



# ANNUAL REPORT 2022/23



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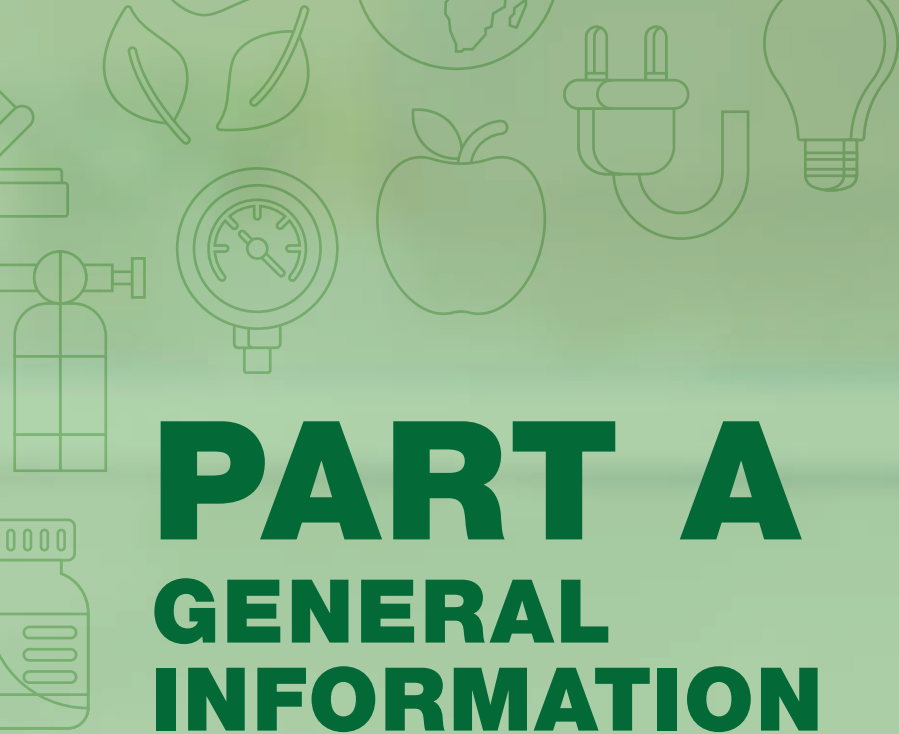
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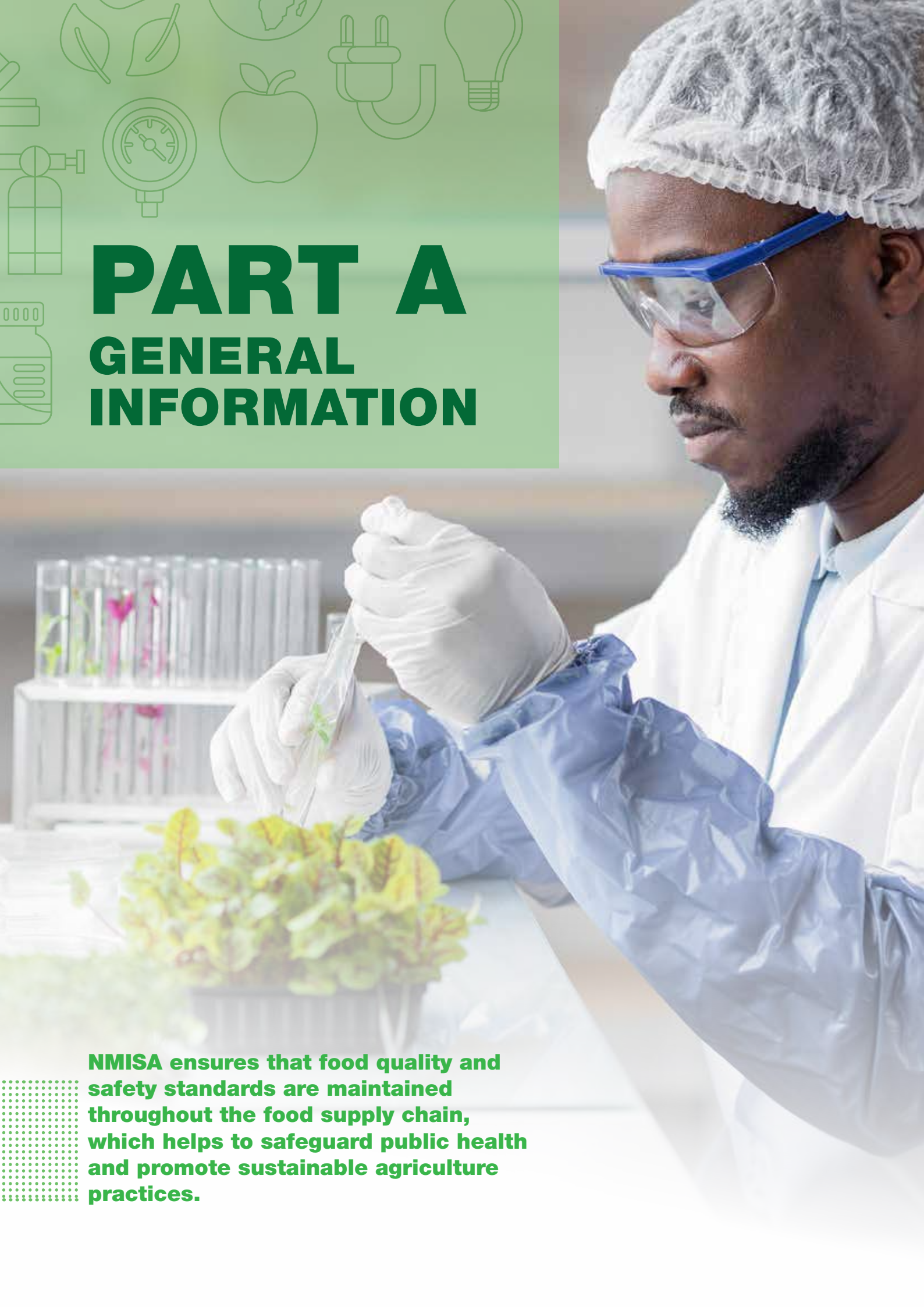
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# **PART A**

## **GENERAL INFORMATION**



**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.**

# 1 PUBLIC ENTITY'S GENERAL INFORMATION

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

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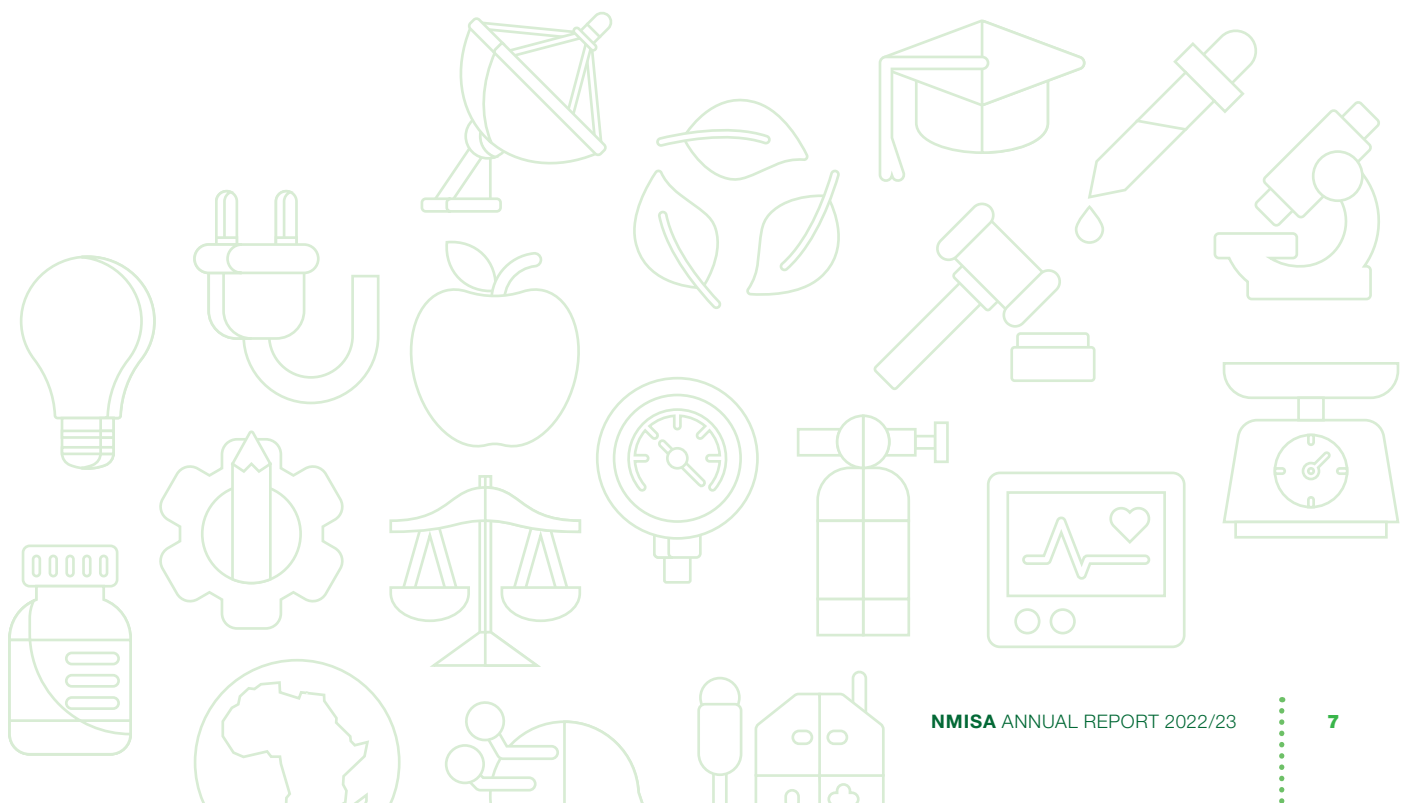


## 2 LIST OF ABBREVIATIONS/ACRONYMS

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<b>AfCFTA</b>	Africa Continental Free Trade Area
<b>AFRIMETS</b>	Intra-Africa Metrology System
<b>AFSW</b>	Africa Food Safety Workshop
<b>ARC</b>	Audit and Risk Committee
<b>ARI</b>	Africa Reference Institute
<b>ARI-TC</b>	Africa Reference Institute Training Centre
<b>B-BBEE</b>	Broad-Based Black Economic Empowerment
<b>BIPM</b>	International Bureau of Weights and Measures (Bureau Internationale des Poids et Mesures)
<b>CA</b>	Conformity Assessment
<b>CBF</b>	Collective Bargaining Forum
<b>CEO</b>	Chief Executive Officer
<b>CIPM</b>	International Committee for Weights and Measures
<b>CMC</b>	Calibration and Measurement Capability
<b>CRM</b>	Certified Reference Material
<b>EBAT</b>	Evidentiary Blood Alcohol Testing
<b>ERP</b>	Enterprise Resource Planning
<b>EWP</b>	Employee Wellness Programme
<b>GRAP</b>	Generally Recognised Accounting Practice
<b>HCD</b>	Human Capital Development
<b>HR</b>	Human Resources
<b>HRRC</b>	Human Resource and Remuneration Committee
<b>IAEA</b>	International Atomic Energy Agency
<b>ICASA</b>	Independent Communications Authority of South Africa
<b>IEC</b>	International Electrotechnical Commission
<b>ILC</b>	Inter-laboratory Comparison
<b>ISO</b>	International Organization for Standardization
<b>KPI</b>	Key Performance Indicator
<b>LED</b>	Light-emitting Diode
<b>MKB</b>	Mobile Kibble Balance
<b>NMI</b>	National Metrology Institute
<b>NMISA</b>	National Metrology Institute of South Africa
<b>NMS</b>	National Measurement Standard
<b>NRCS</b>	National Regulator for Compulsory Specifications
<b>PAQI</b>	Pan-African Quality Infrastructure

<b>PFMA</b>	Public Finance Management Act
<b>PRGM</b>	Primary Reference Gas Mixture
<b>PT</b>	Proficiency Testing
<b>PTB</b>	Physikalisch-Technische Bundesanstalt – German NMI
<b>PTS</b>	Proficiency Testing Scheme
<b>RM</b>	Reference Material
<b>SABS</b>	South African Bureau of Standards
<b>SANAS</b>	South African National Accreditation System
<b>SI</b>	International System of Units
<b>SKAO</b>	Square Kilometre Array Observatory
<b>SMME</b>	Small Medium and Micro Enterprises
<b>SOE</b>	State Owned Enterprise
<b>SSD</b>	Support and Systems Development (Centre)
<b>the dtic</b>	Department of Trade, Industry and Competition
<b>TI</b>	Technical Infrastructure





Mr Ebrahim Patel

### 3 FOREWORD BY THE MINISTER

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It is my pleasure to table the Annual Report of the National Metrology Institute of South Africa (NMISA) for the 2022/23 financial year. The Report sets out the performance information, governance report, human resources and financial information for the past financial year.

Central to economic growth is our country's ability to manufacture and trade high quality products and services, for both local and export markets. Accurate and reliable measurement results instil consumer, business, and international confidence that locally produced goods meet internationally recognised safety and performance standards.

The local manufacturing sector, especially automotive manufacturing, benefits from various measurement services provided by NMISA. In 2022/23, NMISA successfully demonstrated international measurement equivalence of specific Platinum Group Metals in auto-catalyst material

with countries that included those with OEMs for automotive manufacturers in South Africa. The Institute further assisted a prominent automotive manufacturer in resolving materials-related challenges, contributing to the successful launch of their latest generation vehicle model. Besides developing measurement solutions for unique manufacturing challenges, NMISA provides ongoing measurement services required for quality control processes, such as gauge block calibrations. These are crucial standards widely used for the calibration of handheld measuring instruments with over 100 000 calibrations in industry performed annually.

Renewable energy resources, including green hydrogen, are being explored as part of the solution in South Africa's energy transition to a low carbon economy. Hydrogen quality is a critical aspect in support of the hydrogen economy, fuel cells in hydrogen vehicles are sensitive to high levels of impurities in the hydrogen source and it is therefore

**“ Accurate and reliable measurement results instil consumer, business, and international confidence that locally produced goods meet internationally recognised safety and performance standards ”**

important to quantify these impurities with high accuracy. During this year, NMISA took part in an international comparison study designed to evaluate the participant’s measurement capability of hydrogen for fuel cell electric vehicle applications. The results are due in 2024. Successful participation would demonstrate that the local measurement capability is internationally equivalent, thereby supporting South Africa’s participation in this global market.

The increasing usage of essential oils in pharmaceuticals and healthcare is driving its demand internationally. The global essential oils market size was valued at USD8,6 billion in 2020, and it is expected to reach USD14,1 billion by 2026. This presents attractive export opportunities for local producers. NMISA has responded to market-entry challenges faced by emerging farmers and SMME essential oil producers in South Africa by implementing a comprehensive suite of essential oil testing services during 2022/23 with the support of the UNIDO Global Quality Standards Programme. In the fourth quarter, NMISA was recommended by SANAS for ISO/IEC 17025 accreditation as an Essential Oils Testing Facility. The routine availability, from April 2023, of these internationally recognised testing services is expected to enhance the participation of local producers in the global market.

**The dtic** published on 24 May 2023 new efficiency requirements for all General Service Lamps. The regulations aim to advance the safety, performance, and energy efficiency of lightbulbs sold locally by locking out inefficient and environmentally damaging lighting products. NMISA has completed setting up a testing facility for Light Emitting Diode (LED) lighting products. This facility will support the lighting industry to comply with the relevant compulsory specifications for energy efficiency, functional performance, and optical radiation safety requirements. The application process for accreditation of the facility is underway and testing services will be offered to industry once the facility has been successfully accredited.

The report reflects the work of NMISA in implementing its core mandate, and the outcome of joint efforts to align work of **the dtic’s** 18 entities towards a set of three shared outcomes:

- **Industrialisation** by drawing the link between interventions and patterns of production, investment, export and job creation;
- **Transformation** by connecting interventions to empowering black South Africans, women- and workers;
- **Capable state** by reporting on improved performance and deeper partnerships.

Focusing around these central outcomes allows the entities in **the dtic** Group – comprising regulators, financiers and technical institutions – to pool capacities and collaborate to best deliver for South Africans.

NMISA should continue to align its work around stronger delivery on its core mandate and contribution to a common set of outcomes defined for **the dtic** Group, including the forty-five central outcomes established for the 2023/24 Financial Year. These outcomes are focused on measuring performance in terms of real impact, defined through key measures like the number of jobs supported, investment unlocked, and output generated by our work.

I thank the Board, management and staff of the NMISA for their contributions to the performance of the entity in the year under review.



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

# 4 STATEMENT OF RESPONSIBILITY AND CONFIRMATION OF ACCURACY FOR THE ANNUAL REPORT

To the best of my 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 Auditor-General.

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 Generally Recognised Accounting Practice (GRAP) and the Public Finance Management Act.

The accounting authority is responsible for the preparation of the Annual Financial Statements and for the judgements made regarding 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.

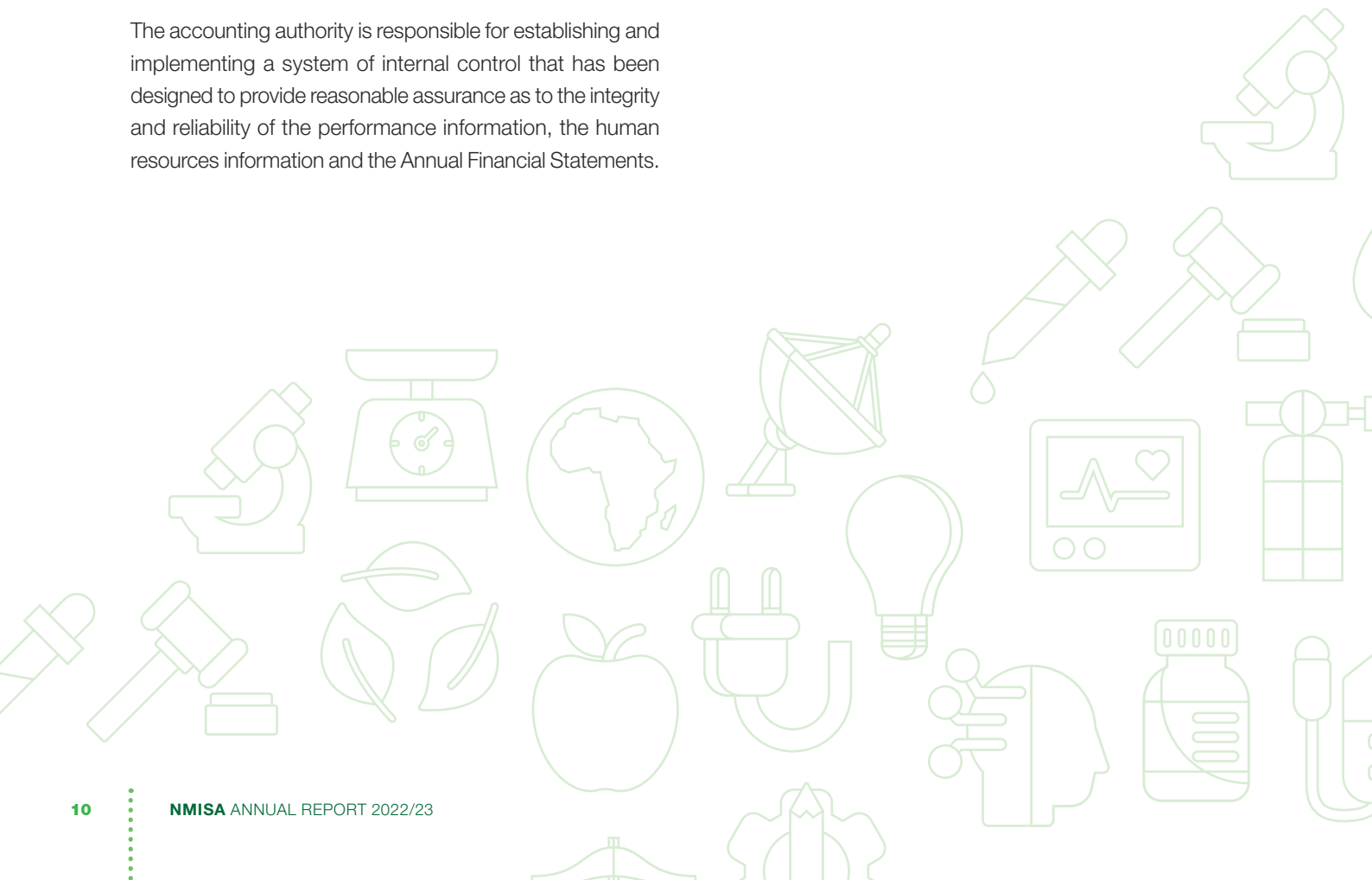
The external auditors are engaged to express an independent opinion on the Annual Financial Statements.

In my 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 2023.

Yours faithfully



**Mr Mogau Sehlapelo CA (SA)**  
Chief Financial Officer



# 5 STRATEGIC OVERVIEW

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## 5.1 Vision

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

## 5.2 Mission

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

## 5.3 Values

### Quality

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

### Measurement excellence

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

### Social responsibility

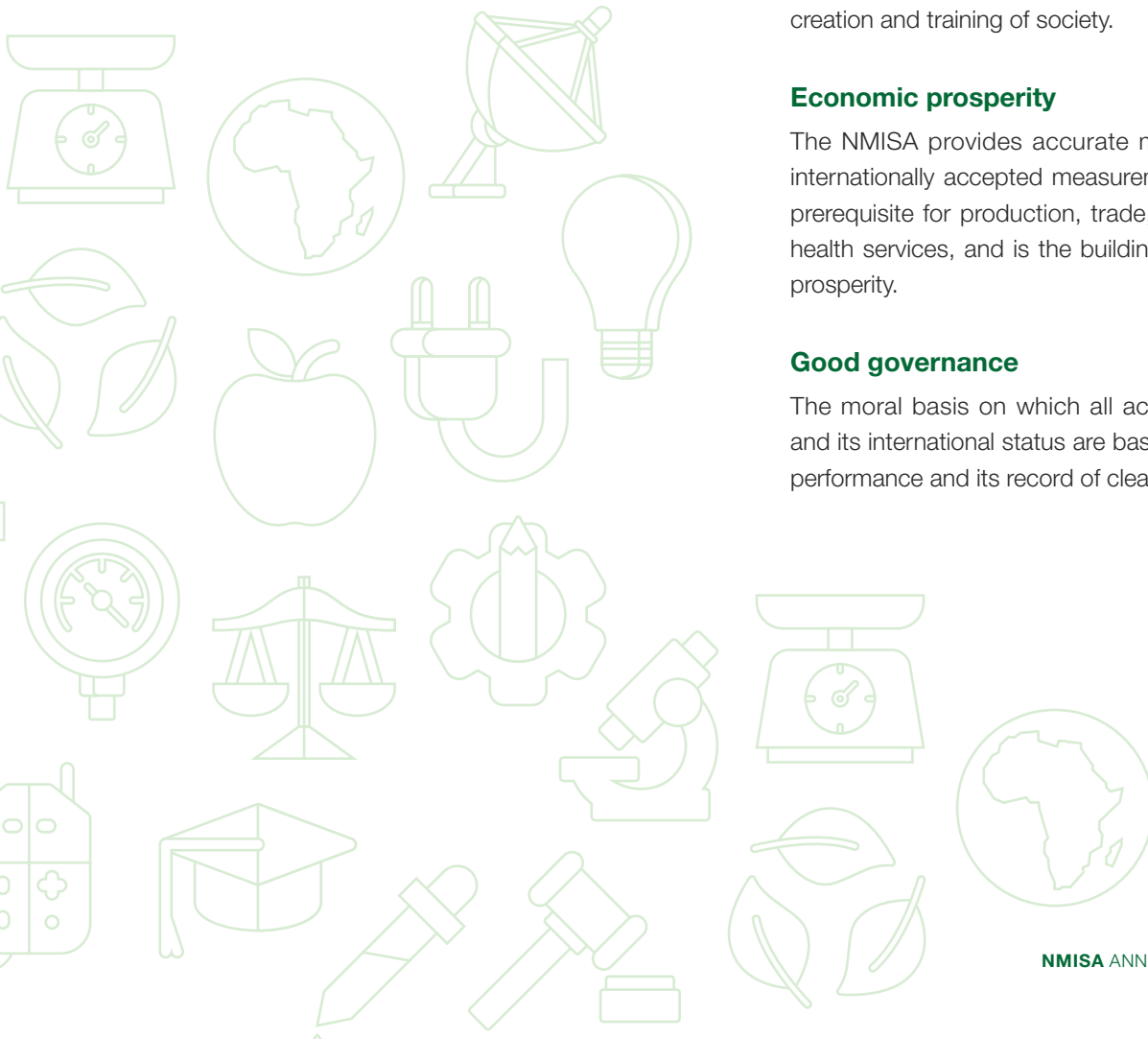
The mandate to establish and maintain the national measurement standards is augmented by the NMISA's leadership role in all measurement issues and awareness creation and training of society.

### Economic prosperity

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

### Good governance

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



# 6 STRATEGIC OUTCOME ORIENTED GOALS

The NMISA Board set out a five-year strategy (2019/24) for the organisation in 2018, with the following goals:

- Strategic Goal 1:** Metrology for regulatory purposes and in support of government laboratories – for compliance and for the development of regulations.
- Strategic Goal 2:** Metrology consolidation for State Owned Enterprises (SOEs) – to provide efficient shared services.
- Strategic Goal 3:** Metrology for industry including assistance to Small Medium and Micro Enterprises (SMMEs) – to provide appropriate services in support of manufacturing, beneficiation, and export.
- Strategic Goal 4:** Strategic alignment with the legal metrology function in the country – to enhance the application of advanced scientific and applied metrology to support the implementation of the Legal Metrology Act.



# 7 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, the date which is internationally recognised as World Metrology Day. In accordance with the Measurement Units and Measurement Standards Act (Act No. 18 of 2006), new updates are gazetted. The NMISA is responsible for maintaining the Measurement Units in accordance with the revised SI and ensuring that all international developments in units are appropriately legislated.

**the dtic** has initiated a revision of the Measurement Units and Measurement Standards Act to align it with the latest international and local best practice. The main aspects to be addressed include the role of the NMISA in providing measurement services and traceability to government departments; measurement facilities (Police Forensics, Department of Health Forensic Laboratories, Department of Transport Law Enforcement Agencies, etc.); and the provision of metrology shared services to SOEs. Finally, better alignment with the Legal Metrology Act will be considered.

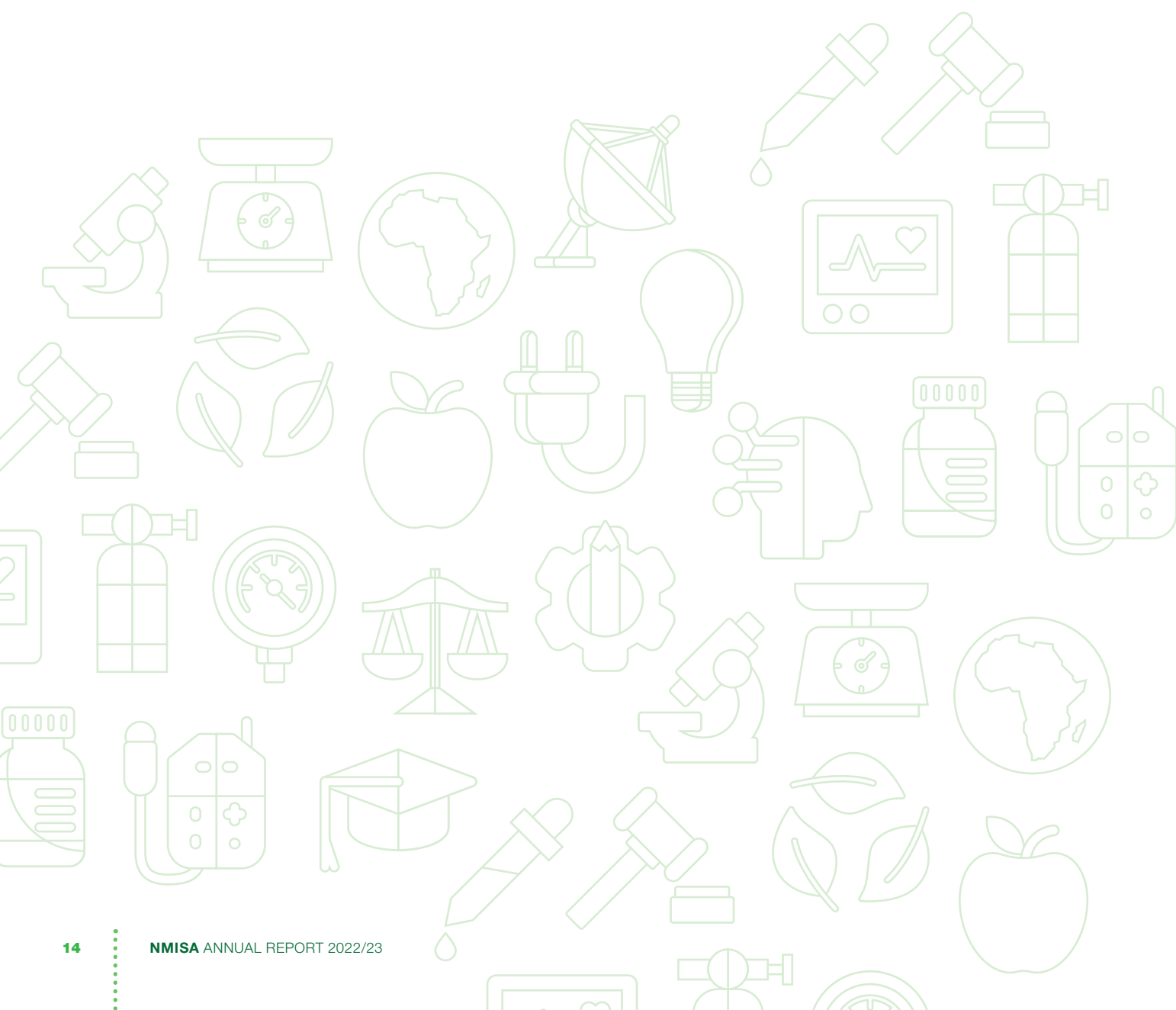
**Table 1: Applicable Acts**

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 National Measurement Standards (NMSs) 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. The NMISA has extensive metrology laboratories, standards, and equipment, together with a solid base of scientific metrology skills, knowledge, and capacity to support the National Regulator for Compulsory Specifications (NRCS) with legal metrology aspects in health, safety, and the 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. The 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	The NMISA provides measurement traceability and calibration of equipment used for monitoring of ionising radiation.
The Civil Aviation Act, (Act No. 13 of 2009)	The NMISA provides measurement traceability contributing to safety and security throughout the civil aviation industry as well as measurement training courses for aviation technicians.
The Foodstuffs, Cosmetics and Disinfectant Act, (Act No. 54 of 1972 as amended)	The 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 Act.
Independent Communications Authority of South Africa Amendment Act, (Act No. 2 of 2014)	The introduction of remote working arrangements to minimise physical contact between people while the COVID-19 pandemic was prevalent increased the demand for stable and reliable mobile data services at an affordable cost. Those employees, students and learners who had ready access to mobile data in sufficient quantities to support their work or learning activities, had a distinct advantage over those that did not. The NMISA signed a memorandum of understanding (MOU) with the Independent Communications Authority of South Africa (ICASA) to establish a joint project to investigate and develop a verifiable mobile data measurement solution to enable independent end user verification of the accuracy of mobile data usage statements.
National Road Traffic Act, (Act No. 93 of 1996)	The 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)	The NMISA supports the Act through the provision of reference gas mixtures for air pollution and environmental monitoring.

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

**Table 2: Legislative framework**

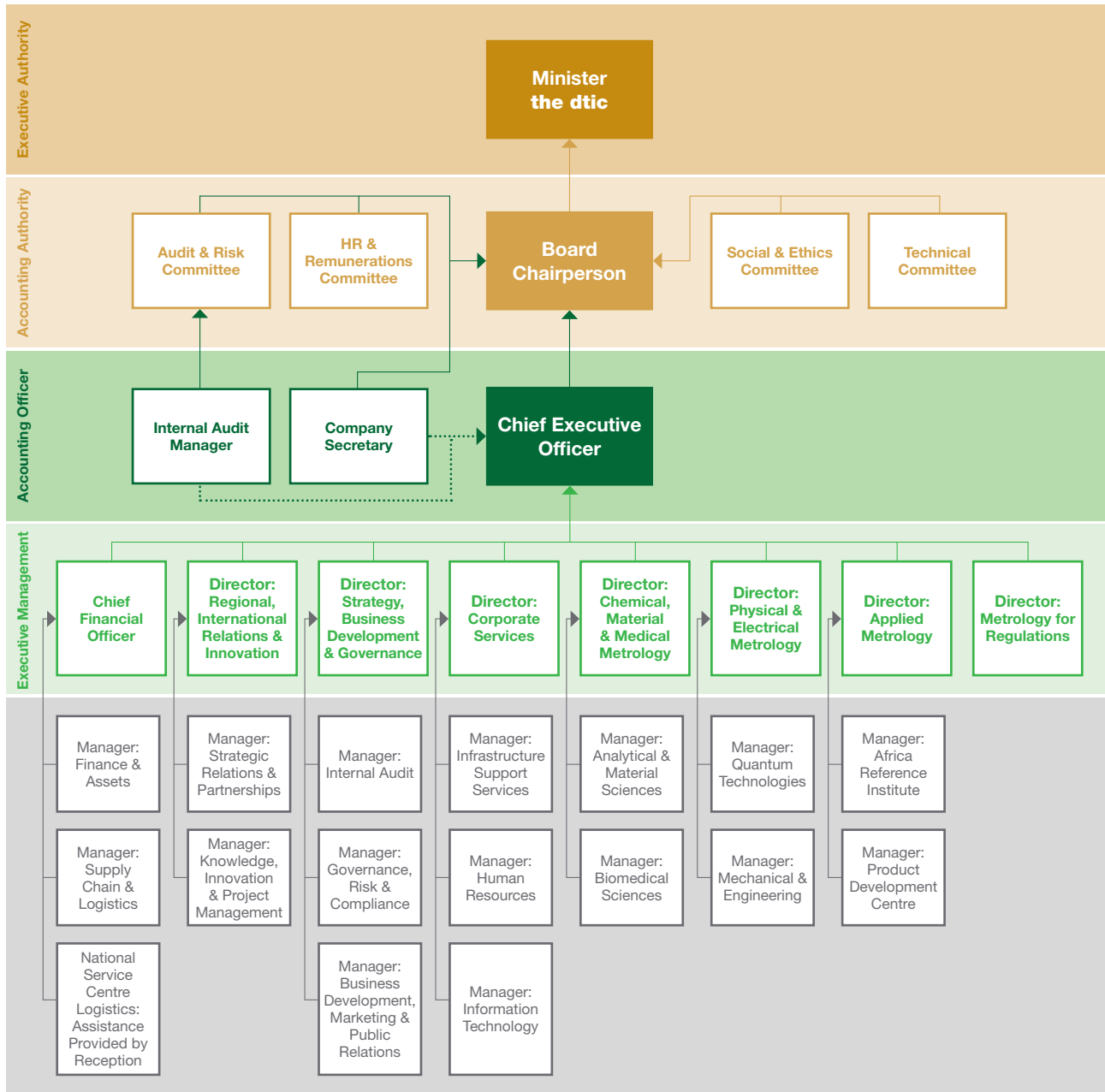
Framework	Purpose
King Code	Provides a benchmark of best governance practices and accountability standards for organisations.
Frameworks for Managing Programme Performance Information	Sets out the planning processes as mandated in Section 215 and 216 of the Constitution of South Africa; Strategic Plans and Annual Performance Plans.
National Treasury Regulations	Provides guidance to the NMISA on matters of compliance and good governance in an evolving economy.

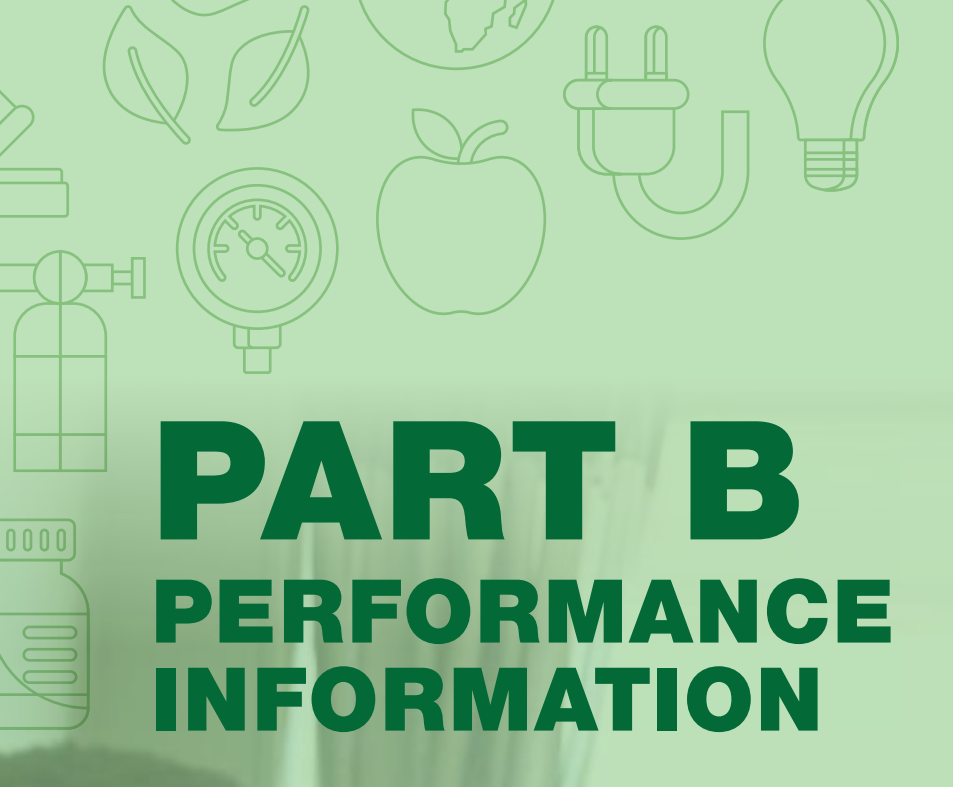


# 8 ORGANISATIONAL STRUCTURE

The 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: Department of Trade, Industry and Competition.

Figure 1: Organisational Structure





# **PART B**

## **PERFORMANCE INFORMATION**



**NMISA plays an important role in healthcare by ensuring that measurements and tests used in medical diagnoses, treatment, and research are accurate and reliable. Metrology helps healthcare providers to make informed decisions based on accurate and precise data, which is critical for improving patient outcomes, safety and quality of life.**

# 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 the NMISA's performance against predetermined objectives is included in the audit report.

Refer to pages 76 to 91 of the Audit Report, published in Part F: Financial Information.

## 2 OVERVIEW OF PERFORMANCE

### 2.1 Service delivery environment

During the reporting period, the NMISA developed new measurement capabilities and methods; organised and participated in international comparisons of its National Measurement Standards (NMSs) to benchmark its capabilities; arranged proficiency testing schemes for and provided certified reference materials or standards to public and private calibration or testing laboratories to verify their competencies; and disseminated traceability to the NMS through calibration, measurement, testing, consultancy and training services to the domestic market (as well as to a number of African countries).

These outputs enhance the ability of enterprises to enter and compete in the local market and facilitate access to international markets through internationally recognised measurement and testing results. In addition, traceability to the NMS supports efficient delivery of state services and maintenance of state infrastructure (including electricity and water supply, health services, etc.), compliance with regulations for environmental management, and consumer protection.

The main sectors that benefited from the measurement solutions developed by the NMISA during 2022/23 are food safety and quality, green economy initiatives, local manufacturing, and regional integration of national measurement infrastructures for increased inter-continental trading.

The NMISA achieved 93 % of its KPI targets for 2022/23 (refer to Table 3 under Section 3).

Although many regulations implicitly rely on reliable measurement results to enable and verify compliance, few include the requirement that measurement results must be traceable to the NMS realised by the NMISA, as provided for by the Measurement Units and Measurement Standards Act. This gap in regulatory frameworks results in inefficiencies in the local market and less than optimum utilisation of state funded resources. The entity has been mitigating this challenge with some success by engaging with SOEs and regulators on fit-for-purpose measurement solutions, and through targeted marketing and awareness initiatives.

The capital funding allocated to the NMISA for this period was significantly reduced, which affected and delayed the conclusion of key programmes and projects that have been initiated. The main project that was affected was the implementation of the Applied Metrology Unit, whose focus is on enhancing stakeholder and client focus with the intention of increasing impact. Amid the reduction in its capital budget, the NMISA endeavoured to find innovative ways to create additional value for its stakeholders in order to enhance financial sustainability.

A series of international economic shocks created an adverse economic environment for increasing service delivery to enhance financial sustainability. These included the economic impact of national lockdowns on businesses worldwide; interruptions in international supply chains resulting in late delivery of measurement equipment and components; and fluctuations in export markets. The events were accompanied by high inflation rates locally;

the depreciation of the Rand; and the effects of intensified loadshedding. Despite these numerous obstacles, the NMISA increased its sales revenue relative to that of the previous financial year, although the revenue target for 2022/23 was not met.

The implementation of higher stages of loadshedding for extended time periods affected the ability of the Radioactivity Standards Laboratory (situated at the NMISA satellite campus in Rosebank, Cape Town) to deliver services on time. Power interruptions negatively impact output when long counting or sample preparation of low-level measurement counting and drying (ashing) of environmental samples is performed. In order to address this, the acquisition and installation of backup power solutions is being considered to ensure uninterrupted measurement traceability support to industry.

## 2.2 Organisational environment

The internal, organisational focus for the period under review was to further advance the implementation of Applied Metrology as a dedicated division of the NMISA within a matrix structure. The re-organisation process to adapt the structure to fit the strategic plan was further advanced by the appointment of the Senior Managers responsible for managing the operational implementation of the Annual Performance Plan for the period.

Significant delays were experienced in finalising the development and implementation of an Enterprise Resource Planning (ERP) system. The NMISA is engaging with the service provider to resolve the outstanding issues. The IT Steering Committee will provide guidance regarding independent verification of the successful completion of the project.

### Risk of industrial action

The NMISA reviews employees' compensation annually in October in line with the Conditions of Service. The review process considers the increase in the cost of living, the result of the impact of inflation and other economic forces. The organisation experienced delays in the implementation of cost-of-living adjustments in both the previous year and the year under review. The delays were caused by the suspension of activities by the Collective Bargaining Forum (CBF),

established for entities reporting to the Ministry of **the dtic**, which in turn exposed the organisation to a risk of industrial action and negatively affected staff morale. Although a wage settlement could not be reached due to the CBF challenges, the cost-of-living adjustments were finalised and implemented in line with affordability by the NMISA, and guided by the cost-of-living adjustments implemented for the Public Service.

## 2.3 Key policy developments and legislative changes

No changes to legislation relevant to the operations of the NMISA were effected during the year under review. The review of the Measurement Units and Measurement Standards Act, No. 18 of 2006 by **the dtic** is still under way.

## 2.4 Progress towards achievement of institutional impacts and outcomes

As reflected in the Strategic Plan for the 2019–24 Medium Term Strategic Framework, the 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 to develop regulations.

**Strategic Goal 2:** Metrology consolidation for SOEs to provide efficient shared services.

**Strategic Goal 3:** Metrology for industry including assistance to SMMEs 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 is presented in Table 3.

**Table 3: Five-year targets**

Outcome	Outcome indicator	Baseline	Five-year target	Year to date achievement
Shorten the traceability chain for Africa by maintaining the Units and NMSs at an internationally recognised level	Number of SI base units realised	6	Maintained and/or updated method for realising the 6 base units.	Maintained and updated method for realising the 6 base units.
	Number of new and improved NMSs and reference materials and reference methods	20	50 Measurement capabilities are developed based on industry needs. These needs are reviewed annually to ensure fit-for-purpose solutions are developed.	94 – The growth is in line with the establishment of the reference material (RM) production facility for RMs and Proficiency Testing Schemes (PTSs).
	Number of memberships maintained	Membership of 10 committees maintained.	Maintain membership of the 10 committees.	Maintained membership of the 10 committees.
	Number of inter-laboratory comparisons and PTSs organised and completed	9	50	80 – This growth is in line with the establishment of the RM production facility for RMs and PTSs.
	Percentage of metrological services covered by calibration and measurement capabilities (CMCs) (i.e., internationally accepted)	80 %	95 %	86 %
Ensure effective dissemination of the Units and NMSs to National and Regional laboratories	Number of accredited laboratories maintained and new laboratory accreditations	24	Maintain accreditation for the 31 calibration/testing methods.	25
	Number of metrologists trained	22	600 metrologists trained.	330 metrologists trained.
	Number of courses provided including courses for SMMEs	18	100	69
	Number of interns and in-service trainees hosted	27	200 interns and in-service trainees hosted.	105 interns and in-service trainees hosted.
	Amount of income generated (services and products)	R22 million	R140 million	R78 363 184
	Percentage of actual expenditure to budget	98 %	Maintain 98 %	99 % maintained
To provide metrology for regulatory purposes	Revised Measurement Units and Measurement Standards Act to support and contribute to National regulation	Current Act No. 18 of 2006.	Revised Measurement Units and Measurement Standards Act.	The NMISA awaits the outcome of the dtic process for the review of the Measurement Units and Measurement Standards Act.
Metrology services for government and state-owned enterprises	Number of government departments and SOEs serviced by the NMISA	3	10	11
	Percentage increase in visibility of the NMISA	20 %	40 %	32 %
	Percentage customer satisfaction	95 %	Maintain 95 %	99 %

Although several planned five-year targets were not yet achieved by the end of the fourth year of implementation, a few targets were exceeded. These are the targets for new and/or improved NMSs, Reference Materials and Reference Methods; Inter-laboratory Comparison (ILC) and PTSs organised and completed; and the Number of Government Departments and SOEs serviced by the NMISA.

## 2.5 Significant achievements in 2022/23 (Year 4)

### New/Improved NMSs

The NMSs maintained and disseminated by the NMISA directly or indirectly underpin the daily activities of South Africa on almost all levels. The NMISA developed new NMSs and services in accordance with industrial requirements: 23 new and improved NMSs were achieved, with priority given to new method development in response to customer needs.

### Consultative committee memberships

The NMISA actively participated in the activities of international committees to ensure its adherence to international standards and to inform policy decisions. The Institute maintained 10 memberships of, and active participation in, the International Committee for Weights and Measures (CIPM) and its consultative committees. Dr Wynand Louw was re-elected as President of the CIPM at its 112<sup>th</sup> meeting. The term is from March 2023 to March 2027. During this period, the CIPM will publish the Strategy 2030+ for the International Bureau of Weights and Measures (BIPM) for the 150<sup>th</sup> year celebration of the signing of the Metre Convention (20 May 2025).

### Trained metrologists

The NMISA established and launched the Africa Reference Institute Training Centre to support dissemination of knowledge to industry and the region. The Training Centre

facilitates collaborative initiatives for training and consultancy in Africa that align with capacity building priorities for the Intra-Africa Metrology System (AFRIMETS). A total of 330 metrologists were trained between 2019/20 and 2022/23. During the past year, the NMISA provided practical training to metrologists from the Ethiopian Metrology Institute as well as the Tanzania Bureau of Standards.

### Number of interns

During the first four years of strategy implementation, the NMISA hosted 105 interns and in-service trainees. Of these, 55 interns were hosted during the 2022/23 financial year. A total of 37 bursars were sponsored in the Science, Technology, Engineering and Maths (STEM) fields. All of these contribute to Human Capital Development (HCD).

### Service agreements with SOEs

The NMISA programmes provided support across the themes of Law Enforcement; Agriculture, Food and Environmental Monitoring; Training and Consultancy Services; Conformity Assessment Support; Manufacturing; Material Science and Services; Health and Safety; Energy Efficiency; and the Digital Economy, through the provision of support and shared services to SOE laboratories. In its five-year strategy, the NMISA targeted servicing at least 10 SOEs through formal agreements. This target has been exceeded by the fourth year of the strategy implementation, with a possibility of securing additional service contracts in the fifth year.

**23** new and improved NMSs were achieved, with priority given to new method development in response to customer needs

**10** memberships maintained of, and active participation in, the CIPM and its consultative committees

**The Africa Reference Institute Training Centre** was launched to support dissemination of knowledge to industry and the region

**330** metrologists were trained

**105** interns and in-service trainees hosted

**37** bursars were sponsored in the STEM fields

**11** SOEs serviced through formal agreements

## 2.6 Focus in 2023/24 (Year 5 – final year of implementation)

### Revenue

The NMISA generates income through calibration, PTS and reference measurements, reference materials (Certified Reference Materials [CRMs] and Primary Reference Gas Mixtures [PRGMs]), consultation, research funds and donor projects, excluding interest. For the period under review, revenue increased by 24 % from the prior year performance.

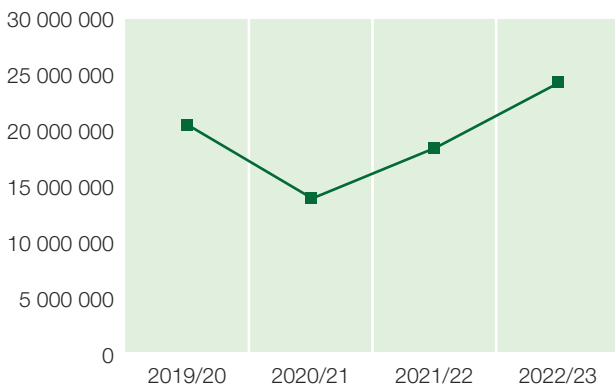


Figure 2: Revenue generated (2019/20–2022/23)

The five-year strategy revenue target is behind target, with 56 % of the five-year revenue target having been achieved. The focus for the final year of strategy implementation is to enhance efforts to meet the annual sales revenue target by offering consolidated measurement solutions to the various target markets associated with the Applied

Metrology Programmes, complemented by marketing strategies adapted to each target audience group.

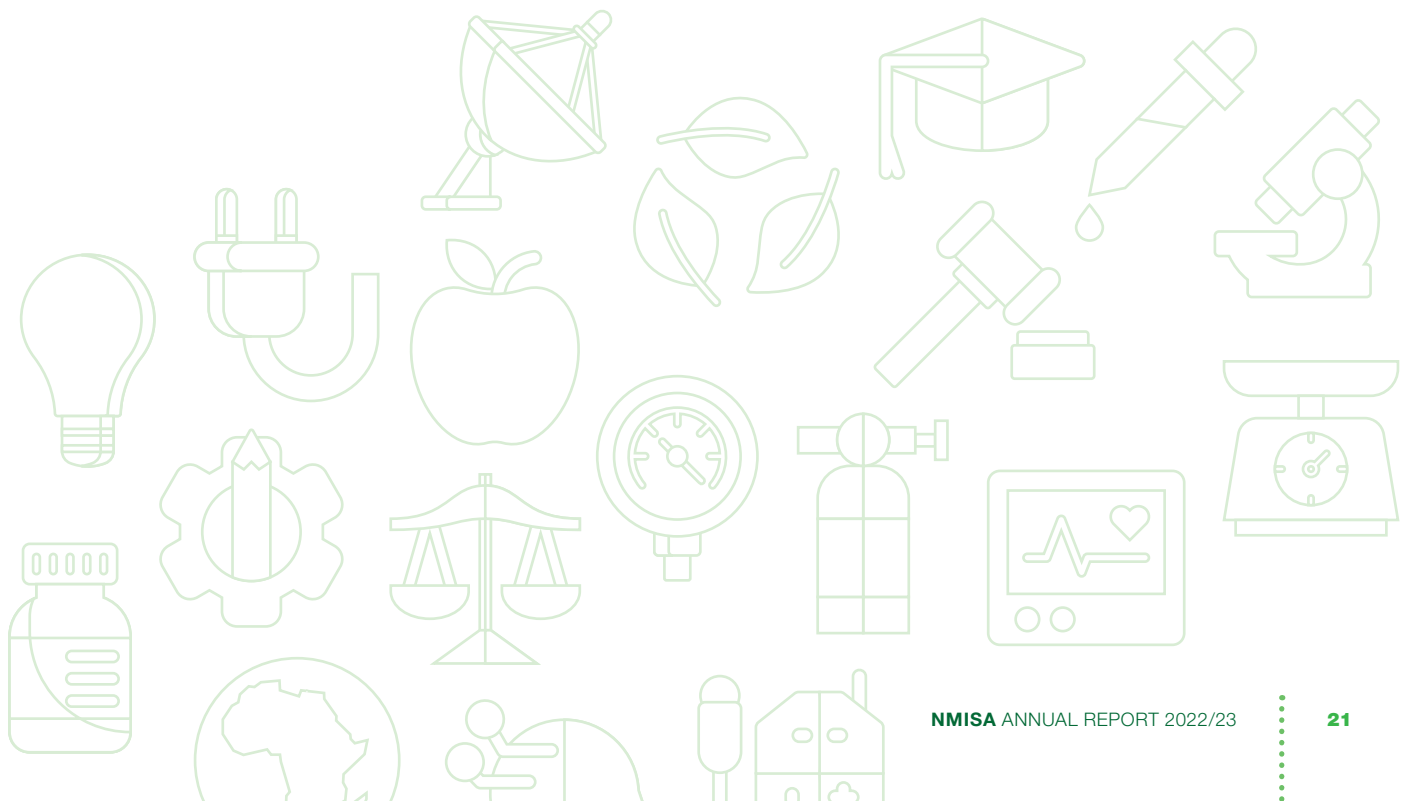
The NMISA processes have improved through the implementation of an ERP system, which allows managers to review sales revenue generated, costs and other operating metrics on one integrated software platform in real time.

### Review of the Act

The Department of Trade, Industry and Competition (**the dtic**) has initiated a revision of the Measurement Units and Measurement Standards Act to align it with the latest international and local best practice. The main aspect to be addressed is the role of the NMISA in providing measurement services and traceability to government departments and regulators.

### Development of additional training courses

During the review period, several short courses in metrology were offered to help industry metrologists and technicians to improve their knowledge and skills for professional development. The target is to develop and present 100 courses over five years. At the end of this, the fourth year of the Strategic Plan for 2019–24, 69 courses had been offered, with 21 of these achieved during 2022/23. Additional training courses are being developed by the Africa Reference Institute (ARI) Training Centre to be offered from 2023/24 onwards, which will enable the NMISA to meet the target of 100 courses. The renovation completion and ICT upgrade of the training facilities will enhance the achievement of the desired outcomes.



## 2.7 Highlights and Challenges

### HIGHLIGHTS FOR THE NMISA IN 2022/23



#### Applied Metrology

##### Successfully conducted a crucial failure analysis project

for a leading producer of nickel plates, enabling them to enhance product durability for critical applications in healthcare and sustainable transportation industries.

##### Provided essential materials characterisation services

for the Gautrain project, ensuring the safety and efficiency of critical components.

##### Assisted a prominent automotive manufacturer

in resolving materials-related challenges, contributing to the successful launch of their latest generation vehicle model.

##### Contributed to public health and safety

by performing analysis on a consumer product, ensuring compliance with rigorous industry standards with regard to toxins in food and cosmetics.

##### Expanded collaboration

with industry and R&D institution leaders across various sectors, addressing diverse materials challenges and delivering effective solutions while upholding confidentiality.



#### Environmental Monitoring

**158** primary reference gas mixtures (PRGMs) and

**8** accredited calibration services maintained in support of air quality management

**38** PRGMs delivered in support of industrial measurements

**4** SOEs supported directly

**2** new NMSs (for hydrogen in nitrogen (100 to 1000  $\mu\text{mol. mol}^{-1}$ ) and BTEX in nitrogen at ppb level)

**5** proficiency testing schemes delivered



#### Food and Agriculture

The NMISA became Africa's first accredited test facility for essential oils in support of SMMEs

Projects within the programme contributed to human capital development through the award of an MSc (*Cum Laude*) in September 2022 and a PhD awarded in March 2023

**7** new reference materials were added to the ISO 17034 accreditation scope

**14** PT schemes were delivered in support of agricultural exports

**3** government entities were supported

**6** training courses were offered

Participation in the Pan-African Quality Infrastructure (PAQI) Cassava Project – leading Africa in developing standards for indigenous African products in support of AfCFTA



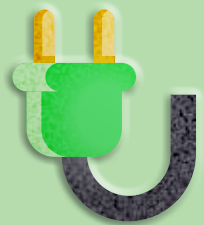
### Health and Safety

**Improved NMSs** in support of the health sector and nuclear industry

**Assuring quality in the country's cancer care** through dosimetry audits

**Contributing to international knowledge dissemination** through training and material development

**Supporting the country's economy** by supporting small business through traceable measurement in ionising radiation



### Energy Efficiency

**2 NMSs related to LEDs** were improved (for Luminous Intensity and Spectral Irradiance)

**1 new NMS for LEDs** was established (Flicker Measurement)

**1 new measurement method for LEDs** was developed (Sphere and Goniometer Measurements)



### Law Enforcement

**3 rounds of ethanol and 1 round of sodium fluoride PT schemes** were run

**Blood alcohol sample tube quality** was confirmed

**30 Evidentiary Blood Alcohol Testing (EBAT) devices** were calibrated for a growing customer base

# 3 INSTITUTIONAL PROGRAMME PERFORMANCE INFORMATION



## 3.1 Sub-programme 2.1: Material Science and Services

### PURPOSE

At the heart of the NMISA's Material Science and Services Programme resides an unwavering commitment to advance industries through cutting-edge materials characterisation services. The programme serves a diverse array of sectors, ranging from automotive and mining to nanometrology and food packaging, supporting businesses at every level of the economy. The primary purpose of the NMISA's Material Science and Services Programme is to provide advanced materials analysis, enabling industries in South Africa to access internationally comparable measurements. By offering the NMISA's reliable and precise characterisation services, key producers in the country's economy are empowered with invaluable insights into their products and business solutions.

## ACHIEVEMENTS

### Successfully conducted a crucial failure analysis project

for a leading producer of nickel plates, enabling them to enhance product durability for critical applications in healthcare and sustainable transportation industries.

### Provided essential materials characterisation services

for the Gautrain project, ensuring the safety and efficiency of critical components.

**Assisted a prominent automotive manufacturer** in resolving materials-related challenges, contributing to the successful launch of their latest generation vehicle model.

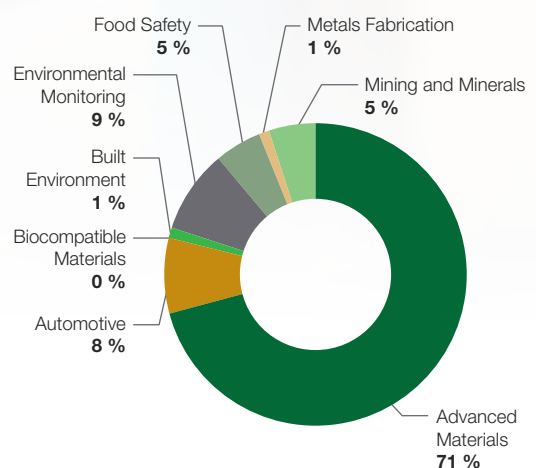
### Contributed to public health and safety

by performing analysis on a consumer product, ensuring compliance with rigorous industry standards with regard to toxins in food and cosmetics.

### Expanded collaboration

with industry and R&D institution leaders across various sectors, addressing diverse materials challenges and delivering effective solutions while upholding confidentiality.

The services rendered to the different industry sectors for the past 200 work assignments are presented in Figure 3.



**Figure 3: Preserving Global Trade: The significance of failure analysis in ensuring uninterrupted operations and safeguarding efficiency**



### **3.1.1 Outcomes, outputs, output indicators, targets and actual achievements**

#### ***New measurement standard in support of the automotive and manufacturing industry***

South Africa holds around 90 % of the world's Platinum Group Metal (PGM) reserves and is a major supplier of platinum, palladium, rhodium, iridium, and ruthenium. Mineral prices in export markets are determined by the quality of the minerals. It is therefore necessary for government and mining companies to value their own mineral exports according to internationally accredited sampling and testing procedures. The NMISA provides measurement traceability and analytical

services to the mining industry to ensure that measurement results obtained locally are internationally accepted.

In 2022/23, the NMISA successfully participated in a comparison study for the determination of platinum (Pt), palladium (Pd), and rhodium (Rh) in an auto-catalyst material. Through the study, the NMISA successfully demonstrated international measurement equivalence with the National Metrology Institutes (NMIs) from countries with investments in the automotive and manufacturing industries in South Africa. The measurement service is now available as a new National Measurement Standard (NMS) on the Reference Measurement and Reference Material Register of the NMISA.

### ***Quality assurance of nickel materials for export***

In the realm of failure analysis, the NMISA had the opportunity to work with a respected client in the mining industry. Their nickel plates are exported for various applications, including electrical components, steel additives, and materials for electric vehicle batteries. However, they faced manufacturing issues that raised concerns about the quality of their nickel products. With the NMISA's expertise and state-of-the-art analytical tools, the samples were carefully examined to identify the root cause. Through thorough investigation, the cause was successfully pinpointed during the electro-winning process. This crucial insight allowed the client to make targeted improvements, ensuring the production of high-quality nickel materials for their global customers.

### ***A new dimensional industry calibration laboratory for the manufacturing industry***

The NMISA Dimensional Industry Calibration Laboratory was established to serve the manufacturing industry with niche industrial calibrations and measurements that are not commonly available. Once completed, the Industrial Laboratory will be fully equipped to provide practical training to local industry as well as African NMI's. During the review period, renovations to the building infrastructure were completed and equipment was relocated to the new facilities. The laboratory is now fully operational, and calibration, measurement, and training services are offered to industry.

### ***Enabling seamless inter-African trade operations through demonstrated equivalence of dimensional measurement results***

In pursuit of precise length measurements, and to provide traceability to South Africa and the region, the NMISA successfully realised the base unit 'length' through the reproduction of the definition of the metre, using two iodine stabilised helium-neon (HeNe) laser systems. These cutting-edge systems have become pivotal in establishing a robust foundation for length metrology, effectively replacing mechanical standards as the realisation of the base unit with the adoption of laser interferometers.

Over the past few years, the field of length metrology has witnessed a transformative shift, with laser interferometers

emerging as the preferred standard. Recognising the significance of this advancement, the NMISA, with sponsorship from the Physikalisch-Technische Bundesanstalt (PTB), took the initiative to arrange workshops focused on laser frequency as the standard for length measurements. These workshops provided a valuable platform to educate and collaborate with colleagues from various countries.

The importance of precise length measurements cannot be understated, as they directly underpin international trade involving goods sold by the metre. By establishing and disseminating the SI unit of the metre with utmost accuracy, the NMISA ensures that South Africa and the region are well-equipped to support seamless trade operations. At the primary level, this realisation is achieved through laser frequency standards, which form the bedrock of precise length measurements.

While length measurements have diverse applications across various industries, most African countries rely on precision measurements at an industrial level and legal metrology of instruments such as electronic distance measurement (EDM) devices, speed measurements, line scales, and tapes, among others. Hence, the adoption of laser interferometers holds immense potential for elevating the accuracy and reliability of these crucial measurements.

In line with this vision, the NMISA successfully conducted two workshops, the first of which was held online, drawing participation from 17 experts representing 10 different countries. The second workshop took place in Kenya over three days and witnessed the active involvement of all participants. These workshops provided a practical and hands-on approach, enabling participants to gain valuable insights into the practical application of lasers. Demonstrations with laser distance measuring interferometers and total stations further enriched the learning experience, equipping the attendees with the necessary skills and knowledge to implement these advanced techniques effectively.

By extending the NMISA's expertise to other African countries, the NMISA is actively contributing to the reduction of trade barriers and the promotion of scientific collaboration on the continent. The successful workshops exemplify the NMISA's commitment to excellence in metrology and its dedication to advancing the field for the greater benefit of society and industry.



### ***Enhancing the NMISA's 3D-printing capabilities for application in the local manufacturing industry***

The plastic 3D printers, now commissioned, are being utilised routinely for prototyping purposes. Initially intended for creating prototypes before final manufacturing in the mechanical workshop, some components have proven to be suitable for use as the final products themselves. This bears testament to the advancements in 3D printing technology and the increasing reliability of plastic 3D-printed parts.

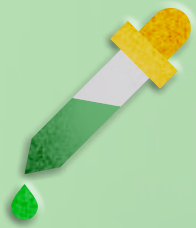
Among the final products produced using these methods are parts for measuring systems – the two Tape Tunnel systems being developed for AFRIMETS NMIs, for example, benefit from this technology. Additionally, there is an automated line scale system in development that is leveraging 3D printing for its components. These measuring systems are crucial for accurate measurements and calibration, and the use of 3D printing allows for cost-effective and customised solutions.

Overall, the integration of 3D printing technology into the workflow of the mechanical workshop seems to be yielding positive results, both in terms of prototyping and final product manufacturing for specialised measuring systems. This advancement may also open new possibilities for future projects and further innovation within the workshop.

The fused deposition modelling (FDM) and selective laser melting (SLM) printers have assisted the NMISA in designing and printing functional parts for the Mobile/Desktop Kibble Balance (MKB-II). Several models of the MKB have been exported to various academic and metrology/calibration institutes in South Africa and on the continent. The NMISA has also received enquiries from Latin America.

### ***Verified accuracy of hand-held measuring instruments used in manufacturing plants***

Gauge blocks are crucial standards, widely used in various industries for the calibration of handheld measuring instruments. These instruments are used for accurate measurements in manufacturing and quality control processes. The NMISA takes pride in being at the forefront of providing high-precision calibration services in calibrating these gauge blocks. The demand for calibration using gauge blocks is constantly growing, with over 100 000 calibrations in industry performed annually. To ensure durability and resistance to wear in precision measurements, these blocks are made from steel or tungsten carbide, which are known for their hardness, while ceramic blocks, which are comparatively new on the market, offer additional benefits such as resistance to rust and corrosion. The NMISA employs advanced techniques to calibrate gauge block standards. Laser interferometry is one such cutting-edge method used for the calibration process. This technique offers superior accuracy and shortened traceability by directly linking the method to the SI for length, the metre, through the iodine-stabilised HeNe laser, enabling the NMISA to guarantee the highest level of precision calibrations.



### **3.2 Sub-programme 2.2: Agriculture, Food and Environmental Monitoring**

#### **PURPOSE**

Agriculture, Food and Environmental Monitoring supports food safety and feed-and-food trading in the Africa Continental Free Trade Area (AfCFTA). In addition to filling gaps in regional testing capabilities, and provision of reference measurements, the sub-programme provides SOEs and government laboratories with support and shared services. The list of potentially hazardous chemicals to which humankind is exposed (both naturally occurring and anthropogenic) is ever increasing. The NMISA is developing the capability to provide comparable data that will assist government to address compliance matters that are becoming critical in trade negotiations and overcoming technical barriers to trade. The existing reference materials and measurements, in addition to those that are being developed or enhanced, support the agricultural, manufacturing, consumer protection and trade sectors by being available to commercial laboratories that provide industry with reliable measurement values.

### 3.2.1 Outcomes, outputs, output indicators, targets and actual achievements



#### ENVIRONMENTAL MONITORING

### ACHIEVEMENTS

**158** primary reference gas mixtures (PRGMs) and

**8** accredited calibration services maintained in support of air quality management

**38** PRGMs delivered in support of industrial measurements

**4** SOEs supported directly

**2** new NMSs (for hydrogen in nitrogen (100 to 1000  $\mu\text{mol. mol}^{-1}$ ) and BTEX in nitrogen at ppb level)

**5** proficiency testing schemes delivered

#### Supporting the development of green hydrogen standards

Renewable energy resources, including green hydrogen, are being explored in South Africa's Just Energy Transition as part of the solution to a low carbon economy. Green hydrogen is considered a potential renewable energy source for electricity generation, transport, petrochemical processes, and chemical production. On 22 February 2023, the NMISA participated in the ISO TC 197 Hydrogen Technologies Stakeholder Engagement to establish SABS TC 197 to support the green hydrogen economy with measurement standards. The SABS TC will oversee standards development in the production, storage, transport, measurement, and safe use of hydrogen to support the green hydrogen economy.

Various industries are improving their processes to integrate greener solutions to reduce emissions. Green transport



solutions include the use of hydrogen-driven vehicles to assist in reducing vehicle exhaust emission which contributes to atmospheric emissions. Hydrogen quality is a critical aspect in support of the hydrogen economy; fuel cells in hydrogen vehicles are sensitive to high levels of impurities in the hydrogen source and it is therefore important to quantify these impurities as part of quality assurance. In 2022/23, the NMISA participated in an international comparison CCQM K164 of hydrogen for fuel cell electric vehicle applications to underpin measurement capabilities for impurities at the nominal amount fractions stated in ISO 14687:2019 (Hydrogen fuel quality – Product specification). The comparison was designed to evaluate the participant's measurement compatibility and to establish measurement equivalence for impurity assessment in hydrogen. The comparison results are expected in 2024.

During 2022/23 the NMISA provided hydrogen purity assessment services to the Nuclear Energy Corporation of South Africa, in support of services they deliver under the Department of Mineral Resources and Energy. The NMISA provided primary reference gas mixtures and reference measurements for accurate measurements in air pollution monitoring to clients in oncology medicine, meteorology, instrumentation, gas manufacturing, paper manufacturing, power generation, calibration laboratories, government, and research. Accurate atmospheric emission data ensures compliance with regulations and promotes accountability by industries emitting into the atmosphere and allows for an improvement in their air quality management plans to reduce emissions.

### ***PRGMs supporting South Africa's National Air Quality Management Act***

Air pollution continues to be a primary concern in South Africa. Air quality is monitored regularly through monitoring stations. Currently there are 132 government-owned stations, where monitoring services are outsourced to private air quality laboratories. The NMISA provides these air quality laboratories and local municipalities with PRGMs to calibrate instruments to monitor air pollutants. The NMISA continued to engage with monitoring stations since only 96 of 132 stations report emission data to the South African Air Quality Information Systems. The NMISA improved its overall sales of PRGMs by 74 % in 2022/23, highlighting the growing importance of air quality monitoring and the critical role of the NMISA's PRGMs to anchor these measurement results.

### ***Supporting the monitoring of greenhouse gas emissions***

The monitoring of atmospheric trends of greenhouse gases and their contribution to climate change is vital for assessing the impact of policies to improve air quality and reduce greenhouse gas emissions. There is a research gap in the contribution of wetlands to overall greenhouse gases. The NMISA engaged with various stakeholders during 2022/23, including consulting companies that have been entrusted with reporting greenhouse emissions from different wetlands in South Africa. The NMISA continues to support accurate sampling methods and provide reference measurements to sampled gases from wetlands that will contribute to the greenhouse gas inventory. Accurate monitoring of these gases assists the country in an effective transition to a low carbon economy as strategies are implemented to reduce these emissions.

### ***Proficiency testing schemes in the air pollution monitoring industry***

The NMISA supported 14 stakeholders in air pollution monitoring with proficiency testing (PT) schemes. Participation in PT schemes provides benefits to the stakeholders, which include technical competence and quality assurance of reported results. More stakeholders in air pollution monitoring are being accredited in accordance with the Department of Forestry, Fisheries and the Environment's different environmental management regulations, which require that all stakeholders reporting data to the South African Air Quality Information Systems (SAAQIS) must be accredited to ensure that ambient emission data that is reported is reliable. This promotes improved compliance in air pollution monitoring in South Africa, as data reported can be trusted and the correct emission reduction strategies can be implemented to improve air quality and provide an environment that is not harmful to South African citizens.

#### **PT SCHEMES DELIVERED:**

1. Ozone 50–500 nmol/mol (Q4)
2. 20–50 µmol/mol SO<sub>2</sub> in nitrogen (Q4)
3. 200–600 µmol/mol CO
4. 10–20 % mol/mol CO<sub>2</sub> in nitrogen (Q4)
5. 100–1000 µmol/mol NO in nitrogen

### ***Towards measurement traceability for earth observation data***

Earth observation relies on sensors employed in satellites and drones to make informed decisions regarding natural resources, and address threats to biosecurity, biodiversity and food security. Similar sensors are found in aerospace observation systems, as well as instrumentation used in the LED ARI reference laboratory. These sensors require calibrations that are traceable to the SI. A measurement system is being developed at the NMISA to calibrate and characterise these sensors. The measurement system relies on the primary standard for optical power to provide SI traceability. The NMISA has been approached by South African industries expressing the need for an independent calibration facility for satellite sensors, as well as an academic institute regarding the calibration of sensors used in plant disease identification. A cleanroom facility was constructed at the NMISA to house the measurement system.



## FOOD AND AGRICULTURE

### ACHIEVEMENTS

**The NMISA became Africa's first accredited test facility** for essential oils in support of SMMEs

**Projects within the programme** contributed to human capital development through the award of an MSc (*Cum Laude*) in September 2022 and a PhD awarded in March 2023

**7 new reference materials** were added to the ISO 17034 accreditation scope

**14 PT schemes** were delivered in support of agricultural exports

**3 government entities** were supported

**6 training courses** were offered

**Participation in the Pan-African Quality Infrastructure (PAQI) Cassava Project** – leading Africa in developing standards for indigenous African products in support of AfCFTA

#### *Expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure entities*

Fish are amongst the world's most traded food commodities, with the worth of the industry being almost USD130 milliard in 2012. At that stage, developing economies accounted for about 54 % of the total fishery exports of the world by value. Currently, South African aquaculture is dominated by molluscs, with finfish considered an emerging industry, and marine fisheries contributing significantly to fish exports. In 2019, the sales value of caught fish was valued at R6,6 milliard and processed fish R9,4 milliard. Currently, the major marine fish sub-sectors include hake and small pelagic fish. To enhance this sector within the South African Economy several programmes have been initiated, among them the Aquaculture Development and Enhancement Programme within **the dtic**.

The technical infrastructure institutions of South Africa participated in the session entitled Standards, Sanitary and Phytosanitary requirements within the AfCFTA at the 2<sup>nd</sup> Africa Food Safety Workshop (AFSW) on 27 June 2022. The topic was Quality Infrastructure Support for the Promotion of Fish Exports.

The NMISA currently offers the following niche services for contaminants in fish and seafood:

- Analysis of perfluoro-1-octanesulfonate (PFOS) and perfluoro-n-octanoic acid (PFOA) in fish muscle tissue
- Analysis of polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) in fish by isotope dilution GC-MS/MS
- Analysis of polycyclic aromatic hydrocarbons (PAHs) in fish tissue
- Analysis of organochlorine pesticides in fish muscle
- Analysis of toxic inorganic elements in fish and other seafood products, including total arsenic, cadmium, mercury and lead, using inductively coupled plasma mass spectrometry (ICP-MS) with a range of calibration strategies.

In the 2022/23 financial year, a contract for the analysis of dichlorodiphenyltrichloroethane (DDT) and its associated compounds in African Tiger Fish was completed for Namibia Nature Foundation. The NMISA is also developing a capability for elemental speciation analysis (for arsenic [As] and selenium [Se]) in fish and seafood products. In 2023, the NMISA will be running PT schemes for both toxic and nutritional elements in marine fish as well as industrial pollutants in marine fish. The NMISA will continue to service clients that request these advanced measurements, which are not currently provided by routine laboratories.

#### ***Africa's first accredited essential oils testing facility***

The global essential oils market size was valued at USD8,6 milliard in 2020, and is expected to reach USD14,1 milliard by 2026, growing at a compound annual growth rate of 8,7 % during the forecast period. To date, South Africa's share of this market has been relatively small. The NMISA has responded to market-entry challenges faced by emerging farmers and SMME essential oil producers in South Africa by implementing a comprehensive suite of essential oil testing services during 2022/23.

In the final quarter of the reporting period, the NMISA was recommended by the South African National Accreditation System (SANAS) for ISO/IEC 17025 accreditation as an

Essential Oils testing facility, the first laboratory in Africa to do so. This achievement was supported by the UNIDO Global Quality Standards Programme (GQSP), which donated an optical rotation instrument to the NMISA to establish the service. The routine availability of these internationally recognised testing services in April 2023, through a subsidised scheme for SMMEs, is expected to enhance the reputation of South African essential oils in the global market, allowing for local SMME products to enter the international market, thereby contributing to economic development and poverty reduction in Southern Africa.

#### ***PAQI – Cassava Project in support of the AfCFTA***

AFRIMETS, with the support of PTB and PAQI, organised a PT scheme, operating in 2022 and 2023, to determine laboratory equivalence in the analysis of food quality and food safety parameters for cassava. The data generated during these PT rounds can identify areas where improvement may be required. Additionally, results will provide recommendations for the development of harmonised guidelines and standardisation of methods for the accurate measurement of cassava products between African sub-regions, regional economic communities, and the rest of the world.

#### ***Veterinary drug residues in animal tissue***

The poultry industry is one of the target sectors for development by **the dtic** (Poultry Master Plan). The presence of hazardous substances in poultry for consumption can negatively impact the industry. One of the main World Health Organization (WHO) and the World Organization for Animal Health (WOAH, formerly OIE) concerns is the presence of veterinary drug residues in animal products including poultry. The presence of these residues is strictly regulated.

Chronic exposure to antibiotic drugs and their residues may also lead to antimicrobial (multidrug) resistance within the human and animal population in the long term, making antibiotics ineffective for infection and disease control. As a result, testing for veterinary drug residues has become increasingly important to maintain trade, and protect the health of the population.

To support South Africa's poultry industry, the NMISA obtained new ISO/IEC 17025 accreditation for antibiotic veterinary drug residue testing in animal tissue. With this new method two technical signatories were also approved. This increases the NMISA's scope of testing services for the country and region, where insufficient sustainable and reliable drug residue testing services are available.

In addition, PT schemes and the much-needed antibiotic residue RMs for quality control can be produced locally, replacing expensive imports, and reducing challenges laboratories encounter with acquiring import permits for these materials.

### **PT SCHEMES DELIVERED IN SUPPORT OF FOOD SAFETY AND QUALITY:**

1. Pesticides in lemons
2. Pesticides in grapes
3. Pesticides in mangoes
4. Pesticides in apples
5. Pesticides in plums
6. Elements in wheat
7. Pan-African Quality Infrastructure (PAQI) – protein and moisture in cassava
8. Vitamin A in wheat and vegetable oil
9. Elements in feed
10. Moisture in chilli powder
11. Aflatoxins in peanut butter
12. IAEA Aflatoxins in peanut butter
13. Mycotoxins in maize
14. PAQI – Toxic and nutritional elements in cassava flour

### **NEW MEASUREMENT SERVICES INCLUDED IN ISO/IEC 17025 ACCREDITATION SCOPE:**

- Aflatoxin M1 in milk
- Veterinary drug residues in muscle tissue
- Additional pesticides in fruit matrix

### **FOUR NEW REFERENCE MATERIALS RELEASED:**

- NMISA-QC-VITA1 – Vitamin A in wheat flour QC material
- NMISA-QC-VITA3B – Vitamin A in vegetable oil QC material
- CRM0036 – Aflatoxin mix in methanol
- CRM0037 – Aflatoxin mix in acetonitrile

### ***Pan African survey of food safety testing capacity***

The NMISA established its Africa Reference Institute (ARI), with the purpose of contributing to the Africa Continental Free Trade Area (AfCFTA). This was realised through completion of a Pan-African survey report on the food safety testing capacity across the continent. The survey was initiated on behalf of AFRIMETS and sponsored by PTB, to consolidate information on the laboratory food testing capabilities on the continent and identify gaps that would inform future food testing capacity-building activities within AfCFTA in support of the African Union's Food Safety Strategy for Africa.

The survey comprised Phase 1 of a Food Safety Testing Capacity Building Project that would direct the activities of Phase 2, extending to August 2024. The Phase 2 proposal includes training courses, workshops and practical assessments in proficiency testing that will be delivered through the NMISA ARI in 2023/24.

### ***Africa Food Safety Workshop 2022***

Aligning with the NDP 2030<sup>1</sup>, during the second quarter of the reporting period, the NMISA successfully hosted the second Africa Food Safety Workshop 2022, in collaboration with the Joint Food and Agriculture Organization of the United Nations/ International Atomic Energy Agency (IAEA) Technical Centre for Food and Agriculture and the Africa Food Safety Network. This workshop positioned the NMISA as a key enabling partner for food safety and quality testing underpinning agricultural trade, by bringing together experts and representatives of food monitoring and inspection laboratories, and regulators from across the African continent. Emphasis was placed on the importance of government backing, harmonised food control systems and reliable food safety testing to ensure food security, protect public health and support fair agricultural trade within AfCFTA and internationally.

The event significantly increased the NMISA's visibility, with more than 280 delegates participating in discussion panels, interspersed between 50 oral and 74 poster presentations. The African Union Commission's Director of Agriculture, Rural Development, Blue Economy, and Sustainable Environment delivered the keynote address, which was made possible through additional sponsorship received from the United States Department of Agriculture's Foreign Agricultural Service. The event received a record amount of media coverage for a single event at the NMISA, valued at a total Advertising Value Equivalent (AVE) of over R1 million and with an estimated audience reach of over 5 million.

<sup>1</sup> South Africa's National Development Plan 2030 aims to boost the agricultural and geoprocessing sectors, in order to increase exports intra-regionally and globally through the newly established African Continental Free Trade Area. The agricultural sector is a major avenue for job creation on the continent, contributing to the economic prosperity of all citizens.



### 3.3 Sub-programme 2.3: Health and Safety

#### PURPOSE

In the medical profession, inaccurate measurement can result in death. Whether from a medical device measuring inaccurately, or a clinical measurement that results in a false positive or false negative, the accuracy of the measurement has dire implications. In cancer treatment, incorrect doses from a scan or radiation therapy can result in a life-altering event. Providing accurate reference measurements in clinical medicine and calibration of diagnostic equipment has far reaching effects on population trust in the field of medicine and clinical diagnostics – without which, medical results would have no impact on society. The NMISA is expanding its measurement service and calibration offerings to enable local manufacturers to meet product specifications and quality standards in the nation's quest to respond to public expectation and minimise dependence on international supply chains.



#### ACHIEVEMENTS

##### **Improved NMSs**

in support of the health sector and nuclear industry

##### **Assuring quality in the country's cancer care**

through dosimetry audits

##### **Contributing to international knowledge dissemination**

through training and material development

##### **Supporting the country's economy**

by supporting small business through traceable measurement in ionising radiation

### **3.3.1 Outcomes, outputs, output indicators, targets and actual achievements**

#### ***Reference measurements for medical gases***

Medical gases are used throughout private and public healthcare facilities for various medical procedures. To protect human life, it is important that medical gases comply with the minimum permitted threshold that could be harmful if exceeded. The NMISA offered reference measurements for medical gas measurements to three gas manufacturers, as required to assure compliance with SANS 532 for their production. The NMISA provided reference measurements for various impurities in these medical gases, including carbon monoxide, nitrogen monoxide, nitrogen dioxide, methane, and carbon dioxide.

#### ***Dosimetry audit services***

Safe and effective cancer treatment relies to a large extent on accurate radiation dosimetry. Differences as small as 5 % in the prescribed radiation dose can change the outcome of treatment, leading to radiation injuries, which in serious cases can even lead to death. To ensure a high standard of cancer care and improved safety of the patient, the NMISA provided radiotherapy audit services to 26 radiotherapy hospitals across South Africa. Where there were discrepancies that had the potential to negatively affect successful treatment of patients, the NMISA informed the affected hospitals to enable investigation of the discrepancies.

#### ***Contribution to international guidance documents for dosimetry laboratories***

In demonstrating the important role the NMISA has played in metrology internationally, two international documents, with key contributions from the NMISA's experts, were published in the fourth quarter of the 2022/23 financial year. The first document, Technical Course Series 76, Education of Radiation Metrologists for Secondary Standards Dosimetry Laboratories, provides information to authorities and stakeholders responsible for or interested in radiation metrology on the education, practical training and competencies needed for personnel working in radiation metrology laboratories. The second document, IAEA Human Health Series No. 44, Establishing a Secondary Standards Dosimetry Laboratory, explains different aspects and steps in the process of establishing a radiation metrology laboratory. Decision makers can follow the guidance in this publication in implementing a feasibility study in the initial planning process, and in estimating the cost and timelines to establish a laboratory.

#### ***Improvements in medium energy x-rays and neutron measurement capabilities for improved calibration of radiation detectors for cancer treatment***

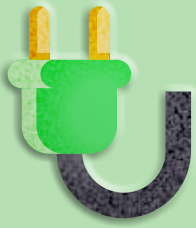
The NMISA's dosimetry standards embarked on improving measurement capabilities for medium energy x-rays and neutron parameters. Through these two parameters, the NMISA provides traceability to the health sector and nuclear industry, respectively. The medium energy x-ray improvements resulted in the country having the capability to calibrate radiation detectors used for measurements in superficial cancer treatment machines and brachytherapy, contributing to accurate radiation doses in hospitals for the benefit of cancer care. The neutron measurement capability improvement has contributed to radiation safety in the country's nuclear industry, ensuring protection of radiation workers and the environment. This achievement has also ensured that the country's neutron measurement capability can support the rest of the region, and that the traceability chain has been shortened.

#### ***Radioactivity analysis to enable exports for a local battery manufacturing company***

In support of the manufacturing industry, the NMISA performed analysis of 10 refined soft lead samples for a local battery manufacturing company. The company was required to provide a non-radioactive certificate to the country to which it was about to export the products. The certificates issued by the NMISA enabled the local manufacturer to trade in the international market, thus supporting the South African economy.

#### ***Improvements in two radionuclides NMSs: Co-57 and Co-60 for the nuclear medicine industry***

To ensure measurement equivalence in the country's radioactivity measurements, the NMISA participated in key comparisons with the International Reference System for Ionizing Radiation (SIR) for activity measurements of  $\gamma$ -ray-emitting radionuclides for two cobalt isotopes, Co-57 and Co-60. The work was completed, and the results received and published. The results for both radionuclides compared well with the Key Comparison Reference Value (KCRV), which is always a desired outcome. Both these radionuclides are used in the nuclear medicine industry as reference sources for radioactivity calibrator (dose calibrator) calibrations, while Co-57 is also used as a flood source for gamma camera calibration and as a simulation source for Tc-99m. Cobalt-60 is a by-product of nuclear reactors such as the Koeberg Nuclear Power Station, which is regulated in South Africa.



### 3.4 Sub-programme 2.4: Energy Efficiency

#### PURPOSE

Energy Efficiency's purpose is to provide measurement solutions and standards that enable South Africa to optimise the use of its energy sources. Specifically, these measurement capabilities aid verification of the performance of energy saving products (such as light-emitting diode [LED] lighting); support accurate measurements in a smart grid, which facilitates grid stability and acceptable network power quality (especially with the introduction of renewable energy through independent power producers); allow accurate tracking of atmospheric emission trends and climate change monitoring; and permit reliable analysis of liquid natural gas to determine the content of hydrocarbons (which yield the energy output) for fair trade.

#### ACHIEVEMENTS

- 2** **NMSs related to LEDs** were improved (for Luminous Intensity and Spectral Irradiance)
- 1** **new NMS for LEDs** was established (Flicker Measurement)
- 1** **new measurement method for LEDs** was developed (Sphere and Goniometer Measurements)



### 3.4.1 Outcomes, outputs, output indicators, targets and actual achievements

#### *New measurement capabilities for the characterisation of energy efficient lamps and luminaires*

To support and facilitate the energy efficiency initiatives in the country, the NMISA set up a testing facility for lighting products. The application for accreditation of the facility is currently under way. The facility will enable the lighting industry to comply with the relevant compulsory specifications for energy efficiency, functional performance, and optical radiation safety requirements (VC 9109 and VC 9110). Renovations to the facility for the measurement of Light-emitting Diode (LED) lighting in the African Reference Institute (LED ARI) were completed, draft procedures were developed, and internal calibration of equipment and verification measurements are in progress. The following measurement services will be provided:

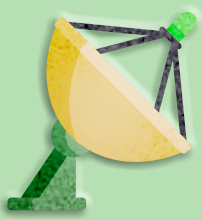
- Photobiological safety of lamps, including evaluation of UV, blue light and infrared hazards
- Energy efficiency performance, including fundamental power factor, total harmonic distortion, power, and luminous efficacy
- Functional performance, including photometric (luminous flux, luminous intensity distribution), colorimetric (correlated colour temperature, colour rendering and colour consistency), and short-term flicker and stroboscopic effect.

Accuracy of measurement results is ensured by obtaining traceability from the NMS for optical radiation, realised and

maintained by the NMISA. The new LED testing facility required additional improvements to a number of these standards and procedures, as follows:

- Photometers used in the photometry laboratory and LED measurement facility were calibrated at PTB (Germany) and the procedure for measurement of luminous intensity was updated, which will lead to an improvement in services provided to industry and the LED ARI.
- A new method was developed for the measurement of spectral irradiance, using an array spectrometer that can be used to determine photometric and colorimetric properties of LED light sources.
- A new capability for the measurement of flicker of LED light sources was developed and a presentation was made at the CIE Expert Symposium on Measurement of Temporal Light Modulation.

The NMISA is also taking part in an international project, EMPIR 19NRM02 'RevStdLED' on the revision of standards for LED lighting. The project aims to aid standardisation bodies in updating current standards to consider the specific requirements related to the measurement of LED lighting products. The NMISA contributed to the project by working together with other collaborators (PTB, LNE, etc.) to develop guidelines to assist laboratories with considering the effect of spectral correlation on the measurement of LED products' photometric and colorimetric parameter characteristics. An inter-laboratory comparison between the project partners on the properties of LED sources is ongoing and the NMISA will use the guidelines developed in the project to complete measurements.



### 3.5 Sub-programme 2.5: Digital Economy

#### PURPOSE

This sub-programme provides high-accuracy time and frequency reference signals to the South African Radio Astronomy Observatory SARA (Square Kilometre Array), and telecommunications to support the transition to a digital economy.

#### 3.5.1 Outcomes, outputs, output indicators, targets and actual achievements

##### *Towards metrology standards for quantum information and communication systems*

The Quantum Technology Project received funding from the Department of Science and Innovation under the South African Quantum Technology Initiative Programme. The aim of the project is to eventually provide metrology standards for quantum information and communications systems. During the financial year, project outputs included a fully developed analytical representation of the output intensity distribution obtained from the spontaneous parametric down-conversion process. In the future, this process may lead to metrology standards in photon quantum information systems.

##### *Data application project*

The initial data verification application aimed to provide an independent, accurate, and verifiable means of data consumption by users on their mobile devices. To achieve this goal, the application would have to provide something significantly different from applications that are already freely available in application stores or preloaded on phones or through service providers. The biggest challenge faced was accessing the data necessary to provide the verification with iOS, and Android, given the strengthening of privacy regulation restrictions.

The NMISA undertook instead to develop an application that measures data with information directly from the operating system for both iOS and Android, and will include download speed and signal strength. The application will be verified by the NMISA using known data sets and a valid method of testing on both Wi-Fi and internet service provider (ISP) networks and will include a time display obtained directly from the NMISA network time protocol (NTP) server.

The NMISA would like to develop the application to accurately measure the data usage of mobile devices with metrological traceability. A request for quotation process was finalised to source a service provider to develop the application, and a final decision on how to proceed will be outlined in the next financial year.

##### *SKAO and the UTC-Rapid Project*

The Square Kilometre Array Observatory (SKAO) is a next-generation radio astronomy-driven big data facility, designed to demystify the understanding of the universe and the laws of fundamental physics. Representatives from SKAO visited the NMISA to discuss potential cooperation with the radio astronomy community which is planning to build a large astronomy telescope in the southern hemisphere. SKAO indicated that an advisory forum would be created to assist with setting up the time and frequency reference and the NMISA indicated a desire to be part of this committee.

Subsequently, the upgrade of the software that will allow the NMISA to participate in the Coordinated Universal Time (UTC)-Rapid Project is slightly behind schedule. The NMISA received an above-average number of requests for training during the year, but this has not derailed the provision of timing signals. The final pieces of calculation software were completed, and the uploading software is being tested. The NMISA is in contact with the BIPM regarding a potential start date for submitting data in the next financial year.

Contact has been made with the AFRIMETS Technical Committee for Time and Frequency (TCTF) members to discuss the merits of an African Time Network. Not much feedback was received from members. The idea has also been discussed at PAQI meetings. Plans for a workshop will be discussed with the relevant role players and consideration for this initiative will be taken forward at government level.



### 3.6 Sub-programme 2.6: Conformity Assessment Support

#### PURPOSE

Important decisions are based on the results of measurements. The outcome of establishing a centre focused on underpinning traceability and accurate measurement has culminated in the provision of certified reference materials (CRMs); reference standards and proficiency testing (PT) schemes; and a facility dedicated to the preparation and packaging of reference materials and standards. These are critically needed in agricultural processing activities, food safety, forensic laboratories with drug CRMs; in general, any matrix where accurate analysis is required.

#### 3.6.1 Outcomes, outputs, output indicators, targets and actual achievements

The outcomes of the Conformity Assessment Support Programme have been reported under the programmes above where these have been applied.





### 3.7 Sub-programme 2.7: Law Enforcement

#### PURPOSE

In support of law enforcement and consumer protection, the NMISA assists with accurate blood alcohol measurements, accurate speed measurements, and reference materials for forensic analysis (illicit drugs) and contributes to consumer protection in trade. The NMISA is expanding its service offerings in the fields of reference testing and calibration. All reference measurements will be consolidated under the Africa Reference Institute (ARI). The ARI aims to serve as a point of dispute resolution in support of compliance with regulations for various government departments, such as the departments of Agriculture, Land Reform and Rural Development, Environment, Forestry and Fisheries, Health, and Mineral Resources and Energy, as well as the South African Police Services.

#### 3.7.1 Outcomes, outputs, output indicators, targets and actual achievements

##### *Enabling prosecution of intoxicated drivers through accurate blood and breath alcohol analysis*

One of the responsibilities of the provincial forensic chemistry laboratories under the National Health Laboratory Services (NHLS), is the measurement of blood alcohol levels in blood samples taken from drivers suspected of being intoxicated. This testing process uses certified aqueous alcohol solutions as reference materials. The NMISA continues to support blood-alcohol analysis with the production of affordable certified reference materials for blood sample testing.

It is possible to test a driver's blood alcohol level at the roadside and obtain results suitable for prosecution purposes immediately using EBAT devices. Certified aqueous alcohol reference solutions are also used in the maintenance and calibration of EBAT devices.

When a suspected intoxicated driver's blood is drawn it is essential that the blood sample is correctly preserved until it can be processed by the forensic laboratory. A sample selection from a new supply of sample tubes was tested to ensure the efficacy of the preservatives sodium fluoride and potassium oxalate used in these containers.

The results of samples tested at one laboratory must be the same when tested at another laboratory. This is achieved using a proficiency testing scheme where the results of tests on the same sample, performed by several laboratories, are compared. In support of quality assurance in blood alcohol testing, the NMISA ran aqueous ethanol and sodium fluoride proficiency testing schemes for local health laboratories and other customers.

The use of EBAT instruments (also known as breathalysers) in all nine of South Africa's provinces, assists in tackling the battle against drivers driving under the influence of alcohol. The NMISA is responsible for disseminating traceability to EBAT instruments to ensure accurate measurements for the Road Traffic Management Corporation (RTMC) and the traffic departments of the larger municipalities. Efforts are ongoing to reduce the turn-around time to service, repair and calibrate EBAT instruments, in order to return them to service as soon as possible.

#### ACHIEVEMENTS

**3** rounds of ethanol and

**1** round of sodium fluoride PT schemes were run

**Blood alcohol sample tube quality was confirmed**

**30** Evidentiary Blood Alcohol Testing (EBAT) devices were calibrated for a growing customer base



### 3.8 Sub-programme 2.8: Training and Knowledge Services

#### PURPOSE

The NMISA Training Centre is a newly established centre, dedicated to providing apposite training in the fields of chemical and physical metrology, including instrumental separation science techniques required to provide reference measurement services to industry. The centre provides a set of training courses that can enhance students' knowledge and increase the problem-solving skills of qualified scientists who have a vested interest in improving their skills, making them more capable of meeting the requirements of their employers. The NMISA Training Centre also provides consultancy services and engages with strategic partners to ensure efficient trade and continued metrology collaboration. Accurate measurement supports globalisation of trade in manufactured/raw materials/feed and food, lean manufacturing and market acceptance of cultivated and manufactured products and underpins the importance of consultancy and strategic liaisons locally, regionally, and internationally.

#### 3.8.1 Outcomes, outputs, output indicators, targets and actual achievements

The Africa Reference Institute (ARI) is positioned as a national and regional institute with authoritative expertise dedicated to providing thought leadership, access to advanced technologies, and reliable application information in fields critical to economic growth and social development in South Africa and the region. Its services include reference measurements and analysis, consultation, and specialist advice, as well as education and training.

The ARI fulfils its mandate through the following centres: the NMISA Training Centre, Industrial Metrology Laboratory (IML), Reference Measurement Centre (ARI-Analytical), Reference Material Production Facility (RMPF), and the Support and Systems Development Centre (SSD).





### **ARI-Training Centre**

The ARI-Training Centre (ARI-TC) is valuable for disseminating knowledge to industry to improve skills and knowledge in measurements and thus increase the country's competitiveness in the global market. This is in line with **the dtic's** strategy of improving the competitiveness of companies and sectors in South Africa.

The ARI-TC began by offering short courses in metrology to help industry metrologists and technicians to improve their knowledge and skills for professional development. The training is useful for SMMEs who require assistance in measurements for different applications in different industries. The Electrical Metrology course was presented over three days, with positive feedback from the participants. Some of the participants want to establish calibration laboratories in their organisations and found the training valuable. The Electrical Metrology course was followed by a five-day Volume Metrology course which provides the fundamentals of volume determination by weighing the distilled water. This is the standard method used by calibration laboratories and national metrology institutes for calibration of volume equipment. The course develops and enhances metrology skills for small volume measurements which require advanced skills in weighing.

### **ARI-TC launch**

The NMISA officially launched the Africa Reference Institute Training Centre on 24 March 2023. The launch aimed to introduce the new facility to industry, academia, and government stakeholders as a dedicated extension of the training that the NMISA already provides in measurement science and through consultancy. External delegates representing various sectors in the industry, including, biodiversity, energy, environment, manufacturing, suppliers of scientific equipment, and metrology calibration laboratories, joined the NMISA staff to celebrate the NMISA's efforts, ask questions, and discuss future collaborations and partnership opportunities.

The event was directed by the NMISA's Senior Manager responsible for the Africa Reference Institute. The CEO welcomed guests and in his opening remarks explained how his vision of a dedicated training centre had come about and was realised. The Manager of the Training Centre provided an overview of the NMISA training opportunities and the efforts leading to a viable and functioning hub that merges academia with industry in support of a capable state through training that is necessary for trade in South Africa.

The event succeeded in its objective of cementing the aggregation between academic learning and practical application in the economy. The NMISA is excited about this venture and is dedicated to ensuring that it delivers, supports, and provides training services as required.

### **Reference Measurement Centre**

The focus of this centre is on becoming industry's 'go-to' regional centre for 'fit-for-purpose' measurement solutions. The Reference Measurement Centre (ARI-Analytical) has performed various analyses for customers on samples that form part of monitoring the environment, food sources, and manufacturing processes. Specifics are reported under 3.2 and 3.7 above.

### **Conformity Assessment and Regional Integration**

Conformity Assessment (CA) is critical for trade facilitation and the role of testing and calibration laboratories is even more important under the AfCFTA. Laboratories provide results/reports that confirm conformance/non-conformance of products to customer-specified requirements. The pivotal role that CA plays in quality infrastructure is part of the process of delivering quality and safety, and facilitating trade across all sectors is a priority for all economies, including those in Africa. There are established conformity assessment bodies (NRCS, SANAS) that include calibration and test laboratories, and inspection and certification bodies.



AFRIMETS, with the support of PTB and PAQI, organised a PT scheme, to determine laboratory equivalence in the analysis of food quality and food safety parameters for cassava. The data generated during these PT rounds can identify areas where improvement may be required (as reported under 3.2 above). Such results can provide recommendations for the development of harmonised guidelines and standardisation of methods for the accurate measurement of cassava products between African sub regions, regional economic communities, and the rest of the world.

SADC Cooperation in Measurement Traceability is one of the SADC Technical Barriers to Trade (TBT) structures, comprising the 16 SADC Member States with the objective of coordinating metrology activities in the region, and is supported by conformity assessment measurement activities. Metrology activities include facilitation and coordination of measurement comparisons and proficiency testing schemes to strengthen international recognition of NIMs in the SADC region and to maintain accreditation. One of the South African Development Community Cooperation in Measurement Traceability (SADCMET) strategic objectives is to assist those NIMs intending to have their services accredited and to support accredited NIMs to maintain their accreditation status. In line with the above, one volume and two mass interlaboratory comparisons were organised and coordinated by the NMISA, with NMISA as the reference laboratory, for SIRDC-NMI of Zimbabwe and NSI of Namibia. The SADCMET Regional Coordinator, through PTB sponsorship, arranged the mass Inter-laboratory Comparison Workshop in Harare Zimbabwe. The workshop was facilitated by the NMISA to reflect on experiences and learning, and to discuss the improvements required for future comparisons. The workshop was also used to train participants and to expand the number of potential laboratories which can act as coordinating laboratories for future intercomparisons.

### **Reference Material Production Centre**

Conformity assessment is very important for trade facilitation in general, but the role of testing and calibration laboratories will be even more important under the AfCFTA. Laboratories provide results that confirm conformance/non-conformance of products to customer standard requirements. The capacity and skills required for the laboratory work performed are very important to build trust and provide confidence in the results that are reported. Laboratories must demonstrate their technical competence to perform their tasks through accreditation or credible peer assessments, based on, among others, proficiency testing. The NMISA's RMPF was established to provide South Africa and the region with 'fit-for-purpose' reference materials, tailored to the specific needs of testing laboratories that in turn support conformity assessment.

Fourteen proficiency testing scheme materials and four new reference materials were produced in the facility during 2022/23. The materials include fruit, oil, chillies, grains and the indigenous cassava root flour. The facility is currently well-maintained, with controlled temperature storage for the materials until further sales are secured. The activities that underpin the RMPF are captured under section 3.2 above.

### **Support and Systems Development Centre**

The SSD provides technical divisions with electronic, mechanical design, and manufacturing support, for the NMISA's maintenance and improvement of NIMs, and the research projects towards new measurement standards. SSD also contributes to the programming, assembly of circuit boards, interfacing between electronic equipment, mechanical design, manufacturing as needed, and the provision of specialised maintenance. This activity is ongoing per programme/project towards ensuring a client-centric service.

### 3.9 Key performance indicators, planned targets, and actual achievements

Table 4: KPIs, targets and achievements

Performance indicator	Actual achievement 2021/22	Planned target 2022/23	Actual achievement 2022/23	Deviation from planned target to actual achievement for 2022/23	Comment on deviations
<b>Administration</b>					
Number of interns and in-service trainees hosted	15 hosted	30 interns and in-service trainees hosted	34	4	The target was exceeded due to overlapping training period for 22 interns who started their training during the previous year.
Amount of income generated	R14 203 999,66	R26 697 333	R24 653 025,01	(R2 044 307,99)	Some project activities were delayed due to the budget cut.
Percentage actual expenditure to budget	100 %	98 %	100 %	2 %	Budget as approved was fully spent.
Number of accredited laboratories and new laboratory accreditations	23 maintained and 1 new accreditation	24 maintained and 2 new accreditations	24 maintained and 1 new accreditation	(1 accreditation)	1 PSD accreditation was delayed due to inability to secure an ILC to benchmark the service.
Percentage increase visibility of the NMISA	37 %	20 %	34 %	14 %	Exceeded due to marketing efforts around the AFSW 2022 including exhibitions enabled following the lifting of COVID-19 restrictions around events.
Percentage customer satisfaction	99 %	≥95 %	99,8 %	4,8 %	The NMISA actively managed customer relations to reduce customer complaints.
Number of government departments and SOEs serviced by the NMISA	4	4	2	(2)	Three SLAs were at review stage with the SOEs. Sign-off will be in the 2023/24 financial year.
Percentage increase in the NMISA clients from the private sector	New KPI	5 %	15 %	10 %	Increase in the NMISA visibility had a positive impact on the increase in the NMISA clients from private sectors.
Participate in <b>the dtic</b> technical infrastructure (TI) review	Updates with regard to the NMISA's participation in <b>the dtic</b> TI review were submitted to the Board as planned. The NMISA awaits the outcome of <b>the dtic</b> process for the review of the Measurement Units and Measurement Standards Act	Participate in <b>the dtic</b> TI review	Participated in <b>the dtic</b> TI review process	None	None

Performance indicator	Actual achievement 2021/22	Planned target 2022/23	Actual achievement 2022/23	Deviation from planned target to actual achievement for 2022/23	Comment on deviations
Percentage of filled funded vacancies	New KPI	6 %	9 %	(3 %)	A moratorium was placed on appointments while the organisation was undergoing prioritisation to confirm affordability due to budget cuts.
Turnaround times for filling vacancies	New KPI	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 as the organisation was focusing on reprioritising activities to align with the revised budget.
Compliance with Broad-Based Black Economic Empowerment (B-BBEE) score	New KPI	Attain level 8 compliance	Non-compliant B-BBEE status	Non-compliant	The NMISA achieved a level 8 but was downgraded by one level due to not meeting the sub-minimum spent on one of the 3 Priority Elements.
<b>Applied measurement services and products for industry, SOEs and regulatory support</b>					
Realisation of the SI base units	6 SI base units were realised	4 reports on the 6 base units	4 reports on the 6 base units submitted	0	None
Number of new and improved National Measurement Standards and reference materials and methods	28	17	23	6	Priority was given to new method development in response to customer needs as these are key to revenue generation.
Number of inter-laboratory comparisons (ILCs) and proficiency testing (PT) schemes organised and completed	25 ILCs and PT schemes completed	Organise and complete 30 ILCs and PT schemes	23 ILCs and PT schemes completed	(7)	Delays arose in the submission of comparison results by participants.
Number of metrologists trained	155 metrologists trained	133 metrologists trained	55 metrologists trained	(78)	<p>COVID restrictions continued to have a knock-on effect due to restrictions still in place in Africa. Motivations during the latter part of 2021 and beginning of 2022 to develop partners for training workshops in 2022, were not successful due to the uncertainty of when restrictions would be lifted, or donor funding released. In many cases, training initiatives were postponed to 2023, thus affecting the 2022/23 targets.</p> <p>The NMISA no longer attends Trade Shows where SMME training was possible (postponed due to COVID, followed by funding cuts affecting travel).</p>

Performance indicator	Actual achievement 2021/22	Planned target 2022/23	Actual achievement 2022/23	Deviation from planned target to actual achievement for 2022/23	Comment on deviations
Number of courses provided including SMMEs	20	24 courses provided including SMMEs	21	(3)	A number of training initiatives were planned in the Training Centre predicated upon the TC being completed. The renovation and completion only happened in March 2023, too late to then implement training as planned.
Number of memberships maintained	10 memberships maintained	Maintain 10 memberships	10 memberships maintained	0	None
Percentage metrological services covered by Calibration and Measurement Capabilities (CMCs)	80 % of metrological services covered by CMCs	85 %	91 %	6 %	New CMCs were added to the key comparison database.
Number of reports on actions to contribute towards the South African Hydrogen Road Map	New KPI	4 reports on actions towards green hydrogen	4 reports on actions towards green hydrogen	0	None
Number of reports on the expanded export opportunity for the fish sector under the AfCFTA enabled by the Technical Infrastructure Entities	New KPI	4 reports on actions related to measurement standards for fish exports	4 reports on actions related to measurement standard for fish exports	0	None

### 3.10 Strategy to overcome areas of underperformance

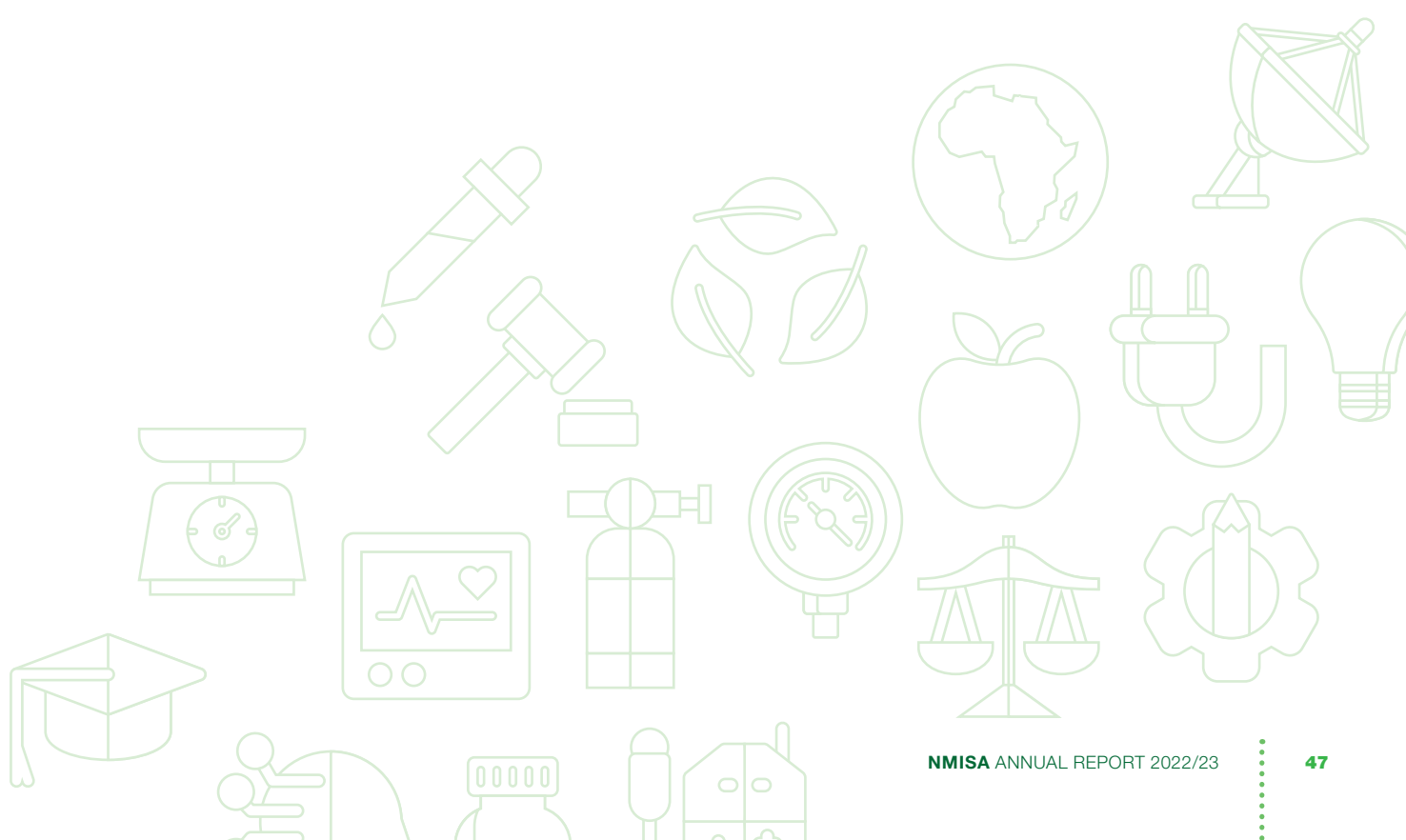
The NMISA met 13 of its 21 targets for the year under review. The following targets were not met:

- Amount of income generated
- Number of accredited laboratories and new laboratory accreditations
- Number of government departments and SOEs serviced by the NMISA
- Percentage actual expenditure to budget
- Percentage of filled funded vacancies
- Number of inter-laboratory comparisons and proficiency testing schemes organised and completed
- Number of metrologists trained
- Number of courses provided including courses for SMMEs.

The majority of targets not met relate to budget cuts and the knock-on effect of COVID-19. Amid the reduction in its capital budget, the NMISA endeavours to find new and innovative ways to create additional value for its stakeholders to enhance financial sustainability.

### 3.11 Linking performance with budgets

Programme	2022/23			2021/22		
	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	113 286	110 307	2 979	119 314	112 759	6 555
Keep, maintain and disseminate National Measurement Standards	107 803	146 441	(38 638)	115 806	140 782	(24 976)
<b>Total</b>	<b>221 089</b>	<b>256 748</b>	<b>(35 659)</b>	<b>235 120</b>	<b>253 541</b>	<b>(18 421)</b>





# **PART C**

## **GOVERNANCE**

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

# 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 NMISA are responsible for corporate governance.

# 2 PORTFOLIO COMMITTEES

The Portfolio Committee on Trade, Industry and Competition exercises oversight over the NMISA's performance in pursuit of enhancing economic growth. The Standing Committee

on Public Accounts reviews the Annual Financial Statements and the Auditor-General's audit reports.

# 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 Public Finance Management Act, No. 1 of 1999 (PFMA). 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 reports (see Table 5) to the Shareholder, who raised issues regarding the annual performance plan.

**Table 5: Reports submitted to the Shareholder**

Report	Date
NMISA Quarter 1 Report	31 July 2022
NMISA Quarter 2 Report	31 October 2022
NMISA Annual Report 2021/22	31 July 2022
NMISA Quarter 3 Report	31 January 2023
NMISA Quarter 4 Report	30 April 2023
Annual Performance Plan 2023–26	31 March 2023

# 4 THE ACCOUNTING AUTHORITY/BOARD

## 4.1 Introduction

In terms of Section 10 (1)(a)(b)(c) of the Measurement Units and Measurement Standards Act, the Board serves as the NMISA's Accounting Authority as contemplated in Section 49(2)(a) of the PFMA. The Board is principally responsible for directing and overseeing the business of the NMISA, balancing the interests of stakeholders, and ensuring the NMISA's long-term economic, social, and environmental sustainability.

The 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 the 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.

## 4.2 The role of the Board

The Board meets at least four times a year, and additional meetings are convened at short notice to consider specific business. The Board delegates specific responsibilities to its committees that are chaired by independent Non-Executive Directors. All the committees have specific terms of reference.

The Board leads the NMISA in:

- Achieving its strategic objectives by approving and directing the NMISA's overall strategy and associated operational objectives
- Approving the NMISA's Strategic Plan and Annual Performance Plan, monitoring implementation of the plans, and approving all budgets
- Ensuring that adequate processes are in place for budget planning and allocation to advance the NMISA's mandate, which includes overseeing its socioeconomic programmes
- Ensuring that the NMISA can achieve its statutory objectives
- Determining policy processes to ensure the integrity of the NMISA's risk management and internal controls
- Providing decisive and effective leadership on key matters of strategic direction by bringing an independent view
- Promoting an ethical culture through regularly reviewed policies and advocating for uncompromising integrity and a transparent environment.

## 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 its Board Charter.

The Board Charter, which regulates Board parameters and ensures good corporate governance in all dealings, outlines the roles and responsibilities of the Board.

## 4.4 Composition of the Board

Name	Designation (in terms of the public entity Board structure)	Date appointed	Date resigned	Qualifications	Area of expertise	Board directorships	Other committees or task teams (e.g.: Audit Committee/Ministerial Task Team)	No. of meetings attended
Ms Jabu Mogadime	Chairperson of the Board	05/04/2013	08/02/2023	<ul style="list-style-type: none"> <li>MBA</li> <li>BA</li> <li>CIM</li> </ul>	Auditing		Chairperson: <ul style="list-style-type: none"> <li>Licensing Committee</li> <li>Risk Committee</li> <li>Pension Fund Adjudicator's Office</li> <li>FAIS Ombud's Office</li> </ul>	8
Dr Nimrod Zalk	Non-Executive Member	01/04/2022	Term ended: 31/03/2023	<ul style="list-style-type: none"> <li>PhD: Economics</li> <li>MSc: Economics (with merit)</li> <li>Postgraduate Diploma in Economics – Development (School of Oriental and African Studies, London University)</li> <li>BA: English and Private Law (Uhisa)</li> </ul>	Economics, Legal and Finance	Member of the Board Investment Committee and Social and Ethics Committee – IDC	Member: <ul style="list-style-type: none"> <li>Social and Ethics Committee</li> <li>Technical Committee</li> </ul>	13
Dr Anneline Chetty	Non-Executive Member	01/04/2022		<ul style="list-style-type: none"> <li>PhD: Geography and Environmental Science</li> <li>Masters: Town and Regional Planning</li> <li>BA: Social Work</li> <li>Project Management</li> </ul>	Human Resources, Project Management, Innovation and Technology Strategy		Member: <ul style="list-style-type: none"> <li>Human Resource and Remuneration Committee (HRRC)</li> </ul>	9
Dr Tshenge Demana	Non-Executive Member	05/05/2013		<ul style="list-style-type: none"> <li>PhD: Analytical Chemistry</li> <li>BSc</li> </ul>			Member: <ul style="list-style-type: none"> <li>Technical Committee</li> <li>HRRC</li> <li>Ad hoc Tender Committee</li> </ul>	15
Ms Lindie Lankabalelo	Non-Executive Member	01/07/2018		<ul style="list-style-type: none"> <li>LLB</li> <li>Postgraduate Certificate in Legislative Drafting</li> <li>Postgraduate Certificate in Corporate Law</li> </ul>	Legal		Member: <ul style="list-style-type: none"> <li>Social and Ethics Committee</li> <li>CEO recruitment Task team</li> <li>Ad hoc Tender Committee</li> </ul>	15

Name	Designation (in terms of the public entity Board structure)	Date appointed	Date resigned	Qualifications	Area of expertise	Board directorships	Other committees or task teams (e.g.: Audit Committee/Ministerial Task Team)	No. of meetings attended
Mr Molelekoa Petrus Mohlomi	Non-Executive Member	01/07/2018		<ul style="list-style-type: none"> <li>• MBL</li> <li>• BSc: Microbiology and Biochemistry</li> <li>• National Higher Diploma in Microbiology</li> </ul>			Member: <ul style="list-style-type: none"> <li>• Technical Committee</li> <li>• Audit and Risk Committee (ARC)</li> <li>• CEO recruitment Task Team</li> <li>• Ad hoc Tender Committee</li> </ul>	22
Ms Nobom Mfabana	Non-Executive Member	01/07/2018		<ul style="list-style-type: none"> <li>• Masters: Labour studies</li> <li>• BA (Hons): Political Science</li> <li>• BA</li> <li>• HD: Municipal Governance</li> </ul>	Labour expert		Member: <ul style="list-style-type: none"> <li>• Social and Ethics Committee</li> <li>• HRRC</li> <li>• CEO Recruitment Task Team</li> </ul>	19
Mr Ndwakhulu Mukhufhi	CEO (Ex-officio member)	01/07/2013		<ul style="list-style-type: none"> <li>• MSc: Biochemistry and Molecular Biology</li> <li>• BSc: Biochemistry</li> <li>• Postgraduate Diploma: Project Management</li> </ul>			Member: <ul style="list-style-type: none"> <li>• Technical Committee</li> </ul>	21

## 4.5 Committees of the Board

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

Each governance structure is governed by approved terms of reference articulating the delegated levels of authority and responsibility.

The following governance structures 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)

Committee	No. of meetings held	No. of members	Name of members
Audit and Risk Committee	5	5	Mr Molelekoa Petrus Mohlomi, Mr Zenzele Myeza, Ms Lindie Lankalebalelo, Ms Nobom Mfabana, Ms Romeshni Govender
Social and Ethics Committee	3	3	Ms Lindie Lankalebalelo, Dr Nimrod Zalk, Ms Nobom Mfabana
Human Resources and Remuneration Committee	2	3	Dr Anneline Chetty, Ms Nobom Mfabana, Dr Tshenge Demana
Technical Committee	3	3	Dr Tshenge Demana, Mr Molelekoa Petrus Mohlomi, Dr Nimrod Zalk

## 4.6 Ad Hoc Committees

Committee	No. of meetings held	No. of members	Name of members
Tender Committee	4	2	Ms Nobom Mfabana, Dr Tshenge Demana, Ms Lindie Lankalebalelo, Mr Molelekoa Petrus Mohlomi
IT Steering Committee	4	4	Ms Maureen Mavunda, Dr Thami Batyashe
CEO Recruitment Task Team	6	3	Ms Nobom Mfabana, Dr Tshenge Demana, Ms Lindie Lankalebalelo, Mr Molelekoa Petrus Mohlomi, Prof. Andy Buffler, Mr Ephraim Moruke

## 4.7 Remuneration of Board Members

Name	Remuneration (R)	Other allowance (R)	Other re-imbursments (R)	Total (R)
Ms Jabu Mogadime	104 243	-	10 583	114 826
Mr Molelekoa Petrus Mohlomi	152 599	-	8 671	161 270
Ms Nobom Mfabana	157 544	-	4 896	162 440
Ms Lindie Lankalebalelo	62 350	-	741	63 091
Dr Tshenge Demana	-	-	-	-
Dr Anneline Chetty	-	-	-	-
Dr Nimrod Zalk	-	-	-	-
Ms Romeshni Govender	33 245	-	423	33 668
Mr Zenzele Myeza	33 245	-	2 387	35 632

## 5 RISK MANAGEMENT

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The NMISA does not have a Risk Management Committee but instead has a Combined Assurance Team which was established to help the organisation provide assurance on the effectiveness of risk management within the organisation, 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 Audit and Risk Committee (ARC). The team also monitors progress on mitigation plans, especially those relating to risks exceeding accepted risk levels. The team meets on a quarterly basis in line with the approved Terms of Reference/Charter to consider and review risk management

policies and provide oversight on the effectiveness of risk management within the NMISA.

The three lines of defence followed 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. Emerging risks are brought to the attention of the ARC and the Board to independently monitor the effectiveness of the management thereof.

## 6 INTERNAL AUDIT

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Internal auditing is an independent and objective assurance and consulting activity that is designed to add value and improve the operations of the NMISA. Internal auditing assists the NMISA to accomplish its objectives, 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 2022/23 as part of a three-year rolling

plan, after consultation with management and approval by the ARC. The audit comprised reviews in the spheres of governance, risk management and internal controls to provide reasonable assurance to management and the ARC on the state of internal controls within the 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

The Audit and Risk Committee (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, including the external audit, with the Chief Financial Officer, internal audit and risk management with the Combined Assurance Team. The committee 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.

Name	Qualifications	Internal or external	If internal position in entity	Date appointed	Date resigned	Number of meetings attended
Mr Molelekoa Petrus Mohlomi	<ul style="list-style-type: none"> <li>• MBL</li> <li>• BSc: Microbiology and Biochemistry</li> <li>• National Higher Diploma: Microbiology</li> </ul>	External	N/A	26 September 2018		5
Ms Nobom Mfabana	<ul style="list-style-type: none"> <li>• HD in Municipal Governance</li> <li>• BA</li> <li>• BA (Hons) Political Science</li> <li>• Masters in Labour studies</li> </ul>	External	N/A	28 January 2021		5
Mr Zenzele Myeza	<ul style="list-style-type: none"> <li>• BCom: Accounting and Auditing</li> <li>• MBA</li> </ul>	External	N/A	Re-appointed: 01 November 2021		4
Ms Romeshni Govender	<ul style="list-style-type: none"> <li>• Bachelor of Accounting</li> <li>• Postgraduate Diploma in Accounting</li> <li>• CA(SA)</li> <li>• CIA</li> <li>• CCSA</li> <li>• CRMA</li> </ul>	External	N/A	Re-appointed: 01 November 2021		5
Ms Lindie Lankalebalelo	<ul style="list-style-type: none"> <li>• LLB</li> <li>• Postgraduate Certificate in Legislative Drafting</li> <li>• Postgraduate Certificate in Corporate Law</li> </ul>	External	N/A	26 September 2018		-

## 8 COMPLIANCE WITH LAWS AND REGULATIONS

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The NMISA's compliance philosophy is one which respects compliance with applicable laws and regulations and commits to the highest standard of compliance.

The Board has an oversight role over the compliance of the organisation and its employees, as provided for in the PMFA. Management is responsible for ensuring that the effective compliance processes and controls are in place

to mitigate compliance risks. Management of compliance and its associated risks follows the entity's overall Risk Management Framework.

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

## 9 FRAUD AND CORRUPTION

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The Social and Ethics Committee, established by the Board, monitors the implementation and effectiveness of the NMISA's Fraud and Whistleblowing Policy. Management is responsible for the maintenance of an effective system of governance and risk management, as well as the prevention and detection of fraud and corruption within the organisation.

A Fraud and Whistleblowing Hotline, provided by an independent external service provider, is in place to allow employees and stakeholders of the NMISA to report any suspicious activities they may encounter. The Fraud and Whistleblowing Hotline service provider operates within strict

guidelines to ensure that all reports received and requiring investigation are handled in accordance with the POPIA Act and the organisation's Fraud and Whistleblowing Policy, to guarantee the confidentiality of the persons providing the information.

Any claims that need to be investigated are directed to the Senior Internal Audit Manager, due to his/her independence, as well as to the Chairperson of the Audit and Risk Committee. An appropriate investigation into the claim is then initiated, after which, should the need arise, the relevant disciplinary process is followed.

## 10 MINIMISING CONFLICT OF INTEREST

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A register of declarations of interest for the NMISA management is kept and updated annually, with an opportunity to declare changes, or interests that might affect the proceedings at all Board, Committee and EXCO meetings. In addition to the director's personal interests, directors also disclose the 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 the NMISA, from contracting with the NMISA. However,

any organisation that he/she may represent is not, in like manner, disqualified.

The 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

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All the NMISA employees abide by the Code of Conduct/Ethics. The purpose of the code is to lay down strict ethical guidelines within which each employee, contract employee and consultant is required to comply. The NMISA is committed to ethical and fair business dealings and promotes a corporate culture that is inclusive and socially and environmentally responsible. It achieves this by subscribing to the following values and principles:

- **QUALITY** – Integral to the quality infrastructure of South Africa, the NMISA fully adheres to the principles of quality and contributes to the infrastructure for the implementation of quality in society.
- **MEASUREMENT EXCELLENCE** – The pinnacle of measurement accuracy and excellence is traceability to the International System of Units and the connection of the regional measurement system internationally. The NMISA not only provides this link to the region,

but lives excellence in the measurements it conducts for the community.

- **SOCIAL RESPONSIBILITY** – The mandate to establish and maintain the national measurement standards is augmented by the NMISA's leadership role in all measurement issues and awareness creation and training of society.
- **ECONOMIC PROSPERITY** – The NMISA provides accurate measurements and an internationally accepted measurement system that is a prerequisite for production, trade and the provision of health services, and is the building block for economic prosperity.
- **GOOD GOVERNANCE** – This is the moral basis on which all activities of the NMISA and its international status are based, as evidenced by its performance and its record of clean audits.

Failure to comply with this policy amounts to misconduct and is dealt with in terms of the NMISA's Disciplinary Code.

# 12 HEALTH SAFETY AND ENVIRONMENTAL ISSUES

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The NMISA's Total Quality Management System (TQMS) is primarily based on the ISO/IEC 17025:2017 standard, which is internationally accepted for the competence of testing and calibration laboratories. In addition, the NMISA's environmental management system meets the requirements

of ISO 14001:2015 (Environmental Management Systems). Occupational health and safety management systems are certified against ISO 45001:2018 (Occupational Health and Safety Management System Requirements).

# 13 COMPANY/BOARD SECRETARY

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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 and good corporate governance practices, and is responsible for the proper compilation and timely circulation of Board and committee papers.

The Company Secretary serves as a direct channel of communication between the Board, its chairperson and the shareholder, and 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 the Company Secretary has the requisite level of knowledge and experience to discharge their duties.

# 14 SOCIAL RESPONSIBILITY

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The NMISA is committed to supporting individuals from previously disadvantaged groups through the funding of their education. This is part of the organisation's social responsibility efforts.

# 15 AUDIT AND RISK COMMITTEE REPORT

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The new Board took office after the reporting date and at the time of publishing this report the Audit and Risk Committee had not yet been constituted.

# 16 B-BBEE COMPLIANCE PERFORMANCE INFORMATION

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

**Table 6: B-BBEE compliance**

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	The 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	The NMISA employs a pre-payment methodology to assist exempted micro enterprises in delivering goods and services procured from them



# **PART D**

## **HUMAN RESOURCE MANAGEMENT**



**Through its collaboration efforts, NMISA enhances the SARA0/SKA project with its expertise related to the realisation of time for South Africa, aligning with strategic objectives in space-related research and development.**

# 1 INTRODUCTION

## 1.1 Overview of human resources management

The Human Resources Department is a strategic partner in the organisation whose role is to ensure that the NMISA attracts and retains the required talent and expertise to deliver on its legislative mandate and strategic objectives. In the 2022/23 financial year the organisation faced many challenges due to limited financial resources following budget cuts. Recruitment and selection to fill the vacant positions were halted while the organisation focused on reprioritising activities to align with the revised budget. Key activities for the financial year included the review of policies and procedures and the performance management framework, as well as talent management and employee wellness.

The organisation continued with the implementation of flexible working arrangements. A hybrid model was implemented where employees continued working from home while maintaining offices as their primary workstations, except where their roles required them to work from the office. Challenges such as power cuts and unreliable internet connections were mitigated by working from the office. Control measures put in place to ensure the health and safety of employees remained effective with one injury on duty reported for the financial year.

## 1.2 Priorities for 2022/23 and their impact

Human Resources (HR) focused on the review of outdated policies to ensure alignment with legislation and best practices. Procedures were also reviewed, and new procedures were developed where necessary.

Recruitment activities focused on replacements for key positions that became vacant, while other positions were paused to allow for the budget review. The organisation concluded the placement of senior management and appointment of programme managers who are critical for the implementation of the organisational strategy. Succession planning was also prioritised, and the Succession Plan was updated to ensure the organisation is properly equipped for present and future skills needs.

The NMISA continued its focus on training and development through its Human Capital Development (HCD) Programme. Employees and managers attended training in line with their development plans and prioritised critical skills, especially training required for compliance purposes (Health and Safety). Newly appointed metrologists attended metrology courses presented through the NMISA Training Centre as well as external courses. Continued collaboration between HR and the Training Centre will allow for more courses to be included, to enhance overall staff development.

### 1.2.1 Rewards management

During the year under review, the organisation focused on carefully managing its salary bill to align with the available budget. No changes were made to the remuneration structure except for the review of the Performance Management System, with a focus on the criteria for consideration of the variable pay element (performance bonuses). The overall organisational performance target percentage was increased by 5 % and in the 2023/24 financial year the focus will be on aligning the performance matrix for individual employees to ensure a fair distribution of performance bonuses while also improving organisational performance.

The implementation of a career ladder and pay progression system was halted while the organisation reviews its expenditure and other financial commitments to fit into the revised budget.

### 1.2.2 Employee retention

Staff retention is critical for knowledge-based organisations like the NMISA. The organisation lost key skills during the year under review. The strategies and initiatives put in place were reviewed to improve employee engagement and retention. The NMISA continued to offer personal and career development opportunities to employees and the results achieved are highlighted under the Achievement Highlights section below. The organisation strives to continue with competitive rewards and recognition offerings, work-life balance initiatives, enhanced organisational and work culture and employee socialisation.

The Succession Plan was reviewed to maintain a steady flow of competent staff with requisite knowledge, skills, and attributes to qualify them to step into vacant senior roles. Through its HCD Programme, the organisation managed to fill some positions which became vacant due to resignations. With continued investment in people through training and development initiatives, internal resourcing helped to keep recruitment costs under control and facilitated the use of resources for skills development and other critical initiatives.

### 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 finalisation of the placement of senior management. Placement of middle management was initiated, and the process is expected to conclude during 2023/24 while reviewing workforce plans to ensure that the organisation is adequately resourced to deliver on its mandate. Filling of other vacant positions, created as part of the reorganisation process and movement of employees to new roles, will continue during the next reporting period.

### 1.4 Employee Performance Management Framework

The Employee Performance Management Framework guides performance planning, facilitation, review, reporting as well as rewards and recognition. The Performance Management System was reviewed, with a focus on the criteria for consideration of the variable pay element, namely performance bonuses. The overall organisational performance target percentage was increased by 5 % and in 2023/24 the focus will be on aligning the performance matrix for individual employees to ensure a fair distribution of performance bonuses while also improving organisational performance. The review of employees' performance contracts to ensure alignment with the strategic objectives continued. Individual Key Performance Indicators (KPIs) for Senior Management and Support Roles were reviewed and standardised to ensure consistency and fairness; the process will conclude during the new reporting period.

### 1.5 Employee Wellness Programme

The NMISA continues to offer an integrated Employee Wellness Programme (EWP) to support and create a conducive work environment and a better work/life balance for its employees. Through the EWP employees can access counselling services on personal and work challenges, including stress, financial issues, legal issues, relationships, family matters and health.

An Employee Wellness Operational Plan was developed and implemented during the year. The plan focused on interventions and initiatives that were guided by the Behavioural Risk Management Survey which was conducted during the previous reporting period. The survey gave the organisation some insights into the individual and overall organisational health and wellness risk factors that could potentially impact on employees and, as a result, hamper organisational effectiveness. Although the NMISA did not hold its annual wellness day during the year under review, efforts were focused on creating awareness and educating employees on the health and wellness risks guided by the Employee Wellness Operational Plan.

### 1.6 Policy development

Policy review was prioritised during the year under review. Outdated policies were reviewed to ensure alignment with changes in legislation and to support the organisational strategy. One new policy, developed during the previous year, and two reviewed policies were approved, while five policies were reviewed and are undergoing the approval process as follows:

- Disciplinary Code and Procedure
- Employee Wellness Policy
- Training and Development Policy
- Recruitment Policy
- Lifestyle Audit Policy.

## 1.7 Achievement highlights

The NMISA strives to retain and develop the skills of internal staff through focused interventions by way of internal and external initiatives, including further studies. Once again, the organisation celebrated academic achievements attained during the year under review through its HCD Programme. Amongst those who completed new qualifications during the 2022/23 financial year were two employees who completed their PhDs, one PhD student, an MSc student, and two undergraduate students. Three of the four students were offered full-time employment after completion of their studies.

**Dr Mpilo Dlamini** completed his PhD in Physics through the University of KwaZulu Natal. His thesis was titled *Plasmon as a mechanism to improve performance of bulk-heterojunction organic solar cells*. He investigated the use of plasmonic/metallic nanoparticles in improving performance of polymer-based solar cells (organic solar cells).



**Mr Vusimuzi Chiloane** completed his MSc in Biochemistry *cum laude* through the University of Pretoria, with his dissertation entitled *Developing analytical methods to determine physicochemical properties, protein and amino acid composition of African staple foods*. Mr Chiloane was also awarded the Labotec Prize for the student who obtained the highest mark for their MSc dissertation in Biochemistry. This latest achievement is his third University of Pretoria (UP) degree *cum laude* (with honour) in a row. This rare accomplishment was celebrated by UP.



**Dr Bongumusa Cebekhulu** completed his PhD in Operations Management through the University of Johannesburg. His thesis focused on *The influence of Public Procurement Regulations on efficiency and the management of quality in public sector laboratories*.



**Mr Shakur Variawa** completed his BSc in Computer Science and Engineering through the University of Cape Town.



**Dr Nwabisa Takata** completed her PhD in Chemistry through the University of Johannesburg. Her research was titled *Accurately quantifying trace and ultra-trace concentration levels of total selenium and selenium species in South African environmental samples and food products using ion chromatography and inductively coupled plasma mass spectrometry (IC-ICP-MS)*.



**Ms Cortney van Harte** completed her BSc in Astrophysics and Mathematics through the University of Cape Town.



## 1.8 HR challenges

### 1.8.1 Staff turnover

Staff turnover increased from 6 % to 8 %. Of the terminations, 50 % were key skills in the metrology functions. The lost skills will be addressed through prioritised recruitment for key positions and the organisation will continue to try to improve the employee value proposition.

### 1.8.2 Delays in filling vacant positions

Delays were experienced as recruitment was halted while the organisation focused on reprioritisation to fit activities into the available budget. HR continued to manage the recruitment and selection process manually, including screening of job applications, due to delays with the development of an eRecruitment module as part of the ERP system. The latter is a huge challenge, especially in the case of internship opportunities where the volume of applications is always very high. The development of the module was not completed by the end of the reporting period.

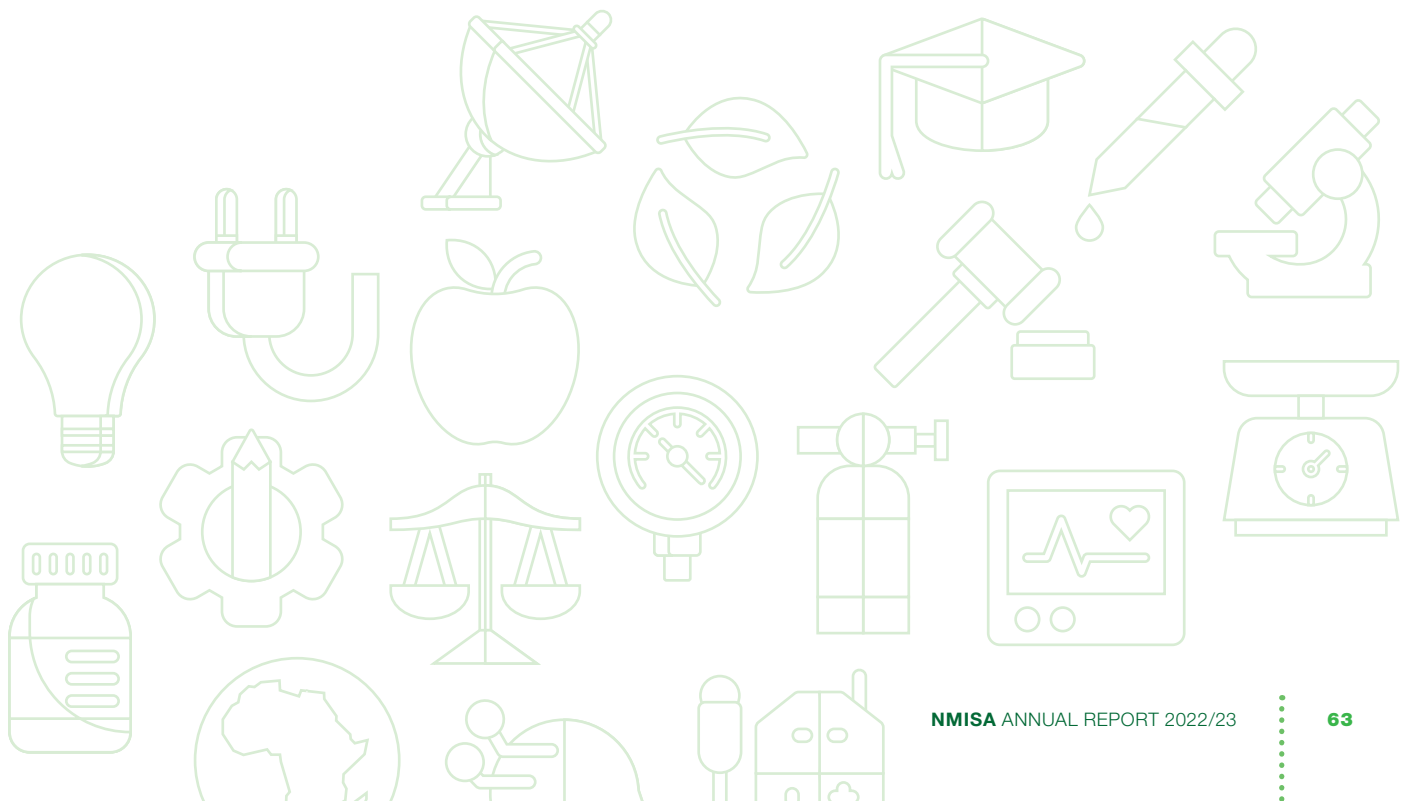
### 1.8.3 Human Capital Development

The organisation could not appoint some of the bursars that have completed their studies to honour the bursary agreement obligations (to work back for a minimum period

equal to the number of years for which the bursary was paid) due to financial constraints. The organisation will also lose the investment made towards the training and development of the bursars, especially postgraduate bursars, as they are allocated research projects that are based on research work done at the NMISA to deliver on the organisation's strategic goals and objectives. Furthermore, the NMISA will battle to continue the development of the talent pipeline (for succession planning) and improvement of its qualification profile.

## 1.9 Future HR plans/goals

In the upcoming year, HR will continue to review policies, with more focus on procedures (especially for the newly approved policies); conclude the placement of middle management; 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. The reorganisation necessitated considerable movement of staff and changes in responsibilities and reporting lines. HR, together with line managers, will work on 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

Programme/Activity/Objective	Total expenditure for the entity R'000	Personnel expenditure R'000	Personnel exp. as a % of total exp. R'000	No. of employees	Average personnel cost per employee R'000
Chief Executive Officer	141	2 909	2 %	2	1 455
Strategy, Governance and Business Development	4 031	9 524	7 %	13	733
Applied Metrology	2 615	5 960	5 %	8	745
Finance and Corporate Services	232 070	20 824	16 %	30	694
Manufacturing Competitiveness and Redefinition of the SI	755	25 879	20 %	30	863
Advanced Measurement Solutions and Energy Efficiency	1 188	23 572	19 %	28	842
Quality of Life	3 419	7 199	6 %	8	900
Reference Materials, Green Economy and Commercial Services	7 666	28 380	22 %	32	887
Research, International and Infrastructure Development	4 862	2 971	2 %	3	990
<b>Total</b>	<b>256 748</b>	<b>127 218</b>	<b>100 %</b>	<b>154</b>	<b>826</b>

#### 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
Top Management	17 882	14 %	8	2 235
Senior Management	11 281	9 %	10	1 128
Middle Management	11 096	9 %	12	925
Professional qualified	76 062	60 %	89	855
Skilled	9 820	8 %	30	327
Semi-skilled	1 077	1 %	5	215
Unskilled	0	0 %	0	0
<b>Total</b>	<b>127 218</b>	<b>100 %</b>	<b>154</b>	<b>826</b>

## Performance rewards

Salary band	Performance rewards R'000	Personnel expenditure R'000	% of performance rewards to total personnel cost
Top Management	1 199	17 882	7 %
Senior Management	1 329	11 281	12 %
Middle Management	1 001	11 096	9 %
Professional qualified	6 281	76 062	8 %
Skilled	920	9 820	9 %
Semi-skilled	124	1 077	12 %
Unskilled	0	0	0
<b>Total</b>	<b>10 854</b>	<b>127 218</b>	<b>9 %</b>

## Training costs

Programme/Activity/ Objective	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	2 909	72	3 %	2	36
Strategy, Governance and Business Development	9 524	280	3 %	9	31
Applied Metrology	5 960	111	2 %	6	19
Finance and Corporate Services	20 824	507	2 %	87	6
Manufacturing Competitiveness and Redefinition of the SI	25 879	324	1 %	29	11
Advanced Measurement Solutions and Energy Efficiency	23 572	298	1 %	26	11
Quality of Life	7 199	83	1 %	8	10
Reference Materials, Green Economy and Commercial Services	28 380	210	1 %	32	7
Research, International and Infrastructure Development	2 971	103	3 %	3	34
<b>Total</b>	<b>127 218</b>	<b>1 988</b>	<b>2 %</b>	<b>202</b>	<b>10</b>

## 2.2 Employment

### Employment and vacancies

Programme/Activity/ Objective	2021/22 No. of employees	2022/23 Approved posts	2022/23 No. of employees	2021/22 Vacancies	Funded vacancies	% of funded vacancies
Chief Executive Officer	2	2	2	0	0	0 %
Strategy, Governance and Business Development	14	19	12	5	4	21 %
Applied Metrology	8	12	8	4	2	17 %
Finance and Corporate Services	33	46	32	14	1	2 %
Manufacturing Competitiveness and Redefinition of the SI	29	35	29	9	4	11 %
Advanced Measurement Solutions and Energy Efficiency	27	38	27	11	2	5 %
Quality of Life	10	12	9	3	1	8 %
Reference Materials, Green Economy, and Commercial Services	33	40	32	7	2	5 %
Research, International and Infrastructure Development	3	25	3	22	1	4 %
<b>Total</b>	<b>159</b>	<b>229</b>	<b>154</b>	<b>75</b>	<b>17</b>	<b>7 %</b>

### Employment changes

Salary band	Employment at beginning of period	Appointments	Terminations	Promotions	Employment at end of the period
Top Management	8	0	0	0	8
Senior Management	0	0	0	10	10
Middle Management	11	0	0	1	12
Professional qualified	88	3	8	0	89
Skilled	37	3	4	0	30
Semi-skilled	5	0	0	0	5
Unskilled	0	0	0	0	0
<b>Total</b>	<b>159</b>	<b>6</b>	<b>12</b>	<b>11</b>	<b>154</b>

### Reasons for staff leaving

Reason	Number	% of total no. of staff leaving
Death	0	0 %
Resignation	10	83 %
Dismissal	0	0 %
Retirement	2	17 %
Ill health	0	0 %
Expiry of contract	0	0 %
Other	0	0 %
<b>Total</b>	<b>12</b>	<b>10 %</b>

### Labour relations – misconduct and disciplinary action

Nature of disciplinary action	Number
Verbal warning	1
Written warning	2
Final written warning	0
Dismissal	0

## 2.3 Equity

### Equity target and employment equity status

Salary band	Male									
	African		Coloured		Indian		White		Foreign Nationals	
	Current	Target	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	3	3	0	0	1	0	2	2	0	0
Senior Management	3	0	0	0	1	0	1	0	0	0
Middle Management	5	7	0	0	2	2	2	4	0	0
Professional qualified	34	40	3	3	2	2	9	12	2	3
Skilled	9	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
<b>Total</b>	<b>57</b>	<b>63</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>14</b>	<b>18</b>	<b>2</b>	<b>3</b>

Salary band	Female									
	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	0	0	0	0	0	1	0	0	0
Middle Management	1	6	0	0	0	0	2	3	0	0
Professional qualified	22	20	2	2	0	0	14	18	1	1
Skilled	16	18	1	1	1	1	3	0	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
<b>Total</b>	<b>45</b>	<b>47</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>22</b>	<b>23</b>	<b>1</b>	<b>1</b>

Salary band	Disabled staff			
	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	0	0	0
Skilled	1	1	0	0
Semi-skilled	0	1	0	0
Unskilled	0	0	0	0
<b>Total</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>



# **PART E**

## **PFMA COMPLIANCE REPORT**



**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.**

# 1 IRREGULAR, FRUITLESS AND WASTEFUL EXPENDITURE AND MATERIAL LOSSES

## 1.1 Irregular expenditure

### a) Reconciliation of irregular expenditure

Description	2021/22 R'000	2022/23 R'000
Opening balance	425	425
Add: Irregular expenditure confirmed		
Less: Irregular expenditure condoned		
Less: Irregular expenditure not condoned and removed		425
Less: Irregular expenditure recoverable		
Less: Irregular expenditure not recovered and written off		
<b>Closing balance</b>	<b>425</b>	<b>-</b>

### b) Details of current and previous year irregular expenditure (under assessment, determination, and investigation)

Description	2021/22 R'000	2022/23 R'000
Irregular expenditure under assessment		
Irregular expenditure under determination		
Irregular expenditure under investigation		
<b>Total</b>		

### c) Details of current and previous year disciplinary or criminal steps taken as a result of irregular expenditure

Disciplinary steps taken
N/A

## 2 LATE AND/OR NON-PAYMENT OF SUPPLIERS

Description	Number of invoices	Consolidated value R'000
Valid invoices received	1 876	128 322
Invoices paid <b>within</b> 30 days or agreed period	1 454	103 787
Invoices paid <b>after</b> 30 days or agreed period	422	24 545
Invoices older than 30 days or agreed period ( <b>unpaid and without dispute</b> )	-	-
Invoices older than 30 days or agreed period ( <b>unpaid and in dispute</b> )	-	-

NMISA has moved to a new ERP system Dynamics 365. The financial year 2022/23 saw the implementation of additional functionalities which included products receipts requiring line manager approvals and it was at this stage that approvals got delayed in processing of invoices. Payment after 30 days is at 19 % non-compliance with bottlenecks identified and to be cleared going into the future once the system achieves 100 % implementation.

## 3 SUPPLY CHAIN MANAGEMENT

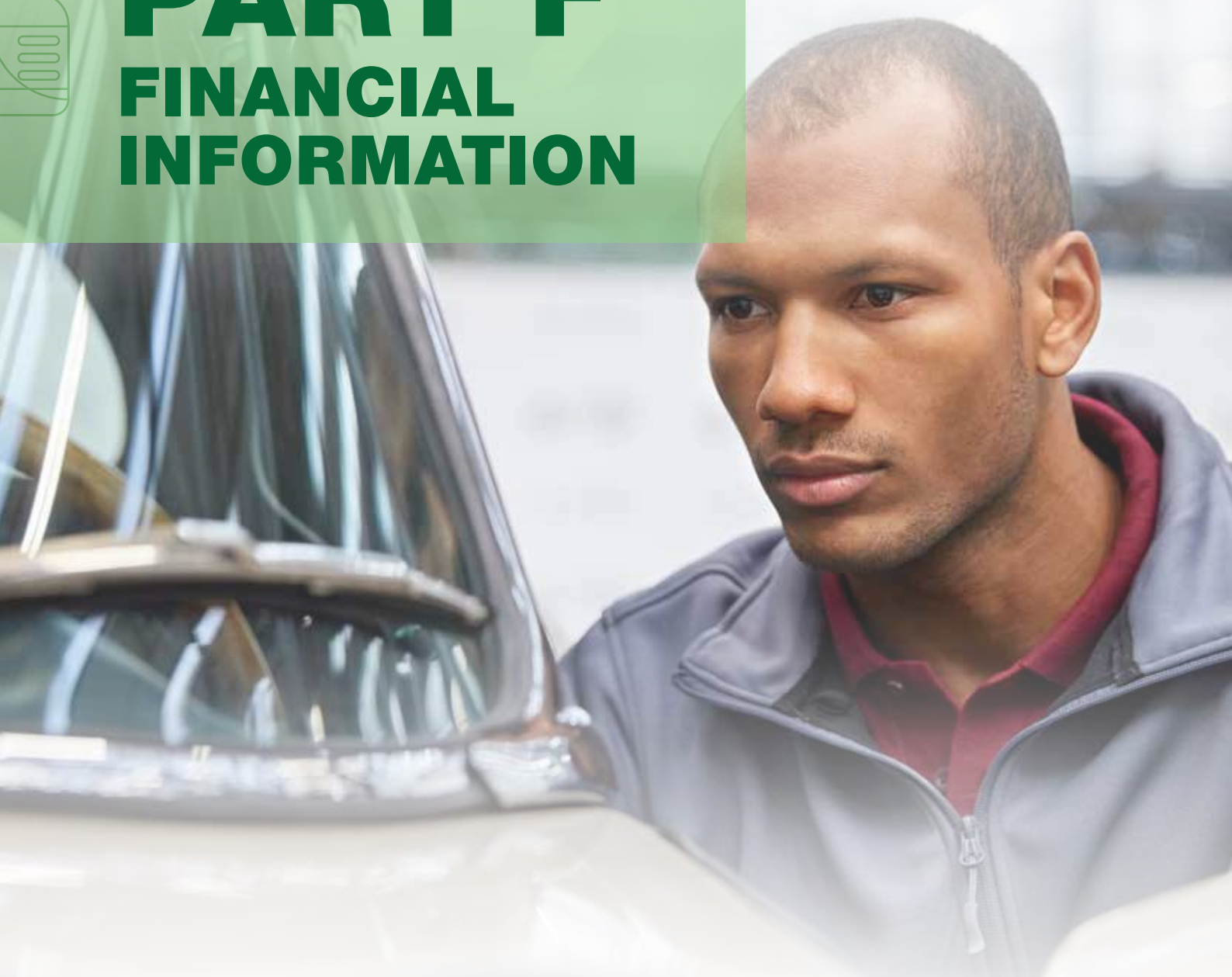
### 3.1 Procurement by other means

Project description	Name of supplier	Type of procurement by other means	Contract number	Value of contract R'000
Procurement of cylinder valves	Instrumentation Specialities	The sole distributor of Rotarex Ceodeux valves, regulators and fittings		1 980
Procurement of infrared microscope	Anatech Instruments	Sole distributor of Thermo Fisher Scientific Instruments in South Africa		2 488
Procurement of gravimeter	Scintrex Limited	International Original Equipment Manufacturer		2 410
Procurement of coordinate measuring machine	Council for Scientific and Industrial Research (CSIR)	Public Entity with capability to develop coordinate measuring machine		4 025
<b>Total</b>				<b>10 904</b>



# **PART F**

## **FINANCIAL INFORMATION**

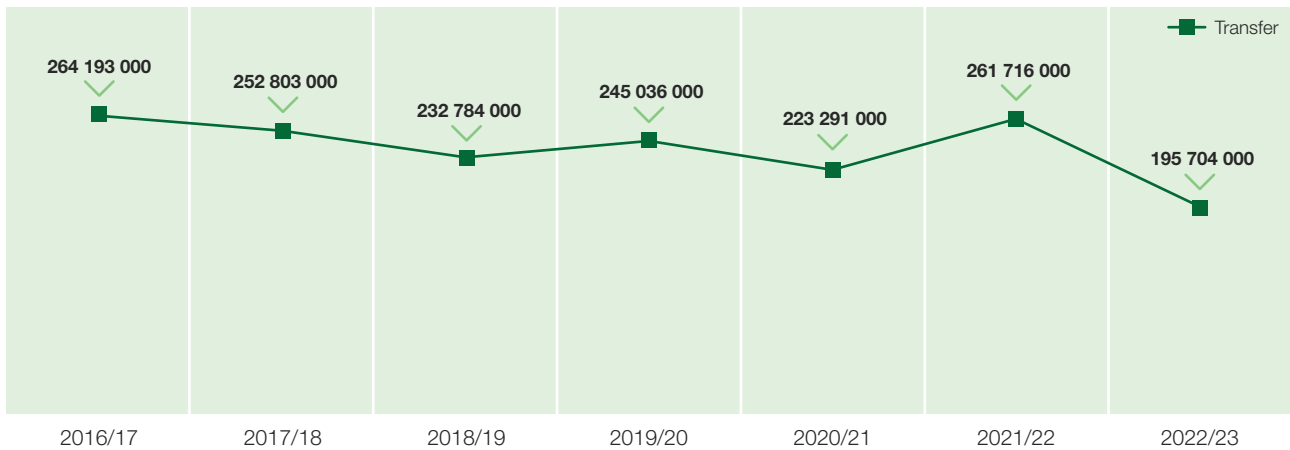


**NMISA supports the automotive industry by providing accurate and reliable measurement solutions, calibration services, and proficiency testing to ensure compliance with local and international standards and regulations. Accurate measurements are crucial in the automotive industry for quality control,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

# 1 CFO'S REPORT

## 1.1 Overview of Financial Performance

The NMISA's main source of revenue is the transfer/allocation received from **the dtic**. Due to financial constraints on the fiscus, the NMISA's allocation has declined both in nominal and real terms. The table that follows indicates transfers received from 2017 to 2023. The allocation for the current year was reduced by 27 %, and the average reduction expected over the Medium-Term Expenditure Framework (MTEF) is 39 %. The entity, in its current format, may not be sustainable in the short-term should there be any further budget cuts.



**Figure 3: Transfers received for the previous five years**

The organisation has, over the past 12 years, grown in terms of size and strategic impact, thus the decline 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 increase in external revenue generation required for sustainability will only be possible upon enactment of the revised Measurement Units and Measurement Standards Act as well as increased compliance regulations by the relevant regulators.

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

The NMISA has three sources of revenue: transfer received from **the dtic**, revenue from rendering of services, and interest income. The transfer received of R196 million (2022: R262 million) represents 86 % (2022: 91 %) of total revenue.

**Table 7: Revenue from all sources**

Sources of revenue	2023			2022		
	Budget	Actual amount	Over/under collection	Budget	Actual amount	Over/under collection
Transfer revenue	195 704 000	195 704 000	-	261 716 000	261 716 000	-
Rendering of services	26 980 866	24 653 025	2 327 841	24 994 554	18 700 997	6 293 557
Interest received	6 000 000	6 618 016	(618 016)	6 171 740	8 422 725	(2 250 985)
Other income	-	27 297	(27 297)	-	117 028	(117 028)
Donations received	-	333 534	(333 534)	-	-	-
	<b>228 684 866</b>	<b>227 335 872</b>	<b>1 349 004</b>	<b>292 882 294</b>	<b>288 956 750</b>	<b>3 925 544</b>

The services on offer span calibrations, reference measurements/material, training/consulting, and sponsorships.

A marked increase in the demand for NMISA services by industry at large is expected after the enactment of the revised Act as well as increased compliance regulations by the relevant regulators. Although the budget was not achieved, the significant increase since the previous financial year is a positive sign. The medium-term revenue generation strategy from the rendering of services is expected to yield noticeable revenue increases of at least 15 % of transfers received.

## 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 50 % (2022: 52 %) 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 National Metrology Institutes indicates the current focus is to invest more funds into 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 recent 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 at times done as projects with international partners over an extended period, further emphasising the need for succession planning, multiple technical signatories, and the extension of the Human Capital Development Programme.

The capital allocation from **the dtic** received 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. The NMISA considers this allocation from **the dtic** as a transfer and subsidy and not a budget vote. The NMISA, in line with its mandate to maintain and disseminate the National Measurement Standards (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 the NMISA and the nation keeps abreast and supports continental and international developments.

Thus, the NMISA 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 R78 million (2022: R75 million) and is in line with budgeted expenditure.

## 1.4 Working Capital

A high cash balance is required for the payment of the reported 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 high balance is largely attributable to government departments, which makes normal recovery processes difficult. The trade payables balance of R18 million (2022: R34 million) has decreased due to deliveries made timeously and payment of suppliers within 30 days.

## 1.5 Capital Investment

In line with the NMISA's strategic objectives, NMISA continues to embark on the ongoing process 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 R539 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 a resultant impact for such orders in that funds are rolled over from year to year in the form of commitments. The commitments reported in the current financial year amount to R82 million (2022: R108 million) with 80 % (2022: 90 %) committed to capital expenditure. 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 as well as the suspension of the recapitalisation drive.

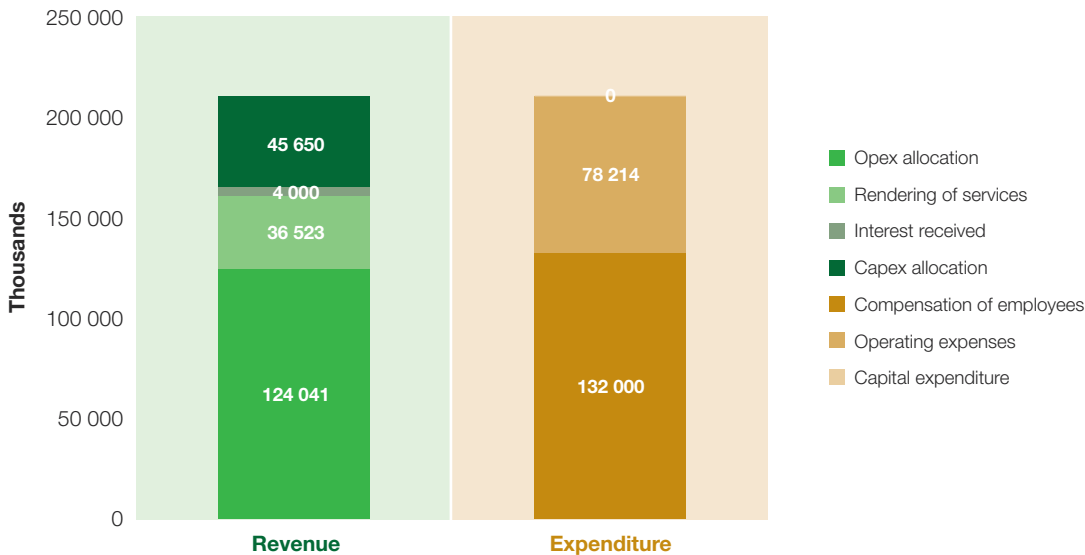
## 1.7 Supply Chain Management Overview

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 is extending its focus to logistics services to ensure effective management of the movement of NMS equipment internally and to the 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. Furthermore, the strides made in the current and previous financial years to increase external revenue generation have been negatively impacted by COVID-19 as both the public and private sectors reduced their spending on what is considered 'non-essential' expenditure.

The revenue sources of the institute need to cover all capital and operational costs on a year-to-year basis. Figure 4 reflects the financial projections for the 2024 financial year.



**Figure 4: Revenue and expenditure forecast 2024**

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. This bears testament to the exceptional financial management and accounting team, which 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 and improvements are already evident. Without additional funding from the fiscus in the medium-term, sustainability of the entity will be compromised, and it remains at risk, which means that the organisation may have to go through a re-organisation process.

**Mr Mogau Sehlapelo CA (SA)**

Chief Financial Officer

## 2 REPORT OF THE EXTERNAL AUDITOR

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### Independent auditor's report to Parliament on National Metrology Institute of South Africa

#### Report on the audit of the financial statements

##### Opinion

1. We have audited the financial statements of the National Metrology Institute of South Africa set out on pages 84 to 117 which comprise the statement of financial position as of 31 March 2023, statement of financial performance, statement of changes in net assets cash flow statement of cash flows and statement of comparison of budget information with actual information for the year then ended 31 March 2023, as well as notes to the financial statements, including a summary of significant accounting policies.
2. In our opinion, the financial statements present fairly, in all material respects, the financial position of the National Metrology Institute of South Africa as of 31 March 2023 and its financial performance and cash flows for the year then ended in accordance with the Generally Recognised Accounting Practice (GRAP) and the requirements of the Public Finance Management Act 1 of 1999 (PFMA).

##### Context for the 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 financial statements section of our report.
4. We are independent of the public entity in accordance with the Code of professional conduct for auditors of the Independent Regulatory Board for Auditors (IRBA) and other independence requirements applicable to performing audits of financial statements in South Africa. We have fulfilled our other ethical responsibilities in accordance with the IRBA code and in accordance with other ethical requirements applicable to performing audits in South Africa. The IRBA code is consistent with the corresponding sections of the International Ethics Standards Board for Accountants' *International code of ethics for professional accountants (including International Independence Standards)*.
5. 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 financial statements

6. The board of directors, which constitutes the accounting authority, is responsible for the preparation and fair presentation of the financial statements in accordance with GRAP and the requirements of the PFMA, and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.
7. In preparing the financial statements, the accounting authority is responsible for assessing the public entity's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the accounting authority either intends to liquidate the or to cease operations or has no realistic alternative but to do so.

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

8. Our objectives are to obtain reasonable assurance about whether the 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 financial statements
9. A further description of our responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

## Report on the audit of the annual performance report

10. 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 against predetermined objectives for selected programmes presented in the annual performance report. The accounting authority is responsible for the preparation of the annual performance report.
11. We selected the following programmes presented in the annual performance report for the year ended 31 March 2023 for auditing. We selected programmes that measure the public entity's performance on its primary mandated functions and that are of significant national, community, or public interest.

Programmes	Page numbers	Purpose
Programme 1: Administration	44-45	Relates to the administration of the organisation
Programme 2: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support	45-46	Relates to the organisational strategy strategic plan

12. We evaluated the reported performance information for the selected programmes 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.
13. 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
  - the indicators are well-defined and verifiable to ensure that they are easy to understand and apply consistently and that I 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 what was 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 are adequate supporting evidence for the achievements reported and for the reasons provided for any over- or underachievement of targets.

14. We performed the procedures for the purpose of reporting material findings only; and not to express an assurance opinion
15. We did not identify any material findings on the usefulness and reliability of the reported performance information for these programmes:
  1. Programme 1 - Administration
  2. Programme 2 – Applied Measurement Services and Products for Industry, SOEs and Regulatory Support.

## Report on compliance with legislation

16. 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.
17. We performed procedures to test compliance with selected requirements in key legislation in accordance with the AGSA findings engagement methodology. This engagement is not an assurance engagement. Accordingly, we do not express an assurance opinion or conclusion.
18. 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.
19. We did not identify any material non-compliance with the selected legislative requirements.

## Other information in the annual report

20. The National Metrology Institute of South Africa is responsible for the other information. The other information comprises the information included in the annual report. The other information does not include the separate financial statements, the auditor's report and those selected programmes presented in the annual performance report that have been specifically reported on in this auditor's report.
21. Our opinion on the financial statements and our findings on the reported performance information and the report on compliance with legislation do not cover the other information and we do not express an audit opinion or any form of assurance conclusion on it.
22. In connection with our audit, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the separate financial statements and the selected programmes presented in the annual performance report or our knowledge obtained in the audit, or otherwise appears to be materially misstated, accordingly, we do not express an opinion thereon.

## Internal control deficiencies

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

## Other reports

24. We draw attention to the following engagements conducted by various parties which had, or could have, an impact on the matters reported in the public entity's financial statements, reported performance information, compliance with applicable legislation and other related matters. These reports did not form part of our opinion on the financial statements or our findings on the reported performance information or compliance with legislation.

25. An agreed procedures engagement was performed on donor funding. The purpose of the agreed-upon procedures was to ensure that all the grants received from the National Research Foundation are utilised according to the contractual agreement between the National Metrology Institute of South Africa and the National Research Foundation. The report covered the period 01 April 2022 to 31 March 2023 and was issued to the National Research Foundation on 30 June 2023.

### **Auditor tenure**

26. In terms of the IRBA rule published in Government Gazette No. 39475 dated 4 December 2015, we report that MNB Chartered Accountants has been the auditor of the National Metrology Institute of South Africa for 2 years.

*MNB Chartered Accountants Inc.*

MNB Chartered Accountants inc.

Engagement Partner: Wisani Shirinda, CA(SA), RA

Chartered Accountant (SA) and registered Auditors (RA)

31 July 2023

38 Boerneed Street

Vorna Valley

Midrand

1686

## 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 financial statements and the procedures performed on reported performance information for selected programmes and on the public entity's compliance with selected requirements in key legislation.

### Financial statements

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

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for 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 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 financial statements about the material uncertainty or, if such disclosures are inadequate, to modify our opinion on the 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 financial statements, including the disclosures, and determine whether the 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 to communicate with them all relationships and other matters that may reasonably be thought to have a bearing on our independence and, where applicable, actions taken to eliminate threats or safeguards applied.

## Compliance with legislation – selected legislative requirements

1. The selected legislative requirements are as follows:

Legislation	Sections or regulations
Section 55(2)(a) of the PFMA TR 28.2.2 Applicable to 3A & 3C public entities: TR 30.1.3(g) NT Instruction No.10 of 2020-21: Implementation of the Revised FSAPP Applicable to 2; 3B & 3D public entities: TR 29.1.1 & TR 29.2	Reported indicators are consistent or complete when compared to planned indicators
Applicable to 3A & 3C public entities: TR 30.1.1 NT Instruction No.10 of 2020-21: Implementation of the Revised FSAPP Sections 4.4.3 and 4.4.4 of Revised FSAPP Applicable to 2; 3B & 3D public entities: TR 29.1.1 & TR 29.2	Changes to indicators are approved
Section 55(2)(a) of the PFMA TR 28.2.2 Applicable to 3A & 3C public entities: TR 30.1.3(g) Applicable to 2; 3B & 3D public entities: TR 29.1.1 & TR 29.2	Reported targets are consistent or complete when compared to planned targets
Applicable to 3A & 3C public entities: TR 30.1.1 NT Instruction No.10 of 2020-21: Implementation of the Revised FSAPP Sections 4.4.3 and 4.4.4 of Revised FSAPP	Changes to targets are approved
Applicable to 2; 3B & 3D public entities: TR 29.1.1 & TR 29.2	Reported achievements are consistent with the planned and reported indicator and target
Section 55(2)(a) of the PFMA	A performance indicator is well defined when it has a clear definition so that data will be collected consistently and is easy to understand and use
FMPPI chapter 3.2	A performance indicator is verifiable when it is possible to validate or verify the processes and systems that produce the indicator
FMPPI chapter 3.2	A target is specific when the nature and the required level of performance of the target are clearly identifiable
FMPPI chapter 3.3	A target is measurable when the required performance can be measured
FMPPI chapter 3.3	A target is time bound when the time frames for the achievement of the target are indicated
FMPPI chapter 3.3	Reasons for variances between planned and actual performance are disclosed in the annual performance report
Applicable to schedule 3A & 3C public entities: The NT's annual report guide for schedule 3A and 3C public entities	Reasons for variances are corroborated by source documentation
Applicable to schedule 3A & 3C public entities: The NT's annual report guide for schedule 3A and 3C public entities FMPPI chapter 5	Changes to performance indicators and performance targets are disclosed in the annual performance report
Applicable to 3A & 3C public entities: NT annual report guide for schedule 3A and 3C public entities	Reported performance occurred and pertains to the reporting entity
Section 55(2)(a) of the PFMA chapter 5 of the FMPPI	Reported performance is recorded and reported accurately
	All actual performance is recorded and included in the reported performance information

# 3 ANNUAL FINANCIAL STATEMENTS

## General information

<b>Country of incorporation and domicile</b>	South Africa
<b>Nature of business and principal activities</b>	To develop, keep, maintain and disseminate the National Measurements Standards, reference measurements, reference standards, and reference materials.
<b>Board Members</b>	Ms Jabu Mogadime (Chairperson) – resigned 8 February 2023 Dr Tshenge Demana ( <b>the dtic</b> representative) Ms Lindie Lankalebalelo Mrs Nobom Gcinashe Mfabana Mr Molelekoa Petrus Mohlomi Dr Anneline Chetty (appointed 1 April 2022) Mr Nimrod Zalk (appointed 1 April 2022) Mr Ndwakhulu Mukhufhi (ex officio)
<b>Business address</b>	Meiring Naude Road Brummeria Pretoria 0040
<b>Postal address</b>	Private Bag X34 Lynnwood Ridge 0040
<b>Controlling entity</b>	Department of Trade, Industry and Competition ( <b>the dtic</b> )
<b>Bankers</b>	Standard Bank Lynnwood Bridge
<b>Auditors</b>	MNB Chartered Accountants Chartered Accountants (S.A.) Registered Auditors
<b>Company secretary</b>	Busisiwe Mkhize

## Index

The reports and statements set out below comprise the Annual Financial Statements presented to the Department of Trade, Industry and Competition (**the dtic**):

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# STATEMENT OF FINANCIAL POSITION

## as at 31 March 2023

Figures in Rand	Note(s)	2023	2022
<b>Assets</b>			
<b>Current assets</b>			
Inventories	7	9 005 538	9 128 731
Receivables from exchange transactions	5	8 208 233	6 779 185
Prepayments	6	24 656 525	40 545 248
Cash and cash equivalents	8	89 078 298	134 643 680
		<b>130 948 594</b>	<b>191 096 844</b>
<b>Non-current assets</b>			
Property, plant and equipment	3	538 382 159	530 544 039
Intangible assets	4	1 218 852	1 766 651
Receivables from exchange transactions	5	3 031 812	2 890 147
Prepayments	6	6 481 645	809 593
		<b>549 114 468</b>	<b>536 010 430</b>
<b>Total assets</b>		<b>680 063 062</b>	<b>727 107 274</b>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Payables from exchange transactions	9	17 832 916	20 068 432
Provisions	10	-	14 289 285
<b>Total liabilities</b>		<b>17 832 916</b>	<b>34 357 717</b>
<b>Net assets</b>			
Accumulated surplus		662 230 146	692 749 557
<b>Total net assets</b>		<b>662 230 146</b>	<b>692 749 557</b>

# STATEMENT OF FINANCIAL PERFORMANCE

## for the year ended 31 March 2023

Figures in Rand	Note(s)	2023	2022
<b>Revenue</b>			
<b>Revenue from exchange transactions</b>			
Rendering of services		24 653 025	18 700 997
Interest received – investment		6 618 016	8 422 725
Other income		27 297	-
Gain on disposal of assets		-	117 028
Gain on foreign exchange		26 796	-
<b>Total revenue from exchange transactions</b>		<b>31 325 134</b>	<b>27 240 750</b>
<b>Revenue from non-exchange transactions</b>			
<b>Transfer revenue</b>			
Transfer from controlling entity		195 704 000	261 716 000
Donations		333 534	-
<b>Total revenue from non-exchange transactions</b>		<b>196 037 534</b>	<b>261 716 000</b>
<b>Total revenue</b>	13	<b>227 362 668</b>	<b>288 956 750</b>
<b>Expenditure</b>			
Employee related costs	14	(127 404 194)	(132 872 510)
Depreciation and amortisation	3&4	(50 258 028)	(43 733 270)
Credit losses on receivables	15	(1 131 878)	(1 164 818)
Loss on disposal of assets		(427 472)	-
Loss on foreign exchange		-	(869 652)
General expenses	16	(77 526 507)	(74 901 434)
<b>Total expenditure</b>		<b>(256 748 079)</b>	<b>(253 541 684)</b>
<b>(Deficit) surplus for the year</b>		<b>(29 385 411)</b>	<b>35 415 066</b>

# STATEMENT OF CHANGES IN NET ASSETS

## for the year ended 31 March 2023

Figures in Rand	Accumulated surplus	Total net assets
<b>Balance at 1 April 2021</b>	<b>657 334 491</b>	<b>657 334 491</b>
Changes in net assets		
Surplus for the year	35 415 066	35 415 066
Total changes	35 415 066	35 415 066
<b>Balance at 1 April 2022</b>	<b>692 749 557</b>	<b>692 749 557</b>
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)
<b>Balance at 31 March 2023</b>	<b>662 230 146</b>	<b>662 230 146</b>

# CASH FLOW STATEMENT

## for the year ended 31 March 2023

Figures in Rand	Note(s)	2023	2022
<b>Cash flows from operating activities</b>			
<b>Receipts</b>			
Rendering of services		26 051 951	17 816 401
Transfer from controlling entity		195 704 000	261 716 000
Interest received – investments		6 618 016	8 422 725
Other income		360 831	-
		<b>228 734 798</b>	<b>287 955 126</b>
<b>Payments</b>			
Employee related costs		(141 969 118)	(133 126 886)
Suppliers		(73 221 241)	(77 151 051)
		(215 190 359)	(210 277 937)
<b>Net cash flows from operating activities</b>	<b>17</b>	<b>13 544 439</b>	<b>77 677 189</b>
<b>Cash flows from investing activities</b>			
Purchase of property, plant and equipment	3	(57 767 590)	(86 503 021)
Proceeds from sale of property, plant and equipment	3	-	158 022
Purchase of intangible assets	4	(208 231)	(1 568 917)
<b>Net cash flows from investing activities</b>		<b>(57 975 821)</b>	<b>(87 913 916)</b>
<b>Cash flows from financing activities</b>			
Surplus surrendered to Revenue Fund		(1 134 000)	-
<b>Net increase/(decrease) in cash and cash equivalents</b>		<b>(45 565 382)</b>	<b>(10 236 727)</b>
Cash and cash equivalents at the beginning of the year		134 643 680	144 880 407
<b>Cash and cash equivalents at the end of the year</b>	<b>8</b>	<b>89 078 298</b>	<b>134 643 680</b>

The accounting policies on pages 89 to 99 and the notes on pages 100 to 117 form an integral part of the Annual Financial Statements.

# STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

for the year ended 31 March 2023

## Budget on Modified Cash Basis

Figures in Rand	Approved budget	Adjustments	Final budget	Actual amounts on comparable basis	% Difference between final budget and actual	Reference
<b>Statement of Financial Performance</b>						
<b>Revenue</b>						
<b>Revenue from exchange transactions</b>						
Rendering of services	26 980 866	-	26 980 866	24 653 025	9 %	
Other income	-	-	-	27 297		23.5
Interest received – investment	6 000 000	-	6 000 000	6 618 016	-10 %	23.1
<b>Total revenue from exchange transactions</b>	<b>32 980 866</b>	<b>-</b>	<b>32 980 866</b>	<b>31 298 338</b>	<b>5 %</b>	
<b>Revenue from non-exchange transactions</b>						
<b>Transfer revenue</b>						
Transfer from controlling entity	268 576 000	(72 872 000)	195 704 000	195 704 000		
Donations	-	-	-	333 534		23.5
<b>Total revenue from non-exchange transactions</b>	<b>268 576 000</b>	<b>(72 872 000)</b>	<b>195 704 000</b>	<b>196 037 534</b>		
<b>Total revenue</b>	<b>301 556 866</b>	<b>(72 872 000)</b>	<b>228 684 866</b>	<b>227 335 872</b>	<b>1 %</b>	
<b>Expenditure</b>						
Employee related costs	(150 169 772)	16 832 052	(133 337 720)	(127 404 194)	4 %	
Depreciation and amortisation	-	-	-	(50 258 028)		23.5
Credit losses on receivables	-	-	-	(1 131 878)		23.5
Loss on disposal of assets	-	-	-	(427 472)		23.5
General expenses	(100 958 722)	13 567 223	(87 391 499)	(77 526 507)	11 %	23.2
Loss on foreign exchange	(250 000)	-	(250 000)	26 796	111 %	23.3
<b>Total expenditure</b>	<b>(251 378 494)</b>	<b>30 399 275</b>	<b>(220 979 219)</b>	<b>(256 721 283)</b>	<b>-16 %</b>	
Capital expenditure	(50 178 372)	42 472 725	(7 705 647)	(57 975 821)	-652 %	23.4
<b>Deficit</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(87 361 232)</b>		
<b>Reconciliation</b>						
<b>Format and classification differences</b>						
Property, plant and equipment				57 767 590		
Intangible assets				208 231		
<b>Actual amount in the Statement of Financial Performance</b>				<b>(29 385 411)</b>		

# ACCOUNTING POLICIES

## 1. Significant Accounting Policies

The principal 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 2023, 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 the 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 considers 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 10 – 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. The 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 item 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.

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 their 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 gain or loss arising from derecognition of an item of 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.

### 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:

<b>Class</b>	<b>Category</b>
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:

<b>Class</b>	<b>Category</b>
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

The 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.

## 1.7 Financial instruments (continued)

### 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.

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

The 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 is 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.

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

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

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

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

## 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 unit 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.

### 1.13 Provisions and contingencies (continued)

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 the 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 the 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.

#### 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 transactions is measured at the amount of the increase in net asset recognised by the entity. The NMISA receives an unconditional grant via **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 relating 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 relating 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 has 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 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.

A significant influence is the power to participate in the financial and operating policy decisions of an entity, but without control over those policies.

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 the 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 has 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, based on the financial statements.

# NOTES TO THE ANNUAL FINANCIAL STATEMENTS

## 2. New standards and interpretations

### 2.1 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 2023 or later periods:

#### GRAP 1 (amended): Presentation of Financial Statements

The amendments clarify that information should not be obscured by aggregating or by providing immaterial information; materiality considerations apply to all parts of the financial statements; and even when a Standard of GRAP requires a specific disclosure, materiality considerations apply.

Regarding the statement of financial position and statement of financial performance, the amendments clarify that the list of line items to be presented in these statements can be disaggregated and aggregated as relevant and provide additional guidance on subtotals in these statements. The adoption of this interpretation is not expected to impact on the results of the entity but may result in more disclosure than is currently provided in the Annual Financial Statements.

The effective date of the standard is for years beginning on or after 1 April 2025.

#### GRAP 25 (amended): Employee Benefits

The objective of this Standard is to prescribe the accounting and disclosure for employee benefits. This Standard requires an entity to recognise: (a) a liability when an employee has provided service in exchange for employee benefits to be paid in the future; and (b) an expense when the entity consumes the economic benefits or service potential arising from service provided by an employee in exchange for employee benefits. The amendments to GRAP 25 are extensive and mostly affect accounting for defined benefit plans. The adoption of these revisions is not expected to impact on the results of the entity but may result in more disclosure than is currently provided in the Annual Financial Statements.

The effective date of the Standard is not yet set by the Minister of Finance.

#### GRAP 104 (amended): Financial Instruments

The revisions better align the Standards of GRAP with recent international developments. The amendments result in better information available to make decisions about financial assets and their recoverability, and more transparent information on financial liabilities.

The most significant changes to the Standard affect: financial guarantee contracts issued, loan commitments issued, classification of financial assets, amortised cost of financial assets, impairment of financial assets and disclosures. The amended standard is not expected to have a material impact on the entity's Annual Financial Statements in future. The adoption of these revisions is not expected to impact on the results of the entity but may result in more disclosure than is currently provided in the Annual Financial Statements.

The effective date of the Standard is for years beginning on or after 1 April 2025.

## 2. New standards and interpretations (continued)

### IGRAP 21: The Effect of Past Decisions on Materiality

The Board received questions from entities asking whether past decisions to not apply the Standards of GRAP to immaterial items affect future reporting periods. Entities observed that when they applied alternative accounting treatments to items in previous reporting periods, they kept historical records on an ongoing basis of the affected items. This was done so that they could assess whether applying these alternative treatments meant that the financial statements became materially “misstated” over time. If the effect was considered material, retrospective adjustments were often made. This interpretation explains the nature of past materiality decisions and their potential effect on current and subsequent reporting periods.

IGRAP 21 addresses the following two issues: 1) do past decisions about materiality affect subsequent reporting periods? 2) is applying an alternative accounting treatment a departure from the Standards of GRAP or an error? The adoption of this interpretation is not expected to impact on the results of the entity but may result in more disclosure than is currently provided in the Annual Financial Statements.

The effective date of the standard is for years beginning on or after 1 April 2023.

### 3. Property, plant and equipment

Figures in Rand	2023			2022		
	Cost/ Valuation	Accumulated depreciation and accumulated impairment	Carrying value	Cost/ Valuation	Accumulated depreciation and accumulated impairment	Carrying value
Plant and machinery	760 220 818	(275 060 426)	485 160 392	722 600 262	(236 180 772)	486 419 490
Furniture and fixtures	9 308 602	(5 428 097)	3 880 505	6 108 756	(3 983 611)	2 125 145
Motor vehicles	997 195	(408 481)	588 714	1 001 096	(283 735)	717 361
Office equipment	27 759 808	(18 695 034)	9 064 774	25 214 848	(15 579 954)	9 634 894
Leasehold improvements	54 458 197	(14 770 423)	39 687 774	43 669 153	(12 022 004)	31 647 149
<b>Total</b>	<b>852 744 620</b>	<b>(314 362 461)</b>	<b>538 382 159</b>	<b>798 594 115</b>	<b>(268 050 076)</b>	<b>530 544 039</b>

#### Reconciliation of property, plant and equipment – 2023

Figures in Rand	Opening balance	Additions	Disposals	Depreciation	Total
Plant and machinery	486 419 490	41 091 659	(404 024)	(41 946 733)	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	(23 448)	(3 205 574)	9 064 774
Leasehold improvements	31 647 149	10 789 045	-	(2 748 420)	39 687 774
	<b>530 544 039</b>	<b>57 767 590</b>	<b>(427 472)</b>	<b>(49 501 998)</b>	<b>538 382 159</b>

#### Reconciliation of property, plant and equipment – 2022

Figures in Rand	Opening balance	Additions	Disposals	Depreciation	Total
Plant and machinery	41 091 659	61 923 189	-	(38 463 719)	486 419 490
Furniture and fixtures	3 227 984	1 326 669	-	(245 392)	2 125 145
Motor vehicles	-	323 282	-	(89 966)	717 361
Office equipment	2 658 902	5 459 185	(40 994)	(2 678 151)	9 634 894
Leasehold improvements	10 789 045	17 470 696	-	(1 095 034)	31 647 149
	<b>57 757 590</b>	<b>86 503 021</b>	<b>(40 994)</b>	<b>(42 572 262)</b>	<b>530 544 039</b>

Included in the carrying value of property, plant and equipment is assets delivered but not yet ready for use, to the value of R25 932 220 (2022: R71 224 268).

Disposals relates 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	2023	2022
Repairs and maintenance	9 169 450	10 588 131

#### 4. Intangible assets

Figures in Rand	2023			2022		
	Cost/ Valuation	Accumulated amortisation and accumulated impairment	Carrying value	Cost/ Valuation	Accumulated amortisation and accumulated impairment	Carrying value
Computer software	13 684 374	(12 465 522)	1 218 852	13 476 143	(11 709 492)	1 766 651

#### 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

#### Reconciliation of intangible assets – 2022

Figures in Rand	Opening balance	Additions	Amortisation	Total
Computer software	1 358 742	1 568 917	(1 161 008)	1 766 651

#### 5. Receivables from exchange transactions

Figures in Rand	2023	2022
Trade receivables	7 701 871	8 832 175
Employee advances and other receivables <sup>^</sup>	3 780 166	88 936
Rental deposit*	3 031 812	2 890 147
Provision for impairment of trade and other receivables	(3 273 804)	(2 141 926)
	<b>11 240 045</b>	<b>9 669 332</b>
Non-current assets	3 031 812	2 890 147
Current assets	8 208 233	6 779 185
	<b>11 240 045</b>	<b>9 669 332</b>

The 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.

<sup>^</sup>Includes R2 762 840 debt raised for recovery of bursaries for formal studies.

\*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.

## 5. Receivables from exchange transactions (continued)

### Reconciliation of provision for impairment of trade and other receivables

Figures in Rand	2023	2022
Opening balance	2 141 926	977 108
Unused amounts reversed <sup>^</sup>	(2 141 926)	(977 108)
Provision raised current year <sup>*</sup>	(3 273 804)	2 141 926
	<b>(3 273 804)</b>	<b>2 141 926</b>

<sup>^</sup>Payments of R1 275 632 (2022: R370 528) were received from some of the customers whose balances were provided for in the previous financial year.

<sup>\*</sup>Includes R1 858 151 raised for debt arising from non-recovery of bursaries for formal studies.

## 6. Prepayments

Figures in Rand	2023	2022
Prepayments – Non-current assets <sup>*</sup>	6 481 645	809 593
Prepayments – Current assets	24 656 525	40 545 248
	<b>31 138 170</b>	<b>41 354 841</b>

<sup>\*</sup>Includes R5.3 million paid in advance for a Kibble Balance for which the expected delivered date has been extended to March 2025 due to extensive backlogs and production setbacks resulting from COVID-19, and R1.2 million relates to prepaid expenses for software licences.

## 7. Inventories

Figures in Rand	2023	2022
Raw materials	6 072 759	6 200 465
Finished goods	2 932 779	2 928 266
	<b>9 005 538</b>	<b>9 128 731</b>
Inventories recognised as an expense during the year	123 193	40 765

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	2023	2022
Cash and cash equivalents consist of:		
Cash on hand	25 999	8 718
Bank balances	1 627 519	3 384 533
Short-term deposits*	87 424 780	131 250 429
	<b>89 078 298</b>	<b>134 643 680</b>

\*Short-term deposit is the Money Market account held with Standard Bank and the Call account held with the South African Reserve Bank.

The reduction in the bank balance is due to a significant decrease in the transfer received from **the dtic** and payment of commitments.

### 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-based on rating agency Fitch Ratings.

## 9. Payables from exchange transactions

Figures in Rand	2023	2022
Trade payables	4 699 214	8 128 725
Payments received in advanced – contract in process	3 238 708	2 970 086
Deferred income	-	84 771
Accrued leave pay	7 014 813	7 290 452
Accrued annual bonus	906 447	-
Accrued expenses	1 973 734	1 594 398
	<b>17 832 916</b>	<b>20 068 432</b>

## 10. Provisions

### Reconciliation of provisions – 2023

Figures in Rand	Opening balance	Utilised during the year	Reversed during the year	Total
Provision for performance bonuses*	11 303 213	(8 665 810)	(2 637 403)	-
Provision for cost of living adjustments^	2 986 072	(2 986 072)	-	-
	<b>14 289 285</b>	<b>(11 651 882)</b>	<b>(2 637 403)</b>	<b>-</b>

## 10. Provisions (continued)

### Reconciliation of provisions – 2022

Figures in Rand	Opening balance	Additions	Utilised during the year	Reversed during the year	Total
Provision for performance bonuses	9 552 565	11 303 213	(9 552 565)	-	11 303 213
Provision for career ladder adjustments	3 040 943	-	(3 040 943)	-	-
Provision for cost of living adjustments	2 398 720	2 986 072	(1 669 123)	(729 597)	2 986 072
	<b>14 992 228</b>	<b>14 289 285</b>	<b>(14 262 631)</b>	<b>(729 597)</b>	<b>14 289 285</b>

\*Provision for performance bonuses has not been made in the current year due to a significant reduction in the transfer received from the **dtic**. The entity can no longer afford to pay performance bonuses, and this is not expected to change in the near future.

^Cost of living adjustments were implemented and paid by 31 March 2023, thus there was no need to make a provision.

## 11. Contingent liabilities

A lawsuit has been instigated against the NMISA for the damage of a motor-vehicle in an accident in 2017, resulting in a claim of R144 000.

## 12. Surrender of surpluses

Figures in Rand	2023	2022
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. During the current financial year, the entity surrendered for re-depositing into the Revenue Fund an uncommitted surplus of R1 134 000 realised in the 2021/22 financial year, which was not approved for retention.

## 13. Revenue

Figures in Rand	2023	2022
Rendering of services	24 653 025	18 700 997
Interest received – investment	6 618 016	8 422 725
Other income	27 297	-
Gain on disposal of assets	-	117 028
Gain on foreign exchange	26 796	-
Transfer from controlling entity	195 704 000	261 716 000
Donations	333 534	-
	<b>227 362 668</b>	<b>288 956 750</b>
<b>The amounts included in revenue arising from exchanges of goods or services are as follows:</b>		
Rendering of services	24 653 025	18 700 997
Interest received – investment	6 618 016	8 422 725
Other income	27 297	-
Gain on disposal of assets	-	117 028
Gain on foreign exchange	26 796	-
	<b>31 325 134</b>	<b>27 240 750</b>
<b>The amounts included in revenue arising from non-exchange transactions are as follows:</b>		
Transfer from controlling entity*	195 704 000	261 716 000
Donations <sup>^</sup>	333 534	-
	<b>196 037 534</b>	<b>261 716 000</b>

\*The transfer from **the dtic** decreased by 25 %, which 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 the NMISA to continue in its current form and for the NMSs to continuously meet the national needs, and to be able to pro-actively place the NMISA at the forefront of traceability for a fast-paced growing economy, the NMISA's baseline needs to be increased. Without an increase in the baseline, the NMISA in its current form will not be able to continue to operate in the long-term.

**the dtic** has terminated the recapitalisation funding utilised for the modernisation and improvement of the National Measurement Standards (which includes equipment, assets and associated recurring operational expenditure, infrastructure, facilities management and maintenance and skilled personnel). The reduction will have an impact on the long-term strategy and sustainability of the organisation.

<sup>^</sup>Donation relates to an optical rotation instrument funded through the UNIDO Global Quality Standards Programme for Essential Oils.

## 14. Employee related costs

Figures in Rand	2023	2022
Basic	129 605 435	126 335 971
Performance bonuses	(2 637 403)	8 337 505
UIF	711 802	669 150
Career ladder adjustments	-	(3 040 943)
Leave pay provision charge	(275 640)	448 567
Long-service awards	-	122 260
	<b>127 404 194</b>	<b>132 872 510</b>

## 15. Credit losses on receivables

Figures in Rand	2023	2022
Contributions to debt impairment provision	1 131 878	1 164 818

The amount is made up of the difference between the provision for the current year of R3 273 804 and the R2 141 926 reversed provision of the previous financial year.

## 16. General expenses

Figures in Rand	2023	2022
Auditors' remuneration	684 139	1 022 415
Bursaries*	(1 265 579)	1 440 928
Catering, events and meetings	2 390 667	275 897
Chemicals and laboratory consumables	6 199 674	5 736 202
Consulting and professional fees	1 061 082	1 121 457
Electricity	5 320 936	3 514 379
External calibration costs	1 012 236	1 651 233
Health and safety services	701 152	686 852
Insurance	1 788 826	1 697 314
IT expenses	10 545 282	11 968 579
Lease rentals on operating lease	22 358 499	20 895 794
Legal fees	525 870	217 186
Marketing and advertising	1 170 926	600 338
Other expenses	1 038 621	49 386
Postage and courier	1 793 975	2 035 366
Printing and stationery	770 048	1 133 715
Recruitment costs	234 883	266 076
Repairs and maintenance	9 169 450	10 588 131
Research and development costs	-	150 000
SANAS assessments/Quality expenses	963 712	798 895
Staff welfare	379 708	283 865
Subscriptions and membership fees	456 170	1 066 820
Technical components	5 011 546	3 840 185
Telephone and fax	510 470	544 825
Training	1 583 935	2 396 465
Travel – local	768 451	301 570
Travel – overseas	2 143 051	313 291
VAT on imported services	208 777	304 270
	<b>77 526 507</b>	<b>74 901 434</b>

\*Includes R2 762 840 bursary reversal, debt has been raised for recovery of these bursaries.

## 17. Cash generated from operations

Figures in Rand	2023	2022
(Deficit) surplus	(29 385 411)	35 415 066
<b>Adjustments for:</b>		
Depreciation and amortisation	50 258 028	43 733 270
Loss (gain) on sale of assets and liabilities	427 472	(117 028)
(Gain) loss on foreign exchange	(26 796)	869 652
Credit losses on receivables	1 131 878	1 164 818
Movements in provision for career ladder adjustments	-	(3 040 943)
Movement in provision for performance bonuses	(11 303 213)	1 750 648
Movement in provision for cost-of-living adjustments	(2 986 072)	587 352
<b>Changes in working capital:</b>		
Inventories	123 193	(943 692)
Receivables from exchange transactions	(2 702 591)	(3 535 321)
Prepayments	10 216 671	(4 475 251)
Payables from exchange transactions	(2 208 720)	6 268 618
	<b>13 544 439</b>	<b>77 677 189</b>

## 18. Commitments

Figures in Rand	2023	2022
<b>Authorised capital expenditure</b>		
<b>Already contracted for but not provided for</b>		
- Property, plant and equipment	59 129 723	87 566 227
<b>Not yet contracted for and authorised by members</b>		
- Property, plant and equipment	6 996 724	9 400 000
<b>Total capital commitments</b>		
Already contracted for but not provided for	59 129 723	87 566 227
Not yet contracted for and authorised by members	6 996 724	9 400 000
	<b>66 126 447</b>	<b>96 966 227</b>
<b>Authorised operational expenditure</b>		
<b>Already contracted for but not provided for</b>		
- General expenses	16 353 012	11 318 052
<b>Total commitments</b>		
Capital expenditure	66 126 447	96 966 227
Operational expenditure	16 353 012	11 318 052
	<b>82 479 459</b>	<b>108 284 279</b>

The delivery lead times for equipment procured by the 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.

## 18. Commitments (continued)

The 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	2023	2022
<b>Operating leases – as lessee (expense)</b>		
<b>Buildings</b>		
<b>Minimum lease payments due</b>		
- within one year	24 571 991	22 191 333
- in second to fifth years inclusive	125 741 402	103 403 765
- later than five years	79 875 008	92 808 310
	<b>230 188 401</b>	<b>218 403 408</b>
Operating lease payments represent rentals payable by the entity for office properties. 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 is based on CPI plus 3 %. The rental is payable monthly in advance. No contingent rent is payable.		
<b>Rental expenses relating to operating leases</b>		
Minimum lease payments	22 358 499	20 895 794
<b>Printers</b>		
<b>Minimum lease payments due</b>		
- within one year	249 200	-
- in second to fifth year inclusive	412 850	-
	<b>662 050</b>	<b>-</b>
Operating lease payments represent rentals payable by the entity for printers. 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 provider's 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.		
<b>Rental expenses relating to operating leases</b>		
Minimum lease payments	<b>133 670</b>	<b>-</b>

## 19. Related parties

<b>Controlling entity</b>	Department of Trade, Industry and Competition ( <b>the dtic</b> )
<b>Board Members</b>	Ms Jabu Mogadime (resigned 8 February 2023) Mr Molelekoa Petrus Mohlomi Ms Lindie Lankalebalelo Ms Nobom Gcinashe Mfabana Dr Tshenge Demana ( <b>the dtic</b> representative) Dr Anneline Chetty (appointed 1 April 2022) Mr Nimrod Zalk (appointed 1 April 2022) Mr Ndwakhulu Mukhufhi (ex officio)
<b>External members of the Audit and Risk Committee</b>	Mr Zenzele Myeza Ms Romeshni Govender
<b>External members of the IT Steering Committee</b>	Dr Nomathamsanqa Rachel Batyashe Ms Monageng Maureen Mavunda Mr Senzo Dlamini (term ended 30 June 2022) Mr Sipho Masinga (term ended 30 June 2022)
<b>Members of key management</b>	Mr Ndwakhulu Mukhufhi Mr Mogau Sehlapelo Mr Benjamin van der Merwe Dr Wynand Louw Ms Natasha van der Walt Dr Jayne de Vos Mr Tebogo Mthombeni Dr Jessie Pillay
<b>Entities under common control</b>	South African National Accreditation Systems (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) Companies Tribunal (CT) Competition Commission Competition Tribunal Industrial Development Corporation International Trade Administration Commission (ITAC)

### Key management information

Class	Description	Number
Non-executive board members	Board Members	7
Executive management	Executive Committee	8

## 19. Related parties (continued)

Figures in Rand	2023	2022
<b>Related party balances</b>		
<b>Amounts included in trade receivables regarding related parties</b>		
South African National Accreditation System (SANAS)	175 500	188 807
South African Bureau of Standards (SABS)	32 824	64 920
Receivables in respect of assessments, calibration and other services provided in the ordinary course of business.		
<b>Amounts included in trade payables regarding related parties</b>		
South African National Accreditation System (SANAS)	9 200	41 524
South African Bureau of Standards (SABS)	29 923	16 923
Payables in respect of accreditation fees, certification services and training provided in the ordinary course of business.		
<b>Commitments with related parties</b>	815 914	759 886
South African National Accreditation System (SANAS)	55 209	218 892
South African Bureau of Standards (SABS)		
Commitments for accreditation fees, certification services and training to be provided.		
<b>Provision for doubtful debts related to outstanding balances with related parties</b>		
South African National Accreditation System (SANAS)	-	29 792
South African Bureau of Standards (SABS)	-	11 918
<b>Related party transactions</b>		
<b>Sales to related parties</b>		
South African National Accreditation System (SANAS)	239 739	210 064
South African Bureau of Standards (SABS)	258 828	111 884
<b>Purchases from related parties</b>		
South African National Accreditation System (SANAS)	1 008 774	1 071 976
South African Bureau of Standards (SABS)	180 316	174 837
<b>Transfer received from related parties</b>		
The Department of Trade, Industry and Competition ( <b>the dtic</b> )	195 704 000	261 716 000
All transactions were at arm's length, provided in the ordinary course of business.		

## 19. Related parties (continued)

### Remuneration of the Board and management

#### Board members

Figures in Rand	Fees for services as a member of the Board	Other expenses	Total
<b>2023</b>			
Ms Jabu Mogadime (resigned 08 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
	<b>476 736</b>	<b>24 891</b>	<b>501 627</b>

Figures in Rand	Fees for services as a member of the Board	Other expenses	Total
<b>2022</b>			
Ms Jabu Mogadime	96 710	9 009	105 719
Ms Lindie Lankalebalelo	104 520	-	104 520
Ms Nobom Mfabana	144 720	-	144 720
Mr Molelekoa Mohlomi	160 800	1 304	162 104
	<b>506 750</b>	<b>10 313</b>	<b>517 063</b>

Dr Tshenge Demana, Dr Anneline Chetty and Mr Nimrod Zalk (the dtic representatives) do not receive remuneration for the meetings attended.

#### Independent committee members of the Board

Figures in Rand	Fees for services rendered	Other expenses	Total
<b>2023</b>			
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 Maureen Mavunda	16 562	-	16 562
Mr Senzo Dlamini (term ended 30 June 2022)	4 020	-	4 020
Mr Siphon Masinga (term ended 30 June 2022)	4 020	-	4 020
	<b>107 654</b>	<b>2 810</b>	<b>110 464</b>

Figures in Rand	Fees for services rendered	Total
<b>2022</b>		
Mr Senzo Dlamini	20 100	20 100
Mr Siphon Masinga	20 100	20 100
Mr Zenzele Myeza	32 160	32 160
Ms Romeshni Govender	32 160	32 160
	<b>104 520</b>	<b>104 520</b>

## 19. Related parties (continued)

Management class: Executive management

Figures in Rand	Basic salary	Performance related payments	Annual bonus/ Long service award	Post-employment benefits	Allowances	Other expenses	Total
<b>2023</b>							
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
Mrs 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
	<b>15 728 573</b>	<b>1 441 649</b>	<b>170 383</b>	<b>1 170 508</b>	<b>399 956</b>	<b>149 864</b>	<b>19 060 933</b>
Figures in Rand	Basic salary	Performance related payments	Annual bonus/ Long service award	Post-employment benefits	Allowances	Other expenses	Total
<b>2022</b>							
Mr Ndwakhulu Mukhufhi	2 647 298	335 614	18 057	63 434	24 000	-	3 088 403
Mr Mogau Sehlapelo	1 941 777	283 749	-	45 832	18 000	-	2 289 358
Dr Wynand Louw	1 467 217	187 095	-	117 164	121 860	6 894	1 900 230
Mr Benjamin van der Merwe	1 348 227	162 149	119 307	195 928	18 000	-	1 843 611
Mrs Natasha van der Walt	1 511 433	179 920	-	118 731	18 000	-	1 828 084
Dr Jayne de Vos	1 562 756	124 730	35 792	136 567	18 000	-	1 877 845
Mr Teboho Mthombeni	1 287 521	149 952	-	180 309	114 000	-	1 731 782
Dr Jessie Pillay (appointed 1 February 2022)	297 866	-	-	10 672	3 000	-	311 538
	<b>12 064 095</b>	<b>1 423 209</b>	<b>173 156</b>	<b>868 637</b>	<b>334 860</b>	<b>6 894</b>	<b>14 870 851</b>

## 20. Risk management

### Financial risk management

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

The South African economy is still recovering from the worst of the COVID-19 pandemic and the electricity crisis has magnified South Africa's social and economic crisis. This has had a direct impact on the entity's ability to generate revenue and collection receivables, as most organisations are under financial distress.

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. The 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 in relevant maturity groupings based on the remaining period at the statement of financial position to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

Figures in Rand	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
<b>At 31 March 2023</b>				
Trade and other payables	17 832 916	-	-	-

Figures in Rand	Less than 1 year	Between 1 and 2 years	Between 2 and 5 years	Over 5 years
<b>At 31 March 2022</b>				
Trade and other payables	20 068 432	-	-	-

### Credit risk

Credit risk consists mainly of cash deposits, cash equivalents and trade and other receivables. The entity only deposits cash with major banks with high quality credit standing and limits exposure to any one counterparty.

Trade and other receivables comprises a widespread customer base. Management evaluates credit risk relating to customers on an ongoing basis. If customers are independently rated, these ratings are used. If there is no independent rating, management assesses the credit quality of the customer, considering 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 29 % (2022: 24 %) of the total receivables book.

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

Figures in Rand	2023	2022
<b>Financial instrument</b>		
Trade and other receivables	11 482 037	8 832 175
Less: Provision for impairment of trade receivables	(3 273 804)	(2 141 926)
Rental deposit	3 031 812	2 890 147

## 20. Risk management (continued)

### Market risk

#### Interest rate and cash flow risk

The 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	2023	2022
Short-term deposits	87 424 780	131 250 429

The entity manages its cash flow risk by aligning the allocation received from **the dtic** and other sources of income with 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.

## 21. 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.

## 22. Events after the reporting date

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

The term of the Board ended on 30 June 2023.

## 23. Budget differences

### Material differences between budget and actual amounts

- 23.1** The favourable variance of 10 % is due to an increase in the balance invested as a result of funds in respect of awarded tenders which remain committed due to delivery not having taken place.
- 23.2** Planned procurement has been concluded, the expenditure has not come through to this report yet, therefore funds are committed but not yet expensed.
- 23.3** Variance due to the strengthening of the Rand compared to the previous two years and increased deliveries from foreign suppliers who are sole suppliers for some of the specialised instruments the entity procures.
- 23.4** Expenditure recorded under actual expenditure includes expenditure/deliveries towards prior year commitments.
- 23.5** Depreciation, credit losses and gains/losses on disposals of assets are non-cash items which are not budgeted for. Donation is in respect of an asset received from UNIDO.











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