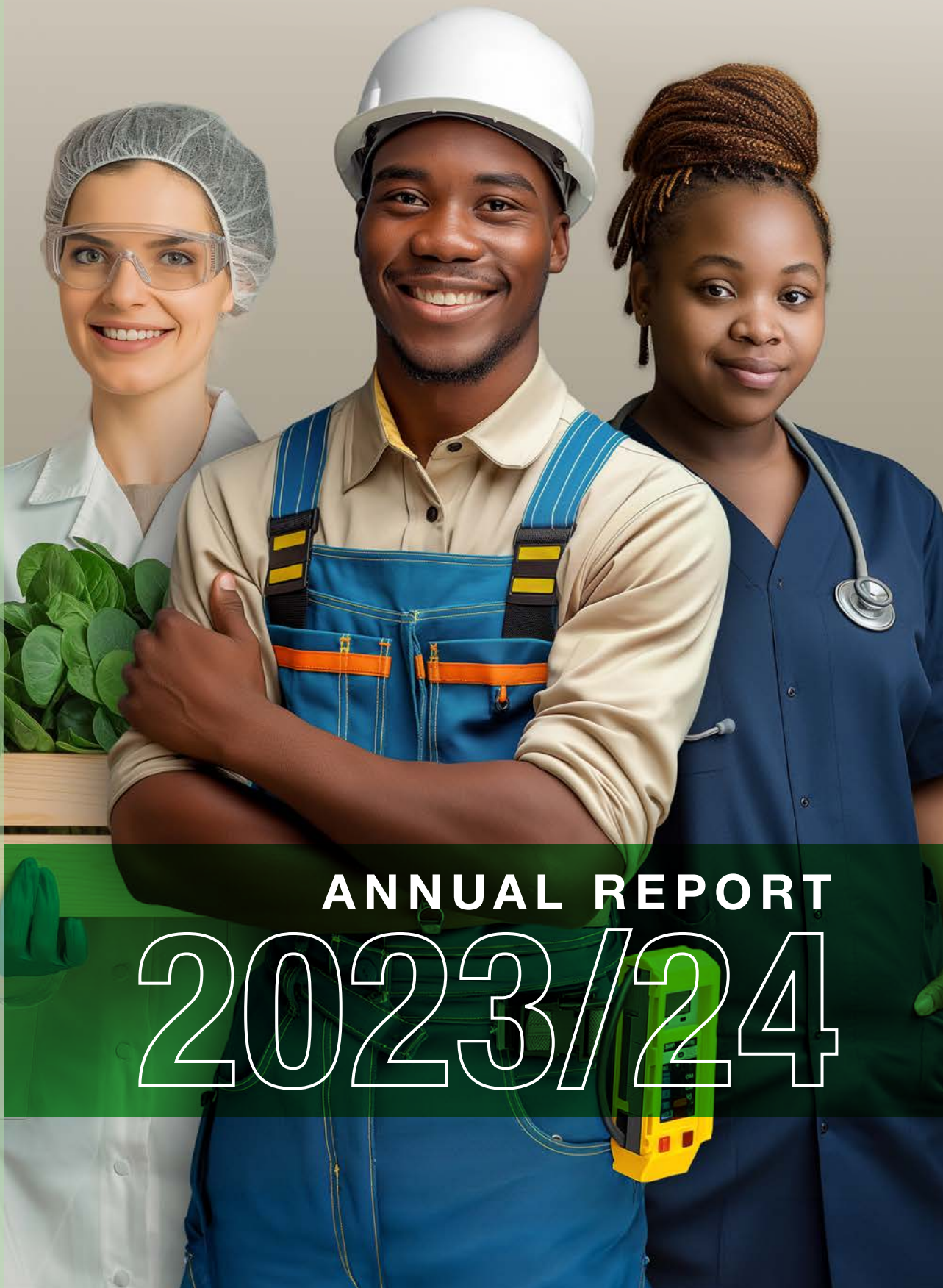
nmisa

National Metrology Institute of South Africa



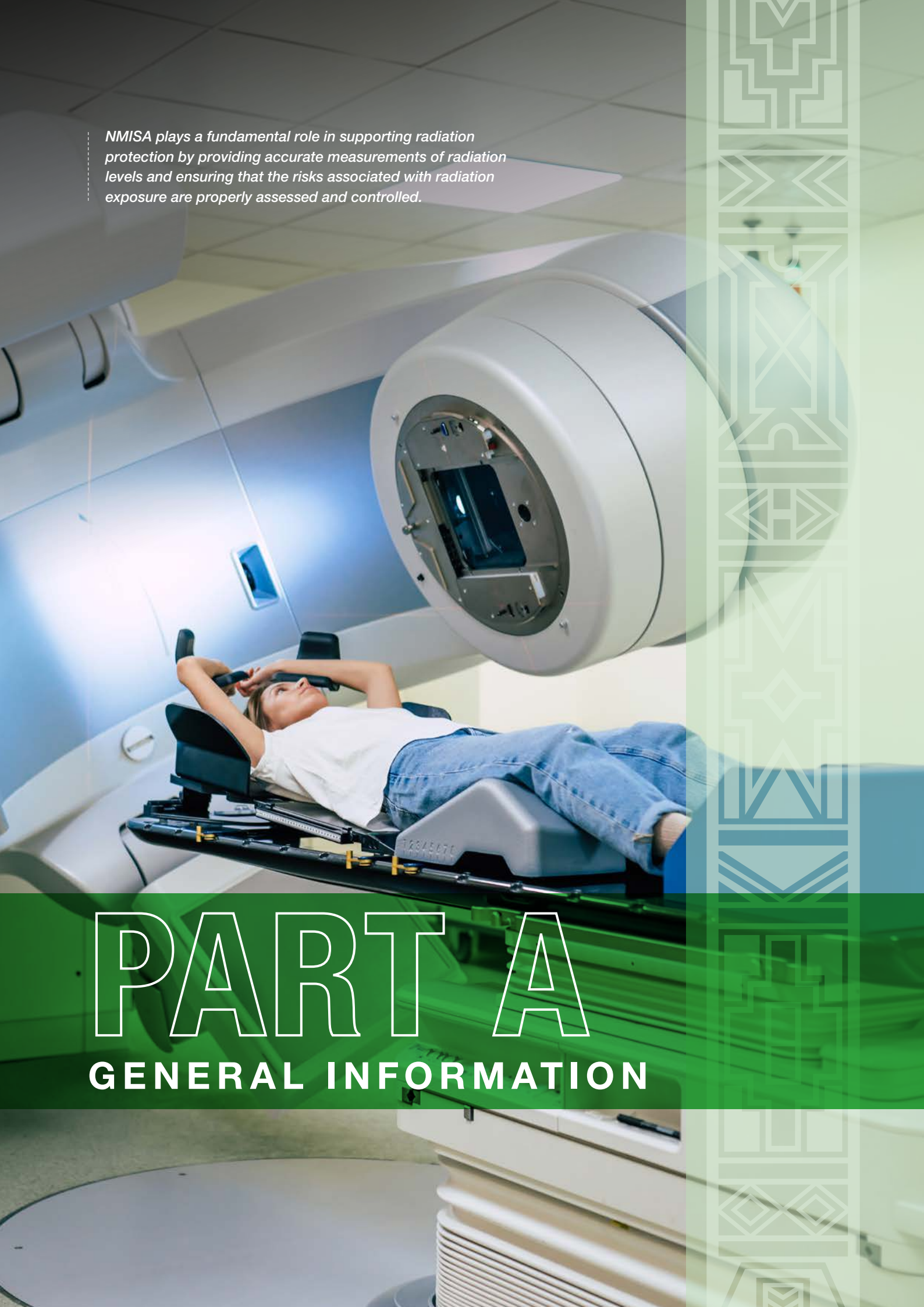
ANNUAL REPORT 2023/24

CONTENTS

LIST OF TABLES

LIST OF FIGURES

NMISA plays a fundamental role in supporting radiation protection by providing accurate measurements of radiation levels and ensuring that the risks associated with radiation exposure are properly assessed and controlled.



PART A

GENERAL INFORMATION

1 PUBLIC ENTITY'S GENERAL INFORMATION

Name	National Metrology Institute of South Africa (the NMISA)
Physical address	Meiring Naude Road Brummeria Pretoria
Postal address	Private Bag X34 Lynnwood Ridge 0040
Telephone number	+27 (12) 947 2874
Email address	info@nmisa.org
Website address	www.nmisa.org
External auditors	MNB Chartered Accountants
Bankers	Standard Bank Lynnwood Ridge Pretoria
Company/Board secretary	Ms Busisiwe Mkhize

2 LIST OF ABBREVIATIONS/ACRONYMS

AfCFTA	African Continental Free Trade Area
AFRIMETS	Intra-Africa Metrology System
ARC	Audit and Risk Committee
ARI	Africa Reference Institute
BIPM	International Bureau of Weights and Measures (Bureau International des Poids et Mesures)
B-BBEE	Broad-Based Black Economic Empowerment
CC	Consultative Committee
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CGPM	General Conference on Weights and Measures
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capabilities
CMM	Coordinate Measuring Machine
CSIR	Council for Scientific and Industrial Research
EBAT	Evidential Blood Alcohol Testing
ERP	Enterprise Resource Planning
EWP	Employee Wellness Programme
GQSP	Global Quality and Standards Programme
HCD	Human Capital Development
HR	Human Resources
HRRC	Human Resource and Remuneration Committee
ILC	Inter-laboratory Comparison
ISO	International Organization for Standardization
KCR	Key comparisons of realisation
KEBS	Kenya Bureau of Standards
KPI	Key Performance Indicator
MoU	Memorandum of Understanding

MTSF	Medium-Term Strategic Framework
NHLS	National Health Laboratory Service
NIST	National Institute of Standards and Technology
NMI	National Metrology Institute
NMISA	National Metrology Institute of South Africa
NMS	National Measurement Standard
NPL	National Physical Laboratory
PFMA	Public Finance Management Act
PRGM	Primary Reference Gas Mixture
PTB	Physikalisch-Technische Bundesanstalt – German NMI
PTS	Proficiency Testing Scheme
RTMC	Road Traffic Management Corporation
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
SANAS	South African National Accreditation System
SEC	Social and Ethics Committee
SEZ	Special Economic Zone
SI	International System of Units
SLA	Service Level Agreement
SMME	Small, Medium and Micro Enterprise
SOE	State-Owned Enterprise
STEM	Science, Technology, Engineering and Mathematics
the dtic	Department of Trade, Industry and Competition
TI	Technical Infrastructure
UK	United Kingdom
UNIDO	United Nations Industrial Development Organization
UTC	Coordinated Universal Time
VAMAS	Versailles Project on Advanced Materials and Standards

3 FOREWORD BY THE MINISTER

– Mr Parks Tau, MP

I table the Annual Report of the National Metrology Institute of South Africa (NMISA) for the 2023/24 financial year in accordance with legislative requirements. The Report sets out the performance information, governance report, human resources and financial information for the past financial year. It describes in detail how the NMISA enacted its mandate under the Measurement Units and Measurement Standards Act. (Act. No. 18 of 2006), to realise, maintain and disseminate the National Measurement Standards for South Africa during the period under review.

The Department of Trade, Industry and Competition (**the dtic**) has outlined several key priorities to drive inclusive economic growth through industrialisation, transformation, and building a capable developmental state.

The establishment of special economic zones (SEZs) is a strategic initiative aimed at driving industrialisation, attracting investment, creating employment, and promoting balanced regional development. These SEZs are designed to provide a favourable environment for businesses to produce goods for export. Accurate measurements ensure that products manufactured within SEZs consistently meet quality standards, which is crucial for maintaining the zone's reputation, attracting investors, and meeting the required standards and regulations for export.

Over the past year, NMISA provided measurement services to companies within six of the SEZs established in the country. These services included the analysis of micro-structural properties of automotive coatings, training on the implementation of quality standards for reference material production, testing for radionuclides, and calibration of various types of equipment.

The dtic focuses on economic transformation to ensure that growth benefits all segments of society, particularly historically-disadvantaged social groups. Support and incentives for Small, Medium, and Micro Enterprises (SMMEs) to thrive and contribute to the economy are key enablers of transformation. Metrology helps SMMEs comply with national and international standards, which is vital for market access and competitiveness.

During the period under review, NMISA supported 11 SMMEs with measurement services. SMMEs benefitted from services such as certified reference materials for mycotoxins in peanut slurry, essential oil testing, calibration of reference standards, reference analysis, and training.

Increasing exports and expanding trade within Africa, particularly through the African Continental Free Trade Area (AfCFTA), is a significant priority for South Africa. Metrology helps harmonise measurement standards and practices across countries, reducing technical barriers to trade. This ensures that products can be easily traded without the need for extensive re-testing or re-certification.

Consistent and reliable measurements help build consumer trust in the quality and safety of imported products. NMISA participates in proficiency testing schemes and interlaboratory comparisons, often as the pilot laboratory, with its counterparts on the continent within AFRIMETS (Intra-Africa Metrology System). This enables member countries to demonstrate the equivalence of their National Measurement Standards and paves the way for mutual acceptance of measurement and calibration certificates. During the 2023/24 financial year, NMISA successfully concluded three such studies.

The dtic's broader strategy of promoting inclusive economic growth includes ensuring that all regions of South Africa benefit from industrialisation and economic development. In support of product development in non-metro areas, NMISA undertook four outreach activities beyond the main metropolitan regions to engage with SMMEs, especially from previously disadvantaged communities, to create awareness of the importance of accurate measurement in achieving high-quality products.

I extend my gratitude to the chairperson and members of the Board, the Acting CEO, Management, and staff of NMISA for their contributions to the entity's performance during the year under review. I look forward to working with NMISA as we strengthen **the dtic**'s institutions to create a dynamic, competitive, and inclusive economy that benefits all South Africans.

Mr Parks Tau, MP
Minister of Trade, Industry and Competition

4 FOREWORD BY THE CHAIRPERSON

– Dr Precious Gugulethu Motshwene

The 5-year Strategy Plan, developed by the National Metrology Institute of South Africa (NMISA) during the 2019/20 period, successfully concluded at the end of the 2023/24 financial year. As we reflect on this period, it is essential to evaluate NMISA's achievements in alignment with its strategic goals. These goals include enhancing metrology support for regulatory compliance and government laboratories, consolidating metrology services for state-owned enterprises (SOEs), providing targeted assistance to industry (including Small, Medium, and Micro Enterprises (SMMEs)), and collaborating strategically with legal metrology initiatives to implement the Legal Metrology Act.

Metrology underpins regulations across various sectors by ensuring accuracy and consistency, enabling compliance. For air quality monitoring, precise measurements of pollutants, facilitated by the Primary Gas Reference Mixtures provided by NMISA to air quality monitoring stations, helped regulators enforce environmental standards.

In food safety, metrology ensures that contaminants are detected at safe levels, thereby protecting public health. NMISA provided Certified Reference Materials and Proficiency Testing Schemes to food testing laboratories to enable them to analyse and verify their results. The importance of this local service was highlighted by the recent recalls of various peanut butter spreads and related products in South Africa due to elevated levels of aflatoxins. Ensuring the safety and quality of peanuts and peanut butter, along with other susceptible commodities, requires thorough and frequent testing for aflatoxins. This process is intricate and demands reliable methods, equipment, and standards for accurate measurement. NMISA offered a range of affordable, ISO 17034 accredited aflatoxin calibration solutions and peanut matrix reference and Certified Reference Materials, which were readily available to testing laboratories when needed.

"Metrology underpins regulations across various sectors by ensuring accuracy and consistency, enabling compliance."

In alignment with the Sixth Administration's priority objective of building a capable state, NMISA has entered into 17 service agreements with SOEs over the past five years, providing measurement solutions to these state enterprises in support of service delivery in accordance with their mandates.

Over the past five years, NMISA has increased its industry clients by 25%. Metrology is vital to the local industry, including SMMEs, as it ensures the accuracy and reliability of measurements, which are fundamental for maintaining product quality and consistency. This precision helps local businesses meet regulatory standards, reduce waste, improve efficiency, ultimately leading to cost savings and enhanced competitiveness. For SMMEs, accurate measurements can be a key differentiator, enabling them to build trust with customers and compete effectively in both local and global markets. Additionally, metrology supports innovation and development, providing the necessary data for research and the creation of new products and technologies.

Research and development efforts by NMISA over the past five years have delivered 112 new or improved National Measurement Standards (NMSs). These research outcomes ensure that local measurement capabilities keep pace with international developments. Additionally, NMISA completed 120 international interlaboratory comparisons and proficiency testing schemes. Together, these objectives enable NMISA to demonstrate the international equivalence of its NMSs, giving the local industry the assurance that products calibrated or tested locally will be accepted globally.

NMISA collaborates and provides measurement traceability to the National Regulator for Compulsory Specifications (NRCS), which is responsible for Legal Metrology. These efforts promote fair competition among businesses and create trust among consumers that the quantity of goods they purchase is as advertised.

NMISA supports the Africa Continental Free Trade Agreement (AfCFTA) by providing a reliable and standardised measurement infrastructure that ensures the accuracy and consistency of measurements across the continent. This is crucial for facilitating trade, as it helps eliminate technical barriers and ensures that products meet international standards. A noteworthy achievement in the past year was the calibration, commissioning, and training services provided to the Kenya Bureau of Standards (KEBS) for their newly acquired Cobalt-60 radiotherapy calibration system. This system was acquired to enhance diagnostic and therapeutic services in the fight against cancer in Kenya.

Lastly, I would like to extend my heartfelt gratitude to the Board of Directors and the dedicated employees of NMISA. Through this Annual Report, I hope stakeholders and readers recognise the exceptional character and capabilities of our team as we diligently serve the public and responsibly manage state resources for the benefit of all South Africans.

Dr Precious Gugulethu Motshwene
Chairperson of the Board

Date: 30 August 2024

5 CHIEF EXECUTIVE OFFICER'S OVERVIEW

– Dr Jayne de Vos

The National Metrology Institute of South Africa (NMISA) is a 3A public entity that receives state funding to ensure South Africa possesses the essential measurement capabilities to facilitate trade, safeguard public health and safety, and protect the environment. To fulfil its mandate, NMISA relies on specialised skills, high-precision instrumentation, and advanced laboratory facilities.

As part of the Global Quality and Standards Programme (GQSP), NMISA was provided with an opportunity to develop, establish, and accredit a comprehensive suite of ISO 17025 accredited, competitively priced essential oil testing services. These services are accessible to small, medium and micro enterprises (SMMEs) and offer an acceptable turn-around time to enable the export of South African value-added products. The value chain for essential and vegetable oils encompasses all operations from the stages of cultivation, harvesting, and agro-processing until the product reaches end users in the desired quality and at an affordable price. Different quality requirements and standards are present all along the value chain. This is a significant milestone for essential oil producers in Southern Africa. Without internationally recognised testing and analyses for the physical and chemical profile, producers lack credibility in the quality of the oils produced, affecting their negotiating power.

The establishment of NMISA's Training Centre was successfully launched earlier in the year to provide training in measurement science, calibration, and consultancy in those fields critical to economic growth in South Africa and our partner countries regionally. The training centre provides basic and advanced training, either on-site or online, provided by experts in the field, in all aspects of metrology (the science of measurement) and separation science.

"By embracing innovative solutions and building resilience, we have successfully navigated challenges and seized opportunities, driving our organisation towards achieving most of our performance targets."

In essence to translate the core expertise vested in NMISA to add value to a wider market; beyond measurement services; and sharing knowledge and expertise (mainly in metrology), but also at basic skills needed for understanding and interpreting elements related to measurement and how it relates to trade. In supporting the African Continental Free Trade Area (AfCFTA), the training centre has trained young scientists and industry practitioners in food safety testing, laser safety, industry vibration, and various measurement-related interventions as identified, and will continue to be one of the leading training providers on all aspects related to measurement science on the continent.

The 2023/24 financial year has been very challenging for NMISA. The grant funding allocation cuts, along with the shrinking MTEF allocation have challenged outputs and deliverables as planned for the financial year under review. The organisation has also faced leadership challenges at the highest levels, resignations in support and core business functions, and retirements, without the opportunity to recruit or absorb new talent. NMISA is committed to addressing these challenges sustainably and seriously. The risks identified in our situational analysis, along with our mandate, are being systematically and concisely addressed by our leadership and Board, with increased support and collaboration from our stakeholder, **the dtic**. By embracing innovative solutions and building resilience, we have successfully navigated challenges and seized opportunities, driving our organisation towards achieving most of our performance targets.

As we look to the future, we remain dedicated to promoting measurement excellence, ensuring sustainable growth, and delivering value to our stakeholders. Together, we will continue to overcome challenges and capitalise on opportunities, ensuring a prosperous future for our organisation and the communities we serve. Thank you for your continued support and trust in our vision.

Dr Jayne de Vos
Acting Chief Executive Officer

Date: 30 August 2024

6 STATEMENT OF RESPONSIBILITY AND CONFIRMATION OF ACCURACY FOR THE ANNUAL REPORT

To the best of our knowledge and belief, we confirm the following:

All information and amounts disclosed in the Annual Report are consistent with the Annual Financial Statements audited by the MNB Chartered Accountants.

The Annual Report is complete, accurate and is free from any omissions.

The Annual Report has been prepared in accordance with the guidelines on the Annual Report as issued by National Treasury.

The Annual Financial Statements (Part F) have been prepared in accordance with the Generally Recognised Accounting Practice and the Public Finance Management Act.

The Accounting Authority is responsible for the preparation of the Annual Financial Statements and for the judgements made in this information.

The Accounting Authority is responsible for establishing and implementing a system of internal control that has been designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the Annual Financial Statements.

The external auditors are engaged to express an independent opinion on the Annual Financial Statements.

In our opinion, the Annual Report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the public entity for the financial year ended 31 March 2024.

Yours faithfully

Dr Jayne de Vos
Acting Chief Executive Officer

Date: 30 August 2024

Dr Precious Gugulethu Motshwene
Chairperson of the Board

Date: 30 August 2024

7 STRATEGIC OVERVIEW

7.1 VISION

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

7.2 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.

7.3 VALUES

Quality

We strive for quality in all that we do, while upholding our role as the highest measurement authority in South Africa.

Measurement excellence

We offer advanced measurement accuracy to promote economic growth.

Social responsibility

We provide measurement solutions that are safe, secure, sustainable, through the protection of the environment and people.

People focus

We promote integrity, high ethical standards, accountability, transparency, responsiveness, and inclusivity.

8 LEGISLATIVE AND OTHER MANDATES

In 2018, the international metrology world took a unanimous decision to revise the International System of Units (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 Measurement Standards Act (Act No. 18 of 2006), NMISA submits updates of the SI to **the dtic** for gazetting. NMISA is responsible for maintaining the measurement units in accordance with the revised SI and ensuring that all international developments in units are appropriately legislated.

the dtic has initiated a revision of the Measurement Act to align it with the latest international and local best practice. 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, for better alignment with the Legal Metrology Act will be considered.

Table 1: Applicable Acts

ACT	PURPOSE
Measurement Units and Measurement Standards Act, (Act No. 18 of 2006)	To provide for the use of measurement units of the SI and certain other measurements units; to provide for the designation of national measurement units and standards; to provide for the keeping and maintenance of NMS and units; to provide for the establishment and functions of the National Metrology Institute; to provide for the repeal of certain laws; and to provide for matters connected therewith.
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 the NRCS with legal metrology aspects in health, safety, and environment.
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. NMISA is an extension to government and therefore prescribes to the PFMA.
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.
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 (FCD) Act, (Act No. 54 of 1972 as amended)	NMISA value assigns elements in food matrices and provides proficiency testing schemes (PTS) in support of food safety and food labelling as required and published by the Department of Health regulations relating to the FCD Act.
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.
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.

8.1 LEGISLATIVE FRAMEWORK

The legislative framework applicable to NMISA as a Schedule 3A entity is as follows:

Table 2: Legislative framework

FRAMEWORK	PURPOSE
King Code	Provides a benchmark of best governance 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	Provide guidance to NMISA on matters of compliance and good governance in an evolving economy.

9 ORGANISATIONAL STRUCTURE

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, which is appointed by the Minister of Trade, Industry and Competition.

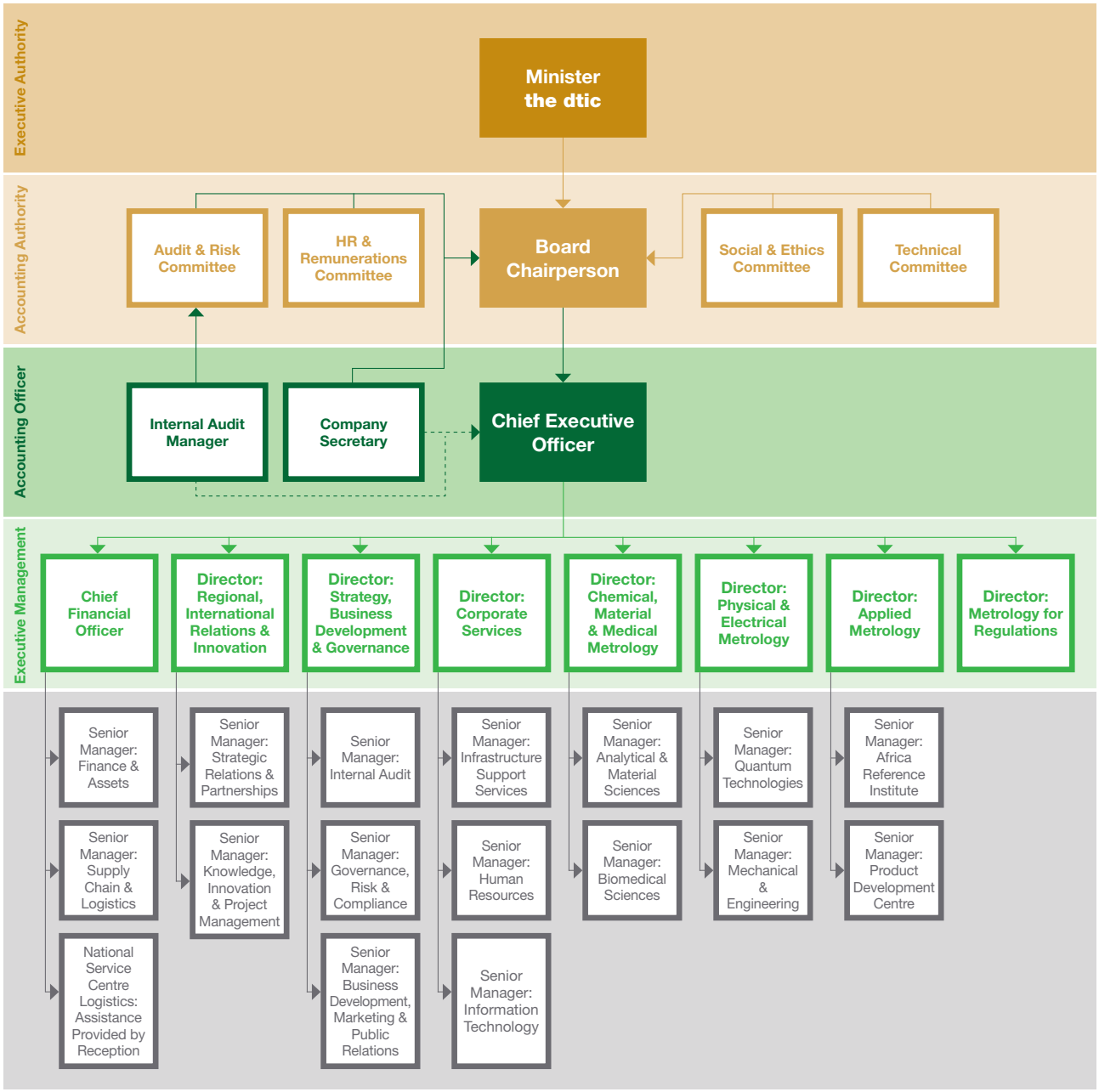
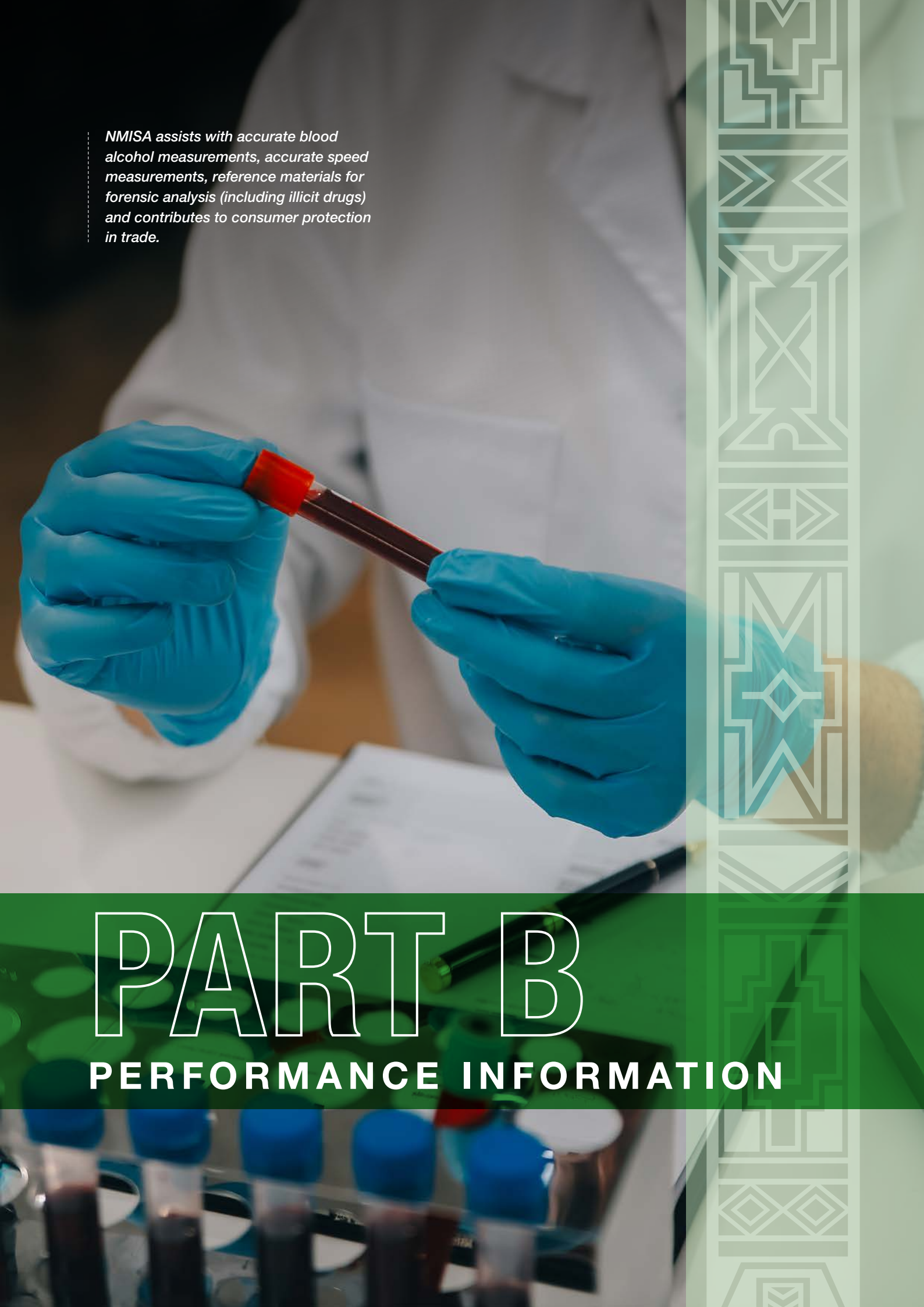


Figure 1: Organisational Structure

Note: The naming convention for "Manager" has been revised to "Senior Manager". The position remains the same in all other aspects.

NMISA assists with accurate blood alcohol measurements, accurate speed measurements, reference materials for forensic analysis (including illicit drugs) and contributes to consumer protection in trade.



PART B

PERFORMANCE INFORMATION

1 AUDITOR'S REPORT: PREDETERMINED OBJECTIVES

The Auditors currently perform the necessary audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on NMISA's performance against predetermined objectives is included in the audit report. Refer to pages 103 to 104 of the Audit Report, published in Part F: Financial Information.

2 OVERVIEW OF PERFORMANCE

2.1 SERVICE DELIVERY ENVIRONMENT

International and regional arrangements to harmonise measurement units and standards

Harmonisation of systems of measurement across the world is enabled by the Metre Convention, which is an international treaty that was signed in Paris on 20 May 1875. In collaboration with **the dtic**, NMISA advocates for the interests of South Africa, Southern African Development Community (SADC) and the broader African continent at the International Bureau of Weights and Measures (BIPM). This intergovernmental organisation is responsible for providing the basis for a single, coherent system of measurements throughout the world – under the supervision of the International Committee for Weights and Measures (CIPM), itself under the authority of the highest international decision-making body in metrology, the General Conference on Weights and Measures (CGPM).

The CIPM established ten Consultative Committees (CCs) to oversee and arrange for regular international comparison of the National Measurement Standard (NMS) realised by its member countries. The CCs bring together the world's best scientists in their specified fields as advisers on scientific and technical matters and directs the technical programmes at the headquarters. NMISA holds full membership of nine of the ten CCs (membership is bestowed based on the primary realisation of the units of the SI and continued technical competency). Since 2018 South Africa, through Dr Wynand Louw, held the Presidency of the CIPM, and he was re-elected at the most recent CGPM in November 2022. Through his Presidency, NMISA holds a guest membership of the tenth CC, the Consultative Committee for Units.

As the only National Metrology Institute (NMI) in Africa with membership of all the CCs, NMISA provides the link to the international measurement system for Africa and plays a leading role in the development of the metrology infrastructure in Africa, especially in support of South Africa's immediate neighbours in SADC. This is crucial for successful implementation of regional and continental free-trade agreements. This role is emphasised in **the dtic's** strategic goals and South Africa's contribution towards mutual acceptance of measurement and testing results in the region (regional integration).

Scientific advances in the global measurement system

The redefinition of the SI marks a significant milestone in global science and trade. In November 2018, representatives from 60 countries unanimously voted to transform the SI, formerly known as the metric system. This historic decision was grounded in unchanging fundamental properties of nature. Specifically, four of the seven base units – the kilogram, kelvin, ampere, and mole – where redefined in terms of defining constants, believed to be universal in nature. These changes took effect on the 20th of May 2019, marking a crucial step toward greater precision and scientific accuracy in the global measurement system. The Kibble balance, named after its inventor, Bryan Kibble, plays a pivotal role in implementing the redefinition of the SI unit of mass. This precision weighing machine balances the weight of a test mass against an upward force generated by an electrical current passing through a coil of wire in a magnetic field. By combining these modes, the Kibble balance allows the realisation of the mass unit across a range from milligrams to kilograms, ultimately enabling the redefinition of the kilogram based on the fixed value of the Planck constant.

Another field of measurement science that has made significant advances in recent years is the development of standards for time keeping. Optical atomic clocks surpass caesium clocks in accuracy by approximately a hundredfold. Their exceptional precision is crucial for advancing timekeeping standards and exploring the possibility of redefining the second based on optical-clock frequencies. Currently, international efforts are underway to investigate the specifics of this new definition and propose an appropriate timeline for its adoption.

NMISA collaborates with the National Physical Laboratory (NPL) in the United Kingdom (UK) to develop and construct a desktop Kibble balance. By participating in this project, NMISA contributes to global scientific advancement. As the future primary standard for mass, the Kibble balance will enhance measurement accuracy across various local sectors, including manufacturing, health, and environmental monitoring. Moreover, the project offers valuable opportunities for African scientists, engineers, and technicians to acquire expertise in precision measurement techniques, metrology, and state-of-the-art technology, thereby strengthening local scientific capabilities.

South African Standard Time is realised by NMISA in accordance with the current definition based on caesium frequency transition. Over the past five years, the Institute has improved its realisation of time from 5 000 ns to below 10 ns relative to Universal Coordinated Time (UTC).

Emerging trends in the applications of metrology

Metrology plays a crucial role in the manufacturing industry by ensuring that products adhere to their original design specifications thereby significantly influencing product quality, efficiency, and overall success. Robust metrology practices give manufacturers a competitive edge, especially in industries like aerospace, automotive, and healthcare, which require precise measurements for components and products. As a result, there has been rapid development in accurate, high-performance, and portable measurement equipment. Notably, metrology is no longer confined to the laboratory; it has moved to the production line, thanks to artificial intelligence. The use of artificial intelligence algorithms in metrology instruments tool allows non-experts to analyse parts efficiently, while deep learning enhances measurement equipment by enabling self-calibration without manual intervention.

In recent years, quantum technology has significantly advanced. This field encompasses the practical applications of quantum mechanics across various domains, including quantum computing, quantum communication, and quantum sensors. Notably, the Quantum Financial System (QFS) aims to replace existing financial systems. It operates as a modern, global monetary framework that combines blockchain technology and quantum computing for secure financial transactions worldwide. The QFS promises to revolutionise the speed, transparency, and security of the global financial landscape. Additionally, quantum metrology exploits the quantum theory to achieve more precise measurements of physical parameters compared to classical methods. This precision is crucial for a wide range of quantum applications.

NMISA has established a dedicated Digital Technologies Programme to assess industry requirements for quantum metrology capabilities and explore the potential applications of digital technologies in developing measurement solutions. Through various engagement activities with specific stakeholders, the programme aims to establish industry needs and the feasibility of developing metrology solutions to address the key requirements. Notably, representatives from the banking sector have shown awareness of developments related to the QFS and expressed interest in staying informed about further advancements.

A harmonised measurement system to underpin the African Continental Free Trade Area

A robust metrology infrastructure is essential for effective implementation and maintenance of free-trade agreements, such as the African Continental Free Trade Area (AfCFTA) ensuring fair and transparent cross-border trade practices. Traceability to internationally recognised standards guarantees that products conform to agreed-upon specifications, thereby minimising disputes and fostering trust among trading partners. In cases of disagreement or conflict, accurate measurements provide objective evidence, verifying product quantities and compliance with AfCFTA provisions.

NMISA actively collaborates with other African metrology institutes to advance measurement science and enhance metrology capabilities across the continent. These collaborative efforts include regional and bilateral comparisons, PTSs, and capacity building initiatives. NMISA is also shaping the Africa Reference Institute (ARI), which serves as a hub connecting the metrology sector, academia, businesses, and other quality assurance entities. Through its Training Centre, NMISA provides high-quality metrology training tailored for both South Africa and the broader African contexts. Additionally, NMISA offers PTSs to laboratories, and its participation in inter-laboratory comparisons, under the auspices of the BIPM, allows African National Metrology Institutes (NMIs) to objectively demonstrate the quality of their measurement results. Over the past five years, NMISA has led and completed a total of 102 inter-laboratory comparisons and PTSs.

Aspects of the local calibration services market

Aligned with worldwide movements, the regional calibration services industry is expanding and embracing emerging technological advancements. According to a recent report by 6Wresearch, the South Africa Calibration Services Market is set for substantial growth, with an anticipated Compound Annual Growth Rate (CAGR) of 9,6 % during the forecast period from 2024 to 2030[1].This growth is primarily driven by technological advancements and the increasing demand for precise measurements across various industries, including manufacturing, aerospace, automotive, and healthcare. South Africa's industrialisation and adoption of advanced technologies further contribute to the expansion of the calibration services market. Additionally, the rise of Industry 4,0 has intensified the need for accurate calibration services. Both local and international players are actively participating in this market, striving to provide high-quality services at competitive prices. On a broader scale, the Africa Calibration Services Market is also expected to grow, projected to achieve a CAGR of 5,3 % during the same period. Globally, the calibration services market reached a value of US$ 5,9 billion in 2023 and is estimated to reach US$ 9,0 billion by 2032, exhibiting a growth rate of 4,7 % during 2024-2032.

Stringent regulations and rigorous quality standards within sectors like healthcare, automotive, and aerospace necessitate the utilisation of calibration services. The increasing demands from these sectors, particularly in healthcare, drive the need for calibration services provided by SANAS-accredited laboratories. Key players in the South African calibration services market offer calibration (and sometimes repair) services for a diverse array of instruments, including those related to electrical, temperature, pressure, flow, and mass.

In recent years, larger companies across various industries have increasingly outsourced their measurement instrumentation maintenance, including calibration services, to commercial calibration laboratories. This strategic decision aims to reduce costs and enhance accuracy. Additionally, innovative calibration techniques, such as mobile calibration laboratories and remote services utilising digital technologies, present new growth opportunities for the market.

However, the high cost associated with calibration equipment and services remains a significant challenge for the calibration services market. The calibration process is also time-intensive and relies on skilled professionals. This holds especially true in emerging markets, where experienced experts are essential in providing complex, high-quality calibration services.

A global characteristic particular to field of metrology is that many companies underestimate the importance of calibration services, resulting in underutilisation of this critical aspect within the industrial ecosystem. Organisations often hesitate to invest in services they don't fully comprehend, resulting in reduced demand for calibration services even when they are necessary.

Contribution to national priorities

To promote a just and lasting socio-economic progression in South Africa, essential national objectives have been defined in the National Development Plan (NDP). It aims to create a prosperous society over the next 20 years, emphasising priorities such as reducing poverty, unemployment, and inequality. The NDP informs the Medium-Term Strategic Framework (MTSF), which aligns government policies and actions with its goals. **the dtic** defined its priorities to stimulate inclusive economic growth through a set of output targets to which its entities contribute.

NMISA strategically aligns its activities to support **the dtic**'s output targets. These targets encompass a range of initiatives, including measurement services in special economic zones (SEZs), products and services for local manufacturers to enhance production efficiency and meet export quality standards, implementation of the AfCFTA by demonstrating equivalence of the NMS realised by member countries, red-tape reduction for improved service delivery through digitalisation, quality assurance training for small, medium and micro enterprises (SMMEs), awareness campaigns beyond metropolitan areas, Science, Technology, Engineering and Mathematics (STEM) internship opportunities, and support for green hydrogen commercialisation and climate initiatives.

2.2 ORGANISATIONAL ENVIRONMENT

NMISA's sustained excellent performance owes much to its skilled and resilient human capital, cultivated over the years. However, the organisation faced significant challenges during the review period, coinciding with the end of terms for the CEO and the Board, as well as executive retirements. While operational measures were implemented to ensure smooth functioning, these challenges underscored the need for NMISA to revisit its succession planning and leadership development processes.

[1] 6Wresearch Report, July 2023, South Africa Calibration Services Market: Size and Share 2030

NMISA takes pride in offering meaningful, impactful work and competitive reward and recognition programmes. Despite achieving targets in the previous year (2022/23), the organisation could not provide short and long-term incentives due to substantial budget cuts, adversely affecting staff morale and resulting in talent loss. Staff turnover increased, particularly in scientific functions, posing a critical concern. Replacing specialised national experts in the short term is challenging, potentially leading to laboratory closures and the need to source measurement traceability from overseas, which is a costly and time-consuming process that disproportionately affects SMMEs.

To support employee well-being, NMISA maintains an Employee Wellness Programme (EWP). Through the EWP, employees access counselling services for personal and work-related challenges. The programme's utilisation rate exceeds benchmarks, demonstrating its value to the organisation. Despite challenges, NMISA remains committed to identifying and filling critical positions within budget constraints to maintain operational effectiveness.

2.3 KEY POLICY DEVELOPMENTS AND LEGISLATIVE CHANGES

Environmental and sustainability laws

On 30 June 2023, the National Environmental Laws Amendment Act (NEMLAA) No. 2 of 2022 came into effect in South Africa, introducing significant changes to environmental management. These amendments impact laws such as the National Environmental Management Act (NEMA) No. 107 of 1998 and specific environmental management acts such as the National Environment Management: Air Quality Act (NEMAQA) No. 39 of 2004. One notable change is the amplified rectification provisions for activities carried out without proper authorisation. Under the NEMLAA, competent authorities now have an obligation to direct applicants to take specific measures, including investigating and assessing the environmental impact of such activities.

NMISA provides primary reference gas mixtures (PRGMs) used in the air pollution monitoring sector for accurate emission reporting. These PRGMs enables compliance with legislation and reliable reporting of emission measurements. The Institute supports municipalities, the energy sector, and the mining sector to report monthly emissions in compliance with their atmospheric emission licenses, which are mandatory for all activities that contribute to atmospheric emissions that have a significant negative health and environmental impact.

In addition to PRGMs, NMISA also offers calibration services of ozone instruments. The measurement and calibration results are demonstrated to be comparable with that of other NMIs (such as NLP of the UK, National Institute of Standards and Technology (NIST) and Van Swinden Laboratorium of the Netherlands).

3 PROGRESS TOWARDS ACHIEVEMENT OF INSTITUTIONAL IMPACTS AND OUTCOMES

As reflected in the Strategic Plan for the 2019–24 Medium-Term Strategic Framework, NMISA defined the following strategic goals for the period under review:

Strategic Goal 1:	Metrology for regulatory purposes and in support of government laboratories – for compliance and for development of regulations.
Strategic Goal 2:	Metrology consolidation for SOEs to provide efficient shared services.
Strategic Goal 3:	Metrology for industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and exports.
Strategic Goal 4:	Strategic alignment with legal metrology to effectively implement the Legal Metrology Act.

No material amendments have been made to the five-year Strategic Plan since its adoption in 2019/20. The progress made towards the achievement of the five-year targets in relation to the outcome indicators are presented in the table that follows.

Table 3: Overall five-year performance of the entity's key performance indicators (KPIs) achievement against the approved 2019–2024 Strategic Plan

OUTCOME	OUTCOME INDICATOR	FIVE-YEAR TARGET	ACHIEVEMENT 2019/20	ACHIEVEMENT 2020/21	ACHIEVEMENT 2021/22	ACHIEVEMENT 2022/23	ACHIEVEMENT 2023/24	FIVE-YEAR PERFORMANCE
Shorten the traceability chain for Africa by maintaining the Units and NMSs at an internationally recognised level	Number of SI base units realised	Maintained and/or updated method for realising the 6 base units	6 base units were realised	6 base units were realised	6 base units were realised	4 reports on the 6 base units	4 reports on the 6 base units	**6 SI base units realised**
	Number of new and improved NMSs and reference materials and reference methods	50 Measurement capabilities are developed based on industry needs	21	25	28	23	15	**112**
	Number of memberships maintained	Maintain membership of the 10 committees	10	10	10	10	10	**10**
	Number of inter-laboratory comparisons and PTSs organised and completed	50	9	23	25	23	22	**102**
	Percentage of metrological services covered by calibration and measurement capabilities (CMCs) (i.e., internationally accepted)	95,0 %	81,0 %	80,0 %	90,5 %	91,0 %	90,5 %	**90,5 %**

OUTCOME	OUTCOME INDICATOR	FIVE-YEAR TARGET	ACHIEVEMENT 2019/20	ACHIEVEMENT 2020/21	ACHIEVEMENT 2021/22	ACHIEVEMENT 2022/23	ACHIEVEMENT 2023/24	FIVE-YEAR PERFORMANCE
Ensure effective dissemination of the Units and NMSs to National and Regional laboratories	Number of accredited laboratories maintained and new laboratory accreditations	Maintain accreditations for all the accredited laboratories and obtain accreditation for new laboratories	21 maintained and 2 new accreditations	23 maintained and 1 new accreditation	23 maintained and 1 new accreditation	24 maintained and 1 new accreditation	25 maintained	**25 accredited laboratories maintained**
	Number of metrologists trained	600 metrologists trained	120	0	155	55	87	**417**
	Number of courses provided including courses for SMMEs	100	18	10	20	21	33	**102**
	Number of interns and in- services trainees hosted	200 interns and in-service trainees hosted	25	15	31	34	19	**124**
	Amount of income generated (services and products)	R140 million	R20 799 163	R14 203 999	R18 706 997	R24 653 025	R28 444 471	**R106 807 655**
	Percentage of actual expenditure to budget	Maintain 98 %	98 %	100 %	99 %	100 %	100 %	**99,4 %**
	Percentage increase in the NMISA clients from the private sector	15,0 %	New KPI	New KPI	New KPI	15,0 %	10,9 %	**25,9 % cumulative increase over 2 years**
	Percentage of filled funded vacancies	≥ 5 %	New KPI	New KPI	New KPI	9,0 %	4,5 %	**< 5 % of vacancies filled (dependent on availability of funding)**
	Turn-around times for funded vacancies	4 months for job levels C5 and higher 3 months for lower job levels	New KPI	New KPI	New KPI	An update was shared with the Board as planned	Recruitment was halted due to budget constraints	**An update was shared with the Board as planned**
	Compliance with broad-based black economic empowerment score	Attain level 8 compliance	New KPI	New KPI	New KPI	Attained Level 8	Replaced by Transformation KPI	**Attained Level 8**
	Percentage of NMISA support to the transformation agenda of South African and African markets	70 % of NMISA transactions to contribute to transformation of South African (in support of SMME) and regional (in support of the AfCFTA) market	New KPI	New KPI	New KPI	New KPI	89 %	**89 %**

OUTCOME	OUTCOME INDICATOR	FIVE-YEAR TARGET	ACHIEVEMENT 2019/20	ACHIEVEMENT 2020/21	ACHIEVEMENT 2021/22	ACHIEVEMENT 2022/23	ACHIEVEMENT 2023/24	FIVE-YEAR PERFORMANCE
To provide metrology or regulatory purposes	Revised Measurement Units and Measurement Standards Act to support and contribute to National regulation	Revised Measurement Units and Measurement Standards Act	NMISA reviewed the Act and submitted to **the dtic**	Submission with potential changes was made to the Board. NMISA awaits the finalisation of t**he dtic** process	Updates with regard to the NMISA's participation in **the dtic** TI review were submitted to the Board	Participated in **the dtic** TI review process	Participated in **the dtic** Rationalisation Research study	Participated in **the dtic** TI review and Rationalisation Research study
Metrology services for government and SOEs	Number of government departments and SOEs serviced by the NMISA	10	3	2	4	2	5	**17**
	Percentage increase in visibility of the NMISA	40,0 %	49,0 %	37,0 %	8,0 %	34,0 %	12,5 %	**≥ 40 % over 5 years cumulatively**
	Percentage customer satisfaction	Maintain 95,0 %	99,0 %	99,0 %	98,3 %	99,8 %	99,0 %	99,0 % average

3.1 SIGNIFICANT ACHIEVEMENTS IN 2023/24 (YEAR 5)

Over the five-year period, NMISA developed a total of 112 new or improved NMSs, reference materials, or reference methods – more than double the initial target of 50. These measurement capabilities were established in response to client requests, with a focus on addressing their business needs. Notable expansions included PRGMs for air quality monitoring and reference materials for food quality and safety testing.

Despite the original five-year target being 50, NMISA successfully organised and completed 102 inter-laboratory comparisons and PTSs. These initiatives allow participants to validate their measurement capabilities by comparing their results with reference values established through the comparisons or PTSs. Notably, NMISA provided several PTSs to African food testing laboratories during this period.

Over the past five years, NMISA has conducted approximately 20 training courses annually. However, in 2020/21 onsite participation was not possible due to the pandemic. The fifth-year saw a remarkable 57 % increase in the number of courses presented (from 21 to 33) due to the establishment, launch, and formal operation of the new NMISA Training Centre. The target audience for these courses is SMMEs, emphasising metrology's crucial role in quality assurance which is essential for these companies to compete effectively in the market.

The disruption of international supply chains during the pandemic underscored the importance of local and intercontinental procurement. NMISA actively supports South African and African markets by procuring from African companies whenever possible. In the past two years, 89 % of NMISA's procurement transactions met this objective. Additionally, NMISA's certified food reference materials proudly carry the label of 'Proudly South African' as locally produced products.

One of NMISA's strategic objectives during this five-year period was to purposefully pursue service level agreements (SLAs) or collaborative arrangements with public entities, particularly regulators. Since implementing this strategy in 2019/20, NMISA has entered into 17 formal agreements with government departments or SOEs. While NMISA regularly engages with key stakeholders, responding to tenders for niche measurement services often proves to be the most effective way to serve public entities.

To raise public awareness of its products and services, NMISA strategically enhances its visibility through print, broadcast, and digital media. Despite budget constraints, NMISA has successfully met its visibility target by carefully selecting publications to maximise exposure while controlling costs. The Africa Food Safety Workshop held in July 2022 significantly contributed to exceeding the visibility target for this reporting period.

Goals set in 2023/24 that are still in progress

At the end of the 2023/24 financial year, 90,5 % of NMISA's metrological services were covered by Calibration and Measurement Capabilities (CMCs). These CMCs have undergone international review and acceptance, and their details have been published in the International Key Comparison Database Appendix C. In addition to its routine products and services, NMISA also develops new measurement solutions for niche applications on a contractual basis when requested by clients. While these measurement capabilities are traceable to the relevant NMSs, they may not always be accredited or published as CMCs unless demand justifies their inclusion as routine service offerings in the future. NMISA's unique expertise and state-of-the-art measurement facilities often make it the sole local organisation capable of providing novel measurement solutions with reliable results. Given its commitment to client services and the priority placed on benefiting the local industry, the target for CMCs is not expected to increase beyond the current value.

The five-year target of training 600 metrologists requires at least 120 scientists to be trained annually if distributed linearly. Although this goal was achieved in the first year (2019/20), the onset of the pandemic in 2020/21 disrupted in-person training, resulting in a notable increase to 155 trainees in the third year. However, subsequent annual achievements did not fully recover to pre-pandemic levels. Reduced demand across the African continent is likely due to the economic impact of the pandemic, as organisations tend to reduce training activities during financial constraints.

While NMISA substantially increased its external revenue during the five-year period by focusing on niche measurement needs in the country, it fell short of the ambitious R140 million revenue target. The next period's target has been adjusted to account for reduced resources due to substantial cuts in NMISA's grant allocation in recent years.

NMISA performs well on the Broad-Based Black Economic Empowerment (B-BBEE) priority elements of Management Control, Employment Equity, and Preferential Procurement. Despite this, its overall score is lowered by one level due to not meeting minimum spending requirements for the priority elements of Supplier and Enterprise Development, primarily because of budget constraints. NMISA complements its transformation goals with enhanced training and skills

development activities through its newly established Training Centre.

Funding constraints resulted in an inability to appoint all the interns that NMISA would otherwise have been able to accommodate. External sponsorship is being sought for internship positions in a variety of technical and support positions and has been successfully secured for Information Technology interns. NMISA will continue its efforts to source external funding to host interns as it provides unique opportunities for young professionals in STEM fields to gain much needed work experience, enhancing the probability of securing permanent employment in the market. This is especially important considering the disproportionally high unemployment rate in South Africa.

Unfortunately, the high turnover rate over the past two years, combined with limited compensation funding, negatively impacts NMISA's ability to fill resulting vacancies. The loss of specialised expertise, often irreplaceable in the short term, is expected to significantly affect organisational performance in the next reporting period.

3.2 FOCUS FOR 2024/25 (YEAR 1 OF NEW MTSF PERIOD)

NMISA has set ambitious goals for the upcoming MTSF period. The main objective of NMISA for the next MTSF period is to ensure regional, continental, and international comparability of the South African measurement infrastructure to support economic growth and to enhance the quality of life for all. By adhering to its mandate as outlined in the Measurement Units and Standards Act, NMISA will contribute to a robust measurement ecosystem that supports economic development.

Despite facing reduced grant funding, NMISA is committed to improving its financial stability. To achieve this, the Institute will diversify its income sources and expand its client base. Maintaining visibility in the market will play a crucial role in achieving these financial goals.

A client-centric approach is a high priority. NMISA recognises that efficient service delivery is essential for its clients, both locally and internationally. Meeting client satisfaction targets consistently will be a KPI over the next five years. Additionally, NMISA aims to extend its impact beyond major metropolitan areas by purposefully expanding services to regions outside these hubs.

NMISA's success hinges on its dedicated and skilled staff, its ability to leverage world-class infrastructure and the delivery of specialised and innovative measurement solutions. The Institute will therefore prioritise workforce development and retention as the foundation of its strategy for the next MTSF period.

NMISA will actively engage with stakeholders to foster mutually beneficial relationships. Collaborative research agreements will drive the development of new measurement capabilities, benefiting all parties involved. Furthermore, since economic growth is nationally driven through investment in the SEZs, NMISA will focus on outreach activities within these zones to contribute to overall economic growth.

In summary, NMISA's strategy for the next MTSF period revolves around excellence in all aspects of metrology, financial resilience, client satisfaction, workforce development, and effective collaboration with stakeholders. By pursuing these objectives, NMISA aims to make a meaningful impact on South Africa's economic landscape.

3.3 ACHIEVEMENT HIGHLIGHTS FOR 2023/24

3.3.1 Setting the standard for indigenous essential oils

The United Nations Industrial Development Organization (UNIDO), through its Programme Development and Technical Cooperation, provides technical cooperation services on technological and economic issues. To address the challenges partner countries face in complying with quality requirements and standards, UNIDO and the Swiss State Secretariat for Economic Affairs developed the Global Quality and Standards Programme (GQSP).

The project in South Africa focuses on the indigenous essential and vegetable oils value chains rather than the high-volume exports (e.g., citrus oils and eucalyptus) to facilitate access to the international markets for SMMEs. UNIDO is implementing this project in collaboration with **the dtic** and it is largely focused on oils like buchu, cape chamomile, helichrysum, lippia, and rose geranium, and vegetable oils like baobab, Kalahari melon, manketti/mongongo, marula, and sour plum.

NMISA was approached through the GQSP initiative to establish a much-needed ISO 17025:2017 accredited testing service for the indigenous essential oils industry.

Discussions with the industry, and with NMISA, confirmed the need to identify, develop, implement, and publish the most appropriate method to obtain traceability for the Gas Chromatograph (GC) and GC-Mass Spectrometry test methods for the test laboratories to become accreditation-ready (ratios, preparation of reference materials, PTSs etc.). During project implementation, it became evident that the industry required accredited local test facilities.

With funding support from GQSP-SA, NMISA can proudly attest to achieving the national calibration standard required for testing South African indigenous essential oils. This service would support SMMEs to get their beneficiated products to the market and will assist in establishing the grower as an internationally recognised supplier in the essential oils value chain, while lending brand visibility to NMISA's ARI analytical laboratory services.

NMISA also supports the Southern African Essential Oil Producers Association in promoting the production, processing, and export of essential oils. NMISA aims to continue providing the necessary traceability in a highly competitive global market, ensuring the potential for direct and indirect employment in the communities impacted by the industry.

3.3.2 Bridging standards and skills: NMISA's professional development programmes

The NMISA Training Centre is dedicated to advancing knowledge in science, engineering, and their applications in metrology through comprehensive training programmes. These programmes equip professionals with essential skills to meet and exceed industry standards. By doing so, the Centre promotes technological progress and compliance across various sectors.

In 2023, during its inaugural year of operation after its official launch in April, the Training Centre demonstrated its commitment to both regional and international professional development. It offers a diverse range of courses, including foundational and advanced training in dimensional metrology, electrical metrology, laser safety, and uncertainty of measurement. Participants from both local and international backgrounds benefit from these offerings. Notably, NMISA's courses attracted substantial interest from at least seven countries, with formal sessions held either at the receiving organisation's laboratories or at the NMISA Training Centre in Pretoria. Practical training also occurred within NMISA's own laboratories.

Furthermore, the Training Centre actively collaborates with entities like the Physikalisch-Technische Bundesanstalt (PTB) in Germany. Through international training schemes and partnerships, NMISA facilitates practical training sessions and exchange programmes that significantly enhance the capabilities of regional metrologists. Additionally, the Centre embraces contemporary educational trends by offering a hybrid model of online and in-person courses. This approach ensures accessibility and convenience for all participants while expanding the reach of high-quality metrology education.

The NMISA Training Centre presented a total of 33 courses, training 87 metrologists.

3.3.3 Measurement solutions delivered to producers and exporters

Manufacturing

The automotive industry ranks as South Africa's fifth-largest export sector, contributing nearly 20 % to the country's total exports. Annually, more than 600 000 vehicles are manufactured within the country, with seven major Original Equipment Manufacturers (OEMs) operating production plants.

Metrology ensures high-precision measurements during production processes. By guaranteeing that materials and components meet precise specifications, it enables manufacturing of consistent and identical parts, resulting in high-quality finished products.

NMISA provides essential dimensional measurement services to the automotive manufacturing industry. Noteworthy services offered during the 2023/24 period include calibrating standard ball bars for coordinate measuring machines (CMMs), which verify part dimensions and alignment. Additionally, NMISA calibrated master wheels to support local production of wheel systems. Furthermore, the Institute analysed porosity and verified the dimensions of 3D printed samples.

Automotive components, such as engine parts, require wear-resistant coatings to enhance durability and reliability. Surface modifications prevent corrosion, ensuring the longevity of critical parts. Structural analysis of materials like high-strength steel, aluminium, and composites are essential for weight reduction, safety, crashworthiness, and fatigue assessment of vehicle structures. During the past year, NMISA's sophisticated Materials Science laboratory delivered specialised measurement solutions, including analysing unknown residues in stainless steel gas pipes, conducting micro-hardness tests, mapping elasticity properties of failed bolts on brake pads using electron backscatter diffraction, characterising aluminium foil thickness, and assessing microstructural properties of phosphate coatings and core electrical steel.

The services NMISA provides are essential for local manufacturers. Without NMISA, manufacturers would incur substantial costs and delays when seeking overseas services. Therefore, NMISA's contributions play a vital role in supporting the growth and efficiency of the domestic manufacturing sector.

Food production

South Africa produces two billion kg of table grapes and ten million hectolitres of wine. We are the eighth largest producer of table grapes and sixth largest wine exporter globally. Therefore, grapes are one of the most important economic crops for the country.

To secure the export market, it is important that laboratories meet the regulatory requirements of their selected export markets. This can be challenging, as these requirements evolve with changes to the current scientific knowledge. In many cases the maximum residue levels (MRLs) are decreasing, or new generation pesticides are less chemically stable, making the measurements more challenging. Proficiency testing aligned with international regulations is an essential part of a stable and effective quality infrastructure. In agriculture, this directly contributes to food security, export sustainability and the establishment of the AfCFTA.

During 2023/24, NMISA coordinated a proficiency test for the determination of pesticides in grapes: The Grape PTS addressed pesticides and Ochratoxin A; which are of the most analysed food contaminants in this commodity. Ochratoxin A is the only mycotoxin regulated in grapes and grape products and is produced by various Penicillium and Aspergillus moulds. This mycotoxin can increase during the processing of grapes, such as during wine and grape production. Since many food laboratories report on both pesticides and natural contaminants, combining these aspects in a single PTS assisted laboratories in meeting their testing quality criteria for grapes.

Furthermore, NMISA has extended its services to the realm of food packaging gases, developing a customised PTS for harmful components like benzene, toluene, ethyl benzene, and xylene for a provider of design, inspection and certification services. To ensure reliability in the identification of such components, laboratories performing these services should demonstrate comparability in measurement capability in the sector and further meet accreditation requirements.

3.3.4 Kilogram redefined: NMISA's Kibble Balance Research Project

The kilogram, once defined by a physical artefact (the international prototype), has undergone redefinition using Planck's constant (h) as a defining constant. This redefinition, effective since May 20, 2019, empowers NMIs to independently realise the kilogram using equipment like the Watt (Kibble) balance. NMISA, in collaboration with NPL (UK), is actively developing a Kibble balance – a primary standard for mass measurement in South Africa. Through this project, NMISA ensures highly accurate and internationally comparable mass measurements.

Additionally, NMISA partnered with NIST-USA to enhance skills related to Kibble balance operation and associated equipment. During a scientist's secondment at NIST, g-mapping techniques were learned, and gravimeter instrument maintenance was mastered. NMISA's results in gravitational acceleration measurements align with the international reference value, supporting the establishment of a local accredited measurement service. These measurements find applications in geoscience, including bedrock mapping and aquifer location.

NMISA showcased its desktop Kibble balance at the Kibble Balance Technical Meeting in Germany. Furthermore, NMISA's comparison of absolute gravity measurements at the South African Large Telescope site in Sutherland demonstrates global alignment and scientific innovation. The project's technological advancements, including the newly acquired Quantum Hall system for precise voltage measurements, benefit the broader scientific community.

The Kibble balance project demonstrates NMISA's dedication to maintaining and advancing South Africa's NMS, particularly focusing on the kilogram. Through strategic international partnerships and ongoing technological progress, NMISA not only contributes to the global metrology landscape but also safeguards the integrity of critical measurement standards essential for scientific advancements and industrial applications.

3.3.5 A Continental measurement system underpins the implementation of the AfCFTA

The installation and commissioning of Kenya's first Cobalt-60 (Co-60) radiotherapy calibration system, facilitated by NMISA, represents a significant advancement in cancer treatment capabilities within the region, contributing to the AfCFTA. This development enhances the quality of healthcare by ensuring accurate dosimetry and treatment efficacy.

In the manufacturing sector, NMISA's proactive approach to materials characterisation and failure analysis supports industry safety, environmental protection, and economic efficiency. Through the Kenya Bureau of Standards (KEBS), Kenya has acquired the Co-60 radiotherapy calibration system to improve diagnostic and therapeutic services in the fight against cancer in the country. This calibration system is the first of its kind in East Africa, and with its installation, KEBS aims to elevate cancer dosimetry, aligning with Kenya's strategic plan for enhanced healthcare delivery.

To operationalise the Co-60 system as a calibration tool, comprehensive commissioning tests and measurements were necessary. Given NMISA's existing expertise and similar system, KEBS enlisted NMISA's expert services for assistance. The commissioning of the system took place from 12 to 23 February 2024. During this period, NMISA also provided training and support in establishing the required calibration methods as part of the laboratory's quality system.

Following the successful commissioning by a NMISA expert, KEBS launched the Co-60 system on 6 March 2024. The event, which was attended by over 800 guests from government and other key stakeholders, was regarded as a crucial addition to Kenya's medical infrastructure in the fight against cancer. The new system ensures that radiotherapy instruments in the country's hospitals receive timely and cost-effective calibration services, thus bolstering the quality assurance aspects of cancer care.

4 INSTITUTIONAL PROGRAMME PERFORMANCE INFORMATION

4.1 PROGRAMME 1: ADMINISTRATION

The Administration Programme oversees the management, administration, and operation of the organisation. It spearheads strategy development and implementation, guides corporate governance practices, and provides operational support services such as information technology, financial and human resource management.

PURPOSE

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

This programme contributes to the institutional outcomes and associated output indicators as per Table 4.

Table 4: Programme 1 contribution to outcomes

IMPACT/OUTCOME	OUTPUT INDICATORS
Ensure effective dissemination of the Units and NMSs to National and Regional laboratories	• Number of interns and in-service trainees hosted • Income generated • Percentage actual expenditure to budget • Number of accredited laboratories and new laboratory accreditations • Percentage increase of NMISA clients from the private sector • Percentage funded vacancies • Reduced turnaround times for filling vacancies in line with the approved recruitment plan • Percentage of NMISA support to the transformation agenda of South African and African markets
To provide metrology or regulatory purposes	• Participation in **the dtic** TI review
Metrology services for government and SOEs	• Number of government departments and SOEs serviced by the NMISA • Percentage increase in visibility of the NMISA • Percentage customer satisfaction

ACHIEVEMENTS

Increased visibility through strategic events

World Metrology Day Celebrations and Workshops: Celebrated annually, World Metrology Day 2023 focused on "Measurements supporting the global food system". NMISA hosted an online workshop with the Versailles Project on Advanced Materials and Standards (VAMAS) to discuss sustainable food packaging and improvements in agricultural processes. This initiative is significant as it addresses critical needs in developing standards for emerging materials and methods that can reduce environmental impacts and enhance food preservation. The recommendations from the workshop were published in the September 2023 issue of Materials World, the UK Institute of Materials, Minerals and Mining Flagship Magazine. Briefly, the recommendations emphasise the necessity for developing and implementing innovative technologies and sustainable practices to reduce food waste, lower greenhouse gas emissions, and ensure food safety through reliable measurements and standards. It is crucial to conduct extensive research on the health implications of particles, including nanoparticles, in food and establish regulations that protect public health. Additionally, enhancing the safety of packaging materials requires improving characterisation techniques, ensuring traceability throughout the supply chain, and adhering to updated regulations on contaminants to maintain food quality and prevent contamination.

The discussion group emphasised the need for global collaboration in advanced materials metrology to support the food system. This includes standardising measurement techniques, validating new methods through intra- and inter-laboratory tests, and disseminating SI traceability requirements to a broader audience to ensure consistency and reliability in food safety practices worldwide.

Also, for this event, the dissemination of NMISA's food safety services in support of food safety was recorded in isiXhosa and distributed among regional and international measurement communities. This demonstrates a commitment to inclusive and accessible scientific communication within the regional and international measurement communities.

Notable organised external events

- **GQSP-SA Phase I Achievement Event:** On May 24, NMISA celebrated the successful conclusion of Phase I of the GQSP-SA initiative, highlighting its role in elevating quality standards within the essential oils sector.
- **Illumination Engineering Society of South Africa (IESSA) Annual Conference:** NMISA served as a Gold Sponsor at the 17th IESSA Annual Conference, showcasing its involvement in international research projects related to LED lighting test methods.
- **National Association for Clean Air (NACA) Conference:** NMISA sponsored and exhibited at the NACA conference, highlighting its contributions to environmental sustainability through air quality monitoring.
- **Business Show Africa 2023:** NMISA participated in Africa's premier business event, showcasing its metrological services for supporting SMMEs and driving business growth.
- **Organic & Natural Products Expo Africa:** NMISA demonstrated its proficiency in essential oil testing at the Expo, reinforcing its commitment to quality standards in the organic sector.
- **Collaboration with Fujian, China:** NMISA formalised metrological cooperation with China's Fujian province, enhancing regional measurement standards capabilities.
- **Africa Growth and Opportunity Act (AGOA) Forum 2023:** NMISA participated in the 20th AGOA Forum, emphasising Africa's economic potential and its role in fostering economic development.
- **Essential Oil Accreditation Celebration:** NMISA celebrated its ISO 17025:2017 accreditation for essential oil testing, highlighting its pivotal role in enhancing local industry capabilities.
- **Road Traffic Management Corporation (RTMC) Workshop:** NMISA conducted an educational workshop for Pretoria Traffic Officials on legal metrology and scientific principles underlying measurements. This event was a joint initiative with RTMC and the National Regulator for Compulsory Specifications.
- **Signing Ceremony with Fujian, China:** NMISA hosted a ceremony to formalise enhanced metrological cooperation between NMISA and China's Fujian province. The collaboration was solidified through a letter of intent between the two entities. The Fujian Provincial Development and Reform Commission also presented a ceremonial plaque during this event to signify their commitment to donating equipment aimed at strengthening NMISA's capabilities in calibrating measurement standards, with a focus on expanding services throughout the SADC region.
- **Industry Engagement:** Force and Torque Metrology: NMISA organised an industry engagement session focusing on Force and Torque Metrology, enhancing industry standards and compliance.
- **Quantum Workshop:** NMISA's hybrid Quantum Workshop addressed encryption risks posed by Quantum Computers, exploring applications of Quantum Metrology.
- **Community Outreach Initiatives:** NMISA conducted community outreach programmes in Rustenburg, Tzaneen, and Polokwane, educating SMMEs on the importance of accurate measurements for business success and regulatory compliance.
- **Campaigns for Training Centre Marketing:** To raise awareness of the newly launched NMISA Training Centre, the Marketing Team conducted competitions and developed marketing materials to expand the Centre's reach and engagement. These initiatives yielded positive results, with increased attendance at courses throughout the reporting period, signalling strong initial reception within the industry.

Visibility: Publications and social media

NMISA endeavoured to enhance its visibility in South Africa and the region through strategic communication and marketing initiatives that spotlight the institute's measurement solutions and the pivotal role of metrology in the industry.

Despite financial constraints and budget cuts, NMISA achieved a remarkable increase in visibility, surpassing the annual target by 2,5 %. The Advertising Value Equivalent (AVE) for media coverage totalled R1 586 083, predominantly from earned media without incurring costs. Key articles published during the year included insightful pieces highlighting NMISA's contributions to various sectors, reinforcing its role in advancing metrological standards and supporting industry growth.

Table 5: Publication highlights

PUBLISHED	HEADING	PUBLICATION
Quarter 1	NMISA contributes towards a hunger-free South Africa	Business Day
Quarter 1	NMISA launches new training centre in South Africa	South Africa Today
Quarter 2	The importance of metrology in manufacturing	Engineer IT
Quarter 3	AfCFTA to lead to diversification of exports	SA News
Quarter 3	Accuracy is the cornerstone for optimal operation	Business Day
Quarter 4	Food safety testing capabilities in Africa could hamper free trade	Wheat Focus
Quarter 4	Manufacturing Indaba fosters industry ties	Engineering News & Mining Weekly

A significant achievement for NMISA was the extensive media coverage on eNews Channel Africa (eNCA), announcing that the institute had earned ISO/IEC 17025 accreditation from the South African National Accreditation System (SANAS) for its essential oils testing services. This earned media, resulting from a published press release, achieved an impressive AVE value of R615 032 without any budgetary investment.

By highlighting NMISA as the first accredited essential oils testing laboratory, the coverage not only informed the industry about its new capabilities but also reinforced NMISA's reputation as a leader in metrology. Following the broadcast, NMISA experienced a notable increase in inquiries from essential oil producers or SMME/emerging producers that would otherwise not be able to afford testing services sourced from international testing bodies. This surge in engagement demonstrates the effectiveness of NMISA's marketing efforts in driving business interest and expanding its client base.

NMISA exceeded its target of a 5,0 % increase in social media following, achieving a noteworthy 9,2 % rise. This success is attributed to strategic social media marketing efforts, featuring engaging content that resonates with diverse audiences.

Public relations and stakeholder engagement

Throughout the 2023/24 financial year, NMISA actively engaged with a diverse array of stakeholders to foster collaborative partnerships and expand its influence in the metrological community. The Institute also collaborated with several government departments and SOEs to educate them on metrology and demonstrate how metrological support can assist in fulfilling their service delivery objectives. These engagements were integral to expanding NMISA's market reach, accessing new markets, generating revenue, and establishing new SLAs and Memorandums of Understanding (MoUs).

Annual sales overview

During the 2023/24 financial year, NMISA achieved a total annual revenue of R28,4 million – a substantial 15,0 % nominal increase compared to the previous year. This growth was strategically driven by enhanced service support and corresponding sales growth across multiple sectors, including local manufacturing, tertiary education institutions, commercial laboratories and international services. The total annual revenue figures over the past five years are displayed in Figure 2.

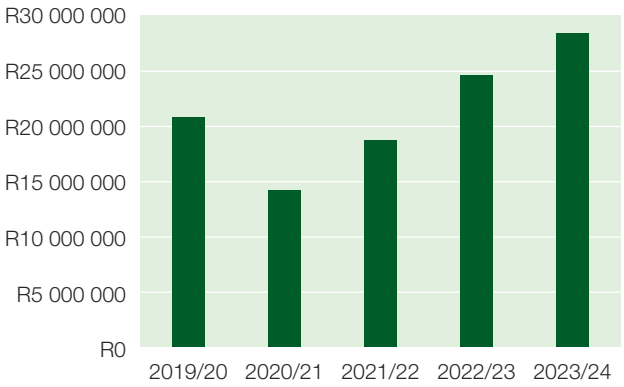


Figure 2: Total annual revenue for the past five years

NMISA generates revenue from various sources as shown in Figure 3. Approximately 25,0 % of its sales revenue comes from consultancy, calibration and reference measurement contracts with international organisations. Commercial calibration and testing laboratories contribute around 19,0 % of NMISA's revenue through calibration services and reference materials. NMISA provides support services to government departments, regulators, and other SOEs, accounting for about 18,0 % of its revenue.

The Institute provides training and analysis services to tertiary education institutions, contributing 8,0 % of its revenue. A wide variety of measurement services representing an estimated 30,0 % of total revenue were provided to the private sector (industry).

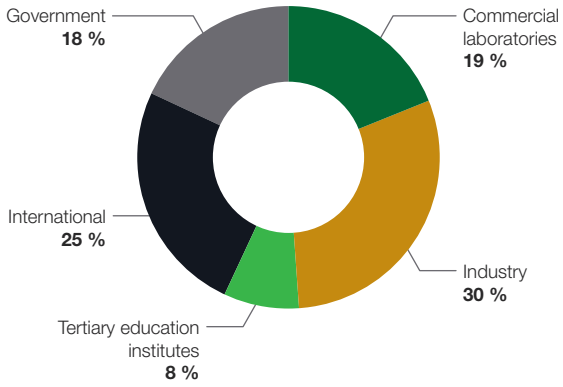


Figure 3: Approximation of percentage services rendered per market sector during 2023/24

During the 2023/24 financial year, NMISA's products and services were in high demand, with calibration services leading the way, followed by training services, reference materials, and reference measurements, as shown in Figure 4. Notably, sales from training and consultancy services skyrocketed by 341,0 % after the launch of the NMISA Training Centre in April 2023.

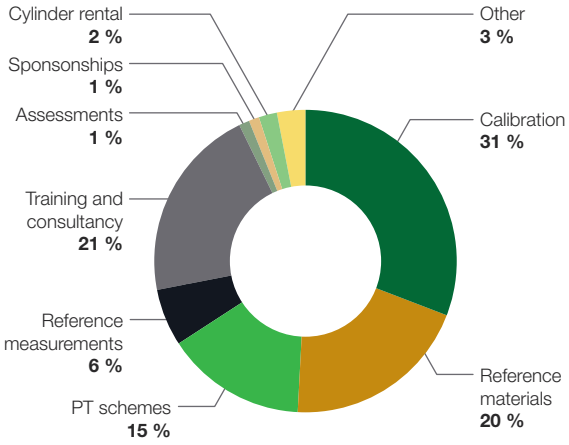


Figure 4: Sales revenue relative to the type of service offered

NMISA's specialised expertise in niche areas has the potential to enhance its impact across multiple market sectors. These sectors include environmental management (with a focus on air pollution monitoring and micro-plastics analysis), the energy sector (covering energy-efficient lighting, green hydrogen, and solar energy measurement solutions), the mining industry (specifically radon detection and metal beneficiation), and agriculture (with emphasis on pesticide residue assessment and radioactivity monitoring). These promising opportunities will be further explored during the upcoming financial year.

4.2 PROGRAMME 2: APPLIED METROLOGY CONTRIBUTIONS AND PRODUCTS FOR INDUSTRY, SOEs, AND REGULATORY SUPPORT

PURPOSE

Dissemination of measurement services to industry, SOEs and regulators are coordinated in dedicated sector-based centres under the Applied Metrology Division as listed.

These services provided by NMISA are delivered through:

- Research outputs from the thematic R&D programmes;
- Traceability derived from the NMS maintained by the technical divisions; and
- Operational and business support provided by the Administration Programme.

This programme contributes to the institutional outcomes and associated output indicators as per Table 6.

Table 6: Programme 2 contribution to outcomes

Impact/outcome	Output indicators
Shorten the traceability chain for Africa by maintaining the Units and NMSs at an internationally recognised level	• Number of SI base units realised • Number of new and improved NMSs and reference materials and reference methods • Number of memberships maintained and active participation in the CIPM and its consultative committees • Number of inter-laboratory comparisons and PTSs organised and completed • Percentage of metrological services covered by calibration and measurement capabilities (CMCs) (i.e., internationally accepted)
Ensure effective dissemination of the Units and NMSs to National and Regional laboratories	• Number of metrologists trained for revenue generation • Number of courses provided including SMMEs

4.2.1 Africa Reference Unit

Conformity assessment support

Training and knowledge services

High technology product development

NMISA plays a pivotal role in facilitating measurement accuracy and compliance within various industries through its Africa Reference Institute (ARI) Facility. This section highlights the ARI's significant contributions to the fields of metrology training and essential oil testing. These efforts are critical for maintaining standards, facilitating exports, and enhancing industry competitiveness both locally and internationally.

PURPOSE

To function as an African resource centre with authoritative expertise dedicated to providing thought leadership on measurement technologies on the continent, access to advanced measurement technologies and reliable application information in those fields critical to economic growth and social development on the African continent. Its services include reference measurements and analysis, consultation and specialist advice, as well as education and training. It assists government entities by supporting the development of policies and regulations with impartial, reliable data. Recognising the need to enhance the ability of local producers to compete in international markets, the ARI assists companies in improving the performance of their products, gain efficiencies in production and develop reputable African brands. This is to enhance the ability of local producers to compete in the international market. The Reference Institute aims to play a key role in maintaining and enhancing a reliable African measurement framework linked to the international system of measurement. Its mission is to enhance sustainable development on the African continent. The Institute strives to assist government entities by supporting the development of policies and regulations with impartial, reliable data.

ACHIEVEMENTS

Essential oils testing and accreditation

NMISA has become a key supporter of the essential oils industry, offering ISO/IEC 17025 accredited testing services to empower SMMEs. These services are affordably priced and aim to boost SMMEs' international market competitiveness. NMISA's commitment to quality assurance is evident in its accreditation from SANAS, making it the only recognised laboratory for essential oil testing in South Africa at present.

Additionally, NMISA's active participation in the UNIDO GQSP-SA project plays a crucial role in supporting local producers. The project provides subsidies for testing, assisting local producers in adhering to international standards and enhancing product quality. NMISA's testing facility underwent a six-month surveillance assessment by SANAS, resulting in the recommendation to continue its accreditation.

Forensic and environmental support

NMISA's provision of nitrous oxide in nitrogen PRGMs to the National Health Laboratory Service (NHLS) Forensic Chemistry Laboratory enhances the accuracy of toxicological analyses. This support is vital for forensic investigations, ensuring reliable identification of poisonous substances.

Training Centre operations

NMISA has successfully conducted 33 comprehensive courses encompassing a diverse spectrum of metrology-related subjects. These courses have delved into both the theoretical underpinnings and practical applications across various domains, including physical, electrical, and chemical metrology. It included three specialised summer schools focused on mycotoxins, toxic elements, and pesticides. Participants also gained insights into fundamental principles of numerous methodologies, such as computerised numeric control and laser safety. The curriculum further included modules on the interpretation and implementation of quality standards, the production of reference materials, as well as the operational management, maintenance, and troubleshooting of sophisticated measurement instruments.

The ARI facility at NMISA has made significant strides in the fields of essential oil testing and metrology training throughout the financial year. By upholding high standards of quality and fostering educational growth, NMISA has contributed to the economic development of South Africa and enhanced the regional and global presence of African industries in competitive markets. The ongoing efforts to extend training programmes and maintain accreditation status ensures that NMISA remains at the forefront of scientific advancement and industry compliance.

Regional integration and international partnerships

NMISA has significantly enhanced its strategic role in the metrology field through international partnerships and a dedicated approach to regional integration. These collaborations, particularly under the auspices of the Intra-Africa Metrology System (AFRIMETS) and the Southern African Development Community Cooperation in Measurement Traceability (SADCMET), underscore NMISA's influence and commitment to advancing metrology throughout the continent.

NMISA's active participation in AFRIMETS has been pivotal, as evidenced by the 2023 AFRIMETS General Assembly in Cairo, where critical resolutions were passed to support the activities of the Pan African Quality Infrastructure (PAQI) in relation to the AfCFTA. These decisions, which include formalising AFRIMETS as a company and introducing a membership fee by 2025 or 2026, aim to bolster regional metrology capabilities. NMISA's leadership in these discussions, particularly under the presidency of Dr Louw, highlights its role in shaping metrology's future in Africa and demonstrates the Institute's capacity for leading strategic initiatives that enhance regional cooperation.

Furthermore, NMISA's involvement in capacity building, such as organising and participating in the SADCMET Pressure Metrology Training, showcases its leadership within the Southern African region. Looking ahead, NMISA is poised to expand its training programmes and further its international collaborations, which will continue to enhance the capabilities of metrology professionals across Africa. These initiatives not only strengthen professional skills but also foster a collaborative network essential for the development of universal metrology standards.Through its participation in international forums, like the Sectorial Task Group on Climate Change and Environment and the Forum on Metrology and Digitalisation of the CIPM (BIPM), NMISA is ensuring that the perspectives and needs of the developing world are considered in global metrology advancements, thereby reinforcing the importance of partnerships and relationship building in achieving international metrology goals.

In NMI laboratories worldwide, advanced laser systems such as iodine-stabilised helium-neon (HeNe) lasers, and frequency combs are used to establish and maintain the SI of length, the metre. However, until 2021 only two NMIs within the AFRIMETS region, NIS (Egypt) and NMISA, used these laser-based systems as national standards. The rest of the NMIs in the region relied on traditional physical artefacts as their primary standards. In 2021, the length laboratory at NMISA, with funding from the PTB, hosted a laser workshop in Kenya to discuss and highlight the benefits and practical aspects of adopting laser systems as NMSs. The event served as a platform for NMIs across the region to gain insights into modern metrology techniques and encouraged a broader adoption of these advanced technologies. In January 2024, KEBS, sent its laser system to NMISA for calibration. This marked a milestone as it was the first laser system calibration performed by NMISA for a SADCMET member, demonstrating the visible outcomes of the 2021 workshop. This development underlines the progress made in enhancing metrology capabilities within the AFRIMETS community. It also reflects the ongoing commitment of NMISA and its partners to advancing knowledge transfer, building regional expertise, promoting the use of advanced technology in the field of metrology, and shortening the traceability chain for Africa.

Leadership in metrology

The appointments of Dr Angelique Botha and Dr Maria Fernandes-Whaley as chairpersons of international metrology committees represent a significant achievement for NMISA and underscore its leadership in global scientific endeavours. These appointments position NMISA as a key influencer in shaping international metrological standards and practices, which is essential for maintaining the integrity and progression of global scientific and industrial measurements.

4.2.2 Law enforcement

Forensic metrology, road safety, consumer

PURPOSE

Law enforcement agencies need reliable measurement results to determine whether a law has been transgressed. For example, accurate measurement of the vehicle's speed helps determine if the speed limit is being adhered to, while blood alcohol analysis determines if a driver's alcohol level meets legal driving standards. These agencies depend on NMISA for independently verified, accurate measurement results that can withstand legal scrutiny in court proceedings. Similarly, regulatory bodies such as the NRCS use NMISA's measurement results traceable to the NMS to test whether consumer goods offered on the market meet the requirements of compulsory specifications. NMISA assists with accurate blood alcohol measurements, accurate speed measurements, reference materials for forensic analysis (including illicit drugs) and contributes to consumer protection in trade.

ACHIEVEMENTS

The Law Enforcement Programme at NMISA plays a pivotal role in ensuring forensic metrology, road safety, and consumer protection in South Africa. One of the critical aspects of this programme is the provision of accurate and reliable blood and breath alcohol testing instruments for law enforcement agencies. These instruments are essential tools for measuring alcohol levels in individuals suspected of driving under the influence. By providing properly calibrated instruments, NMISA supports effective legal prosecution, which is crucial for maintaining public safety. Accurate measurements are not only important for the prosecution of offenders but also for upholding the integrity of the judicial process. Reliable data from properly calibrated instruments ensures that evidence presented in court is scientifically sound and legally defensible. This reliability helps to maintain public trust in the legal system and supports the fair administration of justice.

Under its Law Enforcement Programme, NMISA focuses on two key projects namely, the Evidential Blood Alcohol Testing (EBAT) and Forensic Blood Alcohol.

Evidential blood alcohol testing

Significant progress has been made in improving these services over the last financial year and there is an ongoing collaboration between NMISA and RTMC. Over the reporting period, NMISA continued to enhance its service offerings enabling reduced calibration service turnaround times. Additionally, NMISA participated in a law enforcement engagement event hosted by RTMC on the 1st of December 2023, presenting the science behind law enforcement and identifying training opportunities for traffic officers on legal metrology.

Forensic blood alcohol

The Forensic Blood Alcohol project supports blood-alcohol analysis by producing certified reference materials (CRMs) for provincial forensic chemistry laboratories under the NHLS and for EBAT devices.

Accredited annual PTS for blood, breath alcohol testing, and blood-alcohol preservation ensure the reliability of testing procedures. All four NHLS forensic chemistry laboratories and a private laboratory are registered for these schemes. The second round of ethanol PT and the annual blood preservative PTS were also completed over the last year. The project's quality system upholds traceability for blood-alcohol testing devices, essential for enforcing legal limits on blood-alcohol content.

4.2.3 Health and safety

Medical instruments and devices, healthcare, radiation safety, and laboratory medicine

PURPOSE

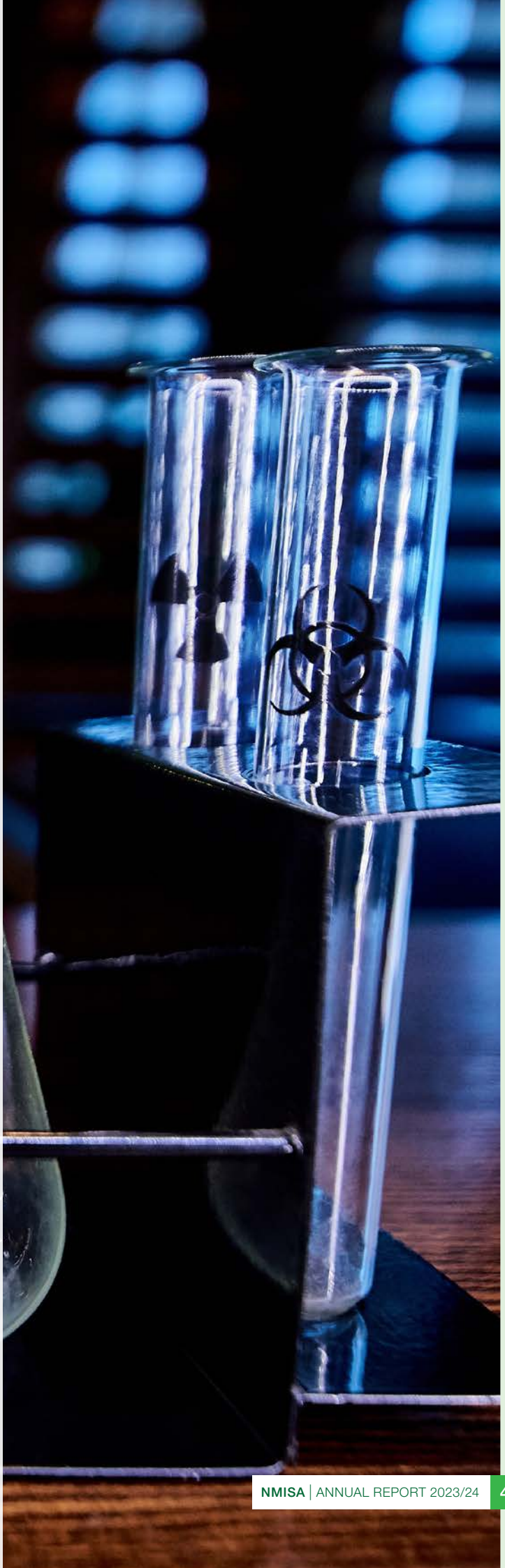
The programme aims to provide measurement traceability for medical devices to support medical manufactures, end users, regulators, and accreditation agencies. Partnerships with government and the Department of Health (DoH) to achieve internationally equivalent measurement traceability in the health sector is key to patient safety and quality control. The Health and Safety Programme intends to collaborate with relevant stakeholders to identify gaps and requirements in measurement science and applications in the medical field, and to develop medical metrology techniques, measurement traceability and facilities. The programme consolidates medical metrology traceability services for health laboratories, hospitals, and clinics.

ACHIEVEMENTS

The programme has contributed significantly to national efforts in improving health and safety standards through rigorous dosimetry standards and services. By ensuring accurate and reliable measurements in ionising radiation, NMISA plays a crucial role in safeguarding public and environmental health in South Africa.

Industry engagement

The Health and Safety Programme at NMISA has played a vital role in enhancing industry standards across various sectors through the provision of specialised measurement support services. Industries such as healthcare, mining, and non-destructive testing have benefited significantly from these services, ensuring the safe use of ionising radiation products.



Healthcare Sector – NMISA's dosimetry standards have been critical in calibrating radiation therapy equipment, directly impacting the safety and effectiveness of cancer treatments. In the year under review:

- Twenty-six (26) hospitals, both public and private, participated in NMISA's dosimetry audit programme through postal dose audits.
- Outcome: NMISA investigated and resolved discrepancies in audit outcomes for several hospitals, ensuring the accuracy of therapeutic doses and maintaining high standards of patient safety and treatment efficacy. This effort directly contributes to the quality of life for cancer patients by ensuring precise and safe radiation therapy.

Mining Industry – The mining industry has seen substantial benefits from NMISA's services, which help maintain safety standards and protect workers from potential overexposure to harmful radiation. Specific achievements include:

- Calibration of over 150 radiation monitors and personal dosimeters used in mining environments to ensure accurate readings of radiation levels.
- Outcome: By providing precise calibrations, NMISA helped mining companies comply with safety regulations, thereby reducing health risks and long-term effects associated with radiation exposure.

Non-Destructive Testing (NDT) – In the field of NDT, NMISA provides crucial calibration and verification services that support the integrity and safety of infrastructure. The accomplishments include:

- Calibration of over 200 devices used in NDT to ensure the reliability and accuracy of testing equipment.
- Outcome: These services have been instrumental in maintaining high safety standards in critical industries such as construction and aerospace, preventing potential industrial accidents caused by structural failures.

The extensive use of NMISA's metrology services across these vital sectors highlights the Institute's crucial role in maintaining and advancing industrial safety standards throughout South Africa. The achievements demonstrate NMISA's commitment to ensuring safety and precision in industries that rely on ionising radiation.

International collaboration and support

NMISA assisted KEBS, Kenya, with the commissioning of their newly acquired Co-60 radiotherapy calibration system, as reported under section 3.3 Achievement Highlights for 2023/24.

Internationally, NMISA has maintained an active presence in key committees such as CCRI(I), CCRI(II) and CCRI(III), ensuring that South Africa's measurement standards are equivalent to global practices.

Technical developments and accreditations

The Dosimetry Standards Laboratory has undergone significant developments, including an accreditation assessment that recommended the approval of two new technical signatories.

In addition, NMISA participated in an International Atomic Energy Agency (IAEA) coordinated research project focused on developing dosimetry audit methodologies for brachytherapy, which positions the Institute as a leader in this specialised field. Contributions to this project not only enhance NMISA's service offerings but also fortify its financial sustainability and knowledge base.

The Health and Safety Programme at NMISA continues to make vital contributions to national health and safety through its advanced dosimetry services and standards. Its achievements in regulatory engagement, international collaboration, and technical advancements highlight its essential role in South Africa's metrology landscape.

4.2.4 Energy efficiency

Energy efficient lighting, liquid natural gas, renewable energy

PURPOSE

To develop and provide the underpinning measurement solutions needed to facilitate and support energy efficient lighting, energy conversion processes (renewables and other alternative sources), and smart grids in support of the improvement of electrical energy efficiency.

ACHIEVEMENTS

Two compulsory specifications were published in July 2023, with implementation commencing in 2024. Preparations for establishing a facility to test and support energy-efficiency lighting for domestic lighting products, automotive, green industries, and healthcare are underway and are progressing. In addition, the accreditation application and supporting documentation were submitted to SANAS. However, the project was placed on hold following the resignations of key metrologists from the Photometry and Radiometry laboratories.

The Energy Efficiency Programme created awareness about its existence and current service offerings by publishing an advertorial in an energy magazine. It engaged with stakeholders in the solar energy space, including the South African Photovoltaic Industry Association (SAPVIA) and participated in an outreach programme in Polokwane.

The temperature metrology team participated in the PTB Cool White project by assisting with the installation of dataloggers and collection of data around the town of Springs. This data was used to investigate the effect of wall/roof paint on the temperature of a room, thus investigating the effect of paint on the energy efficiency of the room. The temperature metrology team also completed a high-temperature thermocouple measurement comparison at the Copper fixed point and Palladium point organised by the Asia Pacific Metrology Programme. This comparison will enhance NMISA's traceability at high temperatures for better control of temperature waste at high-temperature regimes.

In energy efficiency related to lighting products, the characterisation of the gonio and sphere systems was performed, and NMISA submitted documentation to SANAS in support of an application for accreditation in some testing capabilities for functional performance and energy efficiency, and photobiological safety of related lighting equipment.

4.2.5 Material science and services

Material characterisation, advanced material development, materials property testing

PURPOSE

NMISA's Materials Science and Services Programme provides rapid measurement solutions to various materials-based industries and research institutions. As a centralised, non-academic service provider, NMISA is ideally suited as an accessible hub for materials characterisation for local manufacturers, civil engineering companies, government departments responsible for infrastructure development and academia. Key service requests from these sectors include new and improving product development, quality control, environmental impact and failure analysis, all of which are expected to grow in demand in the next few years.

The consolidation of NMISA's materials characterisation services, including the newly installed metal 3D printer, and CT scanner, combined with advanced surface and microstructure techniques, provide fit-for-purpose topography and tomography measurement solutions for a multitude of industrial applications. Industrial activities that will benefit from NMISA's consolidated characterisation services include the determination of the quality of galvanised steel automotive components, purity analysis in support of quality of metals for export, niche particulate matter size distribution of particles emitted during manufacturing and mining, 3D tomography and mechanical properties of materials produced by additive manufacturing and traditional manufacturing routes, characterisation of advanced materials, mineral content distribution for the mining and local infrastructure projects.

ACHIEVEMENTS

NMISA conducted comprehensive analysis of shade nets to enhance crop protection and performance, ensuring the agricultural sector benefits from improved materials that bolster productivity. In the automotive industry, NMISA enhanced the quality and durability of automotive parts by characterising coating materials, thereby reducing production disruptions and increasing manufacturing efficiency. For the rail transport sector, NMISA provided critical insights into the failure modes of bolts used in train brake plates through fractography, metallographic sample preparation,

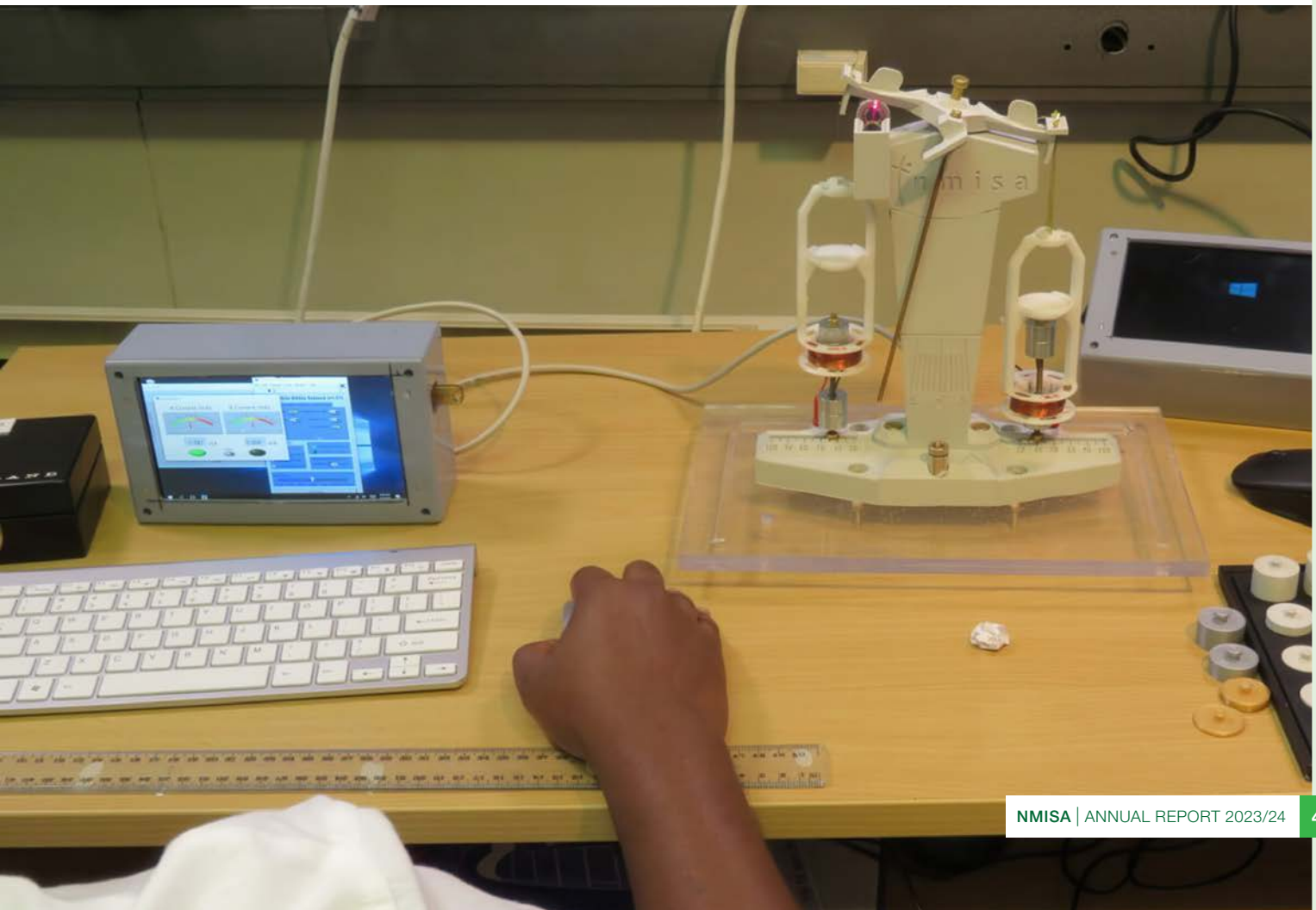
and microhardness characterisation, therefore supporting safety protocols and operational efficiency. Additionally, NMISA conducted failure analysis of steel joints in the steel and wire products industry, identifying environmental influences and providing recommendations for future prevention. They also addressed white rust formation on galvanised iron wires, offering solutions to enhance product longevity and performance. In the energy distribution sector, NMISA assisted in confirming the microstructure, surface chemistry, and elemental properties of core electrical steel, ensuring material performance and reliability which is vital for electricity supply.

Supporting industrialisation in South Africa

Accurate measurement results are essential for informed decisions across various sectors, including business, economic, social, medical, and consumer safety. NMISA's mandate ensures that South African measurements are accurate, internationally equivalent, and accepted by trading partners. As a key enabler for industrialisation, NMISA's Material Science and Services Programme plays a vital role in promoting inclusive economic growth. Their modern metrology infrastructure, aligned with international standards, supports strategies aimed at enhancing the country's productive capacity and facilitating trade. NMISA's materials characterisation services enhance operational efficiency and product quality across multiple sectors, including agriculture, automotive, rail transport, steel and wire products, and renewable energy sectors. This drives innovation, boosts productivity, and stimulates economic growth. By ensuring competitive manufacturing processes, NMISA contributes to job creation, export potential, and overall economic prosperity. Therefore, making technical achievements and accurate measurement services fundamental to South Africa's industrialisation and economic competitiveness.

Automotive manufacturing

To ensure precision and adherence to design specifications, large CMMs measuring up to six meters are extensively used. These CMMs require regular calibration to maintain accuracy. To facilitate the calibration of these large CMMs, NMISA calibrates the 5 meter standard of some local automotive manufacturers every two-years, a critical standard used by such OEMs. The successful completion of this calibration during the 2023/24 period ensures that quality control processes remain efficient and reliable. If NMISA was unable to perform this calibration, the ball bar would have had to be sent overseas, resulting in significant costs and extended delays that would impact local manufacturing operations.



4.2.6 Innovative projects

Revision of the SI

PURPOSE

Develop and implement the realisation of the revised SI to enable NMISA, as well as other NMIs on the African continent, to align its NMSs with the international measurement system following the redefinition of the SI in 2019. Achieving international equivalence of measurement results is crucial for facilitating global trade and international acceptance of local measurement data for universal reporting and application.

ACHIEVEMENTS

The achievements related to the development of the Kibble balance – a primary standard for mass measurement for South Africa – have been featured under section 3.3 Achievement Highlights for 2023/24 above.

In addition to the Kibble balance development project, the vacuum mass comparator was delivered and installed in the Mass Laboratory. The comparator is now ready for weighing in air, with the complete installation scheduled for 15 to 26 April 2024 to include the weighing in vacuum. This equipment will allow the NMISA Mass Laboratory to disseminate the kilogram that is independently realised in the Kibble (Watt) balance which will be in line with the new definition the kilogram. This will enable NMISA to continue providing traceability to local industry and other regional NMIs.

Government departments and SOEs have been benefiting by sourcing measurement traceability from the Mass Laboratory. In the year under review, the laboratory provided traceability to the NHLS through calibration of their mass pieces, balances, and micro-pipettes. The NHLS is mandated to provide pathology and health laboratory services to all public sector healthcare providers.

4.2.7 Digital economy

Telecommunications metrology, development of a calibration setup for imaging sensors, quantum optical metrology, standard frequencies and time signals, 4th Industrial Revolution – metrology initiative

PURPOSE

The term 'digital economy' refers to the use of information technologies (IT) in the production of goods and services. NMISA has a strong science, engineering, and IT base. The projects within this programme focus on applying metrology knowledge through enabling technologies into usable solutions for customers. The five focus areas, their purposes and their application in industry are:

1. Measurement solutions for the South African telecommunications regulator (ICASA) and telecommunication service providers, to support a reliable telecommunications infrastructure and high quality, affordable services to South Africans.
2. SI traceable calibration and verification measurement capabilities for imaging sensors for space and aerospace applications on the continent to ensure that data collected through earth observation is useable and internationally accepted.
3. Research and development of new quantum measurement standards and techniques as part of the South African Quantum Initiative, as this technology is maturing and becoming commercialised with applications in medical imaging, quantum computing and more secure optical communication networks.
4. Providing reference high-accuracy time and frequency signals for South African Radio Astronomy Observatory (SKA) as part of its time distribution infrastructure, which enables the SKA telescope to make synchronous observations with antennas at diverse locations. It includes investigation into the feasibility of an Africa Time Network – an anticipated collaborative effort between African NMIs for establishing an inter-Africa time network as a key component of a modern ICT infrastructure on the continent.
5. Developing a metrology framework for digital technologies through technology demonstrators with applications in energy distribution and manufacturing. Initially, the application of digital technologies to the calibration and verification of smart electricity meters will be investigated.

ACHIEVEMENTS

In 2023, NMISA engaged with the Square Kilometre Array Observatory (SKAO) in Jodrell Bank, UK, which enabled NMISA to support the international radio telescope astronomy observatory. NMISA was also included in the International Technical Advisory Experts Group, which convened to address time signal requirements and the operation of an accurate system needed for daily operations. The SKAO sought assistance for precision clocks, and NMISA will contribute to this intergovernmental effort.

In January 2024, NMISA hosted a successful Quantum technology Workshop conducted both online and in person, with presentations and collaborative discussions. Attendees included representatives from various organisations such as South African Quantum Technology Initiative, Nanoteq (Pty) Ltd, the CSIR's C4IR group, South African Reserve Bank, Banking Association of South Africa, NPL (UK), University of Cape Town, and the University of the Witwatersrand. The workshop aimed to identify metrology requirements from business and academia, facilitating collaboration with NMISA to build necessary skills and competencies. The session brought together corporate and academic specialists to discuss insights and perspectives on quantum technology. NMISA is interested in the possible applications, constraints, and consequences for metrology standards.

4.2.8 Agriculture and food

Development of reference methods, reference materials, and the co-ordination of PTS for food and feed (including contributions to the fisheries or aquaculture, and poultry industries)

PURPOSE

This programme provides quality assurance services to empower food and agricultural testing laboratories in delivering accurate results. These results verify food safety and quality, ensuring compliance with regulatory requirements and promoting fair trade and the protection of public health. With the introduction of the AfCFTA, there is an increased need to strengthen local and regional testing capabilities to mitigate risks to the food supply chain.

Maintaining a quality infrastructure is crucial for achieving mutual recognition of measurement results produced on the continent, thereby promoting intra- and extra-African trade. This programme therefore produces proudly (South) African reference measurements, reference materials and PTSs for Africa-relevant and indigenous commodities. This initiative aims to reduce dependency on, costly imports and contribute towards economic sustainability of critical food testing services. This aligns with the African Union Food Safety Strategy for Africa 2022–2036, which prioritises the protection of public health and economic growth by enabling global and regional trade and promotes the sustainability of scientific testing capacity. The programme includes initiatives such as capacity building aligning with **the dtic**'s strategic objectives for the South African fish and poultry industries, the cassava product value chain, and the implementation of the new SANS standard for drinking water through collaboration with other technical infrastructure institutes. This programme therefore supports the needs of commercial food testing laboratories, food exporters, government monitoring and inspection laboratories (Department of Agriculture, Land Reform and Rural Development, Department of Forestry Fisheries and the Environment, DoH, South African Police Service and Department of Mineral Resources and Energy), food safety regulators, consumer protection bodies and the AfCFTA agreements assisting in trade security.

ACHIEVEMENTS

Training and capacity building

NMISA has been actively involved in extensive training programmes across its projects, aiming to enhance the analytical capabilities and expertise within the African continent. These initiatives are designed to support and improve food safety systems, contributing significantly to both local and international trade competencies.

NMISA conducted a specialised training session for the Tanzania Bureau of Standards (TBS), focusing on imparting skills in advanced analytical techniques. This training is part of a broader initiative to strengthen food safety systems across Africa, ensuring that professionals are equipped with the necessary skills to enhance laboratory operations and testing accuracy. Additionally, NMISA provided TBS with training in mycotoxin testing to deepen the regional expertise, given the serious health risks posed by these toxins. The training sessions focused on practical analysis techniques, aiming to establish a robust foundation for reliable mycotoxin detection across the continent.

NMISA also targeted training courses to address the analytical skills required for precise food labelling. These included the National Laboratory Association Analytical Method Validation Training, which enhanced the capabilities of 11 trainees in method validation essential for accurate food testing. Additionally, ICP-OES and ICP-MS Workshops were held to focus on the analysis of heavy metals and nutritional elements, crucial for ensuring the safety and compliance of food products. An Online Cassava Workshop also played a significant role in this initiative, aimed at laboratories involved in the PAQI Cassava project. This workshop focused on harmonising testing methods across different laboratories, thereby improving the consistency and reliability of food testing across Africa.

Quality assurance

NMISA has established a comprehensive series of PTSs across its various programmes to enhance the proficiency of food testing laboratories across the continent. These schemes are designed to ensure that laboratories can accurately measure and control the presence of contaminants and additives in food products, thereby safeguarding public health and maintaining the integrity of trade.

In the Food Safety and Contaminant Monitoring Programme, several PTSs have been specifically designed for key agricultural exports. For example, schemes focusing on grapefruit and pears aim to ensure that pesticide residues meet international standards, which is crucial for maintaining healthy trade relationships. Similarly, the cassava PTS targets the detection of pesticides and hydrogen cyanide, reflecting the importance of this staple crop in many African diets and its trade implications. Additionally, schemes for guavas and grapes have been developed not only to support both domestic and export markets but also to enhance laboratory testing capabilities across different food matrices, demonstrating laboratories' ongoing competence and adherence to safety standards.

The Mycotoxin Safety Assurance project has made significant progress with the implementation of targeted PTS. For example, the Aflatoxins in Peanut Slurry (PT98) scheme addresses a common contaminant in a widely consumed commodity, aiding laboratories in refining their detection techniques. The Aflatoxin M1 in Milk (PT99) scheme focuses on detecting a carcinogenic substance that can be present in milk due to contaminated feed, underscoring the importance of dairy safety. Furthermore, the Mycotoxins in Animal Feed (PT100) scheme responds to client demand and showcases the project's flexibility and responsiveness to industry needs, ensuring that animal feed remains safe for consumption.

Lastly, the Accurate Food Labelling Initiative has coordinated PTS that enhance the analytical accuracy of laboratories. This includes the scheme for Vitamin A in fortified vegetable oil and sugar, which is pivotal for combating micronutrient deficiencies. Another important scheme involves the detection of toxic and nutritional elements in cocoa powder and fish, ensuring that laboratories have the capacity to identify potentially harmful elements in these foods, thus supporting health and compliance with rigorous safety standards. Through these diverse PTSs, NMISA continues to play a vital role in enhancing the analytical capabilities of laboratories throughout Africa, ensuring that food products meet both local and international safety standards.

4.2.9 Environmental monitoring and waste management

Mining, environmental monitoring

PURPOSE

To develop the standards and reference methods essential for establishing reference values, and providing testing and analysis services to monitor baseline levels of various toxic environmental contaminants in South Africa and the region. Reliable data enables mining and manufacturing companies, as well as regulators, to verify their compliance with environmental standards and regulations to ensure that air, water and soil conditions remain safe and free of harmful pollutants to protect human health.

ACHIEVEMENTS

Supporting emerging green technologies

The role of NMISA extends into emerging sectors and is actively advancing sustainable energy alternatives, emphasising its role in the green hydrogen and biogas sectors. As part of its commitment to renewable energy, NMISA is not only fostering the development of these green technologies but also enhancing the reliability and standards critical for their growth through international collaborations and rigorous key comparisons like CCQM.K164.

Advancements in industrial and greenhouse gas measurements

The Industrial Emissions and Energy Gases Project is at the forefront of addressing the complex challenges of managing emissions in South Africa's industrial sectors. This project is specifically tailored to develop and provide PRGMs for key pollutants such as carbon dioxide and methane, which are predominant in industrial emissions from large refineries, synthetic fuel plants, and other energy-intensive operations.

To ensure the accuracy and reliability of emissions measurements, the project engages in rigorous global metrology comparisons. These international collaborations are essential for maintaining the international equivalence of measurements, allowing South Africa's emissions data to be confidently compared and aligned with global standards. This cross-validation with other NMIs not only strengthens the credibility of South Africa's emissions monitoring systems but also facilitates adherence to international environmental agreements and compliance

with local regulations. Furthermore, the project supports the enhancement of air quality monitoring systems by ensuring that the calibration gases used in various monitoring stations are traceable to international standards. This traceability is crucial for the accurate assessment of air quality, enabling environmental regulators to make informed decisions about pollution control and mitigation strategies. In addition to traditional pollutants, the Industrial Emissions and Energy Gases Project also explores advancements in measurement techniques for emerging contaminants and green energy byproducts. For instance, the development of reference gases for less common but environmentally significant industrial byproducts helps in expanding the scope of pollutants that can be accurately monitored.

Microplastics analysis and standardisation

NMISA is actively involved in the global initiative to standardise microplastics analysis, addressing the widespread environmental and health concerns posed by these pollutants, which are often smaller than 5 mm and can enter the human food chain through seafood and drinking water. Participating in VAMAS initiatives, NMISA aims to improve measurement consistency worldwide by using advanced techniques like Pyrolysis GC/MS and μ-FTIR for identifying microplastics.

Enhancing environmental pollutant monitoring

NMISA's extensive project to develop PRGMs for a broad spectrum of gases—including volatile organic compounds and hazardous air pollutants (HAPs) such as BTEX compounds, significantly enhances South Africa's ability to monitor and manage air quality. The development of PRGMs for low-amount fraction reactive gases and critical greenhouse gases supports precise assessments of industrial emissions and ambient air quality. This work is integral to informing policy decisions and regulatory actions that protect public health and the environment.

Enhancing radioactivity measurement and regulation

NMISA's work in developing radioactivity standards is pivotal for both environmental monitoring and the safe application of nuclear medicine, ensuring that the benefits of radiological practices are maximised while minimising potential risks to public health and the environment.

NMISA's participation in international comparisons, such as those conducted by the CCRI, ensures that South Africa's radioactivity measurements are globally equivalent and reliable. These comparisons involve measuring specific radionuclides, such as actinium-225 and copper-64, which are used in advanced cancer treatments. Such efforts not only contribute to the standardisation of radiopharmaceuticals but also to the development of new treatment methodologies, enhancing the effectiveness and safety of nuclear medicine practices.

Development of dose calibrators and measurement standards

A key focus area for NMISA is the development of dose calibrators and other essential devices used in the medical field to ensure the accurate delivery of radiopharmaceuticals to patients. This is particularly important given the absence of regulation for these calibrators in some regions.

Environmental radioactivity analysis

Beyond medical applications, NMISA is also a key player in environmental radioactivity analysis. The Institute provides vital reference measurements for assessing radioactivity levels in environmental and food samples. This includes monitoring tritium levels in freshwater sources near nuclear facilities, an essential activity given tritium's carcinogenic potential. Ensuring the reliability of these measurements is paramount for public health and environmental protection, helping to maintain exposure levels within safe limits.

Advancing measurement techniques

NMISA is developing new transfer instruments for beta-particle emitting radionuclides and participating in pilot studies through the CCRI. These advancements are part of the Extended International Reference System proposed for international comparisons, demonstrating NMISA's proactive approach in tackling the complexities of new radionuclide measurements.

4.2.10 Realisation, development and dissemination of the NMS for South Africa

Realisation of the SI units

Ampere

NMISA performs calibrations of dc voltage reference standards internally against a Programmable Josephson Voltage Standard (PJVS) annually and sends resistance standards for calibration at the BIPM every three years. The dc voltage reference standards were calibrated in December 2023, and the resistance standards were calibrated in April 2022. Intermediate checks and verifications are conducted between calibration intervals. The Ampere (A) is realised through the application of Ohm's law using dc voltage reference standards and resistance standards. NMISA is collaborating with NPL (UK) to develop and establish a cryo-cooled quantum Hall system that will serve as the primary standard for resistance. The development of the system is at an advanced stage and final testing is being done.

Kelvin

NMISA realises the internationally defined International Temperature Scale of 1990 (ITS-90) for South Africa. Participation in key comparisons with peer NMIs is crucial for maintaining the NMS for temperature.

Following the signing of a MoU with the Spanish metrology institute (CEM) in January 2022, NMISA and CEM's temperature laboratories agreed to conduct bilateral key comparisons. These comparisons aim to link NMISA's measurement results and those from the CCT-K9 and CCT-K4 key comparisons for SPRT calibration in different temperature ranges. NMISA completed its first round of measurements for each of these comparisons during 2023/24.

NMISA successfully participated in two international comparisons, APMP.T-S 16 and APMP.T-K4.2. The results of the first comparison would enable NMISA to register a CMC for the calibration of Type R thermocouples at the Pd melting point (around 1555°C). The latter would allow NMISA to improve the accuracy of its realisation of the aluminium freezing point.

Second

NMISA is responsible for maintaining and realising the SI Second(s). This is achieved by maintaining a prediction of Coordinated Universal Time (UTC) called UTC(ZA), which serves as South Africa's official time standard and aligns with the global UTC standard. UTC(ZA) is derived from an ensemble of caesium thermal beam and active hydrogen maser atomic clocks. The status of the clocks is monitored continuously with data shared with the BIPM. The BIPM issues reports[2] monthly between the 11th and 15th containing the data for the previous month.

Status of UTC(ZA): The BIPM requires that any implementations of UTC be kept within 100 nanoseconds of UTC. NMISA aims to always maintain this within 20 nanoseconds, while striving to be within 10 nanoseconds 80 % of the time, evaluated annually.

Candela

Previously, NMISA realised the candela using in-house traceability to the NMISA primary standard cryogenic radiometer via silicon-trap detector standards. However, due to ongoing maintenance and development work on this radiometer and its supporting systems, traceability is currently being imported from PTB as an interim solution.

During the 2023/24 financial year, a new set of standard photometers, calibrated at PTB in 2022/23, were used to measure the luminous intensity of Light Emitting Diode (LED) lamps. The results are being evaluated as part of the international EMPIR 19NRM02 comparison. The procedure for calibrating luminous intensity standard lamps was also improved during this time. Furthermore, the internal calibration of traditional tungsten-based luminous intensity working standard lamps using the new PTB-calibrated photometers was completed, with the results indicating satisfactory outcomes compared to previous results and a reduction in measurement uncertainty.

Metre

The realisation of the metre, the unit of length, utilises laser frequency standards and an iodine-stabilised He-Ne laser. Over the past year, maintenance upgrades on both systems have been completed with assistance from international suppliers, enabling the realisation of the scale and calibration of secondary standard lasers. These secondary standard lasers are used as working standards for the calibration of client equipment.

Kilogramme

Following the redefinition of the kilogramme, two key comparisons of realisation (KCR) experiments were conducted, resulting in the key comparison reference values (KCRVs) of 2019 and 2021. However, due to a lack of agreement between the results

[2] A copy of the monthly BIPM Circular T with the data can be downloaded from the following web address: https://webtai.bipm.org/ftp/pub/tai/Circular-T/cirthtm/

(The bulletin for April 2023 is Circular T #424, while the information for March 2024 will be published in Circular T #435).

of individual experiments conducted in 2021, the Consultative Committee for Mass (CCM) and related quantities adopted a Consensus Value (CV) for 2023, which was based on the arithmetic mean of the KCRVs from 2019 and 2021, and the pilot study reference value of 2016. The mass value of the South African national standard for mass (copy number 56 of the historical international prototype kilogramme (IPK)) is now traceable to the CV of the kilogramme from 1 March 2023.

The mass standards CMCs for South Africa, which were improved to OIML accuracy class E1 (the highest accuracy class for mass standards), were published on the BIPM KCDB in August 2023.

Mole

NMISA utilises the definition of the mole base unit but does not realise it internally. The mise en pratique for the realisation of the mole according to its definition described in the ninth edition of the SI Brochure – Appendix 2 (2019)[3], NMISA does not practically realise the definition of the mole with the smallest uncertainty possible, which is achieved by applying the silicon sphere and Avogadro's constant. However, common and practical realisation and dissemination of the mole is achieved with larger relative uncertainties applying gravimetric preparation of high purity gas, organic, inorganic substances where the mass fraction of the substance (purity) is accurately determined. These realisations are disseminated as high purity CRMs and Primary Reference Gas Mixtures at NMISA. CMCs for purity assignment are available in the KCDB.

Furthermore, the high purity substances are used as calibrators with higher order reference measurement procedures for the accurate quantification of analytes of interest in a range of different matrices, such as food, environmental samples, mining and advance materials. CMCs for these different measurement services of the NMISA are also available in the KCDB.

New and improved National Measurement Standards

During 2023/24, NMISA developed new, or improved existing NMS, which are listed in the Table 7.

Table 7: NMS in 2023/24

	MEASUREMENT CAPABILITY	NEW NMS/IMPROVED NMS
1	Measurement of luminous flux of visible sources in an integrating sphere using an array spectroradiometer	New NMS for LED sources
2	Calibration of DC Voltage reference standards using a PJVS	Improved NMS for DC Voltage
3	Improved procedure for the calibration of luminous intensity standard lamps	Improved measurement uncertainty contributions for luminous intensity
4	Method validation for the measurement of 1 000 to 4 000 mmol.mol^{-1} refinery reference gas mixtures using CG-FID/TCD	Improved reference material
5	Irradiation of optically stimulated luminescent dosimeters in fast neutron beams	Improving NMS for Neutrons
6	Irradiation of OSLDs for Personal Dose Equivalent with ^{137}Cs and for Absorbed Dose to Tissue Equivalent with ^{90}Sr and ^{85}Kr	Improvement of Beta NMS
7	Personal Dose Equivalent in Cs-137 beam	Improved of Gamma NMS
8	Activity measurements of the radionuclide ^{22}Na	Improved NMS for radionuclide ^{22}Na
9	Evaluating the performance of lighting equipment in terms of illuminance flicker and voltage fluctuation immunity	Improved measurement capability for the measurement of illuminance flicker
10	Calibration of luminous intensity standard lamps	Improved measurement uncertainty budget
11	Developed flicker measurement capability for the reference measurement facility for energy-efficient lighting	New NMS for flicker measurement
12	Calibration of luminous intensity lamps	Improved NMS of intensity standard
13	Determination of anthropogenic and natural radionuclides in water, soil and simulated contaminated surface samples	Improved measurement capability for radionuclides in water, soil and simulated contaminated surface
14	IPS-TEC -0044: Determination of Elements in Samples with High Silica content by Inductively Coupled Plasma Mass Spectrometry/ Inductively Coupled Plasma Optical Emission Spectrometry	New NMS of Elements in Samples with High Silica content
15	Refinery gases reference mixtures	New reference material

[3] BIPM, The International System of Units (SI Brochure), 9th edition, (2019), Available at: https://www.bipm.org/en/publications/mises-en-pratique

Scientific publications

Names of NMISA staff are bold in the list that follows.

Efrem K. Ejigu. (2023). Characterizing a linear pyrometer at the National Metrology Institute of South Africa, *Int. J. Metrol. Qual. Eng*. 14, 3.

Josephs, Ralf D., et al. (contributions from **Désirée Prevoo-Franzsen, Maria Fernandes-Whaley**). (2023). CCQM-K154.d Key Comparison Study – Organic Solvent Calibration Solution Gravimetric preparation and value assignment of patulin in acetonitrile with 0,1 % formic acid. *Metrologia.* 60.

Hlakola, Marcus & Khoza, Michael & Ateka, Grace & Kobur, Kiplangat. (2023). AFRIMETS.EM-S3: Bilateral comparison between NMISA and KEBS on resistance standards at 1 Ω, 10 Ω, 100 Ω, 1 kΩ and 10 kΩ. *Metrologia*. 60.

Ogushi, Koji & **Dlamini, Sipho**. (2023). Report on the CCM.T-K2.1 Key Comparison, Measurand Torque: 10 kN·m and 20 kN·m, Final Report. *Metrologia*. 60.

Tsung-Hsien Tu, Shu-Fen Kuo, Jiun-Kai Chen, Lifeng Yang, Pairoj Rattanangkul, Yong-Bong Lee, **Ian Veldman**, Naveen Garg and Chen-Yun Hung. (2023). Final report of APMP. AUV.V-K3.1: Key comparison in the field of acceleration on the complex voltage sensitivity, *Metrologia.* 60.

4.3 OUTCOMES, OUTPUTS, OUTPUT INDICATORS, TARGETS AND ACTUAL ACHIEVEMENTS

Table 8: Outcomes, outputs, output indicators, targets and actual achievements

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
Programme 1: Administration (including the units and NMS)								
Jobs supported by interventions	Non-permanent positions filled and workplace ready after intervention	Number of interns and in-service trainees hosted	31	34 hosted	12 interns and in-service trainees hosted	19	7	The target is overachieved due to the extension of internship period from 12 to 24 months. 10 interns were rolled over from the previous years and 9 were appointed in 2023/24
Creation of an effective metrology system that enables a sustainable socio-economic environment supported by internationally accepted measurement results **Support for new energy projects** New measurement services for energy efficient lighting and for maintaining the national power grid, expanded through introduction of renewable energy sources through IPPs **Climate initiatives** Provision of certified reference gas mixtures for air monitoring	Provide for the measurement needs of South Africa and the region by dissemination of the units and NMS to national and regional laboratories Shared metrology services for government departments and SOEs	Income generated	R18 706 997	R24 653 025	R36 522 741	R28 444 471	R8 078 270	Some project activities being delayed due to budget cut
		Percentage actual expenditure to budget	99 %	100 %	98 %	100 %	2 %	Allocated budget fully spent
		Number of accredited laboratories and new laboratory accreditations	23 maintained and 1 new accreditation	24 maintained and 1 new accreditation	25 maintained and 1 new accreditation	25 maintained	(1 accreditation)	New accreditation delayed due to prolonged document review process

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
Market inquiries Increase the visibility of NMISA in the market through marketing and sales initiatives and manage market enquiries through a new Contact Centre Provision of measurement solutions through the National Measurement Standards		Percentage increase visibility of NMISA	8,0 %	34,0 %	10,0 %	12,5%	2,5 %	Increased effort in new posting and sharing on social media platforms
Red tape reduction interventions	Digitalisation of NMISA business systems through implementation of an ERP, CMS and project management systems	Percentage customer satisfaction	98,3 %	99,8 %	≥95,0 %	99,0 %	4,0 %	NMISA actively manages customer relations to reduce customer complaints

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
Provide measurement support services in areas outside the five main metros and within SEZs **Legislation** Support law enforcement through demonstrated accuracy of measurement results in legal proceedings Local industrial output	Extend measurement service support to SOEs Undertake specific outreach programmes to provide measurement services within districts and within SEZs Metrology expertise and services provided to settle legal disputes based on the results of measurements Measurement services for local industry for quality control of manufactured products to enhance competitiveness in local and export markets	Number of government department and SOEs serviced by NMISA	4	2	3	5	2	2 SLAs from the previous financial year were signed during 2023/24, and a further 3 for this financial year were completed in 2023/24
		Percentage increase of NMISA clients from the private sector	New KPI	15,0 %	10,0 %	10,9 %	0,9 %	Increase in NMISA visibility has positive impact on the increase in NMISA clients from private sectors

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
To provide metrology for regulatory purposes	Revised Measurement Act to support and contribute to national regulation	Participate in **the dtic** TI review	Updates with regard to NMISA's participation in **the dtic** TI review were submitted to the Board as planned. NMISA awaits the outcome from **the dtic**	Participated in **the dtic** TI review process	Participate in **the dtic** TI review	Participated in **the dtic** TI Review process and submitted entities rationalisation report to the board	None	None
Jobs supported by interventions Transformation of the work environment to ensure representativity, and the effective dissemination of the units and NMS to national and regional laboratories	Full-time permanent jobs filled within NMISA during the year	Percentage of filled funded vacancies	New KPI	9,0 %	5,0 %	4,5 %	0,5 %	A moratorium on new appointments was implemented by the Board
	Provide for the measurement needs of South Africa and the region	Reduced turnaround times for filling vacancies		An update was shared with the Board as planned	Turnaround times for filling vacancies in line with the approved recruitment plan	An update was shared with the Board as planned	(Turnaround times met during Q1 only)	Recruitment and selection to fill the vacant positions were halted
		Percentage of NMISA support to the transformation agenda of South African and African markets		New KPI	70 % of NMISA transactions to contribute to transformation of South African (in support of SMME) and regional (in support of the AfCFTA) market	89 %	19 %	More transactions from African suppliers

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
Programme 2: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support								
Create a capable state through the development of the NMS, maintaining the units at an internationally recognised level, and shorten the traceability chain for Africa through the dissemination of the NMS to support the implementation of the AfCFTA New national energy projects supported by development plans for new measurement capabilities of green hydrogen and derivative products	Implementation of the revised SI	Number of the SI base units	6 SI base units were realised	6 SI base units were realised	Reports on 6 base units of the SI realised	Reports on 6 base units of the SI realised	None	None
		Number of new and improved NMSs and reference material and methods	28	23	13	15	2	3 NMSs initiated in the previous years from P&R and completed in 2023/24. 12 new and improved NMS were completed in 2023/24

IMPACT/OUTCOME	OUTPUT	OUTPUT INDICATOR	AUDITED ACTUAL PERFORMANCE 2021/22	AUDITED ACTUAL PERFORMANCE 2022/23	PLANNED ANNUAL TARGET 2023/24	ACTUAL ACHIEVEMENT 2023/24	DEVIATION FROM PLANNED TARGET TO ACTUAL ACHIEVEMENT FOR 2023/24	COMMENT ON DEVIATIONS
Enabling trade agreements such as BRICS, AGAO, TBA (UK, EU, SADC, AfCFTA) by linking the national and regional measurement system internationally under the Metre Convention Treaty	Linking the national and regional measurement system internationally	Number of inter-laboratory comparisons (ILCs) and PTS organised and completed	25	23 ILCs and PTS completed	Organise and complete 14 ILCs and proficiency testing schemes	22 ILCs and PTS completed	8	6 Reports of the previous ILC/PTS were completed in 2023/24
		Number of memberships maintained and active participation in the CIPM and its consultative committees	10	10 memberships maintained	Maintain 10 memberships	10	0	None
		Percentage of metrological services covered by CMCs	90,5 %	91,0 % of metrological services covered by CMCs	90,0 %	90,5 %	0,5 %	Additional services covered by the 4 improved CMCs in the key comparison database, from the Gas Laboratory for multi- component mixtures containing carbon dioxide, propane and nitrogen monoxide
Support Programmes for SMMEs Transform industry through equipping human capital with the science behind measurement to ensure the effective dissemination of the units and NMS to national and regional laboratories and support the black industrialist initiatives	Provide for the measurement needs of South Africa and the region through knowledge development Develop a support programme specifically for SMMEs	Number of metrologists trained	155	55 metrologists trained	35 metrologists trained	87 metrologists trained	52	More metrologists training requests received than expected
		Number of courses provided including SMEs	20	21	25 courses provided including SMEs	33	8	More training course requests received than expected

4.4 THE NMISA CONTRIBUTION TO THE DTIC OUTCOME TARGETS

NMISA is 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 proven to be accurate. In South Africa, it requires traceability to the NMS maintained by NMISA.

Transitioning to a green economy also depends on an effective quality infrastructure. The CRMs, gas mixtures, PTS, and reference analysis provided by NMISA underpin 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. This infrastructure also facilitates the regulation and prosecution of polluting agencies.

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 uses active contractual agreements with other public entities to ensure effective support services, which are a key performance measure.

The contribution made by NMISA to **the dtic** Outcome Targets follows.

DTIC OUTCOME	NMISA OUTPUT	OUTPUT INDICATOR	BASELINE	ANNUAL TARGET (2023/24)	ACTUAL ACHIEVEMENT
2 new SEZs designated and support work with provinces related to industrial parks	Collaboration firms within SEZs for the provision of measurement services	Number of new SOEs and/or companies within SEZs serviced by NMISA. *(Included in NMISA KPI 7)*	New KPI	At least 1 new service agreement with a SOE/firm within a SEZ	6
R40 billion additional local industrial output committed or achieved	Creating awareness of NMISA's products and services in support of quality assurance in the manufacturing, mining, and related industries, to increase uptake	Increased visibility of NMISA through awareness campaigns and marketing activities aimed at the manufacturing, mining, and related industries. *(Included in NMISA KPI 5)*	New KPI	At least 1 stakeholder engagement and 1 article published for the manufacturing, mining, or related industries	1 Stakeholder engagement and 2 articles published
1 Implementation of the AfCFTA	Support the implementation of the AfCFTA agreement through active participation in the activities of regional metrology bodies	Number of inter-laboratory comparisons (ILCs) and PTS organised and completed within AFRIMETS. *(Included in NMISA KPI 15)*	New KPI	2	3
R8 billion support programmes for SMMEs, and women and youth-empowered businesses	Develop a support programme specifically for SMMEs	Number of SMMEs trained or supported by measurement services offered by NMISA	New KPI	10	11

DTIC OUTCOME	NMISA OUTPUT	OUTPUT INDICATOR	BASELINE	ANNUAL TARGET (2023/24)	ACTUAL ACHIEVEMENT
R15 billion support programmes to enterprises outside the 5 main metros	Extend the reach of the national measurement system to increase support to districts outside the 5 main metros	Number of outreach activities undertaken to further extend measurement services to districts outside the main metros.	New KPI	4	4
100 000 new jobs created through interventions: a. 50 000 job opportunities (not permanent) b. 50 000 full-time permanent jobs	Internal job opportunities created by NMISA through its Internship Programme	a. Number of non-permanent jobs created for the year. *(Included in NMISA KPI 1)*	34 interns hosted	25	19 *(see comments on NMISA KPI 1 above)*
Expedited regulatory amendments and flexibility to promote energy efficiency	Supporting energy efficiency standards and/or regulations for lighting products through testing services for LED lighting sources	Number of stakeholder engagements and publications to improve awareness and uptake of new measurement services for LED sources offered by NMISA.	New KPI	At least 1 stakeholder engagement on energy efficiency hosted by NMISA	2
1 Finalisation of green hydrogen commercialisation framework	Support the green hydrogen strategy plan for South Africa with internationally recognised measurement traceability	Progress reports on a research and development plan for new measurement standards and/or methods for green hydrogen gas and related products.	New KPI	A report on a feasibility study on metrology services for green hydrogen	2 reports
5 Conference summits and international forums hosted	Participate in the international committees established to enact the Metre Convention Treaty to link the national and regional measurement system internationally	Number of memberships maintained and active participation in the CIPM and Consultative Committees.	New KPI	10	10
1 000 Case studies of firms, workers, entrepreneurs, professionals, or communities impacted by **the dtic** measures: including 12 local films/ documentaries telling the South African story	Case studies of stakeholders impacted by products or services delivered by NMISA	Number of case studies concluded.	New KPI	20	21
10 High-impact measures to reduce red tape or improve turn-around times in administration of incentives and work of agencies	Digitalisation of operational processes and customer service management	Number of digital solutions for business systems and/or technical projects implemented to increase operational efficiency and improve client experiences.	New KPI	Implement 1 digital solution for technical projects	3

4.5 STRATEGY TO OVERCOME AREAS OF UNDERPERFORMANCE

Income generated: The NMISA Board revised the budget target from R36 522 741 to R22 436 000 in November 2023 following the mid-term review of the Annual Performance Plan prompted by a budget cut from the shareholder. The actual achievement of R28 444 471 is an achievement.

Number of accredited laboratories and new laboratory accreditations: Funds have been allocated for the new accreditation process, document review process continued, and further accreditation arrangements were made.

Reduced turnaround times for filling vacancies: The recruitment process to fill four funded vacancies was initiated. One position, Senior Manager Internal Audit was finalised within the set turn-around time, with a starting date of 1 July 2024. The CEO position is at an advanced stage of the selection process, while advertisements for Manager Facilities and Maintenances and Manager Information Technology positions have been published.

4.6 LINKING PERFORMANCE WITH BUDGETS

PROGRAMME	2023/24			2022/23		
	BUDGET R'000	ACTUAL EXPENDITURE R'000	(OVER)/ UNDER EXPENDITURE R'000	BUDGET R'000	ACTUAL EXPENDITURE R'000	(OVER)/ UNDER EXPENDITURE R'000
Administration	88 649	92 847	(4 198)	113 286	110 307	2 979
Applied measurement services and products for industry, SOEs and regulatory support	98 809	158 973	(60 164)	107 803	146 441	(38 638)
Total	**187 458**	**251 820**	**(64 362)**	**221 089**	**256 748**	**(35 659)**

4.7 REVENUE COLLECTION

SOURCE OF REVENUE	2023/24			2022/23		
	ESTIMATE R'000	ACTUAL AMOUNT COLLECTED R'000	(OVER)/ UNDER EXPENDITURE R'000	ESTIMATE R'000	ACTUAL AMOUNT COLLECTED R'000	(OVER)/ UNDER EXPENDITURE R'000
Transfer from controlling entity	152 722	152 722	-	195 704	195 704	-
Rendering of services	22 436	28 444	(6 008)	26 981	24 653	2 328
Interest received	12 300	11 939	361	6 000	6 618	(618)
Other income	-	-	-	-	388	(388)
Total	**187 458**	**193 105**	**(5 647)**	**228 685**	**227 363**	**1 322**

NMISA provides measurement solutions for service providers, to support a reliable telecommunications infrastructure and high quality, affordable services to South Africans.

PART C

GOVERNANCE

1 INTRODUCTION

Corporate governance is underpinned by effective leadership, oversight, and management responsibility, underscored by high ethical standards. This results in governance outcomes inclusive of effective controls and an ethical culture. The NMISA has adopted the King IV Report on Corporate Governance for South Africa, 2016 (King IV) as a guiding principle for good governance in conjunction with applicable laws and regulations.

The King IV principles foster reporting that focuses on the impact of the organisation on the economy, environment, and social aspects. The NMISA's Annual Report includes statements on the effectiveness of internal controls and the governance of risk; remuneration; compliance with applicable laws and regulations; ethics codes; and the NMISA's response to social needs. These are also in line with the National Treasury Guidelines on reporting.

Parliament, the Executive, and the Accounting Authority of the public entity are responsible for corporate governance.

2 PORTFOLIO COMMITTEES

The Portfolio Committee of **the dtic** exercises oversight over NMISA's performance in pursuit of enhancing economic growth. The Standing Committee on Public Accounts reviews the Annual Financial Statements, and the external auditors, MNB Chartered Accountants', audit report.

3 EXECUTIVE AUTHORITY

Mr Ebrahim Patel, Minister responsible for Trade, Industry and Competition, is the Executive Authority accountable to Parliament for the NMISA's activities as defined in Section 1(c) and (d) of the PFMA, No. 1 of 1999. The Minister also serves as the Shareholder for the NMISA. The operating results of the entity are fully set out in the Annual Financial Statements.

In the year under review the NMISA submitted the following reports to the Shareholder, who raised issues on the annual performance plan.

Table 9: Reports submitted to the Shareholder

REPORT	DATE
NMISA Quarter 1 Report	31 July 2023
NMISA Quarter 2 Report	31 October 2023
NMISA Annual Report 2022/23	31 August 2023
NMISA Quarter 3 Report	31 January 2024
NMISA Quarter 4 Report	30 April 2024
NMISA Annual Performance Plan 2024/25–2026/27	31 January 2024
Strategic Plan 2024/25–2028/29	31 January 2024

4 THE ACCOUNTING AUTHORITY/BOARD

4.1 INTRODUCTION

The NMISA Board is appointed by the Minister of **the dtic** in terms of Section 10(1)(a)(b)(c) of the Measurement Units and Measurement Standards Act (the Act), the Board serves as NMISA's Accounting Authority as declared in Section 49(2)(a) of the PFMA. The Board is principally responsible for strategic direction, oversight of the organisation and for setting the tone for ethical and effective leadership. NMISA remains committed to the principles of openness, integrity, and accountability. It continually reviews its processes and practices to ensure compliance with legal obligations and adherence to good corporate governance.

The primary objective of corporate governance is to ensure that the Board and those who manage NMISA's day-to-day operations, carry out their accountability and responsibilities faithfully and effectively – placing the interests of the organisation ahead of their own.

As the Accounting Authority, the Board is accountable to the Executive Authority and is ultimately responsible for the implementation of sound corporate governance practices in accordance with King IV. The Board delegates authority through a delegation matrix to its committees and to various structures to ensure efficiency.

4.2 THE ROLE OF THE BOARD

Within the functions and powers conferred on the Board and its committees by the Act and the PFMA, the Board is required to:

- Achieve its strategic objectives by approving and directing NMISA's overall strategy and associated operational objectives.
- Approve NMISA's Strategic Plan, Annual Performance Plan, Annual Financial Statements, monitor the implementation of the Plans, and approves all budgets.
- Ensure that adequate processes are in place for budget planning and allocation to advance the NMISA's mandate, which includes overseeing its socio-economic programmes.
- Ensure that NMISA can achieve its statutory objectives.
- Determine policy processes to ensure the integrity of NMISA's risk management and internal controls.
- Provide decisive and effective leadership on key matters of strategic direction by bringing an independent, informed and effective view.
- Promote an ethical culture through regularly reviewed policies and advocate for an uncompromising integrity and transparent environment.
- Satisfy itself that NMISA is governed effectively in accordance with corporate governance best practices, appropriate and relevant codes and standards and internal control systems.
- Ensure an effective control environment and compliance with applicable laws and regulations.
- Ensure the integrity of the statutory reports developed in line with the PFMA which includes reporting on the effectiveness of the system of internal controls.

4.3 BOARD CHARTER

The Board is committed to executing its duties in accordance with the principles espoused in King IV and as envisaged in the Board Charter. The Board has developed a term of reference which regulates Board parameters, ensures good corporate governance in all dealings and outlines the roles and responsibilities of the Board.

The Board Charter is reviewed annually to ensure ongoing relevance and to maintain an updated version.

4.4 COMPOSITION OF THE BOARD

Table 10: Board members – Term ended on 30 June 2023

NAME	DESIGNATION	DATE APPOINTED	END DATE	QUALIFICATIONS	AREA OF EXPERTISE	BOARD DIRECTORSHIPS	OTHER COMMITTEES OR TASK TEAMS	NO. OF MEETINGS ATTENDED
Dr Anneline Chetty	Non-Executive Member	01/04/ 2022	Term ended 30 June 2023	• PhD: Geography and Environmental Science • Masters in Town and Regional Planning • BA: Social Work • Project Management	Human Resources, Project Management, Innovation and Technology Strategy	N/A	• Human Resource and Remuneration Committee	• 2: Board • 1: HRRC **Total: 3**
Dr Tshenge Demana	Non-Executive Member	05/05/2013	Term ended 30 June 2023	• PhD: Analytical Chemistry • BSc	Scientist	SANAS	• Technical Committee • HRRC • Ad hoc Tender Committee	• 1: HRRC • 1: Board **Total: 2**
Ms Lindie Lankalebalelo	Non-Executive Member	01/07/2018	Term ended 30 June 2023	• LLB • Postgraduate Certificate in Legislative Drafting • Postgraduate Certificate in Corporate Law	Legal	N/A	• Social and Ethics Committee • ARC • CEO recruitment Task team • Ad hoc Tender committee	• 1: SEC • 9: Ad-hoc • 2: Board **Total: 12**
Mr Petrus Mohlomi	Non-Executive Member	01/07/2018	Term ended 30 June 2023	• MBL • BSc: Microbiology and Biochemistry • National Higher Diploma in Microbiology	Scientist	N/A	• Technical Committee • ARC • CEO recruitment Task Team • Ad hoc Tender committee	• 2: Board • 2: ARC • 2: Ad-hoc • 1: CEO recruitment Task Team **Total: 7**
Ms Nobom Mfabana	Non-Executive Member	01/07/2018	Term ended 30 June 2023	• Masters in Labour Studies • BA Honours: Political Science • BA • National Higher Diploma in Municipal Governance	Labour	N/A	• SEC • Human Resource and Remuneration Committee • CEO recruitment Task Team	• 2: Board • 2: HRRC • 1: SEC • 1: Ad-hoc • 2: ARC • 1: CEO recruitment Task Team **Total: 9**
Mr Ndwakhulu Mukhufhi	CEO *(ex-officio member)*	01/07/2013	Term ended 31 August 2023	• MSc: Biochemistry and Molecular Biology • BSc: Biochemistry • Postgraduate Diploma: Project Management	Scientist	N/A	• Technical Committee	• 1: Board • 1: SEC • 1: TC • 1: ARC **Total: 4**
Dr Wynand Louw	ACEO *(ex-officio)*	10/05/2023	Term ended 11 July 2023	• PhD: Physics • MSc: Physics • BSc Honours: Physics • BSc: Physics and Chemistry • Certificate in Senior Management	Scientist	N/A	• Technical Committee	• 1: Board • 1: HRRC • 1: ARC **Total: 3**
Ms Mosa Makhele	Non-Executive Member	01/04/2023	Term ended 30 June 2023	-	Financial Management Policy and Research	N/A	-	• 2: Board **Total: 2**

Table 11: Board members – Term began on 1 October 2023

NAME	DESIGNATION	DATE APPOINTED	END DATE	QUALIFICATIONS	AREA OF EXPERTISE	BOARD DIRECTORSHIPS	OTHER COMMITTEES OR TASK TEAMS	NO. OF MEETINGS ATTENDED
Dr Precious Motshwene	Chairperson of the Board	01/10/2023	Term ends 30 September 2028	• PhD: Biochemistry • MSc: Molecular and Cell Biology • BSc Honours: Biochemistry	• Biochemistry • Molecular Biology • Innate Immunity • Research Ethics	• CSIR • University of Pretoria • Dr Gugu Consulting (Pty) Ltd • GF Brands (Pty) Ltd	• Human Resource and Remuneration Committee • Social and Ethics Committee	• 2: HRRC • 2: Board • 1: SEC • 8: Ad hoc **Total: 13**
Ms Babalwa Songongo	Board member	01/10/2023	Term ends 30 September 2028	• CA(SA) • BCom Honours: Accounting • BCom: Accounting	• Financial Management • Reporting • Budget analysis	• Preferred Provider Negotiators • Zonwabise Resorts Holdings	• Audit and Risk Committee • Social and Ethics Committee	• 3: ARC • 1: SEC • 2: Board • 4: Ad hoc **Total 10**
Prof. Andrew Buffler	Board member	01/10/2023	Term ends 30 September 2028	• PhD: Experimental Nuclear Physics • MSc: Nuclear Physics • PGCE • BSc Honours • BSc: Physics	• Radiation metrology and applications measurement uncertainty and the SI	• MeASURe	• Human Resource and Remuneration Committee • Technical Committee	• 2: HRRC • 1: Board • 1: TC • 4: Ad hoc **Total: 8**
Dr Alufelwi Tshavhungwe	Board member	01/10/2023	Term ends 30 September 2028	• PhD: Chemistry • MSc: Chemistry • BSc Honours: Chemistry • BSc: Majoring in Physics and Chemistry • University Education Diploma Majoring in Mathematics Methodology and Physical Science Methodology	• Public service • Chemistry • Nanomaterials/ nanotechnology • Academia	-	• Audit and Risk Committee • Ad hoc Tender Committee	• 3: ARC • 2: Board • 4: Ad hoc **Total: 9**
Ms Sara Prins	Board member	01/10/2023	Term ends 30 September 2028	• MSc: Metallurgical Engineering/ Material Science • BSc Honours: Metallurgy • BSc: Chemistry and Applied Mathematics	• Strategy • Business Informatics and Analytics • Financial Management • Budgeting • Laboratory Management accreditation	• UIS Microbiology	• Human Resource and Remuneration Committee • Technical Committee	• 2: HRRC • 2: Board • 1: TC • 7: Ad hoc **Total: 12**
Prof. Lorna Holtman	Board member	01/10/2023	Term ends 30 September 2028	• PhD: Science Education • MPhil: Science Education • Bachelor of Education Honours • Higher Diploma: Education • BSc Honours: Zoology • BSc: Zoology and Botany	• Research • Research Capacity Development • Curriculum specialist science and mathematics.	• Hoeda Agritech (Pty) Ltd (Director), RSA • YLEET NPO (CEO/ Director), RSA • Mozisha International Holdings, Delaware, USA (Board member)	• Social and Ethics Committee • Ad hoc Tender Committee	• 2: Board • 1: SEC • 5: Ad hoc **Total: 8**

NAME	DESIGNATION	DATE APPOINTED	END DATE	QUALIFICATIONS	AREA OF EXPERTISE	BOARD DIRECTORSHIPS	OTHER COMMITTEES OR TASK TEAMS	NO. OF MEETINGS ATTENDED
Dr James Tshilongo	Board member	01/10/2023	Term ends 30 September 2028	• PhD: Science Measurement/ Chemistry • MSc: Chemistry • BSc Honours: Chemistry • BSc • Advanced Project Management Certificate • Project Management Certificate	• Science of Measurement and Minerals	• South African Environmental Observation Network • Council member of National Association for Clean Air (NACA) • Council member for EFTEON Advisory Panel	• Audit and Risk Committee • Technical Committee • Ad hoc Tender Committee	• 3: ARC • 1: TC • 2: Board • 4: Ad hoc **Total: 10**
Ms Senamile Masango	Board member	01/10/2023	Term ends 30 September 2028	• Masters in Nuclear Physics (cum laude) • BSc Honours: Nuclear Physics • BSc: Physics and Electronics • PGD: Management, Energy Leadership • Diploma: Project Management • Certificate: Detector and Instrumentation Technology	• Energy Expert • Nuclear Science • Social Entrepreneur • Coding • Cybersecurity • Project Management • Research and development. • Innovation • Digital Transformation	• Necsa • Moses Kotane Institute • Senamile Masango Foundation • Umngeni uThukela Water • Mphathisithele consulting (Pty) Ltd	• Human Resource and Remuneration Committee • Technical Committee	• 2: Board • 1: SEC • 1: TC • 5: Ad hoc **Total: 9**
Dr Wynand Louw	Board member	01/10/2023*	Term ends 30 September 2028	• PhD: Physics • MSc: Physics • BSc Honours: Physics • BSc: Physics and Chemistry • Certificate in Senior Management	• Material Characterisation • Metre Convention affairs and metrology in general • Science of metrology and the SI • Metrology in Chemistry • Metrology in Ionising radiation	• CIPM (President)	• Technical Committee • Social and Ethics Committee • Ad hoc Tender Committee	• 1: Board • 6: Ad hoc **Total: 7**
Mr Teboho Mthombeni	ACEO *(ex-officio)*	26/10/2023	Term ended 31 January 2024	• MBA • National Diploma in Mechanical Engineering	• Engineering • Project Management • Contract Management • Power Plant Management Page • Business Development and Management • Corporate Services Managememnt	-	• Technical Committee	• 1: Board **Total: 1**
Dr Jayne de Vos	ACEO *(ex-officio)*	01/02/2024	Present	• PhD: Chemistry • MSc: Applied Science	• Analytical Organic Chemistry • Separation Science • Environmental Chemistry • Metrology in Chemistry • Management	• AFRIMETS Chair of Technical Committee • AOAC International Sub-Saharan Africa Section Executive Board member	• Technical Committee	• 2: Board **Total: 2**

* Dr Wynand Louw took up Board position in December 2023.

4.5 COMMITTEES OF THE BOARD

The Board is assisted by various committees in discharging its duties and responsibilities.

Each committee is chaired by a non-executive member who reports to the Board on discussions, conclusions and recommendations. The committees are governed by approved terms of reference that articulates the delegated levels of authority and responsibility. The following committees are in place:

- Audit and Risk Committee
- Social and Ethics Committee
- Human Resources and Remuneration Committee
- Technical Committee
- Ad hoc Committees (Tender Committee, CEO Recruitment Task Team, IT Strategic Committee)

Table 12: Board committees and members

BOARD TERM	COMMITTEE	NO. OF MEETINGS HELD	NO. OF MEMBERS	NAME OF MEMBERS
Ended 30 June 2023	Audit and Risk Committee	2	5	Mr Petrus Mohlomi, Mr Zenzele Myeza, Ms Lindie Lankalebalelo, Ms Nobom Mfabana, Ms Romeshni Govender
From 1 October 2023		3	5	Ms Babalwa Songongo, Dr Alufelwi Tshavhungwe, Dr James Tshilongo, Mr Zenzele Myeza, Ms Romeshni Govender
Ended 30 June 2023	Social and Ethics Committee	1	2	Ms Lindie Lankalebalelo, Ms Nobom Mfabana
From 1 October 2023		1	4	Prof. Lorna Holtman, Dr Wynand Louw, Ms Babalwa Songongo, Dr Precious Motshwene
Ended 30 June 2023	Human Resources and Remuneration Committee	2	3	Dr Anneline Chetty, Ms Nobom Mfabana, Dr Tshenge Demana
From 1 October 2023		2	4	Ms Sara Prins, Prof. Andrew Buffler, Dr Precious Motshwene, Ms Senamile Masango
Ended 30 June 2023	Technical Committee	0	3	Dr Tshenge Demana, Mr Petrus Mohlomi, Mr Ndwakhulu Mukhufi, Dr Wynand Louw
From 1 October 2023		1	5	Prof. Andrew Buffler, Ms Senamile Masango, Dr Wynand Louw, Dr James Tshilongo, Ms Sara Prins, Mr Teboho Mthombeni, Dr Jayne de Vos
Ended 30 June 2023	Ad hoc Committee: Tender Committee	0	4	Ms Nobom Mfabana, Dr Tshenge Demana, Ms Lindie Lankalebalelo, Mr Petrus Mohlomi
From 1 October 2023		0	4	Dr James Tshilongo, Dr Alufelwi Tshavhungwe, Prof. Lorna Holtman, Dr Wynand Louw
Ended 30 June 2023	Ad hoc Committee: IT Steering Committee	4	4	Ms Maureen Mavunda, Dr Thami Batyashe
From 1 October 2023		3	2	Ms Maureen Mavunda, Dr Thami Batyashe
Ended 30 June 2023	Ad hoc Committee: CEO Recruitment Task Team	1	3	Mr Petrus Mohlomi, Ms Nabom Mfabana, Ms Lindie Lankalebalelo
From 1 October 2023		3	9	Dr Precious Motshwene, Dr Wynand Louw, Ms Sara Prins, Ms Senamile Masango, Prof. Lorna Holtman, Dr James Tshilongo, Dr Alufelwi Tshavhungwe, Ms Babalwa Songongo, Prof. Andrew Buffler
From 1 October 2023	Ad hoc Committee: Senior Manager: Internal Audit Recruitment task team	1	2	Ms Babalwa Songongo, Ms Romeshni Govender

4.6 REMUNERATION OF BOARD MEMBERS

Table 13: Remuneration of Board members

NAME	AMOUNT	OTHER EXPENSES	TOTAL
Mr Petrus Mohlomi	R30 733,65	R963,06	R31 696,71
Ms Nobom Mfabana	R34 766,93	-	R34 766,93
Ms Lindie Lankalebalelo	R54 933,30	R5 185,32	R60 118,62
Dr Precious Motshwene	R74 235,38	R1 092,94	R75 328,32
Ms Babalwa Songongo	R47 237,60	-	R47 237,60
Prof. Andrew Buffler	R33 066,32	-	R33 066,32
Dr Alufelwi Tshavhungwe	-	R104,61	R104,61
Ms Sara Prins	R51 961,36	R540,27	R52 501,63
Prof. Lorna Holtman	R37 790,08	-	R37 790,08
Dr James Tshilongo	R47 237,60	R1 652,00	R48 889,60
Ms Senamile Masango	R42 513,84	-	R42 513,84
Dr Wynand Louw	R14 171,28	-	R14 171,28
Ms Romeshni Govender	R66 249,60	-	R66 249,60
Mr Zenzele Myeza	R49 687,20	-	R49 687,20
Dr Nomathamsanqa Batyashe	R13 588,10	-	R13 588,10
Ms Maureen Mavunda	R9 447,50	-	R9 447,50
	R607 619,74	**R8 575,14**	**R617 157,94**

* Treasury guideline – Employees of national, provincial and local government or agencies and entities of government serving on boards of public entities are not entitled to additional remuneration.

5 RISK MANAGEMENT REPORT

NMISA does not have a Risk Management Committee but instead has the Combined Assurance Team which was established to help the organisation provide assurance on the effectiveness of risk management, in line with the Risk Management Policy and Framework approved by the Board.

The team monitors the implementation and impact of risk mitigation strategies and provides quarterly reports to the ARC. The team also monitors the progress on mitigation plans especially for the risks outside the acceptance risk levels. The team meets on a quarterly basis in line with the approved Terms of Reference/Charter to consider and review the risk management policies and to provide oversight on the effectiveness of risk management within NMISA.

The three lines of defence by the team ensure that risk is continually monitored within the organisation and that the mitigation plans implemented address the identified root causes and strengthen the internal control environment. The risk registers developed (strategic and operational) are updated quarterly to ensure that all major risks including emerging risks facing the organisation are effectively managed.

This includes the continuous identification of emerging risks which are brought to the attention of the ARC and the Board to independently monitor the effectiveness of risk management thereof.

6 REPORT ON INTERNAL AUDITS

Internal auditing is an independent and objective assurance and consulting activity that is designed to add value and improve the operations of NMISA. Internal auditing assists NMISA to accomplish its objectives by using a systematic and disciplined approach (risk-based audit approach) to evaluate and improve the effectiveness of governance, risk management and internal control processes.

Internal Audit implemented its revised Annual Risk-Based Audit Plan for 2023/24 as part of a three-year rolling plan, after consultation with management and approval by the ARC. The audit comprised reviews in the sphere of governance, risk management and internal controls to provide reasonable assurance to management and the ARC on the state of internal controls within NMISA. All audits and other work of the internal audit function were conducted in accordance with the International Standards for the Professional Practice of Internal Audit, as issued by the Institute of Internal Auditors (IIA).

7 AUDIT AND RISK COMMITTEE PERFORMANCE

The ARC was established as a statutory committee in terms of Section 38(1)(a)(ii) and Section 77 of the PFMA and Treasury Regulations. The responsibilities of the committee are outlined in its terms of reference, while its activities are set out in an annual work plan.

The committee assists the Board in discharging its integrated reporting and combined assurance duties and oversees financial matters and external audit with the Chief Financial Officer (CFO), internal audit and risk management. It reports to the Board on any matter identified while carrying out its duties that it considers significant. The committee performs, on behalf of the Board, any other tasks, or actions that the Board may authorise from time to time.

7.1 AUDIT AND RISK COMMITTEE MEMBERS AND ATTENDANCE

The ARC's Terms of Reference require that the ARC comprises a minimum of three non-executive board members elected by the Board and two external members. In terms of Section 77(b) of the PFMA, the ARC must meet at least twice a year. During the financial year ended 31 March 2024 the ARC held five meetings.

The following table discloses relevant information on the audit committee members.

Table 14: Audit and Risk Committee members and meeting attendance

NAME	QUALIFICATION	INTERNAL OR EXTERNAL	IF INTERNAL POSITION IN ENTITY	DATE APPOINTED	END DATE	NUMBER OF MEETINGS ATTENDED
Ms Lindie Lankalebalelo	• LLB • Postgraduate Certificate in Legislative Drafting • Postgraduate Certificate in Corporate Law	External	N/A	01/07/2018	Term ended 30 June 2023	0
Mr Petrus Mohlomi	• MBL • BSc: Microbiology and Biochemistry • National Higher Diploma in Microbiology	External	N/A	01/07/2028	Term ended 30 June 2023	2
Ms Nobom Mfabana	• Masters in Labour Studies • BA Honours: Political Science • BA • National Higher Diploma in Municipal Governance	External	N/A	01/07/2028	Term ended 30 June 2023	2
Ms Babalwa Songongo	• CA(SA) • BCom: Honours in Accounting • BCom: Accounting	External	N/A	01/10/2023	N/A	3
Dr James Tshilongo	• PhD: Science of Measurement/ Chemistry • MSc: Chemistry • BSc Honours: Chemistry • BSc • Advance Project Management Certificate • Project Management Certificate	External	N/A	01/10/2023	N/A	3
Dr Alufelwi Tshavhungwe	• PhD: Chemistry • MSc: Chemistry • BSc Honours: Chemistry • BSc: Majoring in Physics and Chemistry • University Education Diploma Majoring in Mathematics Methodology and Physical Science Methodology	External	N/A	01/10/2023	N/A	3
Ms Romeshni Govender	• CRMA • CCSA • CIA • CA(SA) • Postgraduate Diploma in Accounting • Bachelor of Accounting	External	N/A	Re-appointed: November 2021	N/A	5
Mr Zenzele Myeza	• Chartered Director (SA) • BCom: Accounting and Auditing • MBA • Certificate in Corporate Governance • Certificate in Aviation Management • Master Practitioner in Real Estate	External	N/A	Re-appointed: November 2021	N/A	5

8 COMPLIANCE WITH LAWS AND REGULATIONS

NMISA respects compliance with applicable laws and regulations and commits to the highest standard of compliance.

The Board has an oversight role over compliance of the organisation and its employees, as provided for in the PMFA. Management is responsible for ensuring that the effective compliance process and controls are in place to mitigate compliance risks. The management of compliance and its risks follows the entity's overall Risk Management Framework.

The internal audit function regularly appraises NMISA's compliance requirements and reports its findings to the ARC, and in turn the ARC reports compliance concerns and matters to the Board.

9 FRAUD AND CORRUPTION

The Social and Ethics Committee, established by the Board, oversees the implementation and effectiveness of NMISA's Fraud and Whistleblowing Policy. Management is responsible for maintaining a robust governance and risk management system, as well as preventing and detecting fraud and corruption within the organisation.

To facilitate the reporting of suspicious activities, NMISA has established a Fraud and Whistleblowing Hotline, managed by an independent external service provider, Vuvuzela Fraud and Ethics Hotline. This service operates under strict guidelines to ensure that all reports requiring investigation are handled in accordance with the POPI Act, No. 4 of 2013 and NMISA's Fraud and Whistleblowing Policy, thereby safeguarding the confidentiality of the informants.

Reports needing investigation are forwarded by the service provider to the Senior Internal Audit Manager, who, due to their independence, along with the Chairperson of the ARC, ensure an appropriate investigation is initiated. If necessary, relevant disciplinary processes are subsequently pursued.

10 MINIMISING CONFLICT OF INTEREST

A register of declarations of interest for NMISA's management is kept and updated annually, with an opportunity for declaring changes, or interests that affect the day's proceedings, at all Board, Committee and Executive Committee meetings. In addition to the director's personal interest, directors also disclose interests of their spouses, partners, or close family members.

Full disclosure of the nature of a director's interest on any matter before the Board is required.

A director, as an individual, is disqualified, by his/her office in NMISA, from contracting with NMISA. However, any organisation he/she may represent is not, in like manner, disqualified.

NMISA is committed to a policy of fairness, transparency, honesty, impartiality, objectivity, credibility, integrity and, above all, accountability, in the conducting of all its business affairs, both inside and outside the organisation. This commitment is based on a fundamental belief in honest, fair, and legal conduct in all business activities.

Employees are expected to share this commitment to high moral, ethical and legal standards.

11 CODE OF CONDUCT

All NMISA employees, contract workers and consultants are bound by the Code of Conduct, which establishes strict ethical guidelines. NMISA is dedicated to ethical and fair business practices, fostering a corporate culture that is inclusive, socially responsible, and environmentally conscious. This commitment is reflected in the following values and principles:

- **QUALITY** – As a key component of South Africa's quality infrastructure, NMISA strictly adheres to quality principles, contributing to the implementation of quality standards in society.
- **MEASUREMENT EXCELLENCE** – At the forefront of measurement accuracy, NMISA ensures traceability to the SI and connects the regional measurement system globally. NMISA exemplifies excellence in its measurement services for the community.
- **SOCIAL RESPONSIBILITY** – Beyond establishing and maintaining NMSs, NMISA plays a leadership role in addressing measurement issues, raising awareness, and providing training to society.
- **ECONOMIC PROSPERITY** – By providing accurate measurements and an internationally recognised measurement system, NMISA supports production, trade, and health services, serving as a foundation for economic prosperity.
- **GOOD GOVERNANCE** – This principle underpins all NMISA activities and its international reputation, as demonstrated by its performance and a record of clean audit findings. Non-compliance with this policy is considered misconduct and is addressed in accordance with NMISA's Disciplinary Code.

12 HEALTH, SAFETY AND ENVIRONMENTAL ISSUES

NMISA's environmental management system is certified according to ISO 14001:2015 (Environmental Management Systems), and its occupational health and safety management systems are certified according to ISO 45001:2018 (Occupational Health and Safety Management System Requirements). These systems, together with the ISO 17024, 17034, and 17043 accreditations are managed through the NMISA Total Quality Management System. They undergo regular internal audits and periodical external audits to ensure compliance with their respective requirements. NMISA maintains ongoing certification and accreditation to provide assurance that the systems are well implemented and continuously improved. In the year under review, NMISA underwent ISO 45001:2018 recertification audits, conducted Occupational Hygiene Surveys, and Environmental & Health and Safety Legal Compliance audits. These are geared towards ensuring a healthy and safe working environment for NMISA employees as well as minimising the impact of NMISA's activities on the environment.

13 COMPANY SECRETARY REPORT

The Company Secretary oversees corporate governance and is responsible for assisting the Board with ensuring that it adheres to the principles of sound corporate governance. The Company Secretary supports the Board and its committees by advising them on their statutory duties, disclosure duties, good corporate governance practices, proper compilation and timely circulation of Board and committee papers.

The Company Secretary serves as a direct channel of communication between the Board and its chairperson and the shareholder, management, and other stakeholders. The Company Secretary also coordinates the training of Board members on fiduciary/governance matters and assists with the Board member evaluation process. The Board appoints the Company Secretary and ensures that she has the requisite level of knowledge and experience to discharge her duties.

14 SOCIAL RESPONSIBILITIES INITIATIVES

14.1 SCHOOL OUTREACH – IKUSASA COMPREHENSIVE SCHOOL IN TEMBISA

In celebration of Youth Day, NMISA visited the Ikusasa Comprehensive School on the 13th of June 2023, to talk to the Grade 11 and 12 learners (about 200 learners) about the diverse and exciting careers in the STEM fields and highlighting the potential bursary opportunities in our institution.

After a positive presentation and a lot of interest from both the learners and their teachers on the first visit, NMISA was invited to attend the Thanksgiving Ceremony at the school. During the ceremony, which took place on July 31st at the beginning of Science Week, NMISA staff members supported the first-ever Achievement Awards for top students in Life Sciences, Physical Sciences, and Mathematics. NMISA took charge of the design, printing, and framing of over 100 certificates to be awarded and also donated some of the smaller prizes distributed to the winners.

Two Senior Managers from NMISA handed out the certificates and congratulated all the achievers. The learners were also enlightened on the importance of education and how dedication to their studies will help them lay a solid foundation upon which they can build their dreams. This initiative is a follow-up on the initial Awareness Project that took place in June (Youth Month), where staff educated the learners about opportunities and careers in the STEM fields.

14.2 MANDELA DAY – CRADLE OF HOPE IN KRUGERSDORP

On July 18th, Mandela Day, a team from NMISA visited the Cradle of Hope NPC in South Africa to make a positive impact in the lives of women in need. As part of the commitment to giving back, and the ongoing Corporate Social Investment initiatives, the Institute donated 67 cosmetic bags for women filled with personal care items.

In addition to the donation, the NMISA team also volunteered their time to assist in serving meals at Cradle of Hope's lunchtime programme, where they served almost 400 adults and children with hot soup and bread. This NPC manages 15 projects that directly impact the lives of more than 1 200 less fortunate adults and children every day.

14.3 SCHOOL OUTREACH PROGRAMME – PROTEA GLEN SECONDARY SCHOOL NO2 PRESENTATION ON CAREERS IN STEM FIELDS

On 21 July 2023, a team from the NMISA HR and Marketing department conducted a presentation at the Protea Glen Secondary School No2, in Glenridge. The presentation was delivered to young students from Grades 10 to 12 (250 to 300 learners) about the importance of studying mathematics and science and the opportunities available in STEM careers.

The delegation was led by Mr Vusimuzi Chiloane, a recent cum laude graduate of the University of Pretoria with a Master's degree. Mr Chiloane is one of the success stories from the NMISA Human Capital Development (HCD) Programme, which significantly contributed to his academic and professional career. The programme funded his master's degree and provided the infrastructure to achieve his research objectives. During the presentation, Mr Chiloane shared his journey to success from an underprivileged background with the learners, encouraging them to make an effort with their studies to increase their opportunities for bursaries. After a successful presentation, the learners were also given small bags containing a few of NMISA's branded stationary items to aid them in their preparation for their upcoming September and December exams.

15 AUDIT AND RISK COMMITTEE REPORT

The ARC herewith presents its report for the financial year ended 31 March 2024.

15.1 LEGISLATIVE REQUIREMENTS

The ARC was constituted as required by Section 77 of the PFMA, (No. 1 of 1999), as amended by Act No. 29 of 1999, read together with Treasury Regulation 27.1.10.

15.2 AUDIT COMMITTEE RESPONSIBILITY

The ARC reports that it has complied with its responsibilities arising from Section 38(1)(a)(ii) of the PFMA and Treasury Regulation 3.1.13. The ARC also reports that it has adopted appropriate formal terms of reference as its Audit Committee Charter, has regulated its affairs in compliance with this charter and has discharged all its responsibilities as contained therein.

One of the challenges the committee encountered was the vacuum in the governance structures that led to the inability of the committee to complete all its activities as per the Charter e.g. not meeting the minimum number of meetings required.

15.3 THE EFFECTIVENESS OF INTERNAL CONTROL

The ARC has reviewed reports from various assurance providers, which have considered combined assurance, and acknowledges management's efforts to strengthen internal controls. Overall, the system of internal control for the period under review needs improvement. However, there are areas that require enhancement such as Supply Chain Management internal controls, HR payroll system, IT governance and cyber security controls.

The following internal audit work was completed during the year under review:

- Annual Financial Statements Review
- Audit of Performance Information Q1 – Q4
- Follow-up Audits Q1 -Q4
- Budgeting Process
- Customer Services Review
- Risk Management Review
- Employee Verification Audit
- Assets Verification (Special Project 100 % verification).

Investigations

- Prepayments Compliance
- Governance Compliance.

The ARC is responsible for the appointment, compensation, retention, and oversight of the Internal Audit Manager. The internal audit function operates within the scope of the Internal Audit Charter approved by the ARC. Internal audit reports functionally to the ARC and operationally to the Accounting Officer. During the year under review, the senior manager of internal audit resigned, and an acting senior manager was appointed by the Board.

In the 2023/24 financial year, the ARC approved a risk-based, three-year rolling Internal Audit Plan. The committee is reasonably satisfied with the effectiveness and independence of the internal audit function.

Throughout the year, the internal audit function reported on the overall control environment and activities of the fraud hotline within NMISA. Additionally, a revised internal audit annual plan was submitted. The ARC is satisfied with the content and quality of management and quarterly reports prepared and issued during the year under review. The ARC has reviewed and commented on the Annual Financial Statements and reports on performance information and submitted to the external auditors by the 14th of June 2024.

15.4 IN-YEAR MANAGEMENT AND MONTHLY/QUARTERLY REPORT

NMISA has been reporting monthly and quarterly to the Treasury as is required by the PFMA. The purpose of the monthly reporting is for internal progress monitoring of performance information, in preparation for quarterly reporting. Quarterly reports are reviewed internally for quality checks, submitted to sub-committees of the board and approved by the board prior to submission to **the dtic**. The approved reports are submitted to the shareholders through the Department of Planning, Monitoring and Evaluation system.

15.5 EVALUATION OF FINANCIAL STATEMENTS

The ARC has reviewed the Annual Financial Statements. Its review focused on the following:

- Significant financial reporting judgements and estimates contained in the Annual Financial Statements
- Clarity and completeness of disclosures and whether disclosures made have been set properly in context
- Quality and acceptability of, and any changes in, accounting policies and practices
- Compliance with accounting standards and legal requirements
- The basis for the going concern assumption, including any financial sustainability risks and issues.

After conducting its yearly reviews, the ARC identified areas of concern that require improvement. The committee went on to recommend areas of improvement within the finance function, asset management and internal audit function. The ARC is comfortable that the Annual Financial Statements have been prepared in terms of Generally Recognised Accounting Practice (GRAP) and the PFMA.

15.6 AUDITOR'S REPORT

ARC concurs with and accepts the conclusion and audit opinion of the external auditors on the Annual Financial Statements. The committee is of the view that the audited financial statements be accepted and read in conjunction with the report of the external auditors. The ARC confirms that it has been actively involved with the audit process.

The external audit function performed by MNB Chartered Accountants is independent of the entity. The ARC acknowledges the diligence and cooperation of the external audit team.

We would like to express our appreciation to the Board for their leadership and support, as well as the CEO, CFO, Internal Audit and Management for their commitment and achievement of an unqualified audit opinion.

On behalf of the ARC:

Ms Babalwa Songongo
Chairperson of the Audit and Risk Committee (NMISA)

Date: 30 August 2024

16 B-BBEE COMPLIANCE PERFORMANCE INFORMATION

B-BBEE compliance is reported by NMISA in terms of Section 13(G)(1) of the Broad-Based Black Economic Empowerment Act No. 53 of 2003 as amended by Act No. 46 of 2013.

Table 15: B-BBEE compliance

Application of Relevant Code of Good Practice (B-BBEE Certificate Levels 1–8) with regards to the following:		
CRITERIA	**RESPONSE YES/NO**	**DISCUSSION**
Determining qualification criteria for the issuing of licences, concessions, or other authorisations in respect of economic activity in terms of any law?	No	Not within the NMISA mandate
Developing and implementing a preferential procurement policy?	Yes	NMISA utilises the Preferential Procurement Policy framework in determining winning bidders for goods and services above R30 000
Determining qualification criteria for the sale of state-owned enterprises?	No	Not within the NMISA mandate
Developing criteria for entering into partnerships with the private sector?	No	Not within the NMISA mandate
Determining criteria for the awarding of incentives, grants and investment schemes in support of Broad Based Black Economic Empowerment?	No	NMISA employs a pre-payment methodology to assist exempted micro enterprises in delivering goods and services procured from them

NMISA ensures that food quality and safety standards are maintained throughout the food supply chain, which helps to safeguard public health and promote sustainable agriculture practices.

PART D

HUMAN RESOURCE MANAGEMENT

1 INTRODUCTION

1.1 OVERVIEW OF HUMAN RESOURCES MANAGEMENT

The Human Resources' (HRs) core function is to attract, develop and retain talent and expertise to fulfil NMISA's legislative mandate. Despite many challenges faced during the year, the organisation remained focused and delivered on its strategic objectives. The organisation's excellent performance was maintained because of the skilled and resilient human capital that was developed over the years. As a strategic partner to the business, the HR Department supports the organisation through HR interventions including Organisational Design, Workforce Planning, Talent Management, Performance Management, Rewards and Recognition, Employee Relations and Employee Engagement.

During the period under review, the organisation encountered significant challenges, which coincided with the end of terms for both the CEO and the Board, as well as the retirement of some of the executives. While measures were put in place to ensure the continued smooth operation of the organisation, these challenges highlighted the need for the organisation to re-evaluate its succession planning process and leadership development initiatives to enhance its business continuity efforts.

NMISA prides itself on its ability to offer work that is meaningful, impactful, and stimulating work environments, coupled with competitive reward and recognition offerings. However, in the previous year, 2022/23 despite achieving its targets, the organisation faced challenges in fulfilling payments of both short and long-term incentives. This has negatively affected staff morale and has resulted in an unfortunate loss of talent. Recruitment and selection activities only focused on critical positions as the organisation retained the moratorium on new appointments to align with the available budget.

Despite challenges, the organisation remained committed to motivating staff through other means. The flexible working arrangements allow for a combination of on-site and remote work (a hybrid setup) which continued to boost staff morale. The organisation also continued the implementation of its HCD initiatives to ensure continuous learning, personal growth and career development opportunities for the employees. The HCD Programme provides employees with valuable opportunities for training and development. These initiatives include furthering their studies through enrolling in postgraduate and other academic programmes, attending short courses, on-the-job training and attending conferences. Upskilling and reskilling of employees to be able to work in different areas was prioritised as the organisation tried to implement solutions to manage operations with limited human resources.

1.2 HR PRIORITIES FOR 2023/24 AND THEIR IMPACT

The department continued its drive to review policies and procedures to ensure alignment with legislation and best practices.

Recruitment efforts during the year under review were primarily directed towards filling critical vacancies for key positions. However, due to the moratorium on new appointments, other vacant positions remained unfilled. Although the recruitment and selection process for the CEO position was initiated, the position remained vacant by the end of the financial year.

Despite staffing challenges, the department remained committed to supporting management by facilitating the induction and onboarding process for the newly appointed Board members. This demonstrates the organisation's dedication to maintaining operational effectiveness and continuity even amidst staffing constraints.

The organisation dealt with several employee relations issues including precautionary suspensions of key officials including those in executive and senior management roles. The department played a key role in supporting the organisation and the affected areas.

NMISA continued its focus on training and development through its HCD Programme. Employees and managers attended training in line with their development plans and prioritised critical skills, especially employees who were transferred to new areas as part of their reskilling for new roles. The department also partnered with the Training Centre and participated in facilitating training. Continued collaborations between HR and the Training Centre will allow for more courses to be included, to enhance overall staff development and the centre's external training offerings.

1.2.1 Rewards management

During the year under review, the organisation continued its efforts to carefully manage its salary bill to align with the available budget. The funds that were allocated to the positions that became vacant during the year were reallocated to other critical activities. The limited financial resources resulted in the organisation's inability to allocate funds for cost-of-living adjustments, performance bonuses and pay progression. The review of the Remuneration Policy was initiated and will continue in the new year for the organisation to revise its reward and recognition offerings. The overall employee value proposition will be reviewed to enhance staff retention.

1.2.2 Employee retention

Staff retention remained a challenge and the organisation lost key skills during the year under review. Staff turnover increased from 8,0 % to 17,0 %. Most of the resignations, were from the technical/metrology functions making 67,0 %. This included six scientists/metrologists who were appointed through the HCD Programme and were funded for further studies as bursars, trained and absorbed in the metrology functions after completion of their studies and workback obligations. The retention strategy will be reviewed to improve staff retention.

1.3 WORKFORCE PLANNING FRAMEWORK

Workforce planning involves identifying the organisation's current and future human resource requirements, developing and implementing plans to meet these requirements, and monitoring their overall effectiveness. The focus for the reporting period was on the finalisation of the placement of middle management. Workforce plans are under review as part of the implementation of the new strategic plan for 2024–2028.

1.4 EMPLOYEE PERFORMANCE MANAGEMENT FRAMEWORK

The Employee Performance Management Framework guides performance planning, facilitation, review, reporting as well as rewards and recognition. No changes were made to the Performance Management System. However, employees' performance was managed in accordance with established processes and training initiatives were implemented to support the personal development plans outlined in their performance appraisals. The organisation continued to review employees' performance contracts to ensure the continued alignment with strategic objectives. The process to review individual KPIs for Senior Management and support roles, which started in the previous year is still underway. The main objective of this initiative is to standardise KPIs to ensure consistency and fairness.

1.5 EMPLOYEE WELLNESS PROGRAMMES

In support of employees' well-being in terms of health and wellness, NMISA continues to offer an EWP. Through the EWP employees can access counselling services on personal and work challenges, including stress, financial issues, legal issues, relationships, family matters and health. The EWP utilisation rate for the year was on average above the government benchmark and Life Health Solutions (service provider) benchmark. The utilisation rate provides assurance that the programme is actively used by employees and that it adds value to the organisation. An annual wellness day and other initiatives were implemented during the year guided by the Employee Wellness Operational Plan. The plan focused on interventions and initiatives that were highlighted in the quarterly utilisation reports. The reports highlight individual and overall organisational health and wellness risk factors that could potentially impact employees and, as a result, hamper organisational effectiveness.

1.6 POLICY DEVELOPMENT

Policy development and review were prioritised during the year under review. Outdated policies were reviewed to ensure alignment with changes in legislation and to support the organisational strategy. One newly developed policy and two reviewed policies were approved as indicated below:

- Lifestyle Audit Policy (new policy)
- Recruitment Policy
- Delegation of Authority (Board to the CEO).

Other policies that were under review were sent back for more information and alignment with the strategy, they will undergo the approval process during the following year.

1.7 ACHIEVEMENT HIGHLIGHTS

NMISA continued to support employees in their personal and career development by offering educational assistance, training and other developmental opportunities through the HCD Programme. Once again, the organisation celebrated academic achievements attained during the year under review. Amongst those who completed higher qualifications during the 2023/24 financial year was one Senior Scientist who completed his PhD and seven employees from support functions as indicated.

EMPLOYEE NAME	DIVISION	QUALIFICATION
Rheinhardt Sieberhagen	Technical Services	Doctor of Philosophy in Mathematical Sciences
Nthabiseng Mokoni	Support Services	BCom Honours in Supply Chain Management
Khanani Sithole	Support Services	Advanced Diploma in Business Management
Erasmus Ranngu	Support Services	Postgraduate Diploma in Project Management
Nico Marome	Technical Services	Advanced Diploma in Business Management
Kgabo Maremane	Support Services	Advanced Diploma in Business Management
Aphinda Mzozoyana	Support Services	Postgraduate Diploma in Informatics
Portia Sibanyoni	Support Services	Postgraduate Diploma in Supply Chain Management

1.8 HR CHALLENGES

1.8.1 Staff turnover

Staff turnover increased from 8,0 % to 17,0 %. Of the terminations, 67,0 % were key skills in the metrology functions. The lost skills could not be replaced due to the moratorium on new appointments. Interim arrangements including appointment of temporary staff, acting appointments especially for the vacant executive and managerial roles and movement of human resources to different areas were made to assist affected areas. The lost skills, depending on the availability of funds, will be addressed through prioritised recruitment for key positions. The organisation will continue to try to improve the employee value proposition.

1.8.2 Vacant positions

Twenty-two (22) positions remained vacant at the end of the reporting period. Only two out of the 22 vacancies were allocated funding, and the recruitment process was initiated to fill the positions. The vacancy rate was at 1,0 % against the annual target of 5,0 % based on the revised recruitment plan which included the two key positions (CEO and Senior Manager Internal Audit). The other vacant positions were excluded from the recruitment plan due to budget constraints. Although interim measures were implemented to deal with the workload, some projects could not be completed by the end of the year. The excessive workload and non-implementation of long- and short-term incentives negatively impacted staff morale and overall well-being. The organisation will continue its prioritisation process to identify and fill critical positions in line with the available budget.

1.9 FUTURE HR PLANS/GOALS

In the upcoming year, the HR department will undertake several key initiatives to ensure effective management of human resources:

- Review of policies, with a focus on procedures (especially for the newly approved policies); prepare a new employment equity plan as the current one will end in the following year,
- Review the retention strategy,
- Review the succession planning process and plan,
- Conclude the review of performance contracts for senior management and support staff, and
- Pursue recruitment to replace lost skills in line with the approved compensation budget and Recruitment Plan.

HR will also relook at retention strategies and initiatives and ensure alignment with the organisational strategy and the organisational revised budget. HR, together with line managers, will continue the process of updating affected job descriptions, HR information systems and records.

The Employee Wellness Operational Plan will be updated, guided by the quarterly utilisation reports, and implemented to improve overall organisational wellness.

2 HUMAN RESOURCE OVERSIGHT STATISTICS

2.1 PERSONNEL RELATED EXPENDITURE

Personnel cost by programme/activity/objective

Table 16: Personnel cost by directorate/business unit

DIRECTORATE/BUSINESS UNITS	TOTAL EXPENDITURE FOR THE ENTITY (R'000)	PERSONNEL EXPENDITURE (R'000)	PERSONNEL EXP. AS A % OF TOTAL EXP.	NO. OF EMPLOYEES	AVERAGE PERSONNEL COST PER EMPLOYEE (R'000)
Chief Executive Officer	6 006	5 780	96 %	4	1 445
Strategy, Governance and Business Development	13 902	8 237	59 %	10	824
Applied Metrology	10 022	7 676	77 %	9	853
Finance and Corporate Services	135 572	22 789	17 %	25	912
Manufacturing Competitiveness and Redefinition of the SI	20 715	18 886	91 %	21	899
Advanced Measurement Solutions and Energy Efficiency	21 590	17 496	81 %	23	761
Quality of Life	7 288	5 916	81 %	8	740
Reference Materials, Green Economy and Commercial Services	30 748	26 767	87 %	32	836
Research, International and Infrastructure Development	5 977	2 751	46 %	1	2 751
Total	**251 820**	**116 298**	**46 %**	**133**	**874**

Personnel cost by salary band

Table 17: Personnel cost by salary band

SALARY BAND	PERSONNEL EXPENDITURE (R'000)	% OF PERSONNEL EXP. TO TOTAL PERSONNEL COST	NO. OF EMPLOYEES	AVERAGE PERSONNEL COST PER EMPLOYEE (R'000)
Executive Management	14 018	12 %	5	2 804
Senior Management	11 712	10 %	8	1 464
Middle Management	5 408	5 %	6	901
Professional qualified	74 361	64 %	83	896
Skilled	9 648	8 %	26	317
Semi-skilled	1 151	1 %	5	230
Unskilled	0	0 %	0	0
Total	**116 298**	**100 %**	**133**	**874**

Performance rewards

Table 18: Performance rewards

SALARY BAND	PERFORMANCE REWARDS	PERSONNEL EXPENDITURE (R'000)	% OF PERFORMANCE REWARDS TO TOTAL PERSONNEL COST
Executive Management	273	14 018	2,0 %
Senior Management	0	11 712	0,0 %
Middle Management	0	5 408	0,0 %
Professional qualified	0	74 361	0,0 %
Skilled	0	9 648	0,0 %
Semi-skilled	0	1 151	0,0 %
Unskilled	0	0	0,0 %
Total	**273**	**116 298**	**2,0 %**

Training costs

Table 19: Training costs

DIRECTORATE/BUSINESS UNITS	PERSONNEL EXPENDITURE (R'000)	TRAINING EXPENDITURE (R'000)	TRAINING EXPENDITURE AS A % OF PERSONNEL COST	NO. OF EMPLOYEES TRAINED	AVERAGE TRAINING COST PER EMPLOYEE (R'000)
Chief Executive Officer	5 780	28	0 %	3	9
Strategy, Governance and Business Development	8 237	112	1 %	5	22
Applied Metrology	7 676	120	1 %	6	20
Finance and Corporate Services	22 789	189	1 %	31	6
Manufacturing Competitiveness and Redefinition of the SI	18 886	198	1 %	19	10
Advanced Measurement Solutions and Energy Efficiency	17 496	138	1 %	16	9
Quality of Life	5 916	64	1 %	6	11
Reference Materials, Green Economy and Commercial Services	26 767	161	1 %	18	9
Research, International and Infrastructure Development	2 751	93	3 %	2	47
Total	**116 298**	**1 103**	**10 %**	**106**	**10**

2.2 EMPLOYMENT

Employment and vacancies

Table 20: Employment and vacancies by programme/activity/objective

DIRECTORATE/BUSINESS UNITS	2022/23 NO. OF EMPLOYEES	2023/24 APPROVED POSTS	2023/24 NO. OF EMPLOYEES	2023/24 VACANCIES	FUNDED VACANCIES	% OF FUNDED VACANCIES
Chief Executive Officer	2	6	4	2	2	33 %
Strategy, Governance and Business Development	12	15	10	5	0	0 %
Applied Metrology	8	12	9	3	0	0 %
Finance and Corporate Services	32	46	25	14	6	13 %
Manufacturing Competitiveness and Redefinition of the SI	29	35	21	9	4	11 %
Advanced Measurement Solutions and Energy Efficiency	27	38	23	15	4	11 %
Quality of Life	9	12	8	3	2	17 %
Reference Materials, Green Economy and Commercial Services	32	40	32	8	3	8 %
Research, International and Infrastructure Development	3	25	1	24	1	4 %
Total	**154**	**229**	**133**	**96**	**22**	**10 %**

Table 21: Employment and vacancies by salary band

DIRECTORATE/BUSINESS UNITS	EMPLOYMENT AT BEGINNING OF PERIOD	APPOINTMENTS	TERMINATIONS	PROMOTIONS	EMPLOYMENT AT END OF THE PERIOD
Top Management	8	0	3	0	5
Senior Management	10	0	2	0	8
Middle Management	10	0	4	0	6
Professional qualified	91	1	9	0	83
Skilled	30	0	4	0	26
Semi-skilled	5	0	0	0	5
Unskilled	0	0	0	0	0
Total	**154**	**1**	**22**	**0**	**133**

Reasons for staff leaving

Table 22: Reasons for staff leaving

REASON	NUMBER	% OF TOTAL NO. OF STAFF LEAVING
Death	1	4 %
Resignation	13	58 %
Dismissal	2	8 %
Retirement	4	15 %
Ill health	0	0 %
Expiry of contract	4	15 %
Other	0	0 %
Total	**22**	**100 %**

Labour relations: Misconduct and disciplinary action

Table 23: Labour relations: Misconduct and disciplinary action

NATURE OF DISCIPLINARY ACTION	NUMBER
Verbal warning	2
Written warning	0
Final written warning	0
Dismissal	2

2.3 EQUITY

Equity target and employment equity status

Table 24: Male staff demographics by salary band

LEVELS	AFRICAN		COLOURED		INDIAN		WHITE		FOREIGN NATIONALS	
	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET
Top Management	2	3	0	0	1	1	0	0	0	0
Senior Management	2	3	0	0	0	1	1	1	0	0
Middle Management	2	4	0	0	0	2	1	1	0	0
Professional qualified	30	40	3	3	2	3	6	12	2	2
Skilled	10	10	0	0	0	0	0	0	0	0
Semi-skilled	3	3	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0
Total	**49**	**63**	**3**	**3**	**3**	**7**	**8**	**14**	**2**	**2**

Table 25: Female staff demographics by salary band

LEVELS	AFRICAN		COLOURED		INDIAN		WHITE		FOREIGN NATIONALS	
	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET	CURRENT	TARGET
Top Management	0	1	0	0	0	0	2	2	0	0
Senior Management	4	4	0	0	0	0	1	1	0	0
Middle Management	1	1	0	0	0	0	1	2	0	0
Professional qualified	23	25	2	2	0	0	12	15	1	1
Skilled	13	14	2	2	1	1	3	3	0	0
Semi-skilled	2	2	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0
Total	**43**	**47**	**4**	**4**	**1**	**1**	**19**	**23**	**1**	**1**

Table 26: Staff with disabilities demographics by salary band

SALARY BAND	MALE		FEMALE	
	CURRENT	TARGET	CURRENT	TARGET
Top Management	0	0	0	0
Senior Management	0	0	0	0
Middle Management	0	0	0	0
Professional qualified	0	2	0	0
Skilled	0	0	0	0
Semi-Skilled	0	0	0	0
Unskilled	0	0	0	0
Total	**0**	**2**	**0**	**0**

NMISA develops and provides the underpinning measurement solutions needed to facilitate and support energy efficient lighting, energy conversion processes (renewables and other alternative sources), and smart grids in support of the improvement of electrical energy efficiency.

PART E

PFMA COMPLIANCE REPORT

1 IRREGULAR, FRUITLESS AND WASTEFUL EXPENDITURE AND MATERIAL LOSSES

1.1 IRREGULAR EXPENDITURE

Reconciliation of irregular expenditure

DESCRIPTION	2023/24 R'000	2022/23 R'000
Opening balance	-	425
Adjustment to opening balance	-	-
Opening balance as restated	-	-
Add: Irregular expenditure confirmed	392	
Less: Irregular expenditure condoned	-	-
Less: Irregular expenditure not condoned and removed	-	(425)
Less: Irregular expenditure recoverable	(372)	-
Less: Irregular expenditure not recovered and written off	-	-
Closing balance	**20**	**-**

The irregular expenditure relates to payroll fraud of R384 317 committed by an ex-NIMSA employee (Payroll specialist) and R7 250 resulting from failure to follow the procurement process.

Reconciling notes

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure that was under assessment	-	-
Irregular expenditure that relates to the prior year and identified in the current year	-	-
Irregular expenditure for the current year	392	-
Total	**392**	**-**

Details of irregular expenditure (under assessment, determination, and investigation)

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure under assessment	155	-
Irregular expenditure under determination	-	-
Irregular expenditure under investigation	-	-
Total	**155**	**-**

Details of irregular expenditure condoned

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure condoned	-	-
Total	**-**	**-**

Details of irregular expenditure not condoned

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure NOT condoned	-	-
Total	**-**	**-**

Details of irregular expenditure recoverable

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure recoverable	372	-
Total	**372**	**-**

Details of irregular expenditure written off (irrecoverable)

DESCRIPTION	2023/24 R'000	2022/23 R'000
Irregular expenditure written off	-	-
Total	**-**	**-**

Details of disciplinary or criminal steps taken as a result of irregular expenditure

DISCIPLINARY STEPS TAKEN
The payroll specialist who committed payroll fraud was dismissed from NMISA. Furthermore, R371 644 out of R384 317 has been recovered from the payroll specialist.

1.2 FRUITLESS AND WASTEFUL EXPENDITURE

Reconciliation of fruitless and wasteful expenditure

DESCRIPTION	2023/24 R'000	2022/23 R'000
Opening balance	-	-
Adjustment to opening balance	-	-
Opening balance as restated	-	-
Add: Fruitless and wasteful expenditure confirmed	-	-
Less: Fruitless and wasteful expenditure recoverable*	-	-
Less: Fruitless and wasteful expenditure not recoverable and written off	-	-
Closing balance	**-**	**-**

Reconciling notes

DESCRIPTION	2023/24 R'000	2022/23 R'000
Fruitless and wasteful expenditure that was under assessment	-	-
Fruitless and wasteful expenditure that relates to the prior year and identified in the current year	-	-
Fruitless and wasteful expenditure for the current year	-	-
Total	**-**	**-**

Details of fruitless and wasteful expenditure (under assessment, determination, and investigation)

DESCRIPTION	2023/24 R'000	2022/23 R'000
Fruitless and wasteful expenditure under assessment	-	-
Fruitless and wasteful expenditure under determination	-	-
Fruitless and wasteful expenditure under investigation	-	-
Total	**-**	**-**

Details of fruitless and wasteful expenditure recoverable

DESCRIPTION	2023/24 R'000	2022/23 R'000
Fruitless and wasteful expenditure recoverable	-	-
Total	**-**	**-**

Details of fruitless and wasteful expenditure not recoverable and written off

DESCRIPTION	2023/24 R'000	2022/23 R'000
Fruitless and wasteful expenditure written off	-	-
Total	**-**	**-**

Details of disciplinary or criminal steps taken as a result of fruitless and wasteful expenditure

DISCIPLINARY STEPS TAKEN
None

Additional disclosure relating to material losses in terms of PFMA Section 55(2)(b)(i) & (iii))9

Details of material losses through criminal conduct

MATERIAL LOSSES THROUGH CRIMINAL CONDUCT	2023/24 R'000	2022/23 R'000
Theft	384	-
Other material losses	-	-
Less: recoverable	372	-
Less: Not recoverable and written off	-	-
Total	**12**	**-**

Details of other material losses

NATURE OF OTHER MATERIAL LOSSES	2023/24 R'000	2022/23 R'000
-	-	-
Total	**-**	**-**

Other material losses recoverable

NATURE OF OTHER MATERIAL LOSSES	2023/24 R'000	2022/23 R'000
-	-	-
Total	**-**	**-**

Other material losses not recoverable and written off

MATERIAL LOSSES THROUGH CRIMINAL CONDUCT	2023/24 R'000	2022/23 R'000
-	-	-
Total	**-**	**-**

2 LATE AND/OR NON-PAYMENT OF SUPPLIERS

2.1 SYNOPSIS OF INVOICES RECEIVED AND PAID

DESCRIPTION	NUMBER OF INVOICES	CONSOLIDATED VALUE R'000
Valid invoices received	1 393	98 793
Invoices paid **within** 30 days or agreed period	949	54 210
Invoices paid **after** 30 days or agreed period	356	39 242
Invoices older than 30 days or agreed period **(unpaid and without dispute)**	88	5 341
Invoices older than 30 days or agreed period **(unpaid and in dispute)**	-	-

NMISA is utilising the new ERP system Dynamics 365. The implementation of additional functionalities, which included product receipt required line manager approval and it was at this stage that the processing of invoices was delayed. Payment after 30 days was at 32% non-compliance due to a bottleneck identified in the management of payments resulting from the limited funds available.

3 SUPPLY CHAIN MANAGEMENT

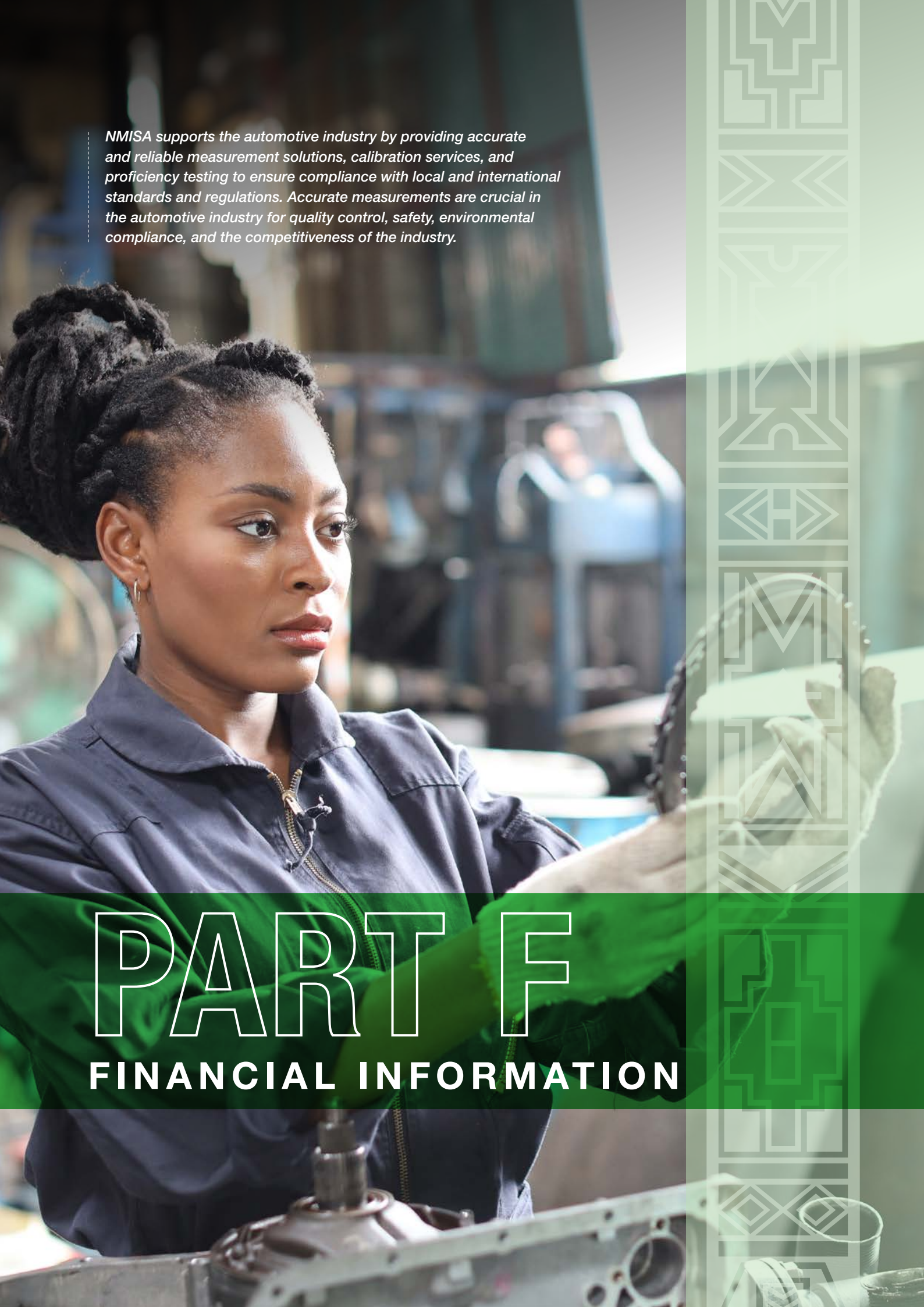
3.1 PROCUREMENT BY OTHER MEANS

No procurement by other means above R1 million, which requires reporting to National Treasury.

3.2 CONTRACT VARIATIONS AND EXPANSIONS

No contract variations were required in the year under review.

NMISA supports the automotive industry by providing accurate and reliable measurement solutions, calibration services, and proficiency testing to ensure compliance with local and international standards and regulations. Accurate measurements are crucial in the automotive industry for quality control, safety, environmental compliance, and the competitiveness of the industry.



PART F

FINANCIAL INFORMATION

1 CFO'S REPORT

1.1 OVERVIEW OF FINANCIAL PERFORMANCE

NMISA's main source of revenue is the transfer/allocation received from **the dtic**. Due to financial constraints on the fiscus, NMISA's allocation has declined both in nominal and real terms. Figure 5 indicates transfers received from 2017 to 2024. The allocation for the current year was reduced by 22 % overall inclusive of the 10 % cut that was implemented by National Treasury across all state entities. The average reduction expected over the Medium-Term Expenditure Framework (MTEF) is 3,7 % from a low base of R177,3 million in 2024/25 to R170,7 million in 2026/27. The entity, in its current format, may not be sustainable in the short-term should there be any further budget cuts.

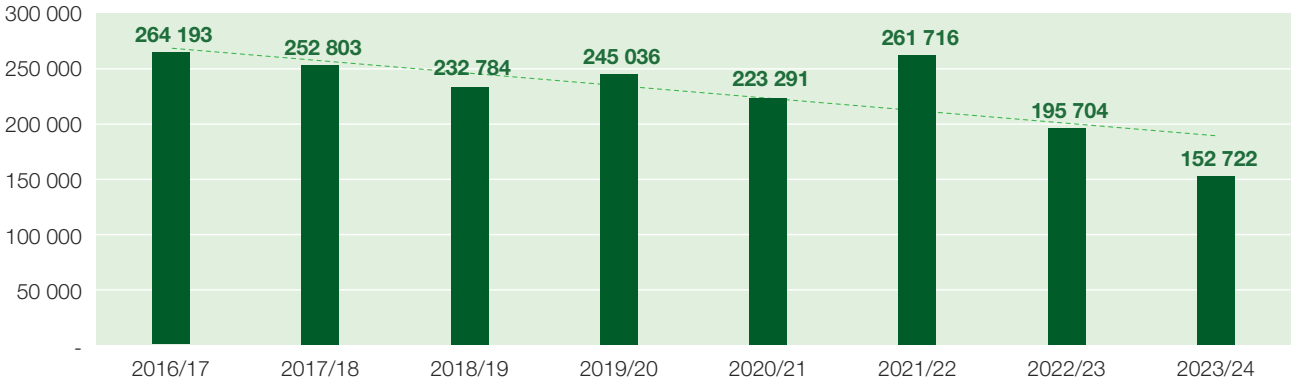


Figure 5: Transfers received for the previous five years

The organisation has, over the past 12 years apart from the current financial year, grown in terms of size and strategic impact. Decline reduction in the allocation has resulted in significant financial distress. The baseline funding received for operations does not cover compensation of employees, which has increased as a percentage of total budget in line with the strategic direction of the organisation.

The decline in allocation coupled with the organisations' growth in size and strategic impact has driven the need for external revenue generation activities to enhance sustainability in the short-, medium-, and long-term. The loss of key resources, however, constrains the revenue generation initiatives given the decline in government grants.

The spending focus was on maintenance and improvement of existing standards, development of new measurement standards and equipment, and improvements to outdated facilities and infrastructure that support the NMS. This is performed congruently with increased compensation and continuous development of employees both in the support and technical functions.

1.2 REVENUE

NMISA has three sources of revenue: transfers received from **the dtic**, revenue from the rendering of services, and interest income. The transfer received of R152,7 million (2023: R195,7 million) represents 79 % (2023: 86 %) of total revenue.

Table 27: Revenue from all sources

SOURCES OF REVENUE	2024			2023		
	BUDGET	ACTUAL AMOUNT	(OVER)/UNDER COLLECTIONS	BUDGET	ACTUAL AMOUNT	(OVER)/UNDER COLLECTIONS
Transfer revenue	152 722 000	152 722 000	-	195 704 000	195 704 000	-
Rendering of services	22 436 000	28 444 471	6 008 471	26 980 866	24 653 025	2 327 841
Interest received	12 300 000	11 938 883	361 117	6 000 000	6 618 016	618 016
Other income	-	-	-	-	27 297	27 297
Donations received	-	-	-	-	333 534	333 534
	187 458 000	**193 105 354**	**5 647 354**	**228 684 866**	**227 335 872**	**1 348 994**

The services on offer include calibration, reference measurements/materials, training/consulting, and sponsorships. The significant increase in rendering of services is a positive sign, although a decline in revenue in the new financial year is expected as the organisation continues to lose critical staff members. Over the MTEF period, NMISA is expecting to generate revenue from services rendered that constitutes an average of 13 % of total income.

1.3 EXPENDITURE

The success of the modernisation of NMISA and shortening the traceability chain for Africa is dependent on a skilled, competent, transformed workforce, and scarce skills transfer from retiring scientists to younger scientists. For this reason, compensation of employees constitutes 45 % (2023: 50 %) of total expenditure. Organisational attempts to manage this expenditure in the future because of a lack of resources will negatively affect the entity's staff turnover, including the inability to replace the high number of staff retiring over the next two financial years, some of whom are in critical positions.

An analysis of other NMIs indicates the current focus is to invest more funds in development activities to improve existing standards and to facilitate the development of new measurement standards that address emerging international needs and trends. This is further exacerbated by technological advances creating a doubling of accuracy requirements within ten years, together with scientific inflation being well above 10 %.

The international 'Revision of the SI' and some of the derived units has driven the need for NMISA to invest in new equipment together with a capable workforce to perform the necessary scientific work. These developments are often projects with international partners over an extended period, further emphasising the need for succession planning, multiple technical signatories, and the extension of the HCD Programme.

The capital allocation received from **the dtic** to cover the recapitalisation and modernisation of the entity is used to cover multiple requirements. Some of these requirements do not meet the GRAP capital definition as they are allocated on a cash basis. NMISA considers this allocation from **the dtic** as a transfer and subsidy and not a budget vote.

NMISA, in line with its mandate to maintain and disseminate NMS uses all funding received for this purpose. The NMS is inclusive of infrastructure, equipment and the resultant maintenance plan, and increased, transformed, and capable human capital to ensure that NMISA and the nation keep abreast with and support continental and international developments.

The organisation has had to strike a balance between the required capital investment and the need to offset this against the appointment and maintenance of a capable workforce to perform the scientific work and implement the ambitious strategy as approved by the Board and **the dtic**.

The increase in depreciation and amortisation is mainly due to an increase in the asset book value. Other operating expenditure amounted to R79 million (2023: R78 million) and is in line with budgeted expenditure.

1.4 WORKING CAPITAL

A high cash balance is required for the payment of commitments for goods and services that have yet to be delivered (refer to the Commitments section that follows). Trade receivables have remained stable at R8 million. The trade payables balance of R13 million (2023: R18 million) has decreased due to deliveries made timeously and payment of suppliers.

1.5 CAPITAL INVESTMENT

In line with NMISA's strategic objectives, the organisation continues to embark on processes of recapitalising and modernising the NMI infrastructure through the replacement of aged and obsolete equipment. This has resulted in an increase in the net book value of fixed assets from R128 million since 2014 to R519 million in the current financial year. Due to the extreme budget cuts, capital investment has been placed on hold to ensure continued maintenance of assets already procured. It is not expected that any further significant capital investments will be made in the foreseeable future.

1.6 COMMITMENTS

The NMISA procures equipment that is technically specialised, custom-made or assembled to order according to specification, mostly from international manufacturers or NMIs. The delivery lead time for equipment varies from five months to more than 12 months. This has an impact as funds are rolled over from year to year in the form of commitments for such orders. The commitments reported in the current financial year amount to R43 million (2023: R82 million) with 68 % (2023: 80 %) committed to capital expenditure. The decline in the capital expenditure commitment was partly driven by the reduction in grant funding. Planning in terms of procurement is done well in advance to reduce commitments at the end of the financial year, however, the nature of the NMISA's environment makes it difficult to conclude all procurement in a single year. This balance is expected to reduce significantly going forward because of deliveries on open orders.

1.7 SUPPLY CHAIN MANAGEMENT OVERVIEW

The Supply Chain Management Unit is strategically positioned for service delivery to the Institute through the procurement of NMS equipment, property and infrastructure, facilities management and general goods and services. The unit has extended its focus to logistics services to ensure effective management of the movement of NMS equipment internally and to NMISA's clients in support of its calibration services. The NMISA continues to have strong controls to curb irregular, and fruitless and wasteful expenditure. The payment of all suppliers within 30 days remains a challenge, however, implementation of the new ERP system is expected to minimise this challenge. With the reduction in capital expenditure, B-BBEE compliance is also expected to improve. The non-compliant status is hampered by the lack of funds to perform corporate social investment and socio-economic development activities.

1.8 FINANCIAL OUTLOOK

As a result of the reduction in grant funding from the fiscus, the financial sustainability of NMISA in the medium- to long-term is negatively impacted. The sources of revenue of the Institute need to cover all capital and operational costs on a year-to-year basis. Figure 6 reflects the financial projections for the 2024/25 financial year.

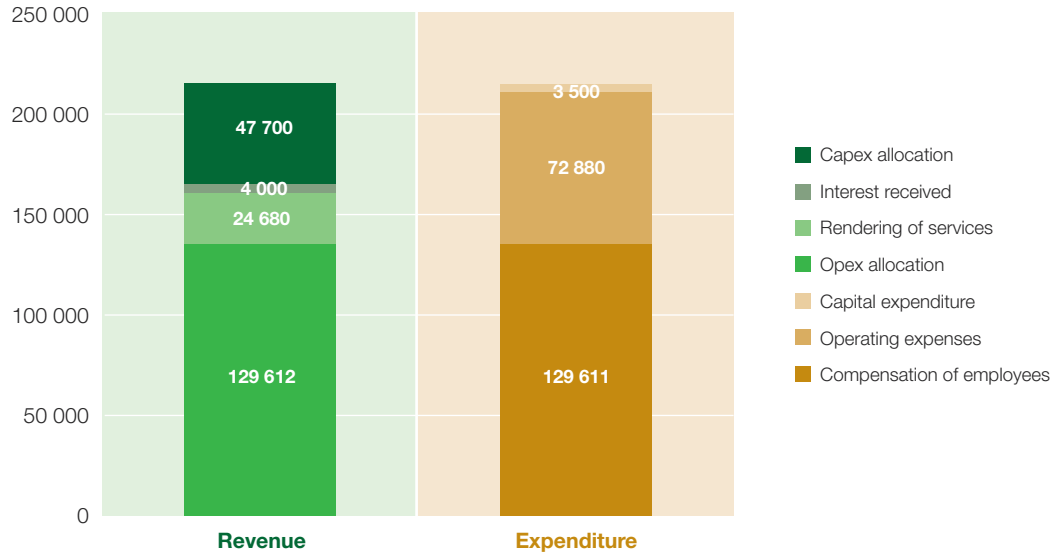


Figure 6: Revenue and expenditure forecast 2024/25

The Institute is trading as a going concern and will continue to receive grant funding from **the dtic** over the MTEF. The entity has consistently performed in terms of clean and unqualified audit outcomes over the past six years. For the current financial year, the entity has achieved an unqualified audit with findings driven by resource constraints experienced. This bears testament to the exceptional financial management and accounting team that works tirelessly to deliver outstanding results.

Given the difficult operating environment, the NMISA is strategically repositioning itself to exploit different potential revenue sources. This exciting and fundamental switch to an impactful client-focused enterprise will take time to implement in a manner that will be sustainable in the long-term, however, improvements are already evident. Without additional funding from the fiscus in the medium-term, sustainability of the entity will be compromised and it will remain at risk, which means that the organisation may have to go through a re-organisation process.

2 REPORT OF THE EXTERNAL AUDITOR

INDEPENDENT AUDITOR'S REPORT TO PARLIAMENT ON NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA

REPORT ON THE AUDIT OF THE ANNUAL FINANCIAL STATEMENTS

Opinion

1. We have audited the annual financial statements of the National Metrology Institute of South Africa as set out on pages 110 to 141 which comprise the statement of financial position as at 31 March 2024, statement of financial performance, statement of changes in net assets, cash flow statement and statement of comparison of budget and actual amounts for the year then ended, as well as notes to the annual financial statements, including significant accounting policies.

2. In our opinion, the annual financial statements present fairly, in all material respects, the financial position of the National Metrology Institute of South Africa as at 31 March 2024 and its financial performance and cash flows for the year then ended in accordance with the Standards of Generally Recognised Accounting Practice (Standards of GRAP) and the requirements of the Public Finance Management Act 1 of 1999 (PFMA).

Basis for opinion

3. We conducted our audit in accordance with the International Standards on Auditing (ISAs). Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the audit of the annual financial statements* section of our report.

4. We are independent of the public entity in accordance with the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (IRBA Code) and other independence applicable to performing audits of annual financial statements in South Africa. We have fulfilled our other ethical responsibilities in accordance with IRBA code and in accordance with other ethical requirements applicable for performing in South Africa.

5. The IRBA Code is consistent with the corresponding section of the International Ethics Standards Board of Accountants' *International Code of Ethics for Professional Accountants (including International Independence Standards).*

6. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of the accounting authority for the annual financial statements

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

8. In preparing the annual financial statements, the accounting authority is responsible for assessing the public entity's ability to continue as a going concern; disclosing, as applicable, matters relating to going concern; and using the going concern basis of accounting unless the appropriate governance structure either intends to liquidate the public entity or to cease operations or has no realistic alternative but to do so.

Responsibilities of the auditor for the audit of the annual financial statements

9. Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error; and to issue an auditor's report that includes Our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with

the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

10. A further description of our responsibilities for the audit of the annual financial statements is included in the annexure to this auditor's report. This description, which is located at page 106 forms part of our auditor's report.

REPORT ON THE ANNUAL PERFORMANCE REPORT

11. In accordance with the Public Audit Act 25 of 2004 (PAA) and the general notice issued in terms thereof, we must audit and report on the usefulness and reliability of the reported performance information against predetermined objectives for the selected material performance indicators presented in the annual performance report. The accounting authority is responsible for the preparation of the annual performance report.

12. We selected the following material performance indicators related to ***Program 1 (Administration)*** presented in the annual performance report for the year ended 31 March 2024. We selected those indicators that measure the public entity's performance on its primary mandated functions and that are of significant national, community or public interest.

    - Number of interns and in-service trainees hosted.
    - Inservice amount of income generated.
    - Percentage actual expenditure to budget.
    - Number of accredited laboratories and new laboratory accreditations.
    - Percentage increase visibility of NMISA.
    - Percentage of customer satisfaction.
    - Number of government department and SOEs serviced by NMISA.
    - Percentage of NMISA support to the transformation agenda of South African and African markets.

13. We selected the following material performance indicators related to ***Program 2 (Applied Measurement Services and Product for Industry, SOEs and Regulatory Support)*** presented in the annual performance report for the year ended 31 March 2024. We selected those indicators that measure the public entity's performance on its primary mandated functions and that are of significant national, community or public interest.

    - Realisation of the SI base units.
    - Number of new and improved National Measurement Standards and reference material and methods.
    - Number of inter laboratory comparisons and proficiency testing schemes organised and completed.
    - Number of metrologists trained.
    - Number of courses provided including SMEs.
    - Number of memberships maintained.
    - Percentage metrological services covered by CMCs.

14. We evaluated the reported performance information for the selected material performance indicators against the criteria developed from the performance management and reporting framework, as defined in the general notice. When an annual performance report is prepared using these criteria, it provides useful and reliable information and insights to users on the public entity's planning and delivery on its mandate and objectives.

15. We performed procedures to test whether:

    - the indicators used for planning and reporting on performance can be linked directly to the public entity's mandate and the achievement of its planned objectives.
    - all the indicators relevant for measuring the public entity's performance against its primary mandated and prioritised functions and planned objectives are included.
    - the indicators are well defined to ensure that they are easy to understand and can be applied consistently, as well as verifiable so that we can confirm the methods and processes to be used for measuring achievements.
    - the targets can be linked directly to the achievement of the indicators and are specific, time bound and measurable to ensure that it is easy to understand what should be delivered and by when, the required level of performance as well as how performance will be evaluated.

- the indicators and targets reported on in the annual performance report are the same as those committed to in the approved initial or revised planning documents.
- the reported performance information is presented in the annual performance report in the prescribed manner.
- there is adequate supporting evidence for the achievements reported and for the reasons provided for any over- or underachievement of targets taken to improve performance.

16. We performed the procedures to report material findings only; and not to express an assurance opinion.

17. We did not identify any material findings on the reported performance information for the selected indicators.

Other matter

18. We draw attention to the matter below.

Achievement of planned targets

19. The annual performance report includes information on reported achievements against planned targets and provides explanations for over- or under achievements.

20. The table that follows provide information on the achievement of planned targets and list the key indicators that were not achieved as reported in the annual performance report. The reasons for any underachievement of targets are included in the annual performance report on pages 59 to 67.

Programme 1: Administration

KEY INDICATOR NOT ACHIEVED	PLANNED TARGET	REPORTED ACHIEVEMENT
Inservice amount of income generated	R36 522 741	R28 444 471 Some projects and activities were delayed due to budget cut.
Numbers of accredited laboratories and new laboratory accreditations	25 Maintained and 1 new accreditation	25 Maintained Processes for new accreditation were delayed due to no payment to SANAS that resulted from budget cut.

REPORT ON COMPLIANCE WITH LEGISLATION

21. In accordance with the PAA and the general notice issued in terms thereof, we must audit and report on compliance with applicable legislation relating to financial matters, financial management and other related matters. The accounting authority is responsible for the public entity's compliance with legislation.

22. We performed procedures to test compliance with selected requirements in key legislation in accordance with the findings engagement methodology of the Auditor-General of South Africa (AGSA). This engagement is not an assurance engagement. Accordingly, we do not express an assurance opinion or conclusion.

23. Through an established AGSA process, we selected requirements in key legislation for compliance testing that are relevant to the financial and performance management of the public entity, clear to allow consistent measurement and evaluation, while also sufficiently detailed and readily available to report in an understandable manner. The selected legislative requirements are included in the annexure to this auditor's report.

24. The material findings on compliance with the selected legislative requirements, presented per compliance theme, are as follows:

Annual financial statements

25. Annual financial statements were not submitted for auditing within the prescribed period after the end of financial year, as required by section 55(1)(c)(i) of the PFMA.

OTHER INFORMATION IN THE ANNUAL REPORT

26. The accounting authority is responsible for the other information included in the annual report. The other information referred to does not include the financial statements, the auditor's report and those selected material indicators in the scoped-in objectives presented in the annual performance report that have been specifically reported on in this auditor's report.

27. Our opinion on the financial statements, the report on the audit of the annual performance report and the report on compliance with legislation do not cover the other information included in the annual report and we do not express an audit opinion or any form of assurance conclusion on it.

28. Our responsibility is to read this other information and, in doing so, consider whether it is materially inconsistent with the financial statements and the selected material indicators in the scoped-in objective presented in the annual performance report or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

29. If, based on the work we have performed, we conclude that there is a material misstatement in this other information, we are required to report that fact.

30. We have nothing to report in this regard.

INTERNAL CONTROL DEFICIENCIES

31. We considered internal control relevant to our audit of the annual financial statements, annual performance report and compliance with applicable legislation; however, our objective was not to express any form of assurance on it.

32. The matter reported below is limited to the significant internal control deficiencies that resulted in the material finding on compliance with legislation included in this report.

33. Management did not implement effective controls in certain areas to ensure they exercise adequate oversight responsibility over compliance with applicable legislation.

OTHER REPORTS

34. I draw attention to the following engagements conducted by an external forensic auditor. These reports did not form part of my opinion on the annual financial statements or my findings on the reported performance information or compliance with legislation.

Investigations

35. A forensic investigation was conducted in the current year into allegations of procurement irregularities relating to twenty-two (22) payments.

MNB Chartered Accountants Inc.
Engagement Director: Rivalani Glen Ntuli
Registered Auditor

31 August 2024
Midrand

ANNEXURE TO THE AUDITOR'S REPORT

The annexure includes the following:

- The auditor's responsibility for the audit
- The selected legislative requirements for compliance testing

AUDITOR'S RESPONSIBILITY FOR THE AUDIT

Professional judgement and professional scepticism

As part of an audit in accordance with the ISAs, we exercise professional judgement and maintain professional scepticism throughout our audit of the annual financial statements and the procedures performed on reported performance information for selected material performance indicators and on the public entity's compliance with selected requirements in key legislation.

Annual Financial Statements

In addition to our responsibility for the audit of the annual financial statements as described in this auditor's report, we also:

- identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the public entity's internal control
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made
- conclude on the appropriateness of the use of the going concern basis of accounting in the preparation of the annual financial statements. We also conclude, based on the audit evidence obtained, whether a material uncertainty exists relating to events or conditions that may cast significant doubt on the ability of the public entity to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements about the material uncertainty or, if such disclosures are inadequate, to modify our opinion on the annual financial statements. Our conclusions are based on the information available to us at the date of this auditor's report. However, future events or conditions may cause a public entity to cease operating as a going concern
- evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and determine whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Communication with those charged with governance

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

We also provide the accounting authority with a statement that we have complied with relevant ethical requirements regarding independence and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and, where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated to those charged with governance, we determine those matters that were of most significance in the audit of the annual financial statements for the current period and are therefore key audit matters. We describe these matters in this auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in this auditor's report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest of such communication.

COMPLIANCE WITH LEGISLATION – SELECTED LEGISLATIVE REQUIREMENTS

The selected legislative requirements are as follows:

LEGISLATION	SECTIONS OR REGULATIONS
Public Finance Management Act 1 of 1999	Section 51(1)(b)(i); 51(1)(b)(ii); 51(1)(e)(iii); 53(4); Section 54(2)(c); 54(2)(d); 55(1)(a); 55(1)(b); Section 55(1)(c)(i); 56(1); 57(b); 66(3)(c)
Treasury Regulations, 2005	Regulation 8.2.1; 8.2.2; 16A3.2; 16A3.2(a); Regulation 16A6.1; 16A6.2(a); 16A6.2(b); Regulation 16A6.3(a); 16A6.3(a) Regulation 16A6.3(c); 16A6.3(e); 16A6.4; 16A6.5; Regulation 16A6.6; 16A.7.1; 16A.7.3; 16A.7.6; Regulation 16A.7.7; 16A8.3; 16A8.4; 16A9.1(b)(ii); Regulation 16A 9.1(d); 16A9.1(e); 16A9.1(f); Regulation 16A9.2(a)(ii); 30.1.1; 30.1.3(a); Regulation 30.1.3(b); 30.1.3(d); 30.2.1; 31.2.1; Regulation 31.2.5; 31.2.7(a); 32.1.1(a); 32.1.1(b); Regulation 32.1.1(c); 33.1.1; 33.1.3
Construction Industry Development Board Act 38 of 2000	Section 18(1)
Construction Industry Development Board Regulations, 2004	Regulation 17; 25(7A)
Second amendment National Treasury Instruction No. 5 of 202/21	Paragraph 1
Erratum National Treasury Instruction No. 5 of 202/21	Paragraph 2
National Treasury instruction No 5 of 2020/21	Paragraph 4.8; 4.9
National Instruction No. 1 of 2021/22	Paragraph 4.1
National Instruction No. 4 of 2015/16	Paragraph 3.4
National Treasury SCM Instruction No. 4A of 2016/17	Paragraph 6
National Treasury SCM Instruction No. 03 of 2021/22	Paragraph 4.1; 4.2(b); 4.4; 7.2
National Treasury SCM Instruction No. 2 of 2021/22	Paragraph 3.2.1; 3.2.4; 3.3.1
Practice Note 5 of 2009/10	Paragraph 3.3
Preferential Procurement Policy Framework Act 5 of 2000	Section 1; 2.1(a); 2.1(f)
Preferential Procurement Regulations, 2022	Regulation 4.4; 5.4
Preferential Procurement Regulations, 2017	Regulation 4.1; 4.2; 5.1; 5.3; 5.6; 5.7 Regulation 6.8; 7.8; Regulation 8.2; 8.5; 9.1; 9.2; 10.1; 10.2; 11.1
Prevention and Combating of Corrupt Activities Act 12 of 2004	Section 34(1)

3 ANNUAL FINANCIAL STATEMENTS

GENERAL INFORMATION

Nature of business and principal activities	To develop, keep, maintain and disseminate the National Measurements Standards, reference measurements, reference standards, and reference materials.
Board Members	Dr Tshenge Demana (**the dtic** representative) – Term ended 30 June 2023 Ms Lindie Lankalebalelo – Term ended 30 June 2023 Ms Nobom Gcinashe Mfabana – Term ended 30 June 2023 Mr Molelekoa Petrus Mohlomi – Term ended 30 June 2023 Dr Anneline Chetty – Term ended 30 June 2023 Ms Mosa Makhele – Term ended 30 June 2023 Mr Ndwakhulu Mukhufhi – Contract ended 31 August 2023 Mr Teboho Mthombeni (Acting CEO) – Appointed 26 October 2023 to 31 January 2024 Dr Jayne de Vos (Acting CEO) – Appointed 1 February 2024 Dr Precious Gugulethu Motshwene – Appointed 1 October 2023 (Chairperson) Dr James Tshilongo – Appointed 1 October 2023 Ms Senamile Masango – Appointed 1 October 2023 Ms Sara Natalia Prins – Appointed 1 October 2023 Ms Babalwa Songongo – Appointed 1 October 2023 Prof. Andrew Buffler – Appointed 1 October 2023 Prof. Lorna Benita Holtman – Appointed 1 October 2023 Dr Charl Wynand Louw – Appointed 1 October 2023 Dr Alufelwi Maxwell Tshavhungwe – Appointed 1 October 2023
Business address	Meiring Naude Road Brummeria Pretoria 0040
Postal address	Private Bag X34 Lynnwood Ridge 0040
Controlling entity	Department of Trade, Industry and Competition (**the dtic**)
Bankers	Standard Bank Lynnwood Bridge
Auditors	MNB Chartered Accountants Chartered Accountants (SA) Registered Auditors
Company secretary	Ms Busisiwe Mkhize

INDEX

The Annual Financial Statements set out on pages 110 to 141, which have been prepared on the going concern basis, were approved by the Audit and Risk Committee on 13 June 2024 and were signed on its behalf by:

Mr Mogau Sehlapelo
Chief Financial Officer

Dr Jayne de Vos
Acting Chief Executive Officer

STATEMENT OF FINANCIAL POSITION

as at 31 March 2024

FIGURES IN RAND	NOTE(S)	2024	2023
Assets			
Current assets			
Inventories	7	10 313 696	9 005 538
Receivables from exchange transactions	5	8 280 194	8 208 233
Prepayments	6	20 288 807	24 656 524
Cash and cash equivalents	8	53 299 171	89 078 298
		92 181 868	**130 948 593**
Non-current assets			
Property, plant and equipment	3	518 820 114	538 382 159
Intangible assets	4	1 915 482	1 218 852
Receivables from exchange transactions	5	3 216 110	3 031 812
Prepayments	6	392 015	6 481 645
		524 343 721	**549 114 468**
Total assets		**616 525 589**	**680 063 061**
Liabilities			
Current liabilities			
Payables from exchange transactions	9	13 010 085	17 832 916
Total liabilities		**13 010 085**	**17 832 916**
Net assets			
Accumulated surplus		603 515 503	662 230 146
Total net assets		**603 515 503**	**662 230 146**

STATEMENT OF FINANCIAL PERFORMANCE

for the year ended 31 March 2024

FIGURES IN RAND	NOTE(S)	2024	2023
Revenue			
Revenue from exchange transactions			
Rendering of services		28 444 471	24 653 025
Interest received – investment		11 938 883	6 618 016
Other income		-	27 297
Gain on foreign exchange		-	26 796
Total revenue from exchange transactions		**40 383 354**	**31 325 134**
Revenue from non-exchange transactions			
Transfer revenue			
Transfer from controlling entity		152 722 000	195 704 000
Donations		-	333 534
Total revenue from non-exchange transactions		**152 722 000**	**196 037 534**
Total revenue	12	**193 105 354**	**227 362 668**
Expenditure			
Employee related costs	13	(113 633 558)	(127 404 194)
Depreciation and amortisation	3&4	(56 893 384)	(50 258 028)
Impairments	3	(310 552)	-
Credit losses on receivables		(1 368 404)	(1 131 878)
Loss on disposal of assets		(401 692)	(427 472)
Loss on foreign exchange		(138 424)	-
General expenses	14	(79 073 983)	(77 526 507)
Total expenditure		**(251 819 997)**	**(256 748 079)**
Deficit for the year		**(58 714 643)**	**(29 385 411)**

STATEMENT OF FINANCIAL POSITION

for the year ended 31 March 2024

FIGURES IN RAND	ACCUMULATED SURPLUS/ DEFICIT	TOTAL NET ASSETS
Balance at 1 April 2022	**692 749 557**	**692 749 557**
Changes in net assets		
Deficit for the year	(29 385 411)	(29 385 411)
Surplus surrendered to Revenue Fund	(1 134 000)	(1 134 000)
Total changes	(30 519 411)	(30 519 411)
Balance at 1 April 2023	**662 230 146**	**662 230 146**
Changes in net assets		
Deficit for the year	(58 714 643)	(58 714 643)
Total changes	(58 714 643)	(58 714 643)
Balance at 31 March 2024	**603 515 503**	**603 515 503**

CASH FLOW STATEMENT

for the year ended 31 March 2024

FIGURES IN RAND	NOTE(S)	2024	2023
Cash flows from operating activities			
Receipts			
Rendering of services		27 226 667	26 051 951
Transfer from controlling entity		152 722 000	195 704 000
Interest received - investments		11 938 883	6 618 016
Other income		-	360 831
		191 887 550	228 734 798
Payments			
Employee related costs		(116 136 419)	(141 969 118)
Suppliers		(72 790 046)	(73 221 241)
		(188 926 465)	(215 190 359)
Net cash flows from operating activities	15	**2 961 086**	**13 544 439**
Cash flows from investing activities			
Purchase of property, plant and equipment	3	(36 137 940)	(57 767 590)
Proceeds from sale of property, plant and equipment		3 000	-
Purchase of other intangible assets	4	(2 605 273)	(208 231)
Net cash flows from investing activities		**(38 740 213)**	**(57 975 821)**
Cash flows from financing activities			
Surplus surrendered to Revenue Fund		-	(1 134 000)
Net increase/(decrease) in cash and cash equivalents		**(35 779 127)**	**(45 565 382)**
Cash and cash equivalents at the beginning of the year		89 078 298	134 643 680
Cash and cash equivalents at the end of the year	8	**53 299 171**	**89 078 298**

The accounting policies on pages 115 to 125 and the notes on pages 126 to 141 form an integral part of the Annual Financial Statements.

STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

for the year ended 31 March 2024

FIGURES IN RAND	APPROVED BUDGET	ADJUSTMENTS	FINAL BUDGET	ACTUAL AMOUNTS ON COMPARABLE BASIS	DIFFERENCE BETWEEN FINAL BUDGET AND ACTUAL	REFERENCE
Statement of Financial Performance						
Revenue						
Revenue from exchange transactions						
Rendering of services	36 522 741	(14 086 741)	22 436 000	28 444 471	-27%	21.1
Interest received – Investment	4 000 000	8 300 000	12 300 000	11 938 883	3%	
Total revenue from exchange transactions	**40 522 741**	**(5 786 741)**	**34 736 000**	**40 383 354**	**-16%**	
Revenue from non-exchange transactions						
Transfer revenue						
Transfer from controlling entity	169 691 000	(16 969 000)	152 722 000	152 722 000		
Total revenue	**210 213 741**	**(22 755 741)**	**187 458 000**	**193 105 354**	**-3%**	
Expenditure						
Employee related costs	(130 245 061)	8 265 000	(121 980 061)	(113 633 558)	7%	
Depreciation and amortisation	-	-	-	(56 893 384)		21.3
Impairment loss	-	-	-	(310 552)		
Credit losses on receivables	-	-	-	(1 368 404)		21.3
Loss on disposal of assets	-	-	-	(401 692)		
General expenses	(79 718 680)	14 390 741	(65 327 939)	(79 073 983)	-21%	21.2
Loss on foreign exchange	(250 000)	(100 000)	(150 000)	(138 424)	8%	
Total expenditure	**(210 213 741)**	**22 555 741**	**(187 458 000)**	**(251 819 997)**	**-31%**	
Deficit	**-**	**-**	**-**	**(97 457 856)**		
Reconciliation						
Format and classification differences						
Property, plant and equipment			36 137 940			
Intangible assets			2 605 273			
Actual Amount in the Statement of Financial Performance			**(58 714 643)**			

ACCOUNTING POLICIES

1. SIGNIFICANT ACCOUNT POLICIES

The significant accounting policies applied in the preparation of these Annual Financial Statements are set out below.

1.1 Basis of preparation

The Annual Financial Statements for the year ended 31 March 2024 have been prepared in accordance with the Standards of Generally Recognised Accounting Practice (GRAP) including any interpretations, guidelines and directives, issued by the Accounting Standards Board in accordance with Section 91(1) of the Public Finance Management Act (Act No. 1 of 1999).

These Annual Financial Statements have been prepared on an accrual basis of accounting and are in accordance with historical cost convention as the basis of measurement, unless specified otherwise. They are presented in South African Rand, which is NMISA's functional currency. Amounts in the Annual Financial Statements are rounded to the nearest Rand.

A summary of the significant accounting policies, which have been consistently applied in the preparation of these Annual Financial Statements, are disclosed below.

These accounting policies are consistent with the previous period.

1.2 Going concern assumption

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

1.3 Materiality

Omissions or misstatements of items are material if they could, individually or collectively, influence the decisions or assessments of users made on the basis of the financial statements. Materiality depends on the nature or size of the omission or misstatement judged in the surrounding circumstances. The nature or size of the information item, or a combination of both, could be the determining factor.

Assessing whether an omission or misstatement could influence decisions of users, and so be material, requires consideration of the characteristics of those users. The Framework for the Preparation and Presentation of Financial Statements states that users are assumed to have a reasonable knowledge of government, its activities, accounting and a willingness to study the information with reasonable diligence. Therefore, the assessment takes into account how users with such attributes could reasonably be expected to be influenced in making and evaluating decisions.

1.4 Significant judgements and sources of estimation uncertainty

In preparing the Annual Financial Statements, management is required to make judgements, estimates and assumptions that affect the amounts presented in the Annual Financial Statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the Annual Financial Statements. Significant judgements include: allowance/ provision for doubtful debts, useful life of assets and impairment of assets.

Impairment testing

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

1.4 Significant judgements and sources of estimation uncertainty (continued)

The entity reviews and tests the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. If there are indications that impairment may have occurred, estimates are made for value-in-use. The entity assesses its financial assets carried at amortised cost for impairment at each reporting date. In determining whether an impairment loss should be recorded in surplus or deficit, the entity makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flow from a financial asset.

Provisions

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

Useful lives and residual values of property, plant and equipment and intangible assets

Management made certain estimates regarding the determination of estimated useful lives and residual values of items of property, plant and equipment. An annual assessment and review of estimated useful lives and residual values is performed, and any significant change is accounted for as a change in accounting estimate in accordance with GRAP 3.

Estimates involve judgement based on recently available, reliable information and therefore an estimate may change as new information becomes known, circumstances change or more experience is obtained. The entity recognises the effect of changes in accounting estimates prospectively, by including the effects in surplus or deficit in the period of the change if the change affects that period only or in the period of the change and future periods, if the change affects both.

Allowance for doubtful debts

On debtors an impairment loss is recognised in surplus and deficit when there is objective evidence that it is impaired. NMISA estimates the level of provision required for doubtful debts on an ongoing basis, based on historical experience, as well as other specific relevant factors.

1.5 Property, plant and equipment

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

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

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

Property, plant and equipment is initially measured at cost.

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

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

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

1.5 Property, plant and equipment (continued)

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

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

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

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

ITEM	DEPRECIATION METHOD	USEFUL LIFE IN YEARS
Plant and equipment	Straight-line	7 to 20
Furniture and fixtures	Straight-line	7
Motor vehicles	Straight-line	7 to 10
Office equipment	Straight-line	5
Leasehold improvements	Straight-line	<Lease period/Useful life

The cost of leasehold improvement is depreciated over the shorter of lease period or the useful life.

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

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

Parts of some items of property, plant, and equipment may require replacement at regular intervals. The cost of replacing parts of such items is capitalised if the recognition criteria is met. The carrying amount of those parts that are replaced is derecognised in accordance with the derecognition provisions.

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

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

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

The entity separately discloses expenditure to repair and maintain property, plant and equipment in the notes to the financial statements (see note 3).

1.6 Intangible assets

An asset is identifiable if it either:

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

1.6 Intangible assets (continued)

An intangible asset is recognised when:

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

Intangible assets are initially recognised at cost. The cost of intangible assets is the purchase price and other costs attributable to bring the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Trade discounts and rebates are deducted in arriving at the cost.

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

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

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

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

ITEM	DEPRECIATION METHOD	USEFUL LIFE IN YEARS
Computer software	Straight-line	2

Intangible assets are derecognised:

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

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

1.7 Financial instruments

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

A financial asset is:

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

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

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

1.7 Financial instruments (continued)

Classification

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

CLASS	CATEGORY
Receivables	Receivables from exchange transactions
Bank balances	Cash and cash equivalents

The entity has the following types of financial liabilities (classes and category) as reflected on the face of the Statement of Financial Position or in the notes thereto:

CLASS	CATEGORY
Payables	Payables from exchange transactions

Initial measurement of financial assets and financial liabilities

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

Subsequent measurement of financial assets and financial liabilities

Financial assets and liabilities are measured at amortised cost after initial recognition.

Financial assets

NMISA's principal financial assets are receivables from exchange transactions and cash and cash equivalents. Receivables from exchange transactions are classified as financial assets at amortised cost, a provision for impairment of trade receivables is established when there is objective evidence that the entity will not be able to collect amounts due according to the original terms of receivables. Cash and cash equivalents comprise deposits held on call with banks and are classified as financial assets at amortised cost.

Impairment and uncollectability

The entity assesses at the end of each reporting period, whether there is any objective evidence that a financial asset or group of financial assets is impaired. A financial asset or a group of financial assets is impaired and impairment losses are incurred if, and only if, there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a loss event) and that loss event (or events) has an impact on the estimated future cash flow of the financial asset or group of financial assets that can be reliably estimated.

It may not be possible to identify a single discrete event that caused the impairment, since it may have been the combined effect of several events that did so. Losses expected as a result of future events, no matter how likely, are not recognised. The entity first assesses whether objective evidence of impairment exists individually for financial assets that are individually significant, and then follows a portfolio approach with the remaining financial assets. The impairment loss estimates equal the best estimates within a range of long outstanding assets with similar credit risk characteristics.

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

1.7 Financial instruments (continued)

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

The entity derecognises a financial asset when:

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

Financial liabilities

NMISA's principal financial liabilities are payables from exchange transactions. Payables from exchange transactions are classified as financial liabilities at amortised cost.

Derecognition

The entity derecognises financial liabilities when, and only when, the entity's obligations are discharged, cancelled or when they expire.

1.8 Leases

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

Operating leases – lessee

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

1.9 Inventories

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

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

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

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

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

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

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

1.9 Inventories (continued)

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

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

1.10 Impairment of cash-generating assets

Cash-generating assets are assets used with the objective of generating a commercial return. Commercial return means that positive cash flows are expected to be significantly higher than the cost of the asset.

At each reporting date, the entity reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). The recoverable amount is the higher of fair value less costs to sell and value-in-use.

If the recoverable amount of an asset is estimated to be less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount. An impairment loss is recognised immediately as an expense.

Where an impairment loss subsequently reverses, the carrying amount of an asset is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset in prior years. A reversal of an impairment loss is recognised immediately in surplus or deficit.

1.11 Impairment of non-cash-generating assets

Non-cash-generating assets are assets other than cash-generating assets. When the carrying amount of a non-cash-generating asset exceeds its recoverable service amount, it is impaired. At each reporting date, the entity assesses whether there is any indication that a non-cash-generating asset may be impaired.

If any such indication exists, an entity estimates the recoverable service amount of the asset.

The present value of the remaining service potential of a non-cash-generating asset is determined, using one of the following approaches:

- depreciated replacement cost approach;
- restoration cost approach; or
- service units approach.

If the recoverable service amount of a non-cash-generating asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable service amount. This reduction is an impairment loss. An impairment loss is recognised immediately in surplus or deficit.

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

1.12 Employee benefits

Short-term employee benefits

The cost of short-term employee benefits, (those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses, and non-monetary benefits such as medical care), are recognised in the period in which the service is rendered and are not discounted.

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs.

The expected cost of bonus payments is recognised as an expense when there is a legal or constructive obligation to make such payments as a result of past performance.

Defined contribution plans

Payments to defined contribution retirement benefit plans are charged as an expense as they fall due.

1.13 Provisions and contingencies

Provisions are recognised when:

- the entity has a present obligation as a result of a past event;
- it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation; and
- a reliable estimate can be made of the obligation.

The amount of a provision is the best estimate of the expenditure expected to be required to settle the present obligation at the reporting date.

Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate. Provisions are reversed if it is no longer probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation.

Contingent liabilities are recorded in the notes to the financial statements when there is a possible obligation that arises from past events, and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not within the control of NMISA or when there is a present obligation that is not recognised because it is not probable that an outflow of resources will be required to settle the obligation or the amount of the obligation cannot be measured reliably.

1.14 Commitments

Items are classified as commitments when an entity has committed itself to future transactions that will normally result in the outflow of cash.

Commitments are recorded at cost in the notes to the financial statements when there is a contractual arrangement or an approval by management in a manner that raises a valid expectation that NMISA will discharge its responsibility thereby incurring future expenditure that will result in the outflow of cash.

1.15 Revenue from exchange transactions

An exchange transaction is one in which the entity receives assets or services, or has liabilities extinguished, and directly gives approximately equal value (primarily in the form of goods, services or use of assets) to the other party in exchange.

Revenue is measured at the fair value of the consideration received or receivable.

1.15 Revenue from exchange transactions (continued)

Rendering of services

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the reporting date. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- the amount of revenue can be measured reliably;
- it is probable that the economic benefits or service potential associated with the transaction will flow to the entity;
- the stage of completion of the transaction at the reporting date can be measured reliably; and
- the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

Revenue is measured at the fair value of the consideration received or receivable.

Interest

Interest is recognised in surplus or deficit, using the effective interest rate method.

1.16 Revenue from non-exchange transactions

Non-exchange transactions are transactions that are not exchange transactions. In a non-exchange transaction, an entity either receives value from another entity without directly giving approximately equal value in exchange, or gives value to another entity without directly receiving approximately equal value in exchange.

Revenue from non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity. NMISA receives an unconditional grant via the Department of Trade, Industry and Competition (**the dtic**).

Gifts and donations, including goods in-kind

Gifts and donations, including goods in-kind, are recognised as assets and revenue when it is probable that the future economic benefits or service potential will flow to the entity and the fair value of the assets can be measured reliably.

1.17 Translation of foreign currencies

Foreign currency transactions

A foreign currency transaction is recorded, on initial recognition in Rands, by applying to the foreign currency amount the spot exchange rate between the functional currency and the foreign currency at the date of the transaction.

At each reporting date:

- foreign currency monetary items are translated using the closing rate;
- non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction; and
- non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous Annual Financial Statements are recognised in surplus or deficit in the period in which they arise.

1.18 Comparative figures

Where necessary, comparative figures have been reclassified to conform to changes in presentation in the current year.

1.19 Fruitless and wasteful expenditure

Fruitless expenditure means expenditure which was made in vain and would have been avoided had reasonable care been exercised.

Fruitless and wasteful expenditure is accounted for in line with all relevant requirements, including, but not limited to, ruling Legislation, Regulations, Frameworks, Circulars, Instruction Notes, Practice Notes, Guidelines etc. (as applicable).

Fruitless and wasteful expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the total value of the fruitless and wasteful expenditure incurred. The expenditure is removed from the notes to the financial statements when it is resolved or transferred to receivables for recovery.

Fruitless and wasteful expenditure receivables are measured at the amount that is expected to be recoverable and are derecognised when settled or subsequently written off as irrecoverable.

1.20 Irregular expenditure

Irregular expenditure means expenditure other than unauthorised expenditure, incurred in contravention of or that is not in accordance with a requirement of any applicable legislation.

Irregular expenditure is accounted for in line with all relevant requirements, including, but not limited to, ruling Legislation, Regulations, Frameworks, Circulars, Instruction Notes, Practice Notes, Guidelines etc. (as applicable).

Irregular expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the value of the irregular expenditure incurred unless it is impracticable to determine in which case reasons therefore are provided in the note.

Irregular expenditure is removed from the note when it is either condoned by the relevant authority, transferred to receivables for recovery or not condoned and is not recoverable. Irregular expenditure receivables are measured at the amount that is expected to be recoverable and are de-recognised when settled or subsequently written off as irrecoverable.

1.21 Budget information

The approved budget is prepared on a modified cash basis and presented by economic classification linked to performance outcome objectives, over the 12-month period of the financial year.

The Annual Financial Statements and the budget are on the same basis of accounting therefore a comparison with the budgeted amounts for the reporting period have been included in the Statement of Comparison of Budget and Actual Amounts. The reasons for significant variances are disclosed in the notes to the Annual Financial Statements.

1.22 Related parties

A related party is a person or an entity with the ability to control or jointly control the other party, or exercise significant influence over the other party, or vice versa, or an entity that is subject to common control, or joint control.

Control is the power to govern the financial and operating policies of an entity so as to obtain benefits from its activities.

Joint control is the agreed sharing of control over an activity by a binding arrangement, and exists only when the strategic financial and operating decisions relating to the activity require the unanimous consent of the parties sharing control (the venturers).

A related party transaction is a transfer of resources, services or obligations between the reporting entity and a related party, regardless of whether a price is charged.

Significant influence is the power to participate in the financial and operating policy decisions of an entity, but is not control over those policies.

1.22 Related parties (continued)

Management are those persons responsible for planning, directing and controlling the activities of the entity, including those charged with the governance of the entity in accordance with legislation, in instances where they are required to perform such functions.

Close members of the family of a person are those family members who may be expected to influence, or be influenced by that person in their dealings with the entity.

The entity is exempt from disclosure requirements in relation to related party transactions if that transaction occurs within normal supplier and/or client/recipient relationships on terms and conditions no more or less favourable than those which it is reasonable to expect the entity to have adopted if dealing with that individual entity or person in the same circumstances and terms and conditions are within the normal operating parameters established by that reporting entity's legal mandate.

Where the entity is exempt from the disclosures in accordance with the above, the entity discloses narrative information about the nature of the transactions and the related outstanding balances, to enable users of the entity's financial statements to understand the effect of related party transactions on its Annual Financial Statements.

1.23 Events after reporting date

Events after reporting date are those events, both favourable and unfavourable, that occur between the reporting date and the date when the financial statements are authorised for issue. Two types of events can be identified:

- those that provide evidence of conditions that existed at the reporting date (adjusting events after the reporting date); and
- those that are indicative of conditions that arose after the reporting date (non-adjusting events after the reporting date).

The entity will adjust the amount recognised in the financial statements to reflect adjusting events after the reporting date once the event occurred.

The entity will disclose the nature of the event and an estimate of its financial effect or a statement that such estimate cannot be made in respect of all material non-adjusting events, where non-disclosure could influence the economic decisions of users taken on the basis of the financial statements.

NOTES TO THE ANNUAL FINANCIAL STATEMENTS

2. NEW STANDARDS AND INTERPRETATIONS

2.1 Standards and interpretations effective and adopted in the current year

In the current year, the entity has adopted the following standards and interpretations that are effective for the current financial year and that are relevant to its operations:

STANDARD/INTERPRETATION	EFFECTIVE DATE: YEARS BEGINNING ON OR AFTER	EXPECTED IMPACT
iGRAP 21: The Effect of Past Decisions on Materiality	1 April 2023	The impact of the Interpretation is not material
GRAP 25 (as revised): Employee Benefits	1 April 2023	The impact of the Standard is not material
iGRAP 7 (as revised): Limit on defined benefit asset, minimum funding requirements and their interaction	1 April 2023	The impact of the Guideline is not material
GRAP 2020: Improvements to the Standards of GRAP 2020	1 April 2023	The impact of the Standard is not material
Guideline: Guideline on Accounting for Landfill Sites	1 April 2023	The impact of the Guideline is not material
GRAP 1 (amended): Presentation of Financial Statements	1 April 2023	The impact of the Standard (Materiality) is not material

2.2 Standards and interpretations issued, but not yet effective

The entity has not applied the following standards and interpretations, which have been published and are mandatory for the entity's accounting periods beginning on or after 1 April 2024 or later periods:

STANDARD/INTERPRETATION	EFFECTIVE DATE: YEARS BEGINNING ON OR AFTER	EXPECTED IMPACT
iGRAP 22 Foreign Currency Transactions and Advance Consideration	1 April 2025	Unlikely there will be a material impact
GRAP 104 (as revised): Financial Instruments	1 April 2025	Unlikely there will be a material impact

3. PROPERTY, PLANT AND EQUIPMENT

FIGURES IN RAND	2024			2023		
	COST/ VALUATION	ACCUMULATED DEPRECIATION AND ACCUMULATED IMPAIRMENT	CARRYING VALUE	COST/ VALUATION	ACCUMULATED DEPRECIATION AND ACCUMULATED IMPAIRMENT	CARRYING VALUE
Plant and machinery	792 977 969	(320 264 092)	472 713 877	760 220 818	(275 060 426)	485 160 392
Furniture and fixtures	9 693 462	(6 178 857)	3 514 605	9 308 602	(5 428 097)	3 880 505
Motor vehicles	1 527 579	(605 036)	922 543	997 195	(408 481)	588 714
Office equipment	27 810 137	(20 877 279)	6 932 858	27 759 808	(18 695 034)	9 064 774
Leasehold improvements	55 790 001	(21 053 770)	34 736 231	54 458 197	(14 770 423)	39 687 774
Total	**887 799 148**	**(368 979 034)**	**518 820 114**	**852 744 620**	**(314 362 461)**	**538 382 159**

Reconciliation of property, plant and equipment – 2024

FIGURES IN RAND	OPENING BALANCE	ADDITIONS	DEPRECIATION	DISPOSALS	IMPAIRMENT LOSS	TOTAL
Plant and machinery	485 160 392	33 721 100	(45 452 371)	(404 692)	(310 552)	472 713 877
Furniture and fixtures	3 880 505	401 221	(767 121)	-	-	3 514 605
Motor vehicles	588 714	530 385	(196 556)	-	-	922 543
Office equipment	9 064 774	110 066	(2 241 982)	-	-	6 932 858
Leasehold improvements	39 687 774	1 375 168	(6 326 711)	-	-	34 736 231
	538 382 159	**36 137 940**	**(54 984 741)**	**(404 692)**	**(310 552)**	**518 820 114**

Reconciliation of property, plant and equipment – 2023

FIGURES IN RAND	OPENING BALANCE	ADDITIONS	DEPRECIATION	DISPOSALS	TOTAL
Plant and machinery	486 419 490	41 091 659	(41 946 733)	(404 024)	485 160 392
Furniture and fixtures	2 125 145	3 227 984	(1 472 624)	-	3 880 505
Motor vehicles	717 361	-	(128 647)	-	588 714
Office equipment	9 634 894	2 658 902	(3 205 574)	(23 448)	9 064 774
Leasehold improvements	31 647 149	10 789 045	(2 748 420)	-	39 687 774
	530 544 039	**57 767 590**	**(49 501 998)**	**(427 472)**	**538 382 159**

Included in the carrying value of property, plant and equipment are assets delivered but not yet installed and commissioned to the value of R28 892 858 (2023: R25 932 220). Disposals relate to assets which were scrapped in the current year.

The carrying value of property, plant and equipment has not been pledged as security.

Expenditure incurred to repair and maintain property, plant and equipment

FIGURES IN RAND	2024	2023
Repairs and maintenance	8 367 912	9 169 450

4. INTANGIBLE ASSETS

FIGURES IN RAND	2024			2023		
	COST/ VALUATION	ACCUMULATED AMORTISATION AND ACCUMULATED IMPAIRMENT	CARRYING VALUE	COST/ VALUATION	ACCUMULATED AMORTISATION AND ACCUMULATED IMPAIRMENT	CARRYING VALUE
Computer software	16 275 309	(14 359 827)	1 915 482	13 684 374	(12 465 522)	1 218 852

Reconciliation of intangible assets – 2024

FIGURES IN RAND	OPENING BALANCE	ADDITIONS	AMORTISATION	TOTAL
Computer software	1 218 852	2 605 273	(1 908 643)	1 915 482

Reconciliation of intangible assets – 2023

FIGURES IN RAND	OPENING BALANCE	ADDITIONS	AMORTISATION	TOTAL
Computer software	1 766 651	208 231	(756 030)	1 218 852

5. RECEIVABLES FROM EXCHANGE TRANSACTIONS

FIGURES IN RAND	2024	2023
Trade receivables	9 732 058	7 701 871
Employee advances and other receivables^	3 190 344	3 780 166
Rental deposit*	3 216 110	3 031 812
Provision for impairment of trade and other receivables	(4 642 208)	(3 273 804)
	11 496 304	**11 240 045**
Non-current assets	3 216 110	3 031 812
Current assets	8 280 194	8 208 233
	11 496 304	**11 240 045**

NMISA does not hold any collateral as security. The impairment of trade and other receivables was determined with reference to probability of collection of the amounts.

^ Includes R3 097 791 (2023: R2 762 840) debt raised for recovery of bursaries for formal studies. Demand letters were sent to former bursars by the Legal Office, and some of the debts have been handed over to attorneys for collection. Most of the debts are close to reaching the prescription period.

* The rental deposit is refundable to the entity at the end of the lease term. The deposit is invested by the lessor in an interest-bearing account with a financial institution and is capitalised at a rate of 100 basis points lower than the actual interest rate earned on the interest-bearing account to make provision for administration costs.

Reconciliation of provision for impairment of trade and other receivables

FIGURES IN RAND	2024	2023
Opening balance*	(3 273 804)	(2 141 926)
Allowance for credit losses	(1 368 404)	(1 131 878)
	(4 642 208)	**(3 273 804)**

* Includes R2 949 872 (2023: R1 858 151) raised for debt arising from non-recovery of bursaries for formal studies.

6. PREPAYMENTS

FIGURES IN RAND	2024	2023
Prepayments – Non-current assets	392 015	6 481 645
Prepayments – Current assets*	20 288 807	24 656 525
	20 680 822	**31 138 170**

* R6.1 million relates to prepaid expenses for software licences and insurance.

7. INVENTORIES

FIGURES IN RAND	2024	2023
Raw materials	7 343 904	6 072 759
Finished goods	2 969 792	2 932 779
	10 313 696	**9 005 538**
Inventories recognised as an expense during the year	572 444	123 193

Inventory is carried at the lower of cost or net realisable value. Inventory was not pledged as security for liabilities.

8. CASH AND CASH EQUIVALENTS

FIGURES IN RAND	2024	2023
Cash and cash equivalents consist of:		
Cash on hand	16 214	25 999
Bank balances	1 185 592	1 627 519
Short-term deposits*	52 097 365	87 424 780
	53 299 171	**89 078 298**

* Short-term deposit is the money market account held with Standard Bank and the call account held with the South African Reserve Bank.

Credit quality of cash at bank and short-term deposits, excluding cash on hand

There are no restrictions on cash held with banks. Cash and cash equivalents (excluding cash on hand) are held with Standard Bank, which is rated BB- according to the rating agency Fitch rating.

9. PAYABLES FROM EXCHANGE TRANSACTIONS

FIGURES IN RAND	2024	2023
Trade payables	1 987 816	4 699 214
Payments received in advanced – contract in process	4 051 091	3 238 708
Accrued leave pay	4 511 952	7 014 813
Accrued annual bonus	801 928	906 447
Accrued expenses	1 657 298	1 973 734
	13 010 085	**17 832 916**

10. CONTINGENT LIABILITIES

A lawsuit has been instigated against NMISA for the damage of a motor-vehicle from an accident in 2017, resulting in a claim of R144 000. There is a potential legal fees claim relating to the lawsuit.

11. SURRENDER OF SURPLUSES

FIGURES IN RAND	2024	2023
Surrender of surpluses – relating to prior year(s)	-	1 134 000

The entity annually declares all surpluses or deficits to the relevant Treasury. The entity submits requests to the relevant Treasury to retain surpluses in terms of Section 53(3) of the PFMA, as and when appropriate. The entity will be required to surrender for re-depositing into the relevant Revenue Fund, all surpluses that were realised in a particular financial year which were not approved for retention by the relevant Treasury in terms of Section 53(3) of the PFMA.

12. REVENUE

FIGURES IN RAND	2024	2023
Rendering of services	28 444 471	24 653 025
Interest received – investment	11 938 883	6 618 016
Other income	-	27 297
Gain on foreign exchange	-	26 796
Transfer from controlling entity	152 722 000	195 704 000
Donations	-	333 534
	193 105 354	**227 362 668**
The amount included in revenue arising from exchanges of goods or services are as follows:		
Rendering of services	28 444 471	24 653 025
Interest received – investment	11 938 883	6 618 016
Other income	-	27 297
Gains on foreign exchange	-	26 796
	40 383 354	**31 325 134**
The amount included in revenue arising from non-exchange transactions is as follows:		
Transfer revenue		
Transfer from controlling entity*	152 722 000	195 704 000
Donations	-	333 534
	152 722 000	**196 037 534**

* The transfer from **the dtic** has decreased by 22%, this has had a significant impact on the operations of the entity as the transfer from **the dtic** is the entity's main source of income. For NMISA to continue in its current form and for the NMS to continuously meet the national needs, and to be able to pro-actively place NMISA at the forefront of traceability for a fast-paced growing economy, NMISA's baseline needs to be increased. Despite these challenges, the going concern assumption is still positive and the entity believes that **the dtic** and National Treasury will ensure that reasonable funding will be provided to NMISA into the foreseeable future given that NMISA is strategic to South Africa's economy.

13. EMPLOYEE RELATED COSTS

FIGURES IN RAND	2024	2023
Basic	115 518 388	129 605 435
Performance bonuses	-	(2 637 403)
UIF	618 030	711 802
Leave pay provision charge*	(2 502 860)	(275 640)
	113 633 558	**127 404 194**

* Employees are utilising their leave days, there is a significant decrease in the leave balances compared to the prior year.

14. GENERAL EXPENSES

FIGURES IN RAND	2024	2023
Auditors' remuneration	747 473	684 139
Bursaries	251 630	(1 265 579)
Catering, events and meetings	314 790	2 390 667
Chemicals and laboratory consumables	5 386 883	6 199 674
Consulting and professional fees	510 606	1 061 082
Electricity	5 572 494	5 320 936
External calibration costs	570 908	1 012 236
Health and safety services	702 446	701 152
Insurance	1 657 663	1 788 826
IT expenses	13 276 538	10 545 282
Lease rentals on operating lease	24 571 991	22 358 499
Legal fees	1 086 454	525 870
Marketing and advertising	789 993	1 170 926
Other expenses	2 067 902	1 038 621
Postage and courier	1 848 488	1 793 975
Printing and stationery	675 891	770 048
Recruitment costs	328 002	234 883
Repairs and maintenance	8 367 912	9 169 450
SANAS assessments/Quality expenses	1 073 821	963 712
Staff welfare	307 709	379 708
Subscriptions and membership fees	590 363	456 170
Technical components	3 758 578	5 011 546
Telephone and fax	100 219	510 470
Training	613 869	1 583 935
Travel – local	381 994	768 451
Travel – overseas	2 353 507	2 143 051
VAT on imported services	1 165 859	208 777
	79 073 983	**77 526 507**

15. CASH GENERATED FROM OPERATIONS

FIGURES IN RAND	2024	2023
Deficit	(58 714 643)	(29 385 411)
Adjustments for:		
Depreciation and amortisation	56 893 384	50 258 028
Loss on sale of assets	401 692	427 472
Loss/(gain) on foreign exchange	138 424	(26 796)
Impairment deficit	310 552	-
Credit losses on receivables	1 368 404	1 131 878
Movement in provision for performance bonuses	-	(11 303 213)
Movement in provision for cost of living adjustments	-	(2 986 072)
Changes in working capital:		
Inventories	(1 308 158)	123 193
Receivables from exchange transactions	(1 624 663)	(2 702 591)
Prepayments	10 457 348	10 216 671
Payables from exchange transactions	(4 961 254)	(2 208 720)
	2 961 086	**13 544 439**

16. COMMITMENTS

FIGURES IN RAND	2024	2023
Authorised capital expenditure		
Already contracted for but not provided for		
- Property, plant and equipment	28 991 105	59 129 723
Not yet contracted for and authorised by Board members		
- Property, plant and equipment	-	6 996 724
Total capital commitments		
Already contracted for but not provided for	28 991 105	59 129 723
Not yet contracted for and authorised by Board members	-	6 996 724
	28 991 105	**66 126 447**
Authorised operational expenditure		
Already contracted for but not provided for		
- General expenses	13 842 315	16 353 012
Total commitments		
Capital expenditure	28 991 105	66 126 447
Operational expenditure	13 842 315	16 353 012
	42 833 420	**82 479 459**

The delivery lead times for equipment procured by NMISA can be anything up to a year and in some cases beyond a year. At times, funds are often rolled over annually in the form of commitments, for those awards made for which equipment has not yet been delivered.

16. COMMITMENTS (continued)

NMISA procures specialised equipment (custom made on order or assembled to order according to specification by international manufacturers). Some of the equipment is only used by national metrology institutes and the components need to be characterised and tested on assembly. This equipment must be thoroughly tested, verified and calibrated to ensure traceability to International Standards before delivery, since the results generated are used as input into uncertainty of measurement calculations.

FIGURES IN RAND	2024	2023
Operating leases – as lessee (expense)		
Buildings		
Minimum lease payments due		
- within one year	26 783 470	24 571 991
- in second to fifth year inclusive	131 287 116	125 741 402
- later than five years	36 578 051	79 875 008
	194 648 637	**230 188 401**
Operating lease payments represent rentals payable by the entity for office properties. The lease for properties is negotiated for a term of nine years and eight months, commencing on 1 April 2020. The rental increases on 1 April of each consecutive year, the increase will be based on CPI plus 3%. The rental is payable monthly in advance. No contingent rent is payable.		
Rental expenses relating to operating leases		
Minimum lease payments	24 571 991	22 358 499
Printers		
Minimum lease payments due		
- within one year	249 200	249 200
- in second to fifth year inclusive	109 800	412 850
	359 000	**662 050**
Operating lease payments represent rentals payable by the entity for printers. The lease is negotiated for a term of 36 months, commencing on 1 September 2022. The rates will escalate annually on the anniversary of the rental agreement by a minimum of 15% per annum and may also vary from time to time in accordance with the service providers pricing schedules and contract structures necessitated by unfavourable exchange rates, inflation, and increase in labour, spares, and fuel and/or transport costs. The rental is payable monthly in arrears. No contingent rent is payable.		
Rental expenses relating to operating leases		
Minimum lease payments	210 053	133 670

17. RELATED PARTIES

Relationships

Controlling entity	Department of Trade, Industry and Competition (**the dtic**)
Board Members	Dr Tshenge Demana (**the dtic** representative) – Term ended 30 June 2023 Ms Lindie Lankalebalelo – Term ended 30 June 2023 Ms Nobom Gcinashe Mfabana – Term ended 30 June 2023 Mr Molelekoa Petrus Mohlomi – Term ended 30 June 2023 Dr Anneline Chetty (appointed 1 April 2022) – Term ended 30 June 2023 Ms Mosa Makhele – Term ended 30 June 2023 Mr Ndwakhulu Mukhufhi – Contract ended 31 August 2023 Mr Teboho Mthombeni (Acting CEO) – 26 October 2023 to 31 January 2024 Dr Jayne de Vos (Acting CEO) – Appointed 1 February 2024 Dr Precious Gugulethu Motshwene – Appointed 1 October 2023 Dr Alufelwi Maxwell Tshavhungwe – Appointed 1 October 2023 Dr James Tshilongo – Appointed 1 October 2023 Ms Senamile Masango – Appointed 1 October 2023 Ms Sara Natalia Prins – Appointed 1 October 2023 Ms Babalwa Songongo – Appointed 1 October 2023 Prof. Andrew Buffler – Appointed 1 October 2023 Prof. Lorna Benita Holtman – Appointed 1 October 2023 Dr Charl Wynand Louw – Appointed 1 October 2023
External members of the Audit and Risk Committee	Mr Zenzele Myeza Ms Romeshni Govender
External members of the IT Steering Committee	Dr Nomathamsanqa Rachel Batyashe Ms Monageng Maureen Mavunda
Members of key management	Mr Ndwakhulu Mukhufhi – Contract ended 31 August 2023 Mr Mogau Sehlapelo Mr Benjamin van der Merwe – Retired 30 April 2023 Dr Charl Wynand Louw – Retired 30 November 2023 Ms Natasha van der Walt Dr Jayne de Vos Mr Tebogo Mthombeni Dr Jessie Pillay
Entities under common control	South African National Accreditation System (SANAS) Export Credit Insurance Corporation of South Africa SOC Limited (ECIC) National Empowerment Fund (NEF) South African Bureau of Standards (SABS) National Creditor Regulator (NCR) National Gambling Board (NGB) National Consumer Commission (NCC) National Consumer Tribunal (NCT) National Lotteries Commission (NLC) National Regulator for Compulsory Specifications (NRCS) Companies and Intellectual Property Commission (CIPC) The Companies Tribunal (CT) Competition Commission Competition Tribunal Industrial Development Corporation International Trade Administration Commission (ITAC)

17. RELATED PARTIES (continued)

Key management information

CLASS	Description	Number
Non-executive Board members	Board members	9
Executive management	Executive Committee	8

FIGURES IN RAND	2024	2023
Related party balances		
Amounts included in trade receivable regarding related parties		
South African National Accreditation System (SANAS)	184 109	175 500
South African Bureau of Standards (SABS)	66 472	32 824
Receivables in respect of assessments, calibration and other services provided in the ordinary course of business.		
Amounts included in trade payable regarding related parties		
South African National Accreditation System (SANAS)	182 637	9 200
South African Bureau of Standards (SABS)	266 029	29 923
Payables in respect of accreditation fees, certification services and training provided in the ordinary course of business.		
Commitments with related parties		
South African National Accreditation System (SANAS)	63 783	815 914
South African Bureau of Standards (SABS)	22 847	55 209
Commitments for accreditation fees, certification services and training to be provided.		
Related party transactions		
Sales to related parties		
South African National Accreditation System (SANAS)	236 823	239 739
South African Bureau of Standards (SABS)	141 327	258 828
Purchases from related parties		
South African National Accreditation System (SANAS)	1 178 968	1 008 774
South African Bureau of Standards (SABS)	355 862	180 316
Transfer received from related parties		
The Department of Trade, Industry and Competition (**the dtic**)	152 722 000	195 704 000

All transactions were at arm's length provided in the ordinary course of business.

17. RELATED PARTIES (continued)

Remuneration of Board and management

Board members

FIGURES IN RAND	FEES FOR SERVICES AS A MEMBER OF THE BOARD	OTHER EXPENSES	TOTAL
2024			
Ms Lindie Lankalebalelo – Term ended 30 June 2023	54 933	5 186	60 119
Ms Nobom Gcinashe Mfabana – Term ended 30 June 2023	34 767	-	34 767
Mr Molelekoa Petrus Mohlomi – Term ended 30 June 2023	30 734	963	31 697
Dr Precious Gugulethu Motshwene	74 235	1 093	75 328
Dr Alufelwi Maxwell Tshavhungwe	-	105	105
Dr James Tshilongo	47 238	1 652	48 890
Ms Senamile Masango	42 514	-	42 514
Ms Sara Natalia Prins	51 961	540	52 501
Ms Babalwa Songongo	47 238	-	47 238
Prof. Lorna Benita Holtman	37 790	-	37 790
Prof. Andrew Buffler	33 066	-	33 066
Dr Charl Wynand Louw	14 171	-	14 171
	468 647	**9 539**	**478 186**

FIGURES IN RAND	FEES FOR SERVICES AS A MEMBER OF THE BOARD	OTHER EXPENSES	TOTAL
2023			
Ms Jabu Mogadime – Resigned 8 February 2023	104 243	10 583	114 826
Ms Lindie Lankalebalelo	62 350	741	63 091
Ms Nobom Mfabana	157 544	4 896	162 440
Mr Molelekoa Mohlomi	152 599	8 671	161 270
	476 736	**24 891**	**501 627**

17. RELATED PARTIES (continued)

Independent committee members of the Board

FIGURES IN RAND	FEES FOR SERVICES RENDERED	TOTAL
2024		
Mr Zenzele Myeza	49 687	49 687
Ms Romeshni Govender	66 250	66 250
Dr Nomathamsanqa Rachel Batyashe	13 588	13 588
Ms Monageng Maureen Mavunda	9 448	9 448
	138 973	**138 973**

FIGURES IN RAND	FEES FOR SERVICES RENDERED	OTHER BENEFITS RECEIVED	TOTAL
2023			
Mr Zenzele Myeza	33 245	2 387	35 632
Ms Romeshni Govender	33 245	423	33 668
Dr Nomathamsanqa Rachel Batyashe	16 562	-	16 562
Ms Monageng Mavunda	16 562	-	16 562
	99 614	**2 810**	**102 424**

17. RELATED PARTIES (continued)

Management class: Executive management

FIGURES IN RAND	BASIC SALARY	ANNUAL BONUS/LEAVE PAYOUT	POST-EMPLOYMENT BENEFITS	ALLOWANCES	OTHER EXPENSES	TOTAL
2024						
Mr Ndwakhulu Mukhufhi	1 257 576	274 777	30 095	17 272	1 556	1 581 276
Mr Mogau Sehlapelo	2 243 191	-	108 458	33 569	-	2 385 218
Dr Wynand Louw	1 148 934	131 107	90 848	94 800	77 567	1 543 256
Mr Benjamin van der Merwe	142 236	125 407	-	3 195	-	270 838
Ms Natasha van der Walt	1 760 671	-	138 313	32 831	558	1 932 373
Dr Jayne de Vos	1 822 649	-	159 276	143 763	-	2 125 688
Mr Teboho Mthombeni	1 513 732	-	209 791	353 966	-	2 077 489
Dr Jessie Pillay	1 873 744	-	67 135	32 831	14 765	1 988 475
	11 762 733	**531 291**	**803 916**	**712 227**	**94 446**	**13 904 613**

FIGURES IN RAND	BASIC SALARY	PERFORMANCE RELATED PAYMENTS	ANNUAL BONUS/ LONG SERVICE AWARD	POST-EMPLOYMENT BENEFITS	ALLOWANCES	OTHER EXPENSES	TOTAL
2023							
Mr Ndwakhulu Mukhufhi	3 011 385	275 261	41 134	69 611	27 636	29 071	3 454 098
Mr Mogau Sehlapelo	2 285 513	300 786	-	78 409	21 636	25 680	2 712 024
Dr Wynand Louw	1 731 868	177 370	-	131 336	144 734	68 408	2 253 716
Mr Benjamin van der Merwe	1 719 663	101 354	129 249	259 816	21 390	-	2 231 472
Ms Natasha van der Walt	1 764 633	133 513	-	132 915	21 390	1 269	2 053 720
Dr Jayne de Vos	1 826 401	139 362	-	153 079	21 390	-	2 140 232
Mr Teboho Mthombeni	1 521 475	127 911	-	201 578	120 390	-	1 971 354
Dr Jessie Pillay	1 867 635	186 092	-	143 764	21 390	25 436	2 244 317
	15 728 573	**1 441 649**	**170 383**	**1 170 508**	**399 956**	**149 864**	**19 060 933**

18. RISK MANAGEMENT

Financial risk management

The entity's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk.

The entity has and will continue to prioritise immediate financial and operational measures such as protecting liquidity and cash flows.

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash. NMISA's primary source of funding is the grant received from **the dtic**. The entity maintains liquidity by limiting capital and operational expenditure within the pre-approved budget.

The entity manages liquidity risk through an ongoing review of future commitments and funding availability.

The table below analyses the entity's financial liabilities into relevant maturity groupings based on the remaining period at the Statement of Financial Position date to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

FIGURES IN RAND	LESS THAN 1 YEAR	BETWEEN 1 AND 2 YEARS	BETWEEN 2 AND 5 YEARS	OVER 5 YEARS
At 31 March 2024				
Trade and other payables	13 010 085	-	-	-

FIGURES IN RAND	LESS THAN 1 YEAR	BETWEEN 1 AND 2 YEARS	BETWEEN 2 AND 5 YEARS	OVER 5 YEARS
At 31 March 2023				
Trade and other payables	17 832 916	-	-	-

Credit risk

Credit risk consists mainly of cash deposits, cash equivalents, derivative financial instruments and trade debtors. The entity only deposits cash with major banks with high quality credit standing and limits exposure to any one counter-party.

Trade and other receivables comprise a widespread customer base. Management evaluates credit risk relating to customers on an ongoing basis. If customers are independently rated, these ratings are used. Otherwise, if there is no independent rating, management assesses the credit quality of the customer, taking into account its financial position, past experience, trade references and other factors. The utilisation of credit limits is regularly monitored. The entity establishes an impairment that represents its estimate of potential losses in respect of trade and other receivables, all receivables between 60 and 120 days are considered for impairment. The provision for impairment is 36 % (2023: 29 %) of the total receivables book

Financial assets exposed to credit risk at year end were as follows:

FIGURES IN RAND	2024	2023
Financial instrument		
Trade and other receivables	12 922 402	11 482 037
Less: Provision for impairment of trade receivables	(4 642 208)	(3 273 804)
Rental deposit	3 216 110	3 031 812

18. RISK MANAGEMENT (continued)

Market risk

Interest rate and cash flow risk

NMISA's interest rate risk arises from markets and economic factors, payables, cash and cash equivalents. The entity's exposure to interest rate risk is minimal due to the following factors:

- interest is not paid on trade payables as it is the policy of the entity to settle within 30 days of receipt of a valid invoice; and
- the PFMA does not allow for the entity to utilise bank overdraft facilities.

Based on the activities of NMISA, the only area affected by interest rate risk is investment income, earned on call deposits. These call deposits are held short-term, and the interest rate is linked to the prime rate. The exposure to the changes in interest rate for a short-term deposit is not material.

NMISA's exposure to risk of changes in market interest rates relates primarily to cash in notice deposits held with banks.

Cash and cash equivalents

FIGURES IN RAND	2024	2023
Short-term deposits	52 097 365	87 424 780

The entity manages its cash flow risk by aligning the allocation received from **the dtic** and other sources of income to its estimated monthly activity levels.

Foreign exchange risk

The entity does not hedge foreign exchange fluctuations.

The entity's exposure to this risk is due to the purchase of specialised equipment from foreign suppliers. To the extent that the transactions are considered to be material, where possible suppliers are required to provide firm prices to minimise the risk. The entity reviews its foreign currency exposure, including commitments on an ongoing basis. The entity has transacted in the following currencies USD, EUR, GBP and CHF, the impact of currency fluctuations has been minimal mainly offset by customer transactions paid for using some of these currencies.

19. GOING CONCERN

The Annual Financial Statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

20. EVENTS AFTER THE REPORTING DATE

No events after the reporting date were identified by management that would affect the operations of NMISA or the results of those operations significantly.

21. BUDGET DIFFERENCES

Material differences between budget and actual amounts

21.1 The favourable variance is due to concerted efforts made to generate more external revenue for sustainability of the organisation in the short and long term and the original budget was adjusted.

21.2 Expenditure recorded in the actuals includes expenditure/deliveries towards prior year commitments.

21.3 Depreciation, credit losses and gains/losses on disposals of assets are non-cash items which are not budgeted for.

22. IRREGULAR, FRUITLESS AND WASTEFUL DISCLOSURE AND NON-COMPLIANCE

During the current year, National Treasury issued a new PFMA Compliance and Reporting Framework for presenting the non-compliance, fruitless and wasteful expenditure and irregular expenditure that was effective on 3 January 2023. This framework replaces the previous guideline.

NMISA is committed to using its funds in a responsible manner. Corrective action is taken where situations lead to fruitless and wasteful expenditure.

FIGURES IN RAND	2024	2023
Irregular expenditure – current	391 567	-

Irregular expenditure is presented inclusive of VAT.

The irregular expenditure relates to payroll fraud of R384 317 committed by an ex-NIMSA employee (Payroll specialist) and R7 250 resulting from failure to follow the procurement process.

NOTES

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