007	Optical Radiation NMS

DEVELOPMENT PROJECTS:

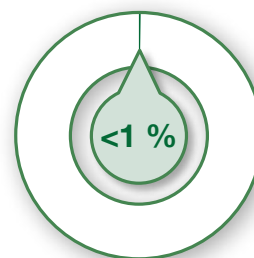
23T8A2302	Mobile Data Application
23T5N3003	Metrology for Imaging Sensors
23T5R3201	Quantum Optical Metrology
23T5A2303	Time Traceability for SKA

EXPLANATION OF PLANNED PERFORMANCE:

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, the Hartebeesthoek Radio Astronomy Observatory, the South African Radio Astronomy Observatory and the South African Broadcasting Corporation. The feasibility of expanding the service to financial entities will be investigated.

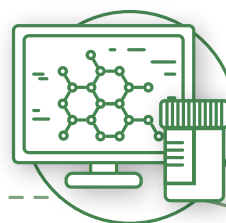
FUNDING ALLOCATION (2022/23):

Budget*: R787 500



* Budget for development projects

SUB-PROGRAMME 2.6: CONFORMITY ASSESSMENT SUPPORT



FOCUS AREAS:

1. Proficiency Testing Schemes
2. Reference Materials and Standards Productions
3. Production and High Technology Centre
4. Reference Material Production Facility
5. Support and Systems Development

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 (CRMs), reference standards and proficiency testing schemes (PTS) 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:

1. NMISA provides South Africa and Africa with relevant PTS in support of food and feed safety and environmental monitoring in a cost-effective 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.

LINK TO NMISA STRATEGIC OBJECTIVES:

Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

Economic Development and Job Creation.

Create a fair regulatory environment that enables investment, trade and enterprise development in an equitable and socially responsible manner (J-KPI 1).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T1N5002	iMAT NMS
23T2N5003	Organic NMS

DEVELOPMENT PROJECTS:

23T6R2107	Toxic and Nutritional Elements
23T6R2106	Mycotoxins
23T6R2103	Organic Calibrators
23T6R2104	Food Labelling Proficiency Testing

EXPLANATION OF PLANNED PERFORMANCE:

NMISA has invested in a fully equipped Reference Materials Production Facility (RMPF) and have expanded its 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 PTS 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.

Support to the food labelling industry through the provision of PTS and standards that will ensure consumer protection and safety.

FUNDING ALLOCATION (2022/23):

Budget*: R4 608 700



* Budget for development projects

SUB-PROGRAMME 2.7: LAW ENFORCEMENT



FOCUS AREAS:

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 Africa Reference Institute (ARI). ARI aims to serve as a point of dispute resolution in support of compliance with regulations for various government departments, like Department of Agriculture, Land Reform and Rural Development, Department of Environment, Forestry and Fisheries, Department of Health, South African Police Services and Department of Mineral Resources and Energy.

STRATEGIC DELIVERABLES:

1. Provide Illicit drug, pesticide and other environmental reference materials and reference solutions for use in local laboratories.
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.

LINK TO NMISA STRATEGIC OBJECTIVES:

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.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

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 (J-KPI 3).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

23T2N5003	Organic NMS
23T7N3005	NMS for length
23T2N5003	Organic NMS, Gas NMS
23T7N3006	NMS for mass
23T7N3006	NMS for mass

DEVELOPMENT PROJECTS:

23T7A2305	Blood alcohol analysis
23T7R3101	Baseline at CSIR site
23T7A2314	Calibration of evidential breathalysers
23T8R3201	Hydrostatic weighing and weighing in vacuum
23T8R3201	Kibble Balance

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 the 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.

To support industry's need for the calibration of measuring equipment at increased distances covering longer ranges of over a kilometre long. This will be in support of law enforcement ensuring South African roads are safe.

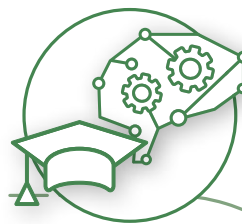
FUNDING ALLOCATION (2022/23):

Budget*: R3 402 000



* Budget for development projects

SUB-PROGRAMME 2.8: TRAINING AND KNOWLEDGE SERVICES



FOCUS AREAS:

1. Training Short Courses
2. Training Programmes
3. Consultancy and Strategic Liaisons

PURPOSE:

NMISA's 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 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 NMISA Training Centre also provides consultancy services and engages with strategic partners to ensure efficient trade and continued metrology collaboration. Accurate measurement supports 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:

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.
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.

LINK TO NMISA STRATEGIC OBJECTIVES:

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.

LINK TO THE NATIONAL PRIORITIES STRATEGIC OBJECTIVES:

Education, skills and health.

Facilitate broad-based economic participation through targeted interventions to achieve more inclusive growth.

A better Africa and world.

Build mutually beneficial regional and global relations to advance South Africa's trade, industrial policy and economic development objectives (J-KPI 3).

INPUT FROM TECHNICAL PROJECTS:

TRACEABILITY LINKS TO NMS:

22T8A2307	TFFO NMS
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DEVELOPMENT PROJECTS:

22T8R3205	Quantum Optical Metrology
23T8B6001	Regional Integration
23T8A2311	Training Centre

EXPLANATION OF PLANNED PERFORMANCE:

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).

FUNDING ALLOCATION (2022/23):

Budget*: R9 352 730



* Budget for development projects



9.5 PROGRAMME BUDGETS

Research programme budgets and outputs are shown for the MTEF period, i.e. 2022 to 2025. The project details with specific deliverables and dates are available in the programme business plans for 2022/23.

10 | PROGRAMME RESOURCE CONSIDERATIONS

10.1 2022/23 TO 2024/25 BUDGET ESTIMATES

NMISA CONSOLIDATED BUDGET 2022/23–2024/25			
	2022/23	2023/24	2024/25
	R'000	R'000	R'000
	4,23 % (existing)	4,45 % (existing)	4,49 % (existing)
Revenue	301 176	310 533	324 477
Transfers received	268 576	276 208	288 610
Rendering of service	26 167	27 606	28 846
Investment income	6 433	6 719	7 021
Expenditure	301 176	310 533	324 477
Administrative and operating expenditure	76 898	80 482	84 433
Employee cost	155 760	162 691	169 996
Repairs and maintenance	12 315	11 949	12 485
Recapitalisation project	55 102	54 249	56 349
Audit fees	1 101	1 162	1 214

10.2 EXPENDITURE ESTIMATES

	AUDITED OUTCOME	AUDITED OUTCOME	AUDITED OUTCOME	APPROVED BUDGET	
R thousand	2018/19	2019/20	2020/21	2021/22	
Administration	76 397	71 188	96 206	119 314	
Keep, maintain and disseminate national measurements	170 881	169 065	143 345	115 806	
Total expense	247 278	240 253	239 551	235 120	

STATEMENT OF FINANCIAL PERFORMANCE	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	
R thousand	2018/19	2019/20	2019/20	2020/21	2020/21		
Revenue							
Tax revenue	–	–	–	–	–	–	
Non-tax revenue	40 372	34 731	51 018	38 972	32 467	23 689	
Sale of goods and services other than capital assets	31 561	21 424	38 018	21 843	19 467	14 833	
Sales of goods and services produced by entity of which:	31 561	21 424	38 018	21 843	19 467	14 833	
Administrative fees	–	–	–	–	–	–	
Sales by market establishment	31 561	21 424	38 018	21 843	19 467	14 833	
Other sales	–	–	–	–	–	–	
Sales of scrap, waste, arms and other used current goods	–	–	–	–	–	–	
Other non-tax revenue	8 811	13 307	13 000	17 129	13 000	8 856	
Transfers received	232 784	232 784	245 036	245 328	223 291	223 331	
Total revenue	273 156	267 515	296 054	284 300	255 758	247 020	
Expenses							
Current expenses	204 798	247 278	222 317	240 253	210 606	239 551	
Compensation of employees	122 653	123 365	141 906	121 432	131 884	131 570	
Goods and services	82 145	80 693	80 411	81 059	78 722	66 654	
Depreciation	–	43 220	–	37 750	–	41 114	
Interest, dividends and rent on land	–	–	–	12	–	213	
Transfers and subsidies	–	–	–	–	–	–	
Total expenses	204 798	247 278	222 317	240 253	210 606	239 551	
Surplus/(Deficit)	68 358	20 237	73 737	44 047	45 152	7 469	

	AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)
	2018/19–2021/22		2022/23	2023/24	2024/25	2021/22–2024/25	
	16,0 %	37,9 %	123 794	129 365	135 570	4,3 %	50,5 %
	-12,2 %	62,1 %	122 280	126 919	132 558	4,6 %	49,5 %
	-1,7 %	100,0 %	246 074	256 284	268 128	4,5 %	100,0 %

	BUDGET ESTIMATE	APPROVED BUDGET	OUTCOME/ BUDGET AVERAGE %	AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPEN- DITURE/ TOTAL: AVERAGE (%)
	2021/22		2018/19–2021/22			2022/23	2023/24	2024/25	2021/22–2024/25	
	–	–	–	–	–	–	–	–	–	–
	34 303	31 167	81,3 %	-3,5 %	11,7 %	32 600	34 325	35 867	4,8 %	10,9 %
	24 803	24 995	73,0 %	5,3 %	7,6 %	26 167	27 606	28 846	4,9 %	8,8 %
	24 803	24 995	73,0 %	5,3 %	7,6 %	26 167	27 606	28 846	4,9 %	8,8 %
	–	–	–	–	–	–	–	–	–	–
	24 803	24 995	73,0 %	5,3 %	7,6 %	26 167	27 606	28 846	4,9 %	8,8 %
	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–
	9 500	6 172	102,6 %	-22,6 %	4,2 %	6 433	6 719	7 021	4,4 %	2,1 %
	261 716	261 716	100,0 %	4,0 %	88,3 %	268 576	276 208	288 610	3,3 %	89,1 %
	296 019	292 883	97,4 %	3,1 %	100,0 %	301 176	310 533	324 477	3,5 %	100,0 %

	230 999	235 120	110,8 %	-1,7 %	100,0 %	246 074	256 284	268 128	4,5 %	100,0 %
	150 601	149 439	96,1 %	6,6 %	54,7 %	155 760	162 691	169 996	4,4 %	63,4 %
	80 398	85 676	97,6 %	2,0 %	32,7 %	90 314	93 593	98 132	4,6 %	36,6 %
	–	–	–	-100,0 %	12,6 %	–	–	–	–	–
	–	5	–	–	0,0 %	–	–	–	-100,0 %	0,0 %
	–	–	–	–	–	–	–	–	–	–
	230 999	235 120	110,8 %	-1,7 %	100,0 %	246 074	256 284	268 128	4,5 %	100,0 %
	65 020	57 763		41,9 %		55 102	54 249	56 349	-0,8 %	

CASH FLOW DATA	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME
R thousand	2018/19		2019/20		2020/21	
Cash flow from operating activities	68 358	74 188	73 737	53 376	45 152	33 928
Receipts						
Tax receipts	–	–	–	–	–	–
Non-tax receipts	40 372	33 442	51 018	36 663	32 467	25 115
Sales of goods and services other than capital assets	31 561	20 247	38 018	19 677	19 467	16 421
Sales of goods and services produced by entity (excl. capital assets)	31 561	20 247	38 018	19 677	19 467	16 421
of which:						
Administrative fees	–	–	–	–	–	–
Sales by market establishment	31 561	20 247	38 018	19 677	19 467	16 421
Other sales	–	–	–	–	–	–
Sales of scrap, waste, arms and other used current goods (excl. capital assets)	–	–	–	–	–	–
Other tax receipts	8 811	13 195	13 000	16 986	13 000	8 694
Transfers received	232 784	232 784	245 036	245 328	223 291	223 331
Financial transactions in assets and liabilities	–	112	–	40	–	162
Total receipts	273 156	266 338	296 054	282 031	255 758	248 608
Payment						
Current payments	204 798	192 150	222 317	228 655	210 606	214 680
Compensation of employees	122 653	121 636	141 906	126 078	131 884	132 877
Goods and services	82 145	70 514	80 411	102 577	78 722	81 590
Interest and rent on land	–	–	–	–	–	213
Transfers and subsidies	–	–	–	–	–	–
Payments for financial assets	–	–	–	–	–	–
Total payment	204 798	192 150	222 317	228 655	210 606	214 680
Cash flow from advancing activities (Financial Institutions only)	–	–	–	–	–	–
Disbursements and other payments	–	–	–	–	–	–
Repayments and other receipts	–	–	–	–	–	–
Cash flow from investing activities	(68 358)	(83 599)	(73 737)	(71 347)	(45 152)	(51 548)
Acquisition of property, plant, equipment and intangible assets	(65 176)	(80 865)	(72 733)	(73 122)	(44 500)	(50 690)
Investment property	–	–	–	–	–	–
Acquisition of software and other intangible assets	(3 182)	(2 747)	(1 004)	(1 347)	(652)	(859)
Proceeds from the sale of property, plant, equipment and intangible assets	–	13	–	3 122	–	1
Other flows from investing activities	–	–	–	–	–	–
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	–	(9 411)	–	(17 971)	–	(17 620)

[illegible]

FINANCIAL POSITION	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	BUDGET	AUDITED OUTCOME	
R thousand	2018/19		2019/20		2020/21		
Carrying value of assets	68 358	445 146	73 737	478 298	45 152	488 013	
of which:							
Acquisition of assets	(65 176)	(80 865)	(72 733)	(73 122)	(44 500)	(50 690)	
Investments	–	605	–	605	–	605	
Inventory	–	5 062	–	8 591	–	8 185	
Loans	–	–	–	–	–	–	
Accrued investment interest	–	–	–	–	–	–	
Receivables and prepayments	–	17 998	–	33 118	–	43 573	
Cash and cash equivalents	–	180 471	–	162 500	–	144 880	
Non-current assets held for sale	–	–	–	–	–	–	
Defined benefit plan assets	–	–	–	–	–	–	
Taxation	–	–	–	–	–	–	
Derivatives financial instruments	–	–	–	–	–	–	
Total assets	68 358	649 282	73 737	683 112	45 152	685 256	
Accumulated surplus/(deficit)	68 358	605 818	73 737	649 865	45 152	657 334	
Capital and reserves	–	–	–	–	–	–	
Capital reserve fund	–	–	–	–	–	–	
Borrowings	–	–	–	–	–	–	
Finance lease	–	–	–	–	–	–	
Accrued interest	–	–	–	–	–	–	
Deferred income	–	–	–	–	–	–	
Trade and other payables	–	17 747	–	16 944	–	12 930	
Benefits payable	–	–	–	–	–	–	
Capitalised value of pensions	–	–	–	–	–	–	
Taxation	–	–	–	–	–	–	
Provisions	–	25 717	–	16 303	–	14 992	
Managed funds (e.g. poverty alleviation fund)	–	–	–	–	–	–	
Derivatives financial instruments	–	–	–	–	–	–	
Total equity and liabilities	68 358	649 282	73 737	683 112	45 152	685 256	
Contingent liabilities	–	–	–	–	–	–	

11 | UPDATED KEY RISKS

OUTCOME	KEY RISK	RISK MITIGATION
A sustainable organisation	Financial 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.
Conducive working environment, retention of critical skills	Personnel risk	Developed protocols to ensure safety of employees in the organisation.
Minimal disruptions to NMISA business	Business continuity	Business continuity policy; IT security measures and backup storage facility; protection of organisational information.
Safe and secured environment with no cyber-attacks	Cyber security	Set up demilitarised zones to contain and protect against infection. Implement National Institute of Standards and Technology cyber security framework.
Clean audit and compliance to regulations	Non-compliance to regulations, legislation and NMISA policies and procedures	Monitor compliance on updates by end users. Development of a plan to ensure that possible maximum BEE points are achieved.
Clean audit, diversified Board	Inadequate members to form a Board and ineffective Board and/or committees	Appointment of additional Board members; more numbers will provide a more diversified Board. Organise a meeting with Director-General and Minister of the dtic regarding NMISA Board appointments. Review the Board terms of reference/charter to consider including nominations committee.

12 | FRAUD PREVENTION PLAN

NMISA is committed to a zero-tolerance attitude towards fraud and corruption and strives towards maintaining the highest standards of prevention, detection and remediation. All NMISA employees are expected to be responsible and accountable for ensuring resilient, forceful and effective fraud control. NMISA is committed to minimising the incidence of fraud through the development, implementation and regular review of fraud prevention, detection and responsive activities, as well as through periodic risk assessment exercises.

NMISA's Fraud Prevention Objectives are as follows:

Prevention: Ensuring that the risk is prevented and/or avoided before occurring

Detection: Ensuring that the risk of fraud is discovered when it occurs, and preventative measures are put in place

Response: Ensure that corrective action is taken, and the harm caused by fraud, corruption or misconduct is remedied

NMISA's fraud prevention plan includes:

- Identify fraud risks, review NMISA's operations, and update the Fraud Prevention Policy every two years or as and when necessary
- Provide fraud awareness training to all staff
- Communicate how suspected instances of fraud may be reported
- Assign responsibility for an instant response to the occurrence
- Investigate alleged or suspected instances of fraud and corruption using qualified personnel and professionals with experience in investigation techniques
- Take appropriate action to deal with instances of actual, suspected or alleged fraud and corruption, including prosecution of persons and/or organisations for fraud offences where and when appropriate
- Protection of whistle-blowers
- Use all avenues to recover funds or property lost through fraudulent activity
- Ensure the dealings with the media in terms of reported and/alleged cases is prompt and savvy
- Preserve evidence and report to the police.

13 | INFRASTRUCTURE PROJECTS

Recapitalisation

The NMS and other standards are continually reviewed to ensure that these 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. This also ensures that the international trends and developments related to measurement technology and the application thereof in South Africa, is considered regularly. NMISA is located on the CSIR's Scientia Campus, still occupying the metrology laboratories, as when the CSIR National Metrology Laboratory, the forerunner of NMISA, took occupation of the site in the 1960s. With no major building infrastructure investment in its history; NMISA became a tenant of the premises in 2007, 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, placing the organisation under threat from an ageing infrastructure.

In response, NMISA motivated for a recapitalisation of the NMS and new building infrastructure and a project was registered at National Treasury as a private public partnership (PPP) project. 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	ARI	Renovation for Training Centre in building 4 of the CSIR campus	Establishment of a training centre to provide metrology-related training	2020	March 2023	R665 000	R833 500
2.	Africa Reference Institute	ARI	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	R415 450	R175 000



PART D

TECHNICAL INDICATOR DESCRIPTIONS

14 | INDICATOR PROFILES

A summary of performance indicators developed for NMISA appears in section 9.3 with a more detailed overview in the following sections:

Table 2: Performance Indicators

NUMBER	INDICATOR DESCRIPTION	OUTCOME
1	Number of interns and in-service trainees hosted	Ensure effective dissemination of the units and NMS to national and regional laboratories
2	Amount of income generated	
3	Percentage actual expenditure to budget	
4	Number of accredited laboratories and new laboratory accreditations	
5	Percentage increase in visibility of NMISA	Metrology services for government and SOEs
6	Percentage customer satisfaction	
7	Number of government departments and SOEs serviced by NMISA	
8	Increase in NMISA clients from the private sector	To provide metrology for regulatory purposes
9	Update Measurement Act to support and contribute to national regulation	
10	Percentage of filled funded vacancies	
11	Increased turnaround times for filling vacancies in line with the approved recruitment plan	
12	Compliance with B-BBEE scores	
13	Number of SI base units realised	Shorten the traceability chain for Africa by maintaining the units and NMS at an internationally recognised level
14	Number of new and improved NMS and reference materials and reference methods	
15	Number of interlaboratory comparisons and PTS organised and completed	
16	Number of metrologists trained	Linking the national and regional measurement system internationally
17	Number of courses presented	
18	Number of memberships maintained	
19	Percentage metrological services covered by CMCs	
20	Number of reports on actions to contribute towards the South African Hydrogen Road Map	
21	Number of reports on the expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure Entities	

14.1 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: 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
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 2: AMOUNT 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's financial system and provided by Finance
METHOD OF CALCULATION	Simple count (Revenue in line with Generally Recognised Accounting Practice)
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 3: PERCENTAGE 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	Chief Financial Officer, together with EXCO

KPI 4: 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 total quality management systems (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 TQMS and maintained schedule of accreditation or self-declared parameters under the CIPM MRA
INDICATOR RESPONSIBILITY	SHEQ

KPI 5: PERCENTAGE INCREASE IN 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 South Africa and the region by shortening the traceability, ensuring growth in industrialisation, employment within South Africa 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
CALCULATION TYPE	Cumulative
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	Increase visibility by 20 % of NMISA to our stakeholders
INDICATOR RESPONSIBILITY	Business development

KPI 6: 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 to achieve less than 5 % customer complaints
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
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 7: NUMBER OF GOVERNMENT DEPARTMENTS AND SOES SERVICED BY NMISA	
INDICATOR TITLE (OUTPUT)	Metrology service provider for government services and state-owned entities
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/service level agreements
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	Business Development with all divisions

KPI 8: INCREASE IN NUMBER OF NMISA CLIENTS FROM THE PRIVATE SECTOR	
INDICATOR TITLE (OUTPUT)	Number of private companies serviced by NMISA
SHORT DEFINITION	NMISA providing metrology related services to non-government entities
SOURCE/COLLECTION OF DATA	Service level agreements/contracts (including all services to clients through CMS)/bid acceptance letter/response to unsolicited bids
METHOD OF CALCULATION	Simple count
MEANS OF VERIFICATION	Signed contracts/SLAs/CMS reports on client services
ASSUMPTION	NMISA sustainability
DISAGGREGATION	Non-government revenue income
SPATIAL TRANSFORMATION	Not applicable
CALCULATION TYPE	Cumulative
REPORTING CYCLE	Annually
DESIRED PERFORMANCE	Increased revenue generation
INDICATOR RESPONSIBILITY	Business Development with all divisions

KPI 9: 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 OF BENEFICIARIES (WHERE APPLICABLE)	No disaggregation
SPATIAL TRANSFORMATION (WHERE APPLICABLE)	Not applicable
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	Amendment of the Measurement Act
INDICATOR RESPONSIBILITY	Directors: Regional, International Relations and Innovation Division; and Strategy, Business Development and Governance

KPI 10: PERCENTAGE OF FILLED FUNDED VACANCIES	
INDICATOR TITLE (OUTPUT)	Percentage of filled funded vacancies
SHORT DEFINITION	Percentage of Board-approved vacancies filled by the organisation
PURPOSE/IMPORTANCE	To address the skills shortage in the organisation and to ensure that core functions or vacancies are filled
SOURCE OF DATA	Employment contracts, Board-approved organisational structure and approved budget
METHOD OF CALCULATION/ ASSESSMENT	Simple count, total number of funded vacant positions filled/total number of funded positions on the approved organisational structure
MEANS OF VERIFICATION	Employment contracts
ASSUMPTIONS	NMISA sustainability
DISAGGREGATION OF BENEFICIARIES (WHERE APPLICABLE)	Equity appointments (disabled and previously disadvantaged groups)
SPATIAL TRANSFORMATION (WHERE APPLICABLE)	Not applicable
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	All funded vacancies filled
INDICATOR RESPONSIBILITY	Director Corporate Services

KPI 11: INCREASED TURNAROUND TIMES FOR FILLING VACANCIES IN LINE WITH THE APPROVED RECRUITMENT PLAN	
INDICATOR TITLE (OUTPUT)	Increased turnaround times for filling vacancies in line with the approved recruitment plan
SHORT DEFINITION	Reduced time to hire new employees and/or filling vacant/resignation posts in days
PURPOSE/IMPORTANCE	To reduce the turnaround time that it takes for the Human Resources department to fill vacant positions approved by the Board
SOURCE OF DATA	Human Resources recruitment plan
METHOD OF CALCULATION/ ASSESSMENT	Simple count, number of vacancies filled per quarter
MEANS OF VERIFICATION	Employment contracts
ASSUMPTIONS	NMISA turnaround times on recruitment of professionals will be reduced
DISAGGREGATION OF BENEFICIARIES (WHERE APPLICABLE)	Recruitment per quarter as per section needs
SPATIAL TRANSFORMATION (WHERE APPLICABLE)	Not applicable
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	All funded vacancies filled
INDICATOR RESPONSIBILITY	Director Corporate Services and Human Resources

KPI 12: COMPLIANCE WITH B-BBEE SCORES	
INDICATOR TITLE (OUTPUT)	Compliance with B-BBEE score
SHORT DEFINITION	NMISA must comply with B-BBEE score
PURPOSE/IMPORTANCE	To improve NMISA B-BBEE score
SOURCE OF DATA	Report and certificate indicating NMISA compliance
METHOD OF CALCULATION/ ASSESSMENT	Simple count
MEANS OF VERIFICATION	Report from B-BBEE consultant and the B-BBEE certificate
ASSUMPTIONS	NMISA will be B-BBEE compliant
DISAGGREGATION OF BENEFICIARIES (WHERE APPLICABLE)	5 elements of B-BBEE
SPATIAL TRANSFORMATION (WHERE APPLICABLE)	Not applicable
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	All funded vacancies filled
INDICATOR RESPONSIBILITY	Strategy, Business Development and Governance Division with Supply Chain Management and Human Resources

KPI 13: NUMBER OF SI BASE UNITS REALISED	
INDICATOR TITLE	Realisation of the SI base units
DEFINITION	Realisation of the 5 base SI units; Mass, Time, Length, 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 5 base units
METHOD OF CALCULATION/ ASSESSMENT	Simple count
MEANS OF VERIFICATION	Plans and reports
ASSUMPTIONS	Equivalence to international standards, implementation of the revised 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 14: NUMBER OF 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 NMS. The NMS do not necessarily increase each year, the organisation maintains and applies what has already been developed
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 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 15: NUMBER OF INTERLABORATORY COMPARISONS (ILCS) AND PROFICIENCY TESTING SCHEMES (PTS) ORGANISED AND COMPLETED

INDICATOR TITLE (OUTPUT)	Number of ILCs and PTS organised by NMISA
SHORT DEFINITION	ILCs or 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, protocols, 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	Non-cumulative
NEW INDICATOR	Yes
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	To build capability in identified parameters
INDICATOR RESPONSIBILITY	Technical divisions

KPI 16: 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 17: 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

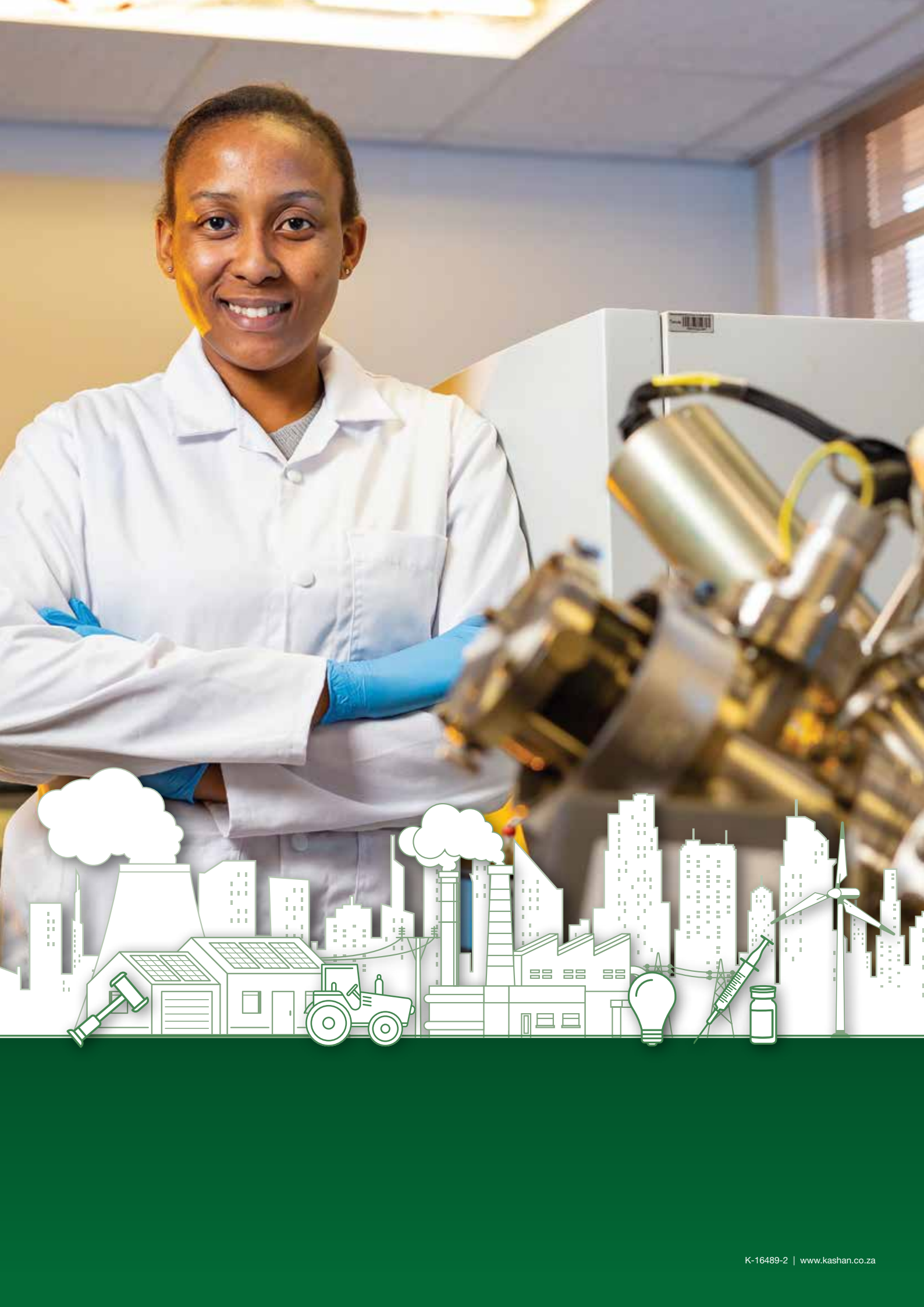
KPI 18: NUMBER OF MEMBERSHIPS MAINTAINED	
INDICATOR TITLE (OUTPUT)	Number of memberships maintained
SHORT DEFINITION	Maintain membership of, and active participation in the CIPM and its consultative committees. The work done in the related committees feeds into the CIPM MRA
SOURCE/COLLECTION OF DATA	Membership of the committees and CIPM as listed on 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 SI
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 19: 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 (KCDB, 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) 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 that is internationally acceptable and equivalent
DISAGGREGATION	None
SPATIAL TRANSFORMATION	Not applicable
CALCULATION TYPE	Cumulative
REPORTING CYCLE	Annually
DESIRED PERFORMANCE	Capabilities that meet stakeholder needs
INDICATOR RESPONSIBILITY	Director RIID together with SHEQ

KPI 20: NUMBER OF REPORTS ON ACTIONS TO CONTRIBUTE TOWARDS THE SOUTH AFRICAN HYDROGEN ROAD MAP	
INDICATOR TITLE (OUTPUT)	Report on actions taken by the Technical Infrastructure Entities to contribute towards greening the economy including, the Hydrogen Road Map of South Africa technical support and enabling opportunities
SHORT DEFINITION	Implementation plan and actions taken by the Technical Infrastructure Entities towards the realization of the South African Hydrogen Road Map
SOURCE/COLLECTION OF DATA	Reports
METHOD OF CALCULATION	Simple count
MEANS OF VERIFICATION	Reports
ASSUMPTIONS	Preparedness for the green hydrogen market
DISAGGREGATION	Four TI entities will be producing the reports, NMISA will produce reports on the science of measurements
SPATIAL TRANSFORMATION	Not applicable
CALCULATION TYPE	Cumulative
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	Developed road map and capability for green hydrogen to support industry
INDICATOR RESPONSIBILITY	Director Strategy, Business Development and Governance together with Director Physical and Electrical Metrology

KPI 21: NUMBER OF REPORTS ON THE EXPANDED EXPORT OPPORTUNITY FOR THE FISH SECTOR UNDER THE AFCFTA ENABLED BY THE TECHNICAL INFRASTRUCTURE ENTITIES	
INDICATOR TITLE (OUTPUT)	Report on actions taken by the Technical Infrastructure Entities to contribute towards the AfCFTA by supporting and enabling export opportunities
SHORT DEFINITION	Action plan composed jointly by the Technical Infrastructure Entities to expand fish exports
SOURCE/COLLECTION OF DATA	Report
METHOD OF CALCULATION	Simple count
MEANS OF VERIFICATION	Reports
ASSUMPTIONS	Increased export for the fish market with reduced technical barriers to trade
DISAGGREGATION	Four TI entities will be producing the reports, NMISA will produce reports on the science of measurements
SPATIAL TRANSFORMATION	Not applicable
CALCULATION TYPE	Cumulative
REPORTING CYCLE	Quarterly
DESIRED PERFORMANCE	Developed road map and capability to support industry
INDICATOR RESPONSIBILITY	Director Strategy, Business Development and Governance together with Director Applied Metrology

NOTES





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