



# ANNUAL REPORT

## 2020/2021



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# PART A

## GENERAL INFORMATION

## 1. PUBLIC ENTITY'S GENERAL INFORMATION

<b>NAME</b>	National Metrology Institute of South Africa (NMISA)
<b>PHYSICAL ADDRESS</b>	Meiring Naude Road Brummeria Pretoria
<b>POSTAL ADDRESS</b>	Private Bag X34 Lynnwood Ridge 0040 South Africa
<b>TELEPHONE NUMBER</b>	027 (12) 841 4152
<b>FAX NUMBER</b>	027 (12) 841 2131
<b>EMAIL ADDRESS</b>	info@nmisa.org
<b>WEBSITE ADDRESS</b>	www.nmisa.org
<b>EXTERNAL AUDITORS</b>	NEXIA SAB&T Pretoria
<b>BANKERS</b>	Standard Bank Lynnwood Ridge Pretoria
<b>COMPANY / BOARD SECRETARY</b>	Busisiwe Mkhize

## 2. LIST OF ABBREVIATIONS / ACRONYMS

<b>AfCFTA</b>	Africa Continental Free Trade Area
<b>AFRIMETS</b>	Intra-Africa Metrology System
<b>AGSA</b>	Auditor General of South Africa
<b>ARC</b>	Audit and Risk Committee
<b>BIPM</b>	International Bureau of Weights and Measures (Bureau Internationale des Poids et Mesures)
<b>B-BBEE</b>	Broad-Based Black Economic Empowerment
<b>CEO</b>	Chief Executive Officer
<b>CFO</b>	Chief Financial Officer
<b>CGPM</b>	General Conference on Weights and Measures
<b>CIE</b>	International Commission on Illumination
<b>CIPM</b>	International Committee for Weights and Measures
<b>CMM</b>	Coordinate Measuring Machine
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>ERP</b>	Enterprise and Resource Planning
<b>EWP</b>	Employee Wellness Programme
<b>FFR</b>	Filtering Facepiece Respirator
<b>FSCA</b>	Financial Sector Conducts Authority
<b>GRAP</b>	Generally Recognised Accounting Principles
<b>HCD</b>	Human Capital Development
<b>HR</b>	Human Resources
<b>HRRC</b>	Human Resource and Remuneration Committee
<b>IIA</b>	Institute of Internal Auditors
<b>IESSA</b>	Illumination Engineering Society of South Africa
<b>ICASA</b>	Independent Communications Authority of South Africa
<b>LED</b>	Light Emitting Diode
<b>LNG</b>	Liquid Natural Gas
<b>MEC</b>	Member of Executive Council
<b>MOU</b>	Memorandum of Understanding
<b>MTEF</b>	Medium Term Expenditure Framework
<b>NDoh</b>	National Department of Health
<b>NICD</b>	National Institute for Communicable Diseases
<b>NMISA</b>	National Metrology Institute of South Africa
<b>NPL</b>	National Physical Laboratory
<b>PCDD</b>	Polychlorinated dibenzo-p-dioxin
<b>PCDF</b>	Polychlorinated dibenzofurans
<b>PFMA</b>	Public Finance Management Act
<b>PTB</b>	Physikalisch-Technische Bundesanstalt – German NMI
<b>RPLGD</b>	Radio-Photoluminescence Glass Dosimeter
<b>SABS</b>	South African Bureau of Standards
<b>SANAS</b>	South African National Accreditation System
<b>SCM</b>	Supply Chain Management
<b>SEC</b>	Social and Ethics Committee
<b>SMME</b>	Small Medium and Micro Enterprises
<b>SOE</b>	State Owned Enterprise
<b>the dtic</b>	Department of Trade, Industry and Competition
<b>ToR</b>	Terms of Reference
<b>TR</b>	Treasury Regulations
<b>TQMS</b>	Total Quality Management System
<b>UVGI</b>	Ultraviolet Germicidal Irradiation
<b>UVR</b>	Ultraviolet Radiation

# Foreword by the Minister

## – MR EBRAHIM PATEL

Minister of Trade, Industry and Competition



It is my pleasure to table the Annual Report of NMISA for the 2020/21 financial year. The Report sets out the performance information, governance report, human resources and financial information for the past financial year, a particularly challenging period for many public and private institutions due to the devastating effects of the Covid-19 pandemic.

As the society recovered from the first waves of Covid-19, the focus has shifted to economic recovery, in line with the Economic Reconstruction and Recovery Plan (ERRP). In the new financial year ending March 2022, every agency of the dtic has been requested to report on its contribution to South Africa's national development goals, with a focus on seven key areas, which are termed 'joint indicators'. In this way, the combined efforts of all public entities will begin to be aligned to the national priorities in a more explicit manner.

These cover the following areas:

- Joint Indicator 1: Integrated Support to Drive Industrialisation (which includes the work on localisation and sector master plans as well as efforts to support beneficiation)
- Joint Indicator 2: Contribution to the development of an AfCFTA Export Plan
- Joint Indicator 3: Investment Facilitation and Growth
- Joint Indicator 4: Development Model and Spatial Equity to enable the impact of all public sector work to be measured and integrated at district level
- Joint Indicator 5: Actions to Promote Transformation
- Joint Indicator 6: The Green Economy and Greening the Economy
- Joint Indicator 7: Strengthening and Building a Capable State

In respect of building a capable state, all public entities will be required to review their procedures, timeframes for delivery, forms to be filled in and public communication of services to simplify these, make processes expeditious where possible, remove unnecessary red-tape where these exist and make it easier for users to access services.

**“The Covid-19 pandemic has shown the vulnerabilities of national economies in a globalised world, with the disruption of global supply-chains and measures to monopolise access to scarce goods like ventilators and vaccines. The lesson for South Africa is to build greater economic resilience – at firm and economy level – and pursue what has been described as ‘strategic autonomy’ goals, which in the South African context means greater levels of industrialisation and innovation.”**

**- Minister Patel  
(03 June 2021)**

The core work of NMISA can contribute to each of the seven areas listed above.

A reliable measurement system provides a basis for expanding trade and industrial development. National Measurement Standards maintained by NMISA for South Africa, and traceability to these standards enable local manufacturers to optimise production processes, and to foster consumer and business confidence in their products. It also supports innovation which is very important to enhance competitiveness of firms in the context of the fourth industrial revolution.

A key focus is on metrology consolidation for public entities to provide efficient shared services among dtic entities.

As we strengthen our economy and grow our productive capacity for goods, including those traditionally imported from trading partners, the role of metrology as part of a functioning technical infrastructure is critical. For local industrialists to take advantage of the opportunities presented by the opening of the African market with the implementation of the AfCFTA, they will need the measurement support created by NMISA to produce goods and services that can compete locally, regionally, and internationally.

As Africa's population is predicted to reach 2,4 billion by 2050, food safety and security is high on the agenda of policy makers. According to NMISA, it is estimated that every year 91 million people in Africa consume food that makes them ill and about 137 000 die as a result. Besides the health burden and the impact on families, the economic loss due to reduced productivity, is significant. These are preventable losses and require appropriate and effective food safety systems and regulations on the continent. The reliability and comparability of measurement results are critical enablers.

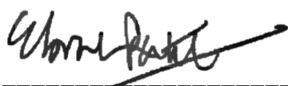
NMISA provides reference measurements, materials and proficiency testing schemes that are relevant to the continent and reflect the foods Africans consume daily, together with the contaminants they would potentially encounter. These tools support the food testing laboratories conducting these important tests in ensuring that their results are reliable.

The re-establishment of NMISA's torque laboratory during the past year will allow manufacturing and construction companies to obtain measurement traceability locally, instead of importing it from overseas. Accurate torque measurement is important in many manufacturing processes as it is required to control the fastening force on assembly parts of rotating devices and to measure mechanical power.

In 2020, the COVID-19 pandemic impacted on international trade and caused damage to the local economy. The dtic and its agencies, including NMISA, contributed to the plans for recovery of the South African economy and identified areas of support for the 6th Administration's Re-imagined Industrial Strategy as outlined in this Annual Report. The Institute revised its Annual Performance Plan 2020 in support of the Economic Recovery and Reconstruction Plan to include the measures taken to respond to the pandemic.

In response to the COVID-19 pandemic, NMISA developed a new National Measurement Standard for thermometry, thereby expanding its service offering to ensure accurate body temperature measurements for health care. Consultation and measurement services have been performed on ultra-violet disinfection devices produced locally, to verify the safety and efficacy of devices that apply ultraviolet germicidal irradiation to disinfect surface areas.

I would like to acknowledge the NMISA Board and Management for the entity's achievements under the constraints of the pandemic.



**Mr Ebrahim Patel**

Minister of Trade, Industry and Competition

# Foreword and Board Report by the Chairperson

– **MS JABU MOGADIME**

Chairperson of the NMISA Board



**T**he NMISA is a Type 3A public entity established and fulfilling its legal mandate under the Measurement Units and Measurement Standards Act, Act no. 18 of 2006. NMISA has not changed its strategy and continues to implement the 2019-2024 Strategic Plan with the following goals to support the country:

- Metrology for Regulatory purposes and in support of government laboratories: for compliance and for development of regulations;
- Metrology consolidation for SOEs to provide efficient shared services;
- Metrology for Industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation and export; and
- Location of Legal Metrology under NMISA to effectively implement the Legal Metrology Act.

The Board is currently operating with five (5) members after the loss of three (3) of its members. This renders the Board inefficient, with respect to quorum, and the loss of skills and expertise has negatively affected the organisation's audit opinion. NMISA has strategically allocated Board Members to specific committees to temporarily address quorum issues, however the loss of skills and expertise can only be addressed through the appointment of new, appropriately qualified Board Members.

Despite the COVID-19 pandemic and associated disruptions to work and collaboration, NMISA maintained its relationships with strategic partners throughout the financial year, including universities, government departments, SOEs and all international counterparts. This is key for the sustainability of the organisation and for continuous improvement.



The COVID-19 pandemic remains a critical challenge for South Africa and the rest of the world. NMISA will continue working hard to ensure we meet the objectives set out in the Re-Imagined Industrial Strategy of the 6th Administration. In particular, by shortening the traceability chain for South Africa and the continent.

The Board would like to acknowledge and appreciate the late Mr Odirile Dingoko for his dedication and passion showed through his contribution to the work of NMISA. His loss was a blow for the Institute. May His soul rest in eternal peace.

The Board would like to further appreciate the management of NMISA and its staff for the hard work they put in this year, especially through the pandemic. The organisation was able to deliver 89 % of its planned targets, which demonstrates commitment to achieving the mandate of NMISA.

I look forward to our contribution to the recovery, growth, and resilience of our economy as we assure the health and safety of the population as well as robust environmental protection.

**Ms Jabu Mogadime (Chairperson)**

National Metrology Institute of South Africa  
31 March 2021

# Chief Executive Officer's Overview



## – MR NDWAKHULU MUKHUFHI

Chief Executive Officer



**T**he 2020/21 financial year saw NMISA continue to implement our strategic plan, formulated in 2019 and aligned to the 6th Administration's goals and objectives. As such, there are no changes to the organisation's strategy and activities, nor are there any discontinued activities.


NMISA has maintained 98 % to 100 % spending on the budget allocated for the past 5 years. Savings made through procurement were used to procure equipment on priority list 2 as approved by the Board to ensure NMISA uses the allocated budget wisely as we build the much-needed measurement traceability and international equivalence required by our economy.

To develop the National Measurement Standards (NMS), provide the associated Reference Measurements and disseminate traceability to industry, NMISA procures sophisticated equipment from original equipment manufacturers (OEMs) and sister NMI's in other countries. In the year under review, the entity had to request for a rollover of funds from National Treasury. The request to rollover funds is necessitated by lead times due to procurement of specialised equipment. Once NMISA issues a purchase order, equipment may take up to 18 months to be manufactured and delivered. For more details refer to the CFO report on page 80.

Supply Chain Management (SCM) plays a critical role in the procurement of goods and services within the organisation. For the past three years the section has been capacitated and stabilised through enhanced staff retention. Staff received financial assistance to further their studies which continues to better the knowledge capacity. The leadership of the Chief Financial Officer ensures that SCM enables the effective, day-to-day running of the organisation in compliance to the PFMA, PPPFA and associated Treasury Regulations.

NMISA SCM processes ensure that we continuously engage in competitive bidding processes to obtain value for money on the goods and services we procure. Due to the highly technical instruments which are being procured by NMISA, it is sometimes impractical to follow open bidding processes. Such instances are supported by proper market research and also the fact that we procure from foreign manufacturers either directly or through their sole local distributors or resellers who have been accredited to offer after sales services.

Infrastructure continues to be NMISA's main challenge. From its inception, the organisation has been accommodated at the CSIR campus in Pretoria. As the world of metrology evolves and technology changes, we have had to adapt to ensure South Africa is not left behind and is able to continue to develop, keep, maintain and disseminate the national Measurement Units. We did this through our three-pronged recapitalisation programme which entails:

- 
- Leasing additional space from the landlord and re-purposing it for the specialised laboratories;
  - Procurement of measurement equipment to enable NMISA to work as mandated and keep abreast with changes while responding to emerging needs; and
  - Upskilling and training Human Resources at NMISA and ensuring that there are requirements for the training of NMISA staff in the commissioning of new equipment, to ensure that NMISA has the capacity to operate and maintain equipment without relying on the manufacturer.

The organisation received a clean audit opinion for the 2020/21 financial year and has maintained a clean audit for over seven (7) years.

The COVID-19 pandemic affected NMISA's operations during the level 5 lockdown in the first quarter of 2020/21. Despite this difficulty, NMISA managed to achieve 12 of its 15 targets for the year. The three (3) targets that were not met were directly affected by COVID-19, as some scheduled activities were cancelled thereby impacting NMISA's performance targets. NMISA is considering online and virtual training in order to achieve targets over the coming years. Furthermore, the easing of travel restrictions has allowed for some of the activities to be re-scheduled.

Over the coming year, NMISA will focus on raising awareness about the organisation among the public, government, and state-owned entities including regulators. The aim is to ensure that NMISA is fully utilised to support the nation's Economic Recovery and Reconstruction Plan, which is aligned with objectives set out in the National Development Plan 2030.

I would like to acknowledge NMISA management and employees who have over the years performed to achieve the strategy as the organisation grows from strength to strength.



**Ndwakhulu Mukhufhi**

Chief Executive Officer

National Metrology Institute of South Africa

31 March 2021

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

To the best of my knowledge and belief, I confirm the following:

All information and amounts disclosed in the annual report is consistent with the annual financial statements audited by the Auditor General.

The annual report is complete, accurate and free from any omissions.

The annual report has been prepared in accordance with the guidelines on annual reports as issued by National Treasury.

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

The accounting authority is responsible for the preparation of the annual financial statements and for the judgements made in this information.

The accounting authority is responsible for establishing and implementing a system of internal control that has been designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the annual financial statements.

The external auditors are engaged to express an independent opinion on the annual financial statements.

In our opinion, the annual report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the public entity for the financial year ended 31 March 2021.

Yours faithfully,



**Mr Ndwakhulu Mukhufhi**

Chief Executive Officer

31 March 2021



**Ms Jabu Mogadime**

Chairperson of the Board

31 March 2021

## 7. STRATEGIC OVERVIEW

### 7.1. Vision

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

### 7.2. Mission

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

### 7.3. Values

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

### 7.4. Strategic Outcome Oriented Goals

In 2018 the NMISA Board set out a 5-year strategy (2019/24) for the organisation, with the following goals:

- Goal 1:** Shorten the traceability chain for Africa by maintaining the Units and NMS at an internationally recognised level.
- Goal 2:** Ensure effective dissemination of the Units and NMS to national and regional laboratories.
- Goal 3:** To provide metrology for regulatory purposes.
- Goal 4:** Metrology services for government and state-owned enterprises (SOEs).

## 8. LEGISLATIVE AND OTHER MANDATES

The National Metrology Institute of South Africa (NMISA) was established under the Measurement Units and Measurement Standards Act, No 18 of 2006 (The Measurement Act).

**To provide for the use of measurement units of the International System of Units (SI) and certain other measurement units; to provide for the designation of the national measurement units and standards; to provide for the keeping and maintenance of the national measurement standards and units; and to provide for the establishment and functions of the National Metrology Institute of South Africa (NMISA).**

South Africa is a signatory to the Metre Convention, a global treaty dating back to 1875. Under this Convention the International Bureau of Weights and Measures (BIPM) was created to act in matters of world metrology, particularly concerning the demand for measurement standards of ever-increasing accuracy, range and diversity, as well as to address the need to demonstrate equivalence between national measurement standards. The International System of Units (SI) was also established under the Metre Convention and is overseen by the International Committee for Weights and Measures (CIPM).

South Africa signed the CIPM Mutual Recognition Arrangement (MRA) in 1999; in response to a growing need for an open, transparent and comprehensive scheme to give users reliable quantitative information on the comparability of national metrology services and to provide the technical basis for wider agreements negotiated for international trade, commerce and regulatory affairs. The MRA serves as a basis for the international acceptance of national measurement standards and for calibration and measurement certificates issued by National Metrology Institutes (NMIs).

The application of the SI in South Africa and the development, improvement and maintenance of the national measurement standards (NMS) are mandated to NMISA in the Measurement Act. NMISA is also tasked to identify and approve other measurement units for use locally and to ensure that the local measurement system is appropriately connected to the international measurement system, through its participation in the Metre Convention and its organs, the CIPM and the BIPM.

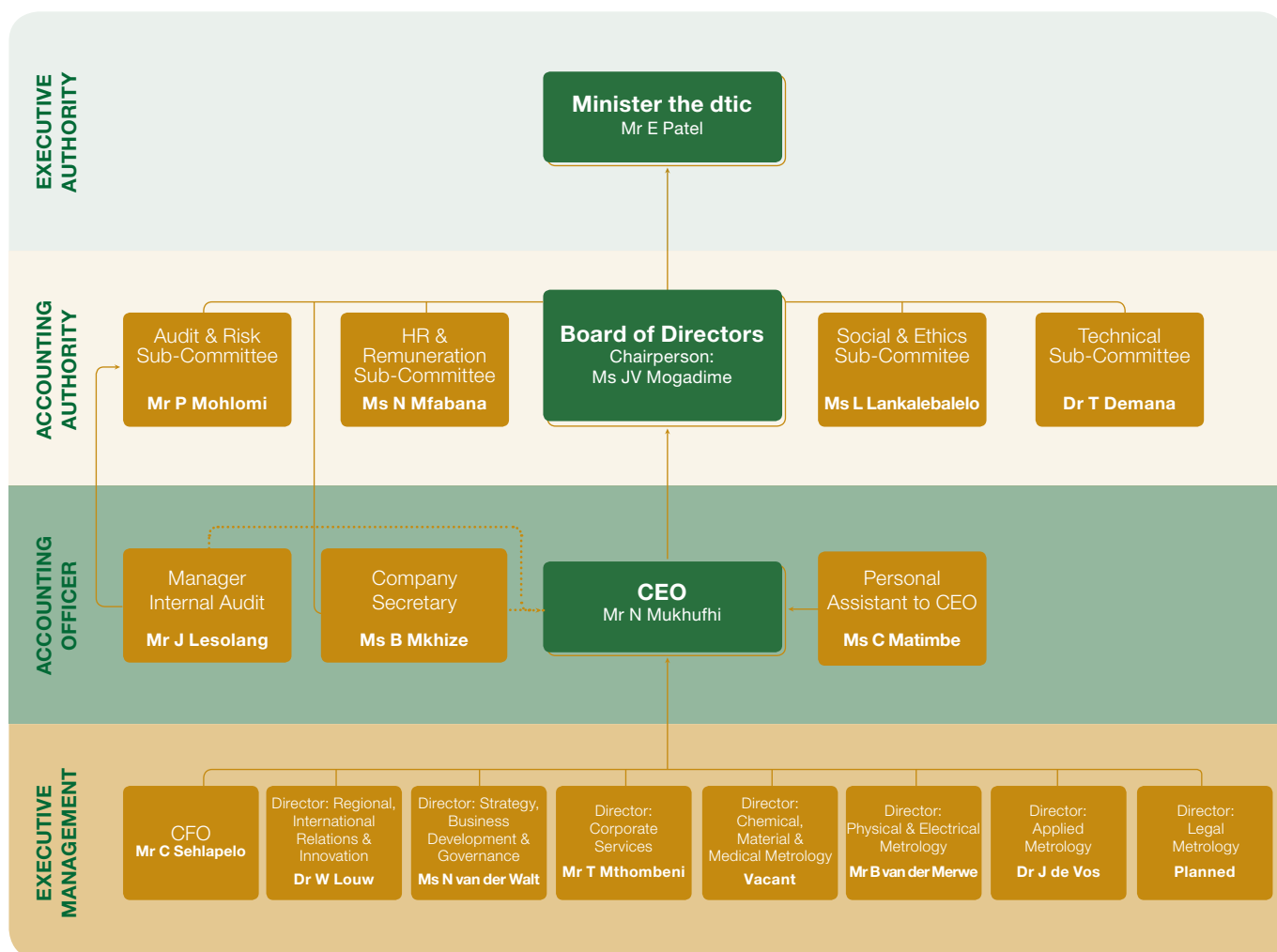
Participation in international activities at Consultative Committee (CC) and RMO Technical Committee (TC) levels enables NMISA to provide legally sound measurement traceability. These interactions serve to benchmark South Africa's capability to compete in measurement equivalence, impacts directly on NMISA's ability to disseminate traceability for the country and is crucial for participation in the AfCFTA.

NMISA disseminates the gazetted NMS through various products and services to not only South African, but also Southern African communities. NMISA thus links the South African and regional measurement system to the international measurement system through its internationally benchmarked and comparable measurement standards.

## 9. ORGANISATIONAL STRUCTURE

NMISA is a Schedule 3A public entity, managed by a Chief Executive Officer (CEO), supported by an Executive Management team and governed by the NMISA Board.

Figure 1: Organisational Structure







# PART B

PERFORMANCE **INFORMATION**

# 1. AUDITOR'S REPORT: PREDETERMINED OBJECTIVES

The Auditor General currently performs the necessary audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on NMISA's performance against predetermined objectives is included in the audit report.

Refer to page 84 of the audit report, published as Part E: Financial Information.

## 2. SITUATIONAL ANALYSIS

### 2.1. Service Delivery Environment

South Africa has developed quality infrastructure over a period of 70 years to support trade, the manufacturing industry and to provide an essential component of environmental health and safety, and effective law enforcement. At a national level, large infrastructure programmes and the drive towards beneficiation and industrialisation require greater accuracy in measurement, necessitating continuous improvement in the NMS. Food safety, health and law enforcement increasingly require assistance from NMISA that goes beyond traditional metrology requirements.

Over the years technological advances placed stringent demands on metrology to develop rapidly, which requires new measurement methods and standards. In response, NMIs invested funds into the improvement of existing standards, human resource capacity, and to facilitate the development of new measurement standards to address emerging national needs. The provision of measurement services and the production of reference materials have also become integral parts of modern NMIs.

The redefinition of four of the seven SI base units (the kilogram, ampere, kelvin and mole) changed the way the international equivalence of measurements is established and increased the demand on metrology. With an increase in free trade agreements, the tri-partite free trade agreement between SADC, COMESA and the EAC, and especially the AfCFTA, it is envisaged that technical barriers to trade (TBTs) may increase in an effort to protect national markets. To mitigate this risk, trade partners require an able and efficient metrology structure to negate TBTs.

Measurements performed by NMISA for regulatory and legal purposes require traceability through a National Standard as provided by NMISA. Regulations also apply to the use of measurement instruments in areas of trade, health care, environmental protection, traffic surveillance and safety at work, and the calibration of these instruments have traceability to the NMS. NMISA therefore has a further role to play in providing technical support for many other acts and regulations.

NMISA has faced challenges in terms of supporting and servicing regulation and government departments. The country either imports metrology services, or uses costly third parties who source metrology services from NMISA, rather than coming to the organisation directly. In response, NMISA embarked on a drive to create visibility amongst government departments and regulators, to ensure South Africa is able to trade internationally and to negate the cost of importing metrology services.

The COVID-19 pandemic, which struck early in the financial year, caused a contraction in the world economy and disrupted international trade. As government looks to emerge from this crisis they are seeking new opportunities for economic recovery, set out in documents such as the Economic Reconstruction and Recovery Plan (ERRP). NMISA supports government in these efforts by leveraging our international network and access to worldwide experts, providing quality metrology services to all departments and entities, and supporting any project where we can make a substantial contribution.

## 2.2. Organisational Environment

NMISA is a type 3A public entity whose activities occur at three distinct levels; national (as mandated under the Measurement Act), regional and continental (to support **the dtic** with regional integration), and international (as signatory to the Metre Convention).

NMISA is represented at the CIPM, the highest level of scientific metrology decision making. As the only representative from the African continent, NMISA must ensure through its CIPM membership that the interests of all African countries/NMIs are protected. Currently, the Presidency of the CIPM resides with Dr Wynand Louw of NMISA.

The CIPM coordinates metrology world-wide through ten (10) technical Consultative Committees (CCs). NMISA has full membership in nine (9) of the technical CCs owing to its internationally renowned technical expertise in the field and has guest membership to the 10th Consultative Committee for Units (CCU). Technical experts from NMISA participate in CC working group activities and represent the region at the policy setting meetings, where they work to protect the interests of SADC and Africa.

At the regional level, NMISA plays a leadership role in the development of accurate measurement and traceability in the sub-region and Africa. NMISA provides the traceability link to the SI and international standards to sub-Saharan Africa, and is the main driving force behind the sub-regional (SADCMET) and continental (AFRIMETS) metrology programmes. NMISA ensures the acceptance of the quality system (QS), fit-for-purpose for the CIPM MRA, and assists other African states who are party to the Metre Convention and Associates of the CGPM to get their Qs accepted.

## 2.3. Key Policy Developments and Legislative Changes

There were no changes to legislation in the year under review.

## 2.4. Progress Towards Achievement of Institutional Impacts and Outcomes

In its second year of implementing the 2019/24 strategic plan, NMISA has revised its plans and outcomes to mitigate against the risk of the COVID-19 pandemic. NMISA achieved 97 % of its targets in 2019/20 and 89 % in the year under review, as per the APP.

The organisation is making strides in ensuring that measurements performed for regulatory/legal purposes are traceable to the National Standard as provided by NMISA. This will reduce the volume of metrology services imported, limit the dependency on international NMIs and foster localisation.

# 3. PERFORMANCE INFORMATION BY PROGRAMME

## 3.1. Programme 1: Units and Revised SI

The Units and Revised SI programme seeks the realisation of six of the seven base SI units according to current methods, in accordance with the phasing in of a revised SI. To maintain its position as the provider of traceability to the region, NMISA will update its realisation of the kilogram, ampere and kelvin, and participate in the international process to establish a primary realisation of the mole. In the period under review NMISA maintained traceability to the international system of units; launched research and development projects to establish a Kibble balance; and prepared to implement the new realisations for other units.

### **3.2. Programme 2: Quality of Life**

This is a crosscutting programme aimed at improving South Africa's quality of life through the delivery of sound measurement services. In the year under review, NMISA assessed what needs to be established to support different regulatory requirements, and provided calibration, measurement solutions, and testing for medical, health and safety, and law enforcement.

### **3.3. Programme 3: Reference Materials**

The Reference Materials programme supports law enforcement, testing laboratories and regulatory compliance. In 2020/21 NMISA supported Quality Control industries by providing Proficiency Testing Schemes for the food and feed industries, providing calibration solutions, and delivering primary gas reference mixtures and matrix reference materials for environmental monitoring.

### **3.4. Programme 4: Green Economies**

The Green Economies programme supports environmental monitoring and safety by providing routine monitoring of air quality, specific pollutant classes and other types of pollution such as heat and noise generation. NMISA developed new and improved national measurement standards for the programme.

### **3.5. Programme 5: Energy Efficiency**

The Energy Efficiency programme facilitates broad penetration of energy-efficient solutions for electrical energy producers and consumers nation-wide. The programme develops and promotes measurement capabilities that enable the efficient usage and saving of electrical energy. NMISA improved the national measurement standards that support energy efficiency solutions.

### **3.6. Programme 6: Manufacturing Competitiveness**

The Manufacturing Competitiveness programme supports South Africa's manufacturing industry, advancing it as a competitive role player for the export market by providing the calibration of measurement standards and measurement support for manufactured parts.

### **3.7. Programme 7: Advanced Measurement Solutions**

The Advanced Measurement Solutions programme supports research and development projects that require an innovative measurement technique or system in order to meet scientific or industrial challenges. NMISA is currently developing quantum technologies, in support of the kibble balance project and the primary realisation of electricity units.

### **3.8. Programme 8: Regional and International Integration**

NMISA supports the Regional and International Integration programme through its participation in the Metre Convention and its organs, the CIPM and BIPM, which links the South African and regional measurement system to the international measurement system. This role is crucial for a successful AfCFTA and for enabling the local beneficiation of primary goods. During the 2020/21 financial year, NMISA maintained membership in all CIPM committees and ensured that the AFRIMETS continued operational activities despite disruptions caused by the pandemic.

## 4. HIGHLIGHTS

Despite challenges, NMISA achieved a number of highlights during the reporting period. These successes occurred across various sectors, including:

- Improved Health Care
- Nutrition and Food Safety
- Green Economy
- Law Enforcement
- Measurement Solutions for Industry
- Metrology Support for Regulations
- COVID-19 Response
- Regional Integration
- Scientific Achievements

The following is an overview of the highlights from each of these achievements over the reporting period.

# Improved Health Care

## Achievements

- Diagnosis and effective treatment of cancer critically relies on accurate measurement of the ionising radiation dose. Without the calibration of devices, it is impossible to know with certainty how much radiation has been administered to a patient, leading to either overdosing or underdosing, both of which are detrimental to patient care. NMISA provided reference values to 20 South African hospitals to ensure that the radiation used is optimised for cancer diagnosis and treatment, and that the radiation dose is calculated correctly for safe delivery to the patient.
- Hyperbilirubinemia is a condition where bilirubin builds up in the blood, causing yellow colourisation of the skin and eyes, known as jaundice. The condition affects 60 % of new-born babies and 80 % of premature babies and can cause brain damage if left untreated. Phototherapy, which involves placing the baby under a bilirubin light for a specified amount of time, is an effective treatment in many cases. Calibrated bilirubin meters (or blue light meters) are used to measure and verify the lamp output to ensure effective treatment. The accuracy of these meters can now be demonstrated by calibration against the new national measurement standard for hyperbilirubinemia phototherapy developed by NMISA.
- Treatment of benign or malignant tumours close to the surface of the eye is routinely conducted using radioactive strontium ( $^{90}\text{Sr}$ ) ophthalmic applicators. The source decay pattern of such applicators needs to be verified at regular intervals to ensure safe and effective treatment of patients. Initially NMISA imported traceability for the calibration of ophthalmic applicators, but when the measurement system started to show instabilities and difficulties in the reproducibility of voltage measurements, verification services were suspended and in 2020/21 a new method for calibrating ophthalmic applicators was developed. This method established traceability for the voltage measurements to the NMISA primary standard for beta dosimetry. During the next reporting period, calibration of clinical eye applicators using the new method will be investigated with the intention of again providing this service to hospitals.



**1** | NEW NATIONAL  
MEASUREMENT  
STANDARD

**1** | NEW  
CALIBRATION  
METHOD

**1** | NEW  
MEASUREMENT  
CAPABILITY

# Nutrition and Food Safety

According to **the dtic** Master Plan for Agriculture and Agro-Processing, the agriculture and agro-processing sectors account for 20 % of total manufacturing employment and contributed an average of 5 % per annum to exports between 2011 to 2017. To enable competition in food export markets, NMISA develops certified reference materials specifically for foods produced in South Africa and the region (SADC). Africa relevant reference materials are key in reducing technical barriers to trade for African countries, especially in preparation for AfCFTA, and enables Africa to trade without relying on the developed world for measurement and testing assistance. Participating in NMISA's proficiency testing schemes allows commercial laboratories to verify their analytical capabilities to ensure accurate and consistent measurement results.

During the past year, NMISA coordinated seven (7) proficiency testing schemes:

- Pesticides in litchi;
- Aflatoxins in peanut slurry;
- Pesticides in sweet peppers;
- Pesticides in avocados;
- Mycotoxin in casava;
- Nutritional parameters in corn soya; and
- Aflatoxin M1 in milk.

Three (3) new organic calibrators were prepared for use by commercial food testing laboratories as quality control reference solutions:

- Patulin in acetonitrile calibration solution;
- Fumonisin B1 in 50/50 acetonitrile water; and
- Fumonisin B2 in 50/50 acetonitrile water.

The demand for sugar testing in South Africa has increased, following the implementation of the sugar tax in April 2018. Considering the resultant correlation between the cost of the product and its sugar content, the accuracy of the measurement is of particular importance. NMISA therefore developed a method to detect and quantify glucose, fructose, sucrose, maltose, galactose and lactose in beverages.

This new measurement method is capable of quantifying individual sugar content in the range of 0,02 % to 80 % (or g/100g), with relative expanded uncertainties in the range of 1 % and 10 %. It will be used to value assign reference materials for proficiency testing schemes, which evaluates the accuracy and comparability of measurement results by participating commercial laboratories. It is also offered as a routine measurement service.

The pesticides-in-fruit method was successfully accredited as two new methods (pesticides by liquid chromatography tandem mass spectrometry and pesticides by gas chromatography tandem mass spectrometry). Full validation of these measurements was completed through participation in multiple international PTs.

Aflatoxins are found in a variety of foods and animal feed. Inappropriate storage of foodstuff can lead to contamination with fungi, which produce aflatoxins. Prolonged exposure causes acute and chronic poisoning in humans, which can manifest itself as a variety of cancers, especially liver cancer. Aflatoxin M1 or milk toxin originates from the presence of aflatoxin B1 in contaminated feed and can be transferred to dairy products such as cheese, butter and yoghurt. NMISA developed and certified a new reference material for aflatoxin M1 in milk powder (CRM0035).

NMISA also released a new CRM for toxic and nutritional elements in wheat flour (CRM0006). This CRM will assist analytical laboratories to assess the accuracy of their measurement methods for determining heavy metals in food products, including grains, such as wheat, maize, oats, sorghum and barley, as well as cereal products. NMISA's wheat flour CRM is certified for fourteen (14) naturally occurring toxic and nutritional elements.

7 | NEW  
PROFICIENCY  
TESTING SCHEMES

2 | NEW CERTIFIED  
REFERENCE  
MATERIALS

3 | NEW METHODS  
(NATIONAL MEASUREMENT  
STANDARDS)

3 | NEW QUALITY  
CONTROL  
STANDARDS

# Green Economy

**R**ecent off-shore discoveries of significant quantities of natural gas in South Africa can potentially expedite the country's energy transformation to a low-carbon economy. The Department of Mineral Resources and Energy responded by scaling up South Africa's liquefied natural gas (LNG) potential as part of pursuing a diversified energy supply.

The financial value of a volume of natural gas is determined by its calorific value, which is calculated from the concentration of components in the gas. Producers must provide a certificate of analysis for natural gas products before they may be distributed for consumption.

Over the past year, NMISA received a record number of requests for reference measurements of several natural gas samples. Resultantly, NMISA developed a new National Measurement Standard for natural gas. This Standard was used to value assign natural gas samples for clients. These reference gas standards are used to calibrate natural gas analysers, from which the calorific value of a natural gas source is determined. NMISA has demonstrated international equivalence of these measurement capabilities by participating in the International Key Comparison of Natural Gas (CCQM K118).

In addition, NMISA provides primary reference gas mixtures for environmental monitoring in South Africa. These reference mixtures are continuously developed and improved to ensure that measurement results for air quality and climate change monitoring are reliable and internationally recognised. During the period under review, low mole fraction primary reference gas mixtures containing the most common pollutants, including nitrogen monoxide, sulphur dioxide and hydrogen sulphide in nitrogen, were supplied to industry.

# Achievements

## Industrial and Energy Gases:

A new National Measurement Standard for natural gas was developed. The developed Standard was used to provide reference measurements for various natural gas samples, mainly using methane as the matrix gas.

## Environmental and Ambient Air Gases:

The research and development work for improving hydrogen sulphide national measurements at NMISA resulted in a publication entitled: "Quantitation of hydrogen sulphide reference gas mixtures to provide traceability for indoor air quality monitoring", in the Journal of Accreditation and Quality Assurance.

## Environmental Radioactivity Monitoring:

- Conducted H-3 (tritium) analysis of surface fresh water
- Evaluated environmental (soil) samples for gamma emitting radionuclides
- Completed gamma-spectroscopy radio-analysis of water- and lemon juice concentrate for a food producer

## Energy Efficient Lighting:

A new measurement capability for the colour rendering index for light emitting diode (LED) sources was established and the measurement accuracy for two LED parameters (colour coordinates and correlated colour temperature) was improved. These measurement capabilities were successfully accredited and are offered as a measurement service to industry.

1

NEW NATIONAL MEASUREMENT STANDARD

1

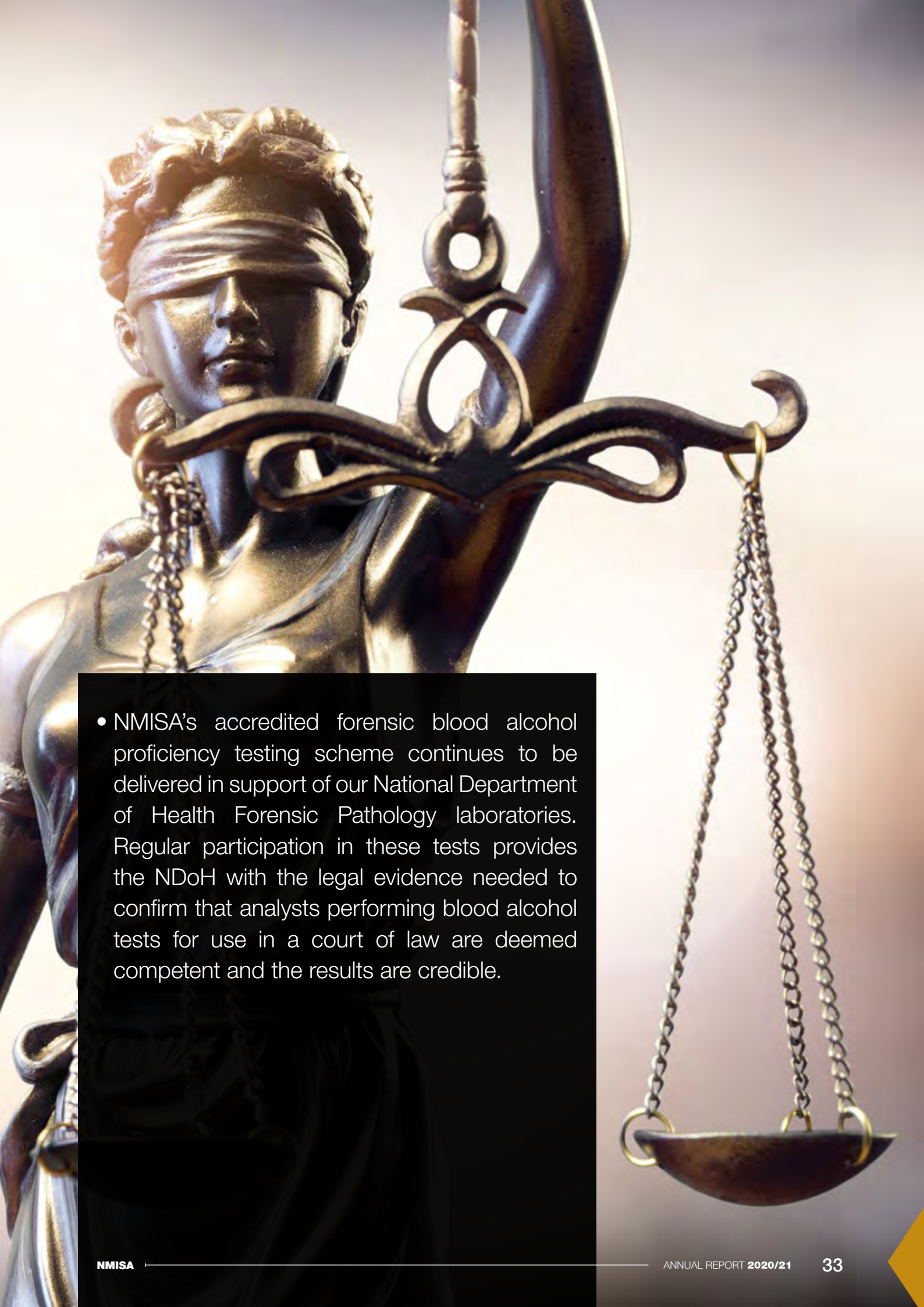
NEW MEASUREMENT CAPABILITY

2

IMPROVED MEASUREMENT CAPABILITIES

# Law Enforcement


- NMISA established a calibration facility for speed measuring equipment (lidar) using a simulation technique, as required for traffic law enforcement. The new capability was successfully accredited in 2020, positioning NMISA as the only laboratory in South Africa that uses simulation to perform calibration, which is the most correct method. NMISA is now able to assist law enforcement agencies with the calibration of lidar speed measurement devices, to enhance road safety and reduce the number of accidents caused by those driving over the speed limit. A calibration facility for radar speed measuring systems is currently under development and NMISA will apply for SANAS accreditation in the next year.
- Through collaboration with the National Departments of Transport and Justice, NMISA supports law enforcement agencies with calibration services for evidential breath analysers. Calibration ensures the accuracy of evidentiary breath alcohol testing (EBAT) and aids in assessing compliance with the legal alcohol content limit for drivers on South African roads. The essential role that NMISA plays in law enforcement was evident during cases heard at the Cape Town Regional Court, where NMISA scientists contributed to proceedings as expert witnesses. NMISA's Certificates of Calibration for breathalysers were also presented as evidence in proceedings at the Johannesburg Central Magistrate Court. Traceability provided by NMISA for the calibration of instruments used for EBAT and their usage by provincial and metropolitan departments of transport collectively aims to reduce alcohol related accidents, enabling improved road safety in South Africa.
- The use of photography in forensic crime investigations is an integral part of recording and analysing evidence and crime scenes. Ultraviolet and infrared photography can be applied in various situations to produce results that were not possible using traditional photographing techniques. Through ultraviolet photography injuries invisible to the naked eye can be seen, such as an outline of the weapon that caused the injury, or a history of injuries. Infrared photography is also used to detect gun or blood residue, to observe differences in fabrics, and to reduce the background on dark or patterned fabric, displaying the presence of obscured stains. NMISA assisted a client with interpreting the radiometric calibration requirements for equipment used in forensic photography and advised on a measurement setup that would allow for equipment calibration. Traceability of such measurements to the National Measurement Standards for radiometry provides for legal acceptance of the results in a court of law.



- NMISA's accredited forensic blood alcohol proficiency testing scheme continues to be delivered in support of our National Department of Health Forensic Pathology laboratories. Regular participation in these tests provides the NDoH with the legal evidence needed to confirm that analysts performing blood alcohol tests for use in a court of law are deemed competent and the results are credible.

# Measurement Solutions for Industry

- In manufacturing processes, it is important that the components or prototypes produced precisely match the original, 3-dimensional, software design model. Even a small deviation could potentially jeopardise the production process and result in substantial financial losses. A coordinate measuring machine (CMM) is a device that measures the physical geometrical characteristics of a 3-dimensional object. More than 300 CMMs are used in South Africa, mostly in the manufacturing industry, while the world-market consists of about 150 000 units. Local capital investment in these machines totals approximately R1,5 billion and the combined calibration cost per annum is estimated at R5 million. It is therefore currently very expensive to maintain these instruments at the level of accuracy required for precise manufacturing. In a quest to reduce the calibration costs associated with local manufacturing, NMISA invented a probe assembly and probing configuration to be used in a CMM, and filed for a world-wide patent. This invention will both increase the accuracy of industrial 3D coordinate metrology and lower the calibration cost, as it reduces the number of parameters that require calibration at regular intervals.
- Accurate measurement of torque is essential for proper performance of all rotating bodies such as rotating shafts in pumps, cutting equipment, electric motors, gearboxes, engines, and vehicle axles. NMISA upgraded its force and torque measurement facilities and extended the calibration range to include 20 kNm. These new capabilities were successfully accredited and will allow the manufacturing industry to source traceability locally, saving local manufacturers the expense of importing both equipment and expertise.

- 
- NMISA worked with a client to monitor rivers near an industrial area for organic pollutants, specifically polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofurans (PCDF), which are persistent, bio-accumulative, and harmful to human health. NMISA conducted an analysis of PCDD and PCDF in environmental (fish and sediment) samples. This analysis assists in ensuring that there is continued vigilance to limit or prevent harmful environmental pollution. NMISA is currently the only analytical laboratory in South Africa that offers this service.
  - NMISA provided a service of coating antioxidant nanoparticles using Resonant Acoustic Mixing (RAM) for a green tea extract producer. The results will be used by the company to produce an affordable natural prophylactic as a zoonotic solution in the prevention and cell death of COVID-19 and other zoonotic disease microorganisms in humans and animals. The objective is to utilise local natural resources and preventative medicine to establish a healthy lifestyle and make positive changes to health management.

# Metrology Support for Regulations

- The Independent Communications Authority of South Africa (ICASA) and the National Metrology Institute of South Africa (NMISA) entered into a strategic collaboration agreement in July 2020. The CEO for ICASA, Mr Willington Ngwepe, and the CEO for NMISA, Mr Ndwakhulu Mukhufhi, signed a Memorandum of Understanding (MOU) during a video-conference signing ceremony between the two entities. The MOU provides for the exchange of information and expertise between the entities as relevant to their respective mandates. It further establishes a framework for regulations related to electronic communications, to be informed and supported by measurement science (metrology). Through the MoU, NMISA and ICASA will co-operate with each other over a range of functions including but not limited to providing support and resources to ensure the success and effectiveness of the mutually agreed project and programmes aimed at enhancing and sustaining the quality of consumer experience.

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Remote Operation:

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DCV 5 ACV 6 DCI 7  
OFFSET EX TRIG SAMPLE

- Optical sensors have been calibrated by NMISA for a client in the aviation industry. In turn, the client calibrates their production test benches using the calibrated sensors to test and repair their products. The client also services international users. Measurement traceability to the National Measurement Standards for radiometry ensures confidence in the results and the aviation client's ability to operate safely, meeting civil aviation regulatory requirements.

# COVID-19 Response

## Reliable Temperature Screening for Possible COVID-19 Infection

- The National COVID-19 Command Council expressed concerns with the reliability of infrared thermometers used to screen the public for high temperature as a possible indication of infection. NMISA provided expertise to the SANAS Technical Committee on Temperature, which develops guidelines for achieving reliable results with IR thermometers in support of South Africa's response to the pandemic. The guideline relates primarily to the calibration of body infrared thermometers, including ear thermometers.
- NMISA has developed an online course for engineers and product developers on Basic Measurement Techniques for Safe UV-C Irradiance Levels. This course aims to provide SMMEs with sufficient knowledge to develop local products that meet recognised international safety and performance standards.
- NMISA provides measurement traceability for equipment used in medical centres to treat and monitor patients. NMISA performed calibration of pipettes and bio-safety cabinets.
- New measurement capabilities for the calibration of ear thermometers and thermal imagers were developed and accredited. This enables accurate core body temperature measurements in health care.
- NMISA provided a reference value for a national comparison of "body infrared thermometers", organised and coordinated by the National Laboratory Association. The comparison evaluated the accuracy of such instruments used by businesses for COVID-19 temperature screening. The results indicated that body infrared thermometers should be calibrated on skin/surface mode rather than on body mode, which may lead to error. The result of the inter comparison was used as input for the SANAS guideline TG 06-01.



- NMISA improved the uncertainties of measurement for ultraviolet A, B and C radiometer calibrations, which was successfully accredited. The service is now offered to industry with improved accuracy.
- Technical experts from NMISA assisted with the development of the following national guideline: SANAS TG 06-01 Guidelines for the Calibration of IR Thermometers for Medical Purposes.

# COVID-19 Response

## Safety and Efficacy of Ultraviolet Disinfection Irradiance Devices

- Consultations and measurement services were performed on ultraviolet disinfection devices produced locally, on contract for customers. The results will be included in a larger study initiated by NMISA, which investigates the safety and efficacy of these types of devices, including devices commercially available in the local market. Measurements on a hand-held UV LED steriliser, two portable sterilisers using mercury lamps, and a UV LED disinfection bag were completed during this period.
- The CSIR Ultraviolet Germicidal Irradiation (UVGI) filtering facepiece respirator (FFR) mask decontamination device was characterised by NMISA. It is used by the NICD in a study on the efficacy of different decontamination methods.
- NMISA provided technical expertise to a SABS working group to revise the SATS 1706 Technical Specification on Safety and Performance Requirements for Ultraviolet Germicidal Irradiance Devices.
- Through the Illumination Engineering Society of South Africa (IESSA), which is the National Committee (NC) for the International Commission on Illumination (CIE) in South Africa, NMISA led the national review of the final draft CIE publication, CIE Guide for the Measurement of Upper Air Ultraviolet Germicidal Irradiation Luminaires Using Low Pressure Germicidal UV-C Lamps (CIE TC 6-52). The recommended procedure will be published by the CIE once the international review and other approval processes are complete.
- International interest in the use of ultraviolet radiation (UVR) to manage the risk of COVID-19 transmission is growing rapidly. Because of this, CIE has published a Position Statement (PS) following on from the two recent CIE publications related to UV-C applications. NMISA distributed this position paper and the accompanying CIE publications in South Africa, for free download until November 2020. The publications can now be purchased from the CIE Webshop, with Members of NCs and ANCs receiving a 66.7 % discount. As of November 2020, more than 14 000 users downloaded the free publications.
- NMISA produced approximately 100 litres of sanitiser for internal use for a period of 18 months. The alcohol analysis method was accredited in March 2021. The World Health Organisation Formulation II specification recommendation for hand rub formulations was used.



## Reference Gas Mixtures for Medical Applications

- Four (4) proficiency testing schemes for high purity gasses (nitrogen, helium, argon and oxygen) were completed. The results enabled a local manufacturer of gases and other users to assess their purity assessment capabilities. These high purity gasses are required by the medical sector for treating patients.

# Regional Integration

## Readiness for the African Continental Free Trade Agreement

- NMISA is leading an AFRIMETS project sponsored by the German NMI, the Physikalisch-Technische Bundesanstalt (PTB), to provide online training and support to six (6) African NMIs to manufacture replacement components for measurement instruments used in laboratories. Most NMIs use sophisticated measurement instruments, which are typically imported. Replacement parts for such instruments are normally non-standard, unique, expensive, and only available from the OEM, if not obsolete by the time it is needed. This creates significant obstacles to the NMI for the maintenance and repair of such instruments. The ability to manufacture certain components will assist in resolving this problem in a cost-effective manner and will further reduce the reliance of African NMIs on international companies and supply chains for routine equipment maintenance. The first components will be basic, for example clamps, knobs, or opto-mechanic mounts, but it is anticipated that local capabilities will grow over time, eventually including the manufacture of instruments.
- As the country hosting the Secretariat, NMISA organised the Southern African Development Community Cooperation in Measurement Traceability (SADC MET) General Assembly Meeting held virtually on 21 May 2020. This body coordinates metrology activities and services in the SADC region, to provide regional calibration and testing service bodies, as well as regulators, with readily available traceability to the SI units of measurement, through legally defined and regionally and internationally recognised national measurement standards.
- Representatives from NMISA, through its hosting of the AFRIMETS Secretariat, participated in the (virtual) PAQI meetings on 27 and 28 September 2020 and 28 February 2021. The development of the Quality Infrastructure for the AfCFTA is currently the main topic on the agenda. NMISA contributes substantially to the appropriate development of Metrology as required for the AfCFTA and proposed the compilation of stocktaking reports on the measurement capabilities of African NMIs to identify gaps that could then be addressed through PAQI actions. In response to the PAQI Cassava value chain project Phase 2, NMISA is developing reference materials to enable conformity assessment for this commodity. A proficiency testing programme was also proposed in SADC to assist with food safety testing in preparation for the AfCFTA. This will be launched in the 2nd quarter of 2021.



**Regional Inter-laboratory Comparisons and Proficiency Testing Schemes:**

In total, NMISA conducted 23 proficiency testing schemes and inter laboratory comparisons in the Region during the year under review:

3

AFRIMETS ILCs

9

PTS on gas analysis for environmental monitoring

6

PTS linked to contaminants in food

1

PTS for nutritional parameters in corn soya for the food labeling industry

3

PTS for mycotoxins in food

1

ILC for torque supporting the re-establishment of torque measurement capabilities at NMISA

# Scientific Achievements

Articles published in scientific journals during the reporting period include:

- 1 FS Roux, "Quantifying entanglement of parametric down-converted states in all degrees of freedom," Phys. Rev. Research 2, 023137 (2020)
- 2 G Sorelli, VN Shatokhin, FS Roux, and A Buchleitner, "Entanglement of truncated quantum states," Quantum Sci. Technol. 5, 035012 (2020)
- 3 FS Roux, "Parametric down-conversion beyond the semiclassical approximation," Phys. Rev. Research 2, 033398 (2020)
- 4 FS Roux, "Spatiotemporal effects on squeezing measurements," Phys. Rev. A 103, 013701 (2021)
- 5 N Leshabane, M Jozela et al, "Insightful acetone gas sensing behaviour of Ce substituted MgFe<sub>2</sub>O<sub>4</sub> spinel nano-ferrites," Journal of Alloys and Compounds 9, 16252 (2020)
- 6 TP Mokoena, KT Hilliea, HC Swart, N Leshabane, J Tshilongo, DE Motuangbe, "Fabrication of a propanol gas sensor using p-type nickel oxide nanostructures: The effect of ramping rate towards luminescence and gas sensing characteristics," Materials Chemistry and Physics, 253, 123316 (2020)



## Courses Presented by NMISA:

- Uncertainty of Measurement Course - Gum Physical (2-6 November 2020)
- Uncertainty of Measurement Course - Gum Physical (17-28 August 2020)
- Uncertainty of Measurement Course - Gum Analytical (13-24 July 2020)
- Uncertainty of Measurement Course - Gum Analytical (9-13 November 2020)
- Basic Gas Chromatography Module 1 (12 November 2020)
- Basic Gas Chromatography Module 2 (12 November 2020)
- Basic Gas Chromatography Module 3 (12 November 2020)
- Advanced Gas Chromatography (3 March 2021)
- Quantification of Gas Chromatography using Gas Chromatography-MS (19 February 2021)
- Mass Course (16-19 November 2020)

# Challenges During the Period Under Review

- The national lockdown regulations in response to the COVID-19 pandemic, as published in the Government Gazette during the period under review, were adhered to by NMISA. All employees were equipped to work remotely, while the offices and laboratories remained open for necessary onsite systems and laboratory work. Health and safety protocols were implemented, monitored and revised where necessary, to enable a safe work environment for all employees. It was unfortunately necessary to close NMISA for onsite work and client deliveries and collections for a duration of one (1) day four (4) times during the year for disinfection following notification of a positive case onsite. Full closure of the Institute was avoided during the remainder of onsite positive cases, by closing affected areas only and relocating the Logistics Offices for client deliveries and collections. It was not always possible to make alternative arrangements.
- The NMISA laboratories are accommodated in aged infrastructure, which places a limit on the accuracy achievable when conducting sensitive measurements. A feasibility study to develop a new building on designated vacant land was completed many years ago. However, public land for this purpose needs to be allocated and the funding for the building project needs to be sourced before development can commence.



## NMISA AT A GLANCE

6

BASE (SI) UNITS  
REALISED

10

MEMBERSHIPS IN INTERNATIONAL  
COMMITTEES UNDER THE METRE  
CONVENTION MAINTAINED (NMISA  
LEADS THE CIPM THROUGH THE  
PRESIDENCY OF DR WYNAND LOUW,  
AND HOLDS MEMBERSHIP IN THE 9  
CIPM CONSULTATIVE COMMITTEES)

24

LABORATORY  
ACCREDITATIONS  
MAINTAINED

10

ONLINE COURSES  
PRESENTED

23

PROFICIENCY TESTING SCHEMES AND  
INTER LABORATORY COMPARISONS

15

INTERNS TRAINED

≥

98%

99%

SPENT AGAINST BUDGET,  
MAINTAINED FOR THE PAST  
FIVE (5) FINANCIAL YEARS

CLIENT SERVICE  
SATISFACTION  
(MEASURED THROUGH  
SAMPLING)

18 calibration/analytical laboratories and one (1) technique SANAS accredited against ISO/IEC 17025:2017  
(General requirements for the competence of testing and calibration laboratories)

Two (2) certified reference material production laboratories SANAS accredited against ISO 17034:2016  
(General requirements for the competence of reference material producers)

NMISA proficiency testing scheme service accredited against ISO/IEC 17043:2010  
(Conformity assessment - General requirements for proficiency testing)

Environmental management system certified against ISO 14001:2015  
(Environmental management systems - Requirements with guidance for use)

Occupational health and safety certified against OHSAS 18001:2007  
(Occupational Health and Safety Management Certification)

## 5. Key Performance Indicators, Planned Targets, and Actual Achievements

Table 1: KPIs, Targets and Achievements

NMISA SCORECARD					
Performance Indicator	Actual Achievement 2019/20	Planned Target 2020/2021	Actual Achievement 2020/2021	Deviation from planned target to Actual Achievement for 2020/2021	Comment on Deviations
<b>Strategic Outcome Oriented Goal 1: Shorten the traceability chain for Africa by maintaining the Units and NMS at an internationally recognised level</b>					
Realisation of the SI base units	6 SI base units realised	6 SI base units realised	6 SI base units realised	None	None
Number of new and improved National Measurement Standards and reference material and methods	21	17	25	8	NMISA participated in ILCs/PTS which led to improved measurement standards as a dynamic response to the needs of industry.
Number of memberships maintained	10	10 memberships maintained	10	None	None
Number of inter laboratory comparisons and proficiency testing schemes organised and completed	9	Organise and complete 15 ILCs and proficiency testing schemes	23 ILCs and PTS completed	8	The additional comparisons increased due to requests from industry.
Percentage of metrological services covered by CMCs	81 %	80 % of metrological services covered by CMCs	80 %	None	None

NMISA SCORECARD					
Performance Indicator	Actual Achievement 2019/20	Planned Target 2020/2021	Actual Achievement 2020/2021	Deviation from planned target to Actual Achievement for 2020/2021	Comment on Deviations
<b>Strategic Outcome Oriented Goal 2: Ensure an effective dissemination of the Units and NMS to National and Regional Laboratories</b>					
Number of accredited laboratories and new laboratory accreditations	21 maintained and 2 new accreditations	23 maintained and 1 new accreditation	23 maintained and 1 new accreditation	None	None
Number of metrologists trained	120	60 metrologist trained	0	60	The SADC water PT was cancelled due to COVID-19.  Hands-on practical training during the pandemic is difficult, due to travel bans and COVID-19 protocols, however NMISA is considering virtual reality as a form of training.
Number of courses provided including SMEs	18	14	10	4	SADC courses were cancelled due to COVID-19. NMISA is renegotiating course dates for 2021. An online platform was created to facilitate courses going forward.
Number of interns and in-service trainees hosted	25	15 hosted	15	None	None
Amount of income generated	R20 799 163	R19 466 680	R14 203 999	R5 262 680	NMISA courses and training were cancelled due to COVID-19. An online platform was created for providing courses and training. New dates are being negotiated with the regional NMIs.
Percentage actual expenditure to budget	98 %	98 %	100 %	2 %	NMISA spent 100 % of the allocated budget for 2020/21.

NMISA SCORECARD					
Performance Indicator	Actual Achievement 2019/20	Planned Target 2020/2021	Actual Achievement 2020/2021	Deviation from planned target to Actual Achievement for 2020/2021	Comment on Deviations
<b>Strategic Outcome Oriented Goal 3: To provide Metrology for regulatory purposes</b>					
Revised the Measurement Act to support and contribute to national regulation	Review and revise Measurement Act	Participate in <b>the dtic</b> Technical Infrastructure (TI) review	Submission with potential changes was made to the Board. NMISA awaits the finalisation of <b>the dtic</b> process.	None	None
<b>Strategic Outcome Oriented Goal 4: Metrology services for government and state-owned enterprises</b>					
Number of government departments and SOEs serviced by NMISA	3	2	2	None	None
Percentage increase in visibility of NMISA	49 %	20 %	37 %	17 %	NMISA increased marketing efforts and publications. The appointment of a Key Accounts and a Technical Salesperson attributed to the increase in visibility.
Percentage customer satisfaction	99 %	≥95 %	99 %	4 %	NMISA follows up on all customer complaints raised.

## 6. NMISA's Strategy to Overcome Areas of Underperformance

NMISA met 12 out of its 15 targets for the year under review. The three (3) targets not met were directly linked to the inability to perform in-contact activities due to COVID-19.

Metrologist scheduled training was cancelled due to COVID-19 as this requires hands-on, physical training. NMISA is creating an online virtual reality platform to address the training needs of metrologists. In addition, online Metrology courses were developed by NMISA to facilitate other training programs.

Revenue generation by the institute was affected in the first quarter of the financial year, as the country was under lockdown level 5 and NMISA was unable to deliver services as planned. Although revenue generation improved as lockdown regulations were lifted, NMISA was not able to recover losses incurred during the first quarter. The Strategy, Business Development and Governance Unit appointed a technical salesperson and key accounts manager to assist with revenue generation.

## 7. Reporting on the Institutional Response to the COVID-19 Pandemic

NMISA developed a risk adjusted strategy and protocols to ensure the organisation functions amidst the pandemic. Internally, protocols were developed for NMISA employees, clients and stakeholders to adhere to while on site. NMISA reported four (4) COVID-19 cases during the reporting period, however none of these infections were acquired in the workplace. As part of its fight against the pandemic, NMISA manufactured its own hand sanitiser for distribution to employees.

**Table 2: Institutional Response to the COVID-19 Pandemic**

Programme	Intervention	Geo-graphical Location	No. of Beneficiaries	Total Budget Allocation	Budget Spent per Intervention	Contribution to the Outputs in the APP	Immediate Outcomes
Keep, Maintain and Disseminate National Measurement Standards	Manufacturing hand sanitisers, setting up systems	Pretoria	155	-	R78 685	N/A	Safe working environment
	Ultraviolet measurements to ensure safety and performance of devices used to decontaminate surfaces and air volumes infected with COVID-19	Pretoria	-	-	-	N/A	Improved safety of UV devices

**Table 3: Linking Performance with Budgets**

Objective	2019/2020			2020/2021		
	Budget	Actual Expenditure	(Over)/Under Expenditure	Budget	Actual Expenditure	(Over)/Under Expenditure
	R'000	R'000	R'000	R'000	R'000	R'000
Administration	95 358	71 188	24 170	97 649	95 333	2 316
Keep, Maintain and Disseminate National Measurement Standards	200 696	243 534	(42 838)	158 109	195 768	(37 659)
<b>Total</b>	<b>296 054</b>	<b>314 722</b>	<b>(18 668)</b>	<b>255 758</b>	<b>291 101</b>	<b>(35 343)</b>





# PART C

## GOVERNANCE

## 1. INTRODUCTION

Corporate governance is underpinned by effective leadership, oversight and management responsibility underscored by high ethical standards. This results in governance outcomes inclusive of effective controls and an ethical culture. 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 integrated reporting that focuses on the impact of the organisation on the economy, environment and social aspects. The NMISA' Integrated Annual Report includes statements on the effectiveness of internal controls and the governance of risk; remuneration; compliance with applicable laws and regulations; ethical codes; and NMISA's response to social needs.

Compliance with King IV and the laws and regulations must be substantive and not merely of form. NMISA strives to continuously improve its compliance and assess its journey in this regard.

## 2. EXECUTIVE AUTHORITY

Mr Ebrahim Patel, Minister responsible for Trade, Industry and Competition, is the Executive Authority accountable to Parliament for NMISA's activities as defined in Section 1(c) and (d) of the PFMA. The Minister also serves as the Shareholder for NMISA. To this effect, NMISA entered into a Shareholder's Compact with Government, represented by the Shareholder Minister, which mandates the Company to deliver on numerous strategic deliverables, a process which the Board oversees.

In the year under review NMISA has submitted the following reports to the Shareholder, who has raised no issues:

**Table 4: Reports Delivered to the Shareholder in the Reporting Period**

Report	Date
NMISA Quarter 1 Report	31 July 2020
NMISA Quarter 2 Report	30 October 2020
NMISA Annual Report 2019/20	30 October 2020
NMISA Quarter 3 Report	29 January 2021
NMISA Quarter 4 Report	30 April 2021

### 3. THE ACCOUNTING AUTHORITY / BOARD

The Board serves as NMISA's Accounting Authority in terms of the PFMA. The Board is principally responsible for directing and overseeing the business of NMISA, balancing the interests of our stakeholders, and ensuring NMISA's long-term economic, social, and environmental sustainability. The Board is committed to executing its duties in accordance with the principles espoused in King IV and as envisaged in the Board Charter.

The Board leads NMISA in:

- Achieving its strategic objectives by approving and directing the NMISA's overall strategy and associated operational objectives;
- Monitoring NMISA's performance against the targets outlined in the Shareholder's Compact;
- Ensuring that adequate processes are in place for budget planning and allocation to advance NMISA's mandate, which includes overseeing the Company's socio-economic programmes;
- Ensuring that the Company can achieve its statutory and commercial objectives;
- Determining policy processes to ensure the integrity of NMISA's risk management and internal controls; and
- Putting in place a Communications Policy, and Director selection, orientation and evaluation.

The Board is assisted by the Board Committees in discharging its duties and responsibilities. Each Board Committee has Board-approved terms of reference articulating the delegated levels of authority and responsibility. The following Board committees are in place:

- Audit and Risk Committee
- Social and Ethics Committee
- Human Resources and Remuneration Committee
- Technical Committee
- Ad hoc Committee (Tender Committee)

Table 5: 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	No. of Meetings Attended
Jabu Mogadime	Chairperson of the Board	05/04/2013	-	<ul style="list-style-type: none"> <li>Diploma Marketing (CIM)</li> <li>BA</li> <li>MBA</li> </ul>	Auditing	Financial Sector Conducts Authority (FSCA)	-	19
Nobom Mfabana	Non-executive member	01/07/2018	-	<ul style="list-style-type: none"> <li>HD in Municipal Governance</li> <li>BA degree</li> <li>BA Honours Political Science</li> <li>Masters in Labour Studies</li> </ul>	Labour Expert	Fezibex (Pty) Ltd	<ul style="list-style-type: none"> <li>SEC</li> <li>HR REMCO</li> <li>Remuneration Task Team</li> </ul>	34
*Odirile Dingoko	Non-executive member	01/07/2018	-	<ul style="list-style-type: none"> <li>SLP - Company Law</li> <li>BSc Physics and Mathematics</li> <li>BSc Honours Geophysics</li> <li>MBA</li> </ul>		<ul style="list-style-type: none"> <li>Spectral Scientific (Pty) Ltd</li> <li>Petromag Geosciences (Pty) Ltd</li> <li>Naledi Healthcare Solutions (Pty) Ltd</li> </ul>	<ul style="list-style-type: none"> <li>SEC</li> <li>Technical Committee</li> <li>ARC</li> <li>Remuneration Task Team</li> </ul>	17
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 High Diploma: Microbiology</li> </ul>			<ul style="list-style-type: none"> <li>Technical Committee</li> <li>ARC</li> <li>Remuneration Task Team</li> </ul>	32

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	No. of Meetings Attended
Lindie Lankalebalelo	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>			<ul style="list-style-type: none"> <li>• SEC</li> <li>• ARC</li> <li>• Remuneration Task Team</li> </ul>	32
Tshenge Demana	Non-executive member	05/05/2013	-	<ul style="list-style-type: none"> <li>• BSc</li> <li>• PhD in Analytical Chemistry</li> </ul>			<ul style="list-style-type: none"> <li>• Technical Committee</li> <li>• HR REMCO</li> <li>• Remuneration Task Team</li> </ul>	19
Ndwakhulu Mukhufhi	Executive member	01/07/2018	-	<ul style="list-style-type: none"> <li>• BSc Biochemistry</li> <li>• Msc Biochemistry and Molecular Biology</li> <li>• Postgraduate Diploma Project management</li> </ul>			-	-

\*Deceased

## Committees of the Board

**Table 6: Audit and Risk Committee**

Committee	No. of Meetings Held	No. of Members	Name of members
Audit and Risk Committee			Mr Petrus Mohlomi, Mr Zenzele Myeza, Ms Lindie Lankalebalelo, Mr Ndwakhulu Mukhufhi, Ms Romeshni Govender

**Table 7: Social and Ethics Committee**

Committee	No. of Meetings Held	No. of Members	Name of members
Social and Ethics Committee	4	3	Ms Lindie Lankalebalelo, *Mr Odirile Dingoko, Ms Nobom Mfabana

**Table 8: Human Resource and Remuneration Committee**

Committee	No. of Meetings Held	No. of Members	Name of members
Human Resource and Remuneration Committee	4	3	Dr Tshenge Demana, Ms Nobom Mfabana, *Mr Odirile Dingoko

**Table 9: Technical Committee**

Committee	No. of Meetings Held	No. of Members	Name of members
Technical Committee	4	3	Dr Tshenge Demana, *Mr Odirile Dingoko, Mr Petrus Mohlomi

**Table 10: Ad Hoc Committees**

Committee	No. of Meetings Held	No. of Members	Name of members
Tender Committee	1	3	*Mr Odirile Dingoko, Ms Lindie Lankalebalelo, Dr Tshenge Demana, Mr Petrus Mohlomi
Remuneration Task Team	2	5	Ms Nobom Mfabana, Dr Tshenge Demana, Ms Lindie Lankalebalelo, Mr Petrus Mohlomi, *Mr Odirile Dingoko
Company Secretary Recruitment	9	3	Ms Nobom Mfabana, Ms Lindie Lankalebalelo, Mr Petrus Mohlomi
IT Strategic Committee Meeting	3	2	Mr Siphos Masinga, Mr Senzo Dhlamini

\*Deceased

**Table 11: Remuneration of Board Members\***

Name	Remuneration	Other Allowance	Other Reimbursements	Total
Ms Jabu Mogadime	R93 656	-	R460	R94 117
Mr Petrus Mohlomi	R123 816	-	R1 192	R125 008
Ms Nobom Mfabana	R116 580	-	R821	R117 401
Dr Tshenge Demana	-	-	-	-
Ms Lindie Lankalebalelo	R112 560	-	R1 368	R113 928
Mr Odirile Dingoko	R64 320	-	-	R64 320
Ms Romeshni Govender	R24 120	-	-	R24 120
Mr Zenzele Myeza	R28 140	-	-	R16 080
Mr Senzo Dlamini	R12 060	-	-	R12 060
Mr Siphos Masinga	R12 060	-	-	R12 060

\*Refer to the annual financial statements on page no 118

## 4. RISK MANAGEMENT

Risk management is embedded in NIMSA's processes and driven at all levels of the organisation. It ensures the efficient and effective execution of NIMSA's strategy and achievement of the organisational mandate, with minimum disruptions and a greater capacity to seize opportunities.

The Board is ultimately responsible for the governance of risks at NIMSA. The Board sets the direction for how risks should be managed through policies and the Board-approved Risk Management Framework. The Board also ensures that a formal risk assessment occurs annually to identify and evaluate key risk areas, and undertakes ongoing reviews to determine the effectiveness of the risk management process. The Audit and Risk Committee (ARC) assists the Board in reviewing the risk management process and the significant risks facing NMISA.

The Board's Risk Management Policy is clearly communicated to all employees, to ensure that the risk strategy is incorporated into the culture of NMISA. Responsibility for implementing and executing effective risk and resilience management is delegated to NMISA management.

NMISA has a combined Assurance Committee that advises management on the overall risk and risk mitigation strategies. While NMISA's risk management approach is considered sound, the Assurance Committee has identified areas for improvement, with the organisation engaging in continuous improvement processes.

## 5. INTERNAL CONTROL UNIT

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

Internal Audit implemented its revised Annual Risk-Based Audit Plan for 2020/21 as part of a three-year rolling plan, after consultation with management and approval by the ARC. The audit comprised reviews in the sphere of governance, risk management and internal controls, to provide reasonable assurance to management and the ARC on the state of internal controls within NMISA. All audits and other work of the Internal Audit function were conducted in accordance with the International Standards for the Professional Practice of Internal Audit, as issued by the Institute of Internal Auditors (IIA).

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 is outlined in its terms of reference, while its activities are set out in an annual work plan. The table below discloses relevant information on the audit committee members.

**Table 12: Internal Audit and Audit Committees**

Name	Qualifications	Internal or External	If Internal, position in the public entity	Date Appointed	Date Resigned	No. of Meetings Attended
Mr Petrus Mohlomi	<ul style="list-style-type: none"> <li>• MBL</li> <li>• BSC: Microbiology and Biochemistry</li> <li>• National High Diploma: Microbiology</li> </ul>	External	-	26 Sept 2018	-	5
Ms Nobom Mfabana	<ul style="list-style-type: none"> <li>• HD in Municipal Governance</li> <li>• BA Degree</li> <li>• BA Honours in Political Science</li> <li>• Masters in Labour Studies</li> </ul>	External	-	28 Jan 2021	-	-
Ms Romeshni Govender	<ul style="list-style-type: none"> <li>• Bachelor of Accounting</li> <li>• Post Graduate Diploma in Accounting</li> <li>• CA (SA); CIA; CCSA; CRMA</li> </ul>	External	-	19 Nov 2018	-	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	-	26 Sept 2018	-	5
Mr Zenzele Myeza	<ul style="list-style-type: none"> <li>• BCOM: Accounting and Auditing</li> <li>• MBA</li> </ul>	External	-	19 Nov 2018	-	5

## 6. COMPLIANCE WITH LAWS AND REGULATIONS

NMISA has a compliance philosophy that respects compliance with applicable laws and regulations and a commitment to the highest standard of compliance.

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

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

Although compliance with the principles of the King Code is not legislated, it has become a business best practice, and in this regard NMISA is compliant with those aspects of the Code that are applicable to public entities. No material or repeated regulatory penalties, sanctions or fines for contraventions of, or non-compliance with, statutory obligations were reported.

## 7. FRAUD AND CORRUPTION

NMISA had no fraud/corruption investigated during the 2020/21 financial year.

## 8. MINIMISING CONFLICT OF INTEREST

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

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

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

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

Employees are expected to share this commitment to high moral, ethical and legal standards. The purpose of the Code of Conduct Policy is therefore to lay down a strict ethical code with which each employee, contract employee and consultant is required to comply.

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

## 9. HEALTH, SAFETY AND ENVIRONMENTAL ISSUES

NMISA's Total Quality Management System (TQMS) is primarily based on the ISO/IEC 17025 standard, which is internationally acceptable for the competence of testing and calibration laboratories. In addition, the NMISA environmental management system is certified against ISO 14001:2015 (Environmental management systems - Requirements with guidance for use). Occupational health and safety is certified against OHSAS 18001:2007 (Occupational Health and Safety Management Certification).

## 10. COMPANY / BOARD SECRETARY

NMISA appointed Ms. Busisiwe Mkhize as Company Secretary in line with the principles of good corporate governance as guided by the King Code. The Company Secretary supports the Board and its committees by advising them on directors' statutory duties, disclosure duties, good corporate governance practices, proper compilation and timely circulation of Board and committee papers. Ms. Mkhize serves as a direct channel of communication between the shareholder, management, and other stakeholders with the Board and its chairperson. She also coordinates the training of Board members and Executive Management on fiduciary/governance matters and assists with the Board member and Executive Management evaluation process.

## 11. SOCIAL RESPONSIBILITY

In support of NMISA's commitment to social responsibility, the organisation has an 'adopt a school initiative'. Unfortunately, due to the COVID-19 pandemic, teams of NMISA staff were unable to spend time at the schools offering career guidance and running experiments for the learners; NMISA did however continue to financially support academically qualifying students with their tertiary studies.

## 12.AUDIT COMMITTEE REPORT

### Legislative Requirements

The Audit and Risk Committee (ARC) herewith presents its report for the financial year ended 31 March 2021 and was duly constituted as required by Section 77 of the Public Finance Management Act, 1999 (Act No. 1 of 1999, as amended by Act No. 29 of 1999) (PFMA) read with Treasury Regulation 27.1.10.

### Audit and Risk Committee's Responsibility

The ARC has complied with its responsibilities arising from Section 51(1)(a)(ii) of the PFMA read with Treasury Regulation 27.1.8. The ARC was regulated by an approved Terms of Reference, which is aligned with the requirements of the PFMA (1999, as amended), Treasury Regulations and King IV. The Committee satisfied its responsibilities for the year, in compliance with its approved Terms of Reference.

### Audit and Risk Committee Members and Attendance

The ARC's Terms of Reference (ToR) require that the ARC comprises a minimum of three non-executive board members elected by the Board and two external members. This requirement was not met during the year under review, due to the passing of Mr. Odirile Dingoko, a non-executive board member, in November 2021.

In terms of Section 77(b) of the PFMA, the ARC must meet at least twice a year. During the financial year ended 31 March 2021, the ARC held five (5) meetings. Table 13 provides an overview of meeting attendance:

**Table 13: Attendance at ARC Meetings**

Name	Date of Appointment	Qualifications	Number of Meetings Scheduled	Number of Meetings Attended
Mr P Mohlomi	01 July 2018	<ul style="list-style-type: none"> <li>• MBL</li> <li>• BSC: Microbiology and Biochemistry</li> <li>• National High Diploma: Microbiology</li> </ul>	5	5
Ms L Lankalebalelo	01 July 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>	5	5
*Mr Odirile Dingoko	26 September 2018	<ul style="list-style-type: none"> <li>• SLP- Company Law</li> <li>• BSc Physics and Mathematics</li> <li>• BSc Honours Geophysics MBA</li> </ul>	5	2
Ms R Govender	19 November 2018	<ul style="list-style-type: none"> <li>• Bachelor of Accounting</li> <li>• Post Graduate Diploma in Accounting</li> <li>• CA (SA); CIA; CCSA; CRMA</li> </ul>	5	5
Mr Z Myeza	19 November 2018	<ul style="list-style-type: none"> <li>• BCOM: Accounting and Auditing</li> <li>• MBA</li> </ul>	5	4

\*Deceased

## **Effectiveness of Internal Control**

The ARC considered reports issued by the various assurance providers taking combined assurance into account, and acknowledges management's efforts to strengthen internal controls. The system of internal control, for the period under review, is considered to have been adequate and effective.

## **The Quality of Quarterly Reports Submitted**

The ARC is satisfied with the content and quality of management and quarterly reports prepared and issued during the year under review. The ARC has reviewed and commented on the annual financial statements and reports on performance information and their timely submission to the external auditors by 31 May 2021.

## **Internal Audit Function**

The ARC is responsible for the appointment, compensation, retention, and oversight of the Internal Audit Manager. The Internal Audit function operates within the ambit of the Internal Audit Charter approved by the ARC. The Internal Audit function reports functionally to the ARC and operationally to the Accounting Officer.

The ARC approved a risk-based, three-year rolling, Internal Audit Plan in the 2020/21 financial year. The Committee is reasonably satisfied with the effectiveness and independence of the Internal Audit function. The Internal Audit function also reported on the overall control environment and fraud hotline activities of NMISA during the year.

Internal audits completed covered all planned audits and recommended appropriate remedial actions to management in order to enhance the control environment.

## **Evaluation of the Finance Function**

The Committee is of the opinion, based on the information and explanations provided by management, as well as the results of audits performed by the internal auditors, and NEXIA SAB&T, that the financial information provided by management to users of such information is adequate, reliable and accurate.

The quality of in-year reports received from the finance function was adequate. The ARC is satisfied with the adequacy and effectiveness of NMISA's Chief Financial Officer and the finance function.

## **Performance Management**

Part of the responsibilities of the ARC includes the review of performance management. The ARC has performed the following functions:

- Reviewed and commented on the alignment of the Annual Performance Plan, Budget, Strategic Plan, and Performance Agreements.
- Reviewed and commented on the relevance of indicators to ensure that they are measurable and relate to the functions of NMISA.
- Reviewed reported non-compliance with legislation.
- Reviewed the quarterly performance reports submitted by the Internal Audit Function.
- Reviewed and commented on the performance management system and made recommendations for its improvement.

The ARC is satisfied that the performance report has been prepared in terms of the PFMA, the Treasury Regulations and any other related regulatory requirements for reporting performance.

## Accounting and Auditing Concerns Identified by Internal Audit

There were no accounting and auditing concerns noted and brought to the Committee's attention.

## Evaluation of the Annual Financial Statements

The ARC has reviewed the annual financial statements, which focused on the following:

- Significant financial reporting judgements and estimates contained in the Annual Financial Statements.
- Clarity and completeness of disclosures and whether disclosures made have been set properly in context.
- Quality and acceptability of, and any changes in, accounting policies and practices.
- Compliance with accounting standards and legal requirements.
- Significant adjustments and/or unadjusted differences resulting from the audit.
- Reflection of unusual circumstances or events and management's explanation for the accounting treatment adopted.
- Reasons for major year-on-year fluctuations.
- Asset valuations and revaluations.
- Calculation and levels of general and specific provisions.
- Write-offs and reserve transfers.
- The basis for the going concern assumption, including any financial sustainability risks and issues.

The ARC is comfortable that the Annual Financial Statements have been prepared in terms of the Generally Recognised Accounting Principles (GRAP) and the PFMA.

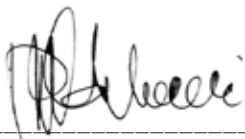
## External Auditor's Report

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

The external audit function, performed by NEXIA SAB&T, is independent of the entity. The ARC has met with the External Auditors to ensure that there are no unresolved issues and acknowledges the diligence and co-operation of the External Audit team.

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

On behalf of the ARC:



**Petrus Mohlomi**

Chairperson of the Audit and Risk Committee  
National Metrology Institute of South Africa  
31 July 2021

## 13.B-BBEE COMPLIANCE PERFORMANCE INFORMATION

B-BBEE compliance is reported by NMISA in terms of Section 13(G)(1) of the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act 46 of 2013.

*Table 14: B-BBEE Compliance*

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







# PART D

HUMAN RESOURCE  
MANAGEMENT

# 1. INTRODUCTION

## 1.1 Overview of Human Resources Management

Like many organisations, NMISA faced many challenges during the year due to the COVID-19 pandemic. Challenges experienced in Human Resources (HR) included transitioning to remote work and maintaining employee morale.

As part of our Disaster Recovery Team, HR assisted in the development and implementation of a response plan to ensure employees' health and safety. The plan aligns to Section 8 of the Occupational Health and Safety Act 85 of 1993, which states that "every employer shall provide and maintain as far as reasonably practicable, a working environment that is safe and without risks to the health of his employees".

Through its Human Capital Development (HCD) programme, NMISA continued its focus on training and development through eLearning platforms. Efforts were made to reskill and upskill employees to cope with the adoption of new and advanced technology brought about by the changed working environment. The organisation implemented a new Enterprise and Resource Planning (ERP) system to support operations and time was spent training employees on the new system.

## 1.2 HR Priorities for 2020/21 and Impact

Human Resources partnered with the Disaster Management Team and Governance, Risk and Compliance Department to ensure the health and safety of employees. COVID-19 protocols were developed and implemented in line with government regulations. The protocols were observed and no onsite infections were reported during the year under review.

HR activities, such as recruitment, were halted for several months in the early stage of the pandemic, as the organisation set up for remote work. To continue acquiring required skills and ensure minimal disruptions to key projects, HR in partnership with the Information Technology Department put mitigating plans in place. Amongst others, remote interviewing and online talent assessments were arranged to enable the continuation of recruitment and selection activities.

### 1.2.1 Rewards Management

During the previous year, the organisation embarked on job evaluation and salary benchmarking process to ensure a fair and equal pay system. The service provider appointed for the project presented the results for consideration. The organisation continues to manage employee rewards and remuneration through its policy and the implementation of a career ladder and pay progression system. Job grading and salary benchmarking initiatives will ultimately help to enhance NMISA's overall employee offerings.

### 1.2.2 Employee Retention

The staff turnover rate remained low (less than 5 %) during the year under review, however, the organisation lost key skills at executive level and in the metrology functions. Over the following year, HR will focus on the replacement of key staff and skills.

Sustained staff retention is attributed to the strategies and initiatives put in place to improve employee engagement. NMISA will continue to enhance the employee value proposition by offering, amongst others, opportunities for personal and career development, competitive rewards and recognition, work life balance initiatives, enhanced organisational and work culture, and employee socialisation.

NMISA will also continue to focus on succession planning to ensure that the organisation has the skills required to meet current and future needs. Through its HCD programme, the organisation filled numerous positions which became vacant due to resignations and retirement. During the year under review, two

(2) graduates who completed their training and/or work-back (in line with the bursary agreement) were placed in permanent positions. With continued investment in people through training and development initiatives, internal resourcing has become very beneficial to the organisation.

### 1.3 Workforce Planning Framework

The organisation is currently engaged in a process of strategic alignment. Appointment of top leadership was completed during the previous year, while further appointments were delayed to allow the organisation time to plan for the human capital needed to deliver on the new strategy. Business units such as Strategy, Business Development and Governance, and Applied Metrology were prioritised for resourcing, including the appointment of a Technical Salesperson and Key Accounts Officer to the Business Development section to support the revenue generation strategy.

### 1.4 Employee Performance Management Framework

The Employee Performance Management Framework guides performance planning, facilitation, review, reporting as well as reward and recognition. No changes were made to the Framework during the year under review, however, the organisation did review its performance rewarding process. The Remuneration Policy was updated to ensure that individual performance is recognised and rewarded in line with the organisations financial performance. A clear criterion was set on how the organisation will be rewarded for revenue generation and how that will translate to individual rewards and recognition.

### 1.5 Employee Wellness Programmes

To support employees, create a conducive work environment and support work life balance for its employees, NMISA continues to offer an Employee Wellness Programme (EWP). Many employees experienced grief and other challenges during the year and a significant increase in utilisation of the EWP was noticed. HR, in partnership with the EWP service provider, hosted 'Grief and Loss', and 'Burnout and Resilience' talks virtually as part of support for employee wellness.

Through the EWP, employees can access counselling services on personal and work challenges including stress, financial issues, legal issues, relationships, family matters and health issues.

### 1.6 Policy Development

Policy review was prioritised during the year as many HR policies and procedures were due for periodic review. The organisation's Code of Conduct and Ethics Policy was reviewed and prepared for the approval process. A Lifestyle Audit Policy was developed and submitted for internal review before it can be considered for approval. Other policies due for review were identified and these will be finalised in the 2021/2022 financial year.

### 1.7 HR Achievements

During the period under review, 15 interns and in-service trainees successfully completed their work contracts, despite the implementation of lockdown regulations necessitating remote working arrangements. Work and training plans were adapted to ensure that these young professionals experienced the full value of their learnerships under the guidance of their mentors.

Despite the challenges experienced during the year under review, NMISA continued to celebrate outstanding achievements through its Integrated HCD. Some of the successes include three (3) employees, three (3) postgraduate students and two (2) undergraduate students completing their degrees during the 2020/21 financial year. One (1) postgraduate student continued into doctorate studies after completion of her master's qualification, while the other four (4) students will be working fulltime on work-back contracts in line with their bursary agreements.



**Ms Kgaugelo Masekela**

– Masters in International Human Resource Management

Kgaugelo's thesis was titled "Employee engagement in South African knowledge-based State-Owned Entities (SOEs): the role of employee involvement and participation". The purpose of the study was to explore and delineate the key factors that enhance or impede knowledge-based state-owned enterprises (SOEs) in South Africa from attaining higher levels of employee engagement using the case study of the National Metrology Institute of South Africa (NMISA).



**Mr Dithole Seepamore**

– Masters in Applied Radiation Science and Technology

Dithole's thesis was titled: "Characterisation of Radio-Photoluminescence Glass Dosimeter (RPLGD) with different radionuclides". The research was aimed at characterising glass dosimeters for accumulation of radiation dose using three radiation sources (i.e., Co-60, Cs-137 & Am-241).



**Ms Mathapelo Molefe**

– B.Tech in Mechanical Engineering

Mathapelo's B.Tech in Mechanical Engineering from the Central University of Technology Free State was conferred.

## 1.8 HR Challenges

### COVID-19 Challenges

Employee engagement was one of the main HR challenges during the year under review. Although many staff members attest to higher levels of productivity while working remotely, the absence of physical, in-person interactions on a regular basis may result in employees feeling disconnected. Social distancing requirements and strict limitations on gatherings and other health and safety measures to limit the spread of the virus, were likely to further increase a feeling of isolation. This was managed by encouraging regular video meetings between Section members (with cameras on) as well as follow ups in-between; allowing a short time period at the start of meetings for social interactions; frequent communication with personnel, which included good practise guides; and assigning mentors to new staff members.

### Personnel Challenge

While staff turnover remains low (less than 5 %), the organisation lost key skills at executive level and in the metrology functions. NMISA will address these losses through prioritised recruitment for key positions. The organisation will also continue to improve the employee value proposition.

## 1.9 HR Plans/Goals

In the upcoming year the HR section will focus on reviewing policies and procedures, and workforce planning and resourcing for Applied Metrology, as one of the strategic business units identified for prioritisation and recruitment to replace lost skills.

NMISA will also focus on succession planning to properly equip the organisation for present and future needs. This will involve both strategic and prioritised recruitment, as well as the continued hiring of NMISA bursary recipients.

## 2. HUMAN RESOURCE OVERSIGHT STATISTICS

### 2.1. Personnel Related Expenditure

Table 15: Personnel Cost by Programme / Activity / Objective

Programme/ Activity/ Objective	Total Expenditure for the Entity (R'000)	Personnel Expenditure (R'000)	Personnel Expenditure as a % of Total Expenditure	No. of Employees	Average Personnel Cost per Employee (R'000)
Chief Executive Officer	1 812	16 611	12 %	19	874
Finance and Corporate Services	167 889	24 237	18 %	32	757
Manufacturing Competitiveness and Redefinition of the SI	2 320	23 576	18 %	30	786
Advanced Measurement Solutions and Energy Efficiency	1 573	23 000	17 %	24	958

Programme/ Activity/ Objective	Total Expenditure for the Entity (R'000)	Personnel Expenditure (R'000)	Personnel Expenditure as a % of Total Expenditure	No. of Employees	Average Personnel Cost per Employee (R'000)
Quality of Life	5 282	10 491	8 %	11	954
Reference Materials, Green Economy and Commercial Services	6 448	27 933	21 %	32	873
Research, International and Infrastructure Development	12 047	7 274	5 %	7	1 039
<b>Total</b>	<b>197 371</b>	<b>133 123</b>	<b>100 %</b>	<b>155</b>	<b>859</b>

**Table 16: Personnel Cost by Salary Band**

Level	Personnel Expenditure (R'000)	% of Personnel Expenditure to Total Personnel Cost*	No. of Employees	Average Personnel Cost per Employee (R'000)
Top Management	14 104	10,6 %	7	2 015
Senior Management	28 351	21,3 %	21	1 350
Professional qualified	77 023	57,8 %	95	811
Skilled	12 660	9,5 %	27	469
Semi-skilled	1 074	0,8 %	5	215
Unskilled	0	0	0	0
<b>TOTAL</b>	<b>133 213</b>	<b>100 %</b>	<b>155</b>	<b>859</b>

**Table 17: Performance Rewards**

Programme/ Activity/ Objective	Performance Rewards	Personnel Expenditure (R'000)	% of Performance Rewards to Total Personnel Cost
Top Management	1 955	14 104	14 %
Senior Management	2 925	28 351	10 %
Professional qualified	7 178	77 023	9 %
Skilled	1 219	12 660	10 %
Semi-skilled	129	1 074	12 %
Unskilled	-	-	0 %
<b>Total</b>	<b>13 406</b>	<b>133 213</b>	<b>10 %</b>

**Table 18: 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
Chief Executive Officer	16 611	116	1 %	6	19
Finance and Corporate Services	24 237	423	2 %	29	15
Manufacturing Competitiveness and Redefinition of the SI	23 576	253	1 %	30	8
Advanced Measurement Solutions and Energy Efficiency	23 000	258	1 %	24	11
Quality of Life	10 491	38	0 %	10	4
Reference Materials, Green Economy and Commercial Services	27 933	130	0 %	30	4
Research, International and Infrastructure Development	7 274	121	2 %	7	17
<b>Total</b>	<b>133 123</b>	<b>1 339</b>	<b>1 %</b>	<b>136</b>	<b>10</b>

**Table 19: Employment and Vacancies**

Programme/ Activity/ Objective	2019/2020 No of Employees	2020/2021 Approved Posts	2019/2020 No of Employees	2020/2021 Vacancies	Funded Vacancies	% of Vacancies
Chief Executive Officer	15	23	19	4	1	17 %
Finance and Corporate Services	34	46	32	14	0	0 %
Manufacturing Competitiveness and Redefinition of the SI	30	35	30	5	2	33 %
Advanced Measurement Solutions and Energy Efficiency	28	35	24	11	0	0 %
Quality of Life	11	12	11	1	1	17 %
Reference Materials, Green Economy and Commercial Services	34	40	32	8	2	33 %
Research, International and Infrastructure Development	7	25	7	18	0	0 %
<b>Total</b>	<b>159</b>	<b>216</b>	<b>155</b>	<b>61</b>	<b>6</b>	<b>100 %</b>

**Table 20: Employment Changes**

Salary Band	Employment at Beginning of Period	Appointments	Terminations	Promotions	Employment at End of the Period
Top Management	8	0	1	0	7
Middle Management	22	0	0	0	22
Professional qualified	92	3	4	0	91
Skilled	32	1	4	0	29
Semi-skilled	5	1	0	2	6
Unskilled	0	0	0	0	0
<b>Total</b>	<b>159</b>	<b>5</b>	<b>9</b>	<b>2</b>	<b>155</b>

**Table 21: Reasons for Staff Leaving**

Reason	Number	% of total no. of staff leaving
Death	0	0 %
Resignation	3	38 %
Dismissal	0	0 %
Retirement	1	13 %
Ill health	0	0 %
Expiry of contract	4	50 %
Other	0	0 %
<b>Total</b>	<b>8</b>	<b>100 %</b>

**Table 22: Labour Relations: Misconduct and Disciplinary Action**

Nature of Disciplinary Action	Number
Verbal Warning	0
Written Warning	2
Final Written Warning	0
Dismissal	0

Table 23: Equity Target and Employment Equity Status

	MALE									
	African		Coloured		Indian		White		Foreign Nationals	
Levels	Current	Target	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	3	3	0	0	0	0	2	2	0	0
Senior Management	0	0	0	0	0	0	0	0	0	0
Middle Management	7	7	0	0	2	2	4	4	0	0
Professional qualified	36	40	3	3	2	2	10	10	4	4
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>58</b>	<b>63</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>16</b>	<b>16</b>	<b>4</b>	<b>4</b>

	FEMALE									
	African		Coloured		Indian		White		Foreign Nationals	
Levels	Current	Target	Current	Target	Current	Target	Current	Target	Current	Target
Top Management	0	1	0	0	0	0	2	2	0	0
Senior Management	0	0	0	0	0	0	0	0	0	0
Middle Management	5	5	0	0	0	0	3	3	0	0
Professional qualified	21	22	2	3	0	0	18	16	1	1
Skilled	15	16	0	1	1	1	0	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>43</b>	<b>46</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>23</b>	<b>21</b>	<b>1</b>	<b>1</b>

	DISABLED STAFF			
	Male		Female	
Levels	Current	Target	Current	Target
Top Management	0	0	0	0
Senior Management	0	0	0	0
Professional qualified	1	1	0	0
Skilled	0	0	0	0
Semi-skilled	0	0	0	0
Unskilled	0	0	0	0
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>



TeleLASER  
UltraLyte

46 km  
2975 m



# PART E

## FINANCIAL INFORMATION

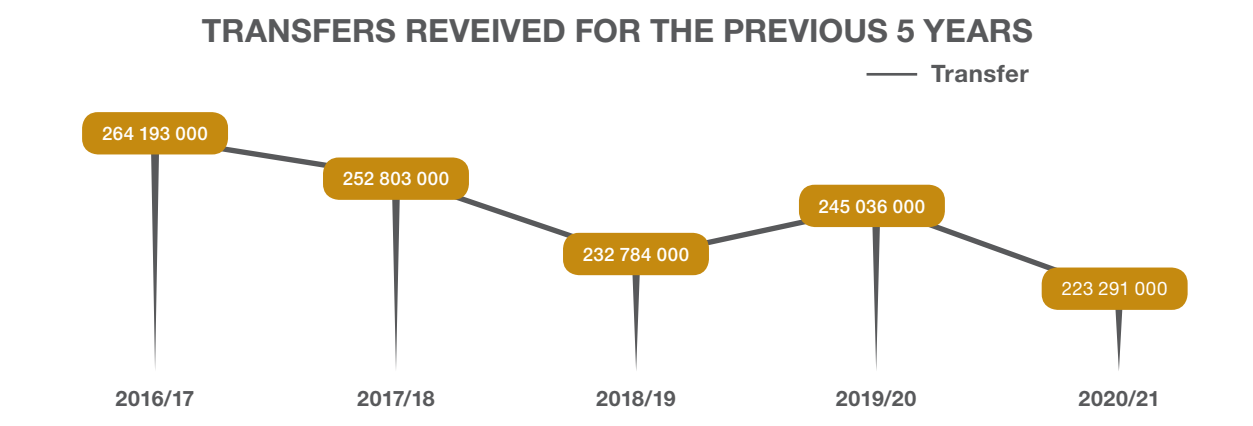
# 1. CFO's REPORT

## 1.1. Overview of Financial Performance

NMISA's main source of revenue is the transfer/allocation received from **the dtic**. Due to financial constraints on the fiscus NMISA's allocation has declined for the past four (4) financial years, as evidenced by the table below. The current year allocation declined by 15 % compared to 2016/17, when the allocation was at its highest, while the organisation has grown over this same period in terms of size and strategic impact.

The baseline funding received for operations does not cover the bill for employee compensation, which has increased as a percentage of the total budget in line with the strategic direction of the organisation and the requirements of the Shareholder and the country. Thus, NMISA has had to achieve a balance between the capital investment and the importance of a capable workforce to perform scientific work and implement NMISA's ambitious strategy as approved by the Board and **the dtic**.

Figure 2: Transfers Received (2016/17 – 2020/21)



The decline in allocation coupled with the organisations' growth in size and strategic impact has created the need for external revenue generation to enhance sustainability over the short, medium, and long term. Due to COVID-19 and the resultant impact on the economy, external revenue declined by 32 % compared to the previous financial year. The support of Government in consolidating all Metrology services and the utilisation of NMISA metrology services by Departments and other State Entities has become paramount and is required in order to maintain the sustainability of the organisation.

During the 2020/21 financial year, spending was focused on maintaining and improving existing standards, developing new measurement standards, equipment purchases and facility improvements, and the compensation and development of employees, as each of these activities support the core function of NMISA in maintaining the National Measurement Standards.

## 1.2. Revenue

NMISA has three main sources of revenue: transfer received from **the dtic**, revenue from rendering of services and interest income. During 2020/21 NMISA received a transfer of R223 million, compared to R245 million the previous year, which represents 90 % of total revenue, compared to 86 % previously. Table 24 indicates revenue from all sources.

**Table 24: Sources of Revenue**

Sources of Revenue	2021			2020		
	Budget	Actual Amount	Over/Under Collection	Budget	Actual Amount	Over/Under Collection
Transfer revenue	223 291 000	223 291 000	-	245 036 000	245 036 000	-
Rendering of services	19 466 680	14 833 737	4 632 943	38 018 270	21 843 150	16 175 120
Interest received	13 000 000	8 694 342	4 305 658	13 000 000	16 985 547	(3 985 547)
Other income	-	162 449	(162 449)	-	39 713	(39 713)
Donations received	-	40 347	(40 347)	-	292 272	(292 272)
	<b>255 757 680</b>	<b>247 021 875</b>	<b>8 735 805</b>	<b>296 054 270</b>	<b>284 196 682</b>	<b>11 857 588</b>

As a result of the COVID-19 pandemic and efforts to combat the disease, R31 million of the allocated funds received from **the dtic** had to be refunded to National Treasury to fund spending towards COVID-19 priorities. This resulted in a significant decline in interest earned.

It is expected that upon the enactment of the revised NMISA Act and compliance regulations by the relevant regulators, there will be a marked increase in the requirement for NMISA services by industry at large. The services on offer include calibrations, reference measurements/material, training/consulting, and sponsorships.

## 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 retirees to younger less experienced scientists. For this reason, employee compensation constitutes 56 % of total expenditure, compared to 51 % the previous year. National Metrology Institutes are investing in development activities geared towards the improvement of existing standards, with the accuracy of measurements doubling roughly every ten years, and to facilitate the development of new measurement standards including the revision of the SI. NMISA must invest in a capable workforce to perform scientific work, to ensure that the institute does not fall behind its peers to the detriment of the South African and Regional economy.

The increase in depreciation and amortisation is mainly due to an increase in the asset book value. Other operating expenditure amounted to R57 million, compared to R72 million the previous year, and is in line with budgeted expenditure. The significant declined compared year-on-year is due to a decrease in the allocation received from **the dtic** from R245 million in 2020 to R223 million in 2021. As a result, the entity had to limit spending as it cannot budget for a deficit.

## 1.4. Working Capital

A high cash balance is required for the payment of reported commitments for goods and services that have yet to be delivered. Trade receivables have decreased to R7 million from R9 million in 2020. The trade payables balance has decreased drastically to R10 million from R14 million, in line with the institute's resolve to pay suppliers within 30 days of receiving a valid invoice. Provisions have decreased to R15 million from R16 million in 2020.

## 1.5. Capital Investment

In line with 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 book value of fixed assets from R128 million in 2014 to R487 million in 2021. The rate of capital equipment growth is expected to decline over the MTEF as capital expenditure is channelled towards the construction of a new campus, and the hiring and development of more employees to maintain this infrastructure.

## 1.6. Commitments

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 times for this equipment varies from five (5) months to more than a year. As a result, funds are rolled over from year to year in the form of commitments. The commitments reported in the current financial year amount to R145 million, compared to R143 million in 2020, with 91 % committed towards capital expenditure. Planning in terms of procurement is done well in advance to reduce the commitments at the end of the financial year. However, this lead time cannot be budgeted for in multiple periods, as a reduction of funds from the fiscus could have a disastrous impact on NMISA's reputation, while funds (deposits) already spent could be lost due to an unavailability of funds to complete the purchase.

## 1.7. Supply Chain Management Overview

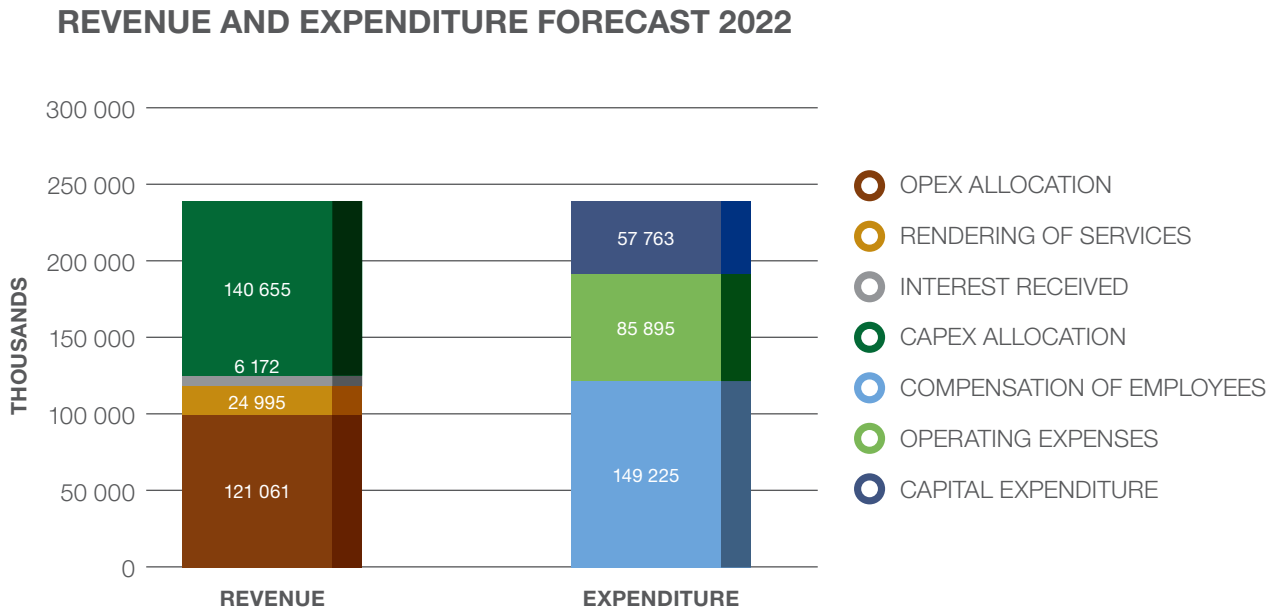
The SCM Unit is strategically positioned for service delivery to the institute through the procurement of NMS equipment, property and infrastructure, facilities management and general goods and services. The Unit is extending focus on logistics services to ensure effective management of the movement of NMS equipment internally and for our clients in support of our calibration services. NMISA continues to maintain strong controls to curb irregular expenditure.

## 1.8. Financial Outlook

As a result of the expected further reduction in grant funding from the fiscus, the financial sustainability of NMISA in the medium term will be impacted. Furthermore, strides made in the current and previous financial years to increase external revenue generation have been negatively impacted by COVID-19.

Revenue sources of the institute need to cover all capital and operational costs on a year-to-year basis. The chart below reflects the financial projections for the 2021/22 financial year.

Figure 3: Revenue and Expenditure Forecast (2022)



The institute is trading as a going concern and will continue to receive grant funding from **the dtic** over the MTEF. Given the size and funding requirements for the new campus, the institute will construct the campus in phases and is currently in negotiations for the procurement of land when the capital requirements are allocated.

Given the difficult operating environment, NMISA has strategically repositioned itself to effectively exploit all potential revenue sources. This fundamental switch to a commercially focused enterprise will take some time to implement, in a manner that will be sustainable in the long-term. Steps have therefore been taken to enhance the revenue-generation capability of NMISA to support operations; maintenance of new equipment purchased; ensure long-term sustainability; remain on the cutting edge of measurement science; and fulfil its mandate in support of industry and government programmes.

**Mr Calvin Sehlapelo CA (SA)**

Chief Financial Officer

National Metrology Institute of South Africa

31 July 2021

## 2. REPORT OF THE EXTERNAL AUDITOR

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

#### Report on the Audit of the Financial Statements

##### Opinion

1. We have audited the financial statements of National Metrology Institute of South Africa set out on pages 88 to 104, which comprise the statement of financial position as at 31 March 2021, and the statement of financial performance, statement of changes in net assets, statement of cash flows, and the statement of comparison of budget and actual amounts for the year then ended, as well as the 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 at 31 March 2021, and its financial performance and cash flows for the year then ended in accordance with South African Standards of Generally Recognised Accounting Practice (GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA).

##### Basis for Opinion

3. We conducted our audit in accordance with 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 entity in accordance with the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (IRBA Code) 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, which constitutes the accounting authority, is responsible for the preparation and fair presentation of the financial statements in accordance with South African Standards of Generally Recognised Accounting Practice (GRAP) and the requirements of the Public Finance Management Act of South Africa (PFMA) (section 55(1) 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 institute's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the accounting authority either intends to liquidate the institute or to cease operations, or have no realistic alternative but to do so.

## Auditor's Responsibilities 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 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 the 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

### Introduction and Scope

10. In accordance with the Public Audit Act 25 of 2004 (PAA) and the general notice issued in terms thereof, we have a responsibility to report on the usefulness and reliability of the reported performance information against selected objectives presented in the annual performance report. We performed procedures to identify material findings but not to gather evidence to express assurance.
11. Our procedures address usefulness and reliability of the reported performance information, which must be based on the Institute's approved performance planning documents. We have not evaluated the completeness and appropriateness of the performance indicators established and included in the planning documents. Our procedures do not examine whether the actions taken by the Institute enabled service delivery. Our procedures also do not extend to any disclosures or assertions relating to the extent of achievements in the current year or planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, our findings do not extend to these matters.
12. We evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected objective presented in the Institute's Annual Performance Report for the year ended 31 March 2021.

**Table 25: Strategic Objectives – Audit Report**

Strategic Objectives	Strategic Oriented Outcome	Indicator Description	Pages in Annual Performance Report
Strategic Objective 1 – Shorten the traceability chain for Africa by maintaining the units and NMS at an internationally recognised level.	Keep, maintain and develop the national measurement standards and provide for the use of the national measurement unit.	Realisation of the SI base units	48
		Number of new and improved National Measurement Standards and reference material and methods	48
		Number of memberships maintained	48
		Number of inter laboratory comparisons and proficiency testing schemes organised and completed	48
		Percentage metrological services covered by CMCs	48

13. We performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. We performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
14. We did not identify any material findings on the usefulness and reliability of the reported performance information for this objective.

## **Report on the Audit of Compliance with Legislation**

### **Introduction and Scope**

15. In accordance with the PAA and the general notice issued in terms thereof, we have a responsibility to report material findings on the Institute's compliance with specific matters in key legislation. We performed procedures to identify findings but not to gather evidence to express assurance.
16. The material finding on compliance with specific matters in key legislations is as follows:

### **Composition of Board Members**

17. Section 10 (a) of the Measurement Units and Measurement Standards Act, 2006 (Act No 18 of 2006) requires the board of the National Metrology Institute of South Africa to consist of not less than seven and not more than twelve members appointed by the Minister. The number of the board members was not correctly constituted for the year ended 31 March 2021 in accordance with the Act.

### **Other Information**


18. The accounting authority is responsible for other information. The other information comprises the information included in the Annual Report, which includes the reports by the accounting authority and the audit committee's report. The other information does not include the financial statements, the auditor's report thereon and those selected objectives presented in the annual performance report that have been specifically reported on in this auditor's report.
19. Our opinion on the financial statements and our findings on the reported performance information and compliance with legislation do not cover the other information and we do not express an audit opinion or any form of assurance conclusion thereon.
20. 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 financial statements and the selected objectives presented in the annual performance report, or our knowledge obtained in the audit, or otherwise appears to be materially misstated.
21. If, based on the work we have performed on the other information obtained prior to the date of this auditor's report and we conclude that there is a material misstatement of this other information, we are required to report that fact.

### Internal Control Deficiencies

22. We considered internal control relevant to our audit of the financial statements, reported performance information and compliance with applicable legislation; however, our objective was not to express any form of assurance on it. We did not identify any significant deficiencies in internal control.

### Auditor Tenure

23. In terms of the IRBA Rule published in Government Gazette Number 39475 dated 4 December 2015, we report that Nexia SAB&T has been the auditor of the National Metrology Institute of South Africa for 5 years.



**Nexia SAB&T**

Philemon Mawire

Director

Registered Auditor

31 July 2021

# ANNUAL FINANCIAL STATEMENTS

## INDEX

The reports and statements set out below comprise the 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 2021

Figures in Rand	Note(s)	2021	2020
<b>Assets</b>			
<b>Current Assets</b>			
Receivables from exchange transactions	7	6 693 410	8 534 781
Inventories	6	8 185 039	8 590 957
Prepayments	26	35 963 024	24 519 737
Cash and cash equivalents	8	144 880 407	162 499 988
		<b>195 721 880</b>	<b>204 145 463</b>
<b>Non-Current Assets</b>			
Property, plant and equipment	3	274 654 486	142 562 475
Intangible assets	4	1 358 742	2 736 445
Prepayments	26	916 566	62 623
Rental deposit	23	605 419	605 419
		<b>489 535 001</b>	<b>478 966 629</b>
<b>Total Assets</b>		<b>685 256 881</b>	<b>683 112 092</b>
<b>Liabilities</b>			
<b>Current Liabilities</b>			
Payables from exchange transactions	10	10 272 816	14 387 703
Provisions	9	14 992 228	16 302 659
Income received in advance	11	2 657 346	2 556 915
<b>Total Liabilities</b>		<b>27 922 390</b>	<b>33 247 277</b>
<b>Net Assets</b>		<b>657 334 491</b>	<b>649 864 815</b>
Accumulated surplus		657 334 491	649 864 815

# STATEMENT OF FINANCIAL PERFORMANCE

AS AT 31 MARCH 2021

Figures in Rand	Note(s)	2021	2020
<b>Revenue</b>			
<b>Revenue from exchange transactions</b>			
Rendering of services		14 833 737	21 843 150
Other income	12	162 449	39 713
Interest received		8 694 342	16 985 547
<b>Total revenue from exchange transactions</b>		<b>23 690 528</b>	<b>38 868 410</b>
<b>Revenue from non-exchange transactions</b>			
<b>Transfer revenue</b>			
Transfer from controlling entity		223 291 000	245 036 000
Donations received		40 347	292 272
<b>Total revenue from non-exchange transactions</b>		<b>223 331 347</b>	<b>245 328 272</b>
<b>Total revenue</b>	<b>12</b>	<b>247 021 875</b>	<b>284 196 682</b>
<b>Expenditure</b>			
Employee related expenses	13	(133 123 200)	(121 431 492)
Depreciation and amortisation	3&4	(41 114 512)	(37 750 000)
Credit losses on receivables		(347 589)	(460 620)
Contracted services		(186 228)	(269 455)
Repairs and maintenance	3	(6 452 334)	(7 453 655)
Operating expenses	14	(57 355 211)	(71 944 068)
<b>Total expenditure</b>		<b>(238 579 074)</b>	<b>(239 309 290)</b>
(Loss)/profit on disposal of assets		(46 654)	103 026
Loss on foreign exchange		(253 714)	(396 853)
Impairment loss	3	(672 758)	(546 925)
		<b>(973 126)</b>	<b>(840 752)</b>
<b>Surplus for the year ended 31 March 2021</b>		<b>7 469 675</b>	<b>44 046 640</b>

# STATEMENT OF CHANGES IN NET ASSETS

AS AT 31 MARCH 2021

Figures in Rand	Accumulated surplus
Balance as at 31 March 2019	605 818 175
Surplus for the year	44 046 640
<b>Balance as at 31 March 2020</b>	<b>649 864 816</b>
Surplus for the year	7 469 675
<b>Balance as at 31 March 2021</b>	<b>657 334 491</b>

# CASH FLOW STATEMENT

Figures in Rand	Note(s)	2021	2020
<b>Cash flows from operating activities</b>			
<b>Receipts</b>			
Rendering of services		16 421 003	19 677 184
Transfer from controlling entity		223 291 000	245 036 000
Interest received		8 694 342	16 985 547
Other income		162 449	39 713
Donations received		40 347	292 272
		<b>248 609 141</b>	<b>282 030 716</b>
<b>Payments</b>			
Employee related expenses		(132 877 261)	(126 078 195)
Suppliers		(81 803 108)	(102 576 973)
		(214 680 369)	(228 655 168)
<b>Net cash flows from operating activities</b>	15	<b>33 928 772</b>	<b>53 375 548</b>
<b>Cash flows from investing activities</b>			
Purchase of property, plant and equipment	3	(50 690 384)	(73 122 018)
Proceeds from sale of property, plant and equipment	3	720	3 122 045
Purchase of intangible assets	4	(858 689)	(1 347 007)
<b>Net cash flows from investing activities</b>		<b>(51 548 353)</b>	<b>(71 346 980)</b>
<b>Net decrease in cash and cash equivalents</b>		<b>(17 619 581)</b>	<b>(17 971 432)</b>
Cash and cash equivalents at the beginning of the year		162 499 988	180 471 420
<b>Cash and cash equivalents at the end of the year</b>	8	<b>144 880 407</b>	<b>162 499 988</b>

# STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

## BUDGET ON MODIFIED CASH BASIS

	Approved budget	Adjustment	Final budget	Actual	% Difference	Reference
<b>Statement of Financial Performance Revenue</b>						
<b>Revenue</b>						
<b>Revenue from exchange transactions</b>						
Rendering of services	35 824 311	(16 357 631)	19 466 680	14 833 737	24 %	26.1
Other income	-	-	-	162 449		26.3
Interest received	18 000 000	(5 000 000)	13 000 000	8 694 342	33 %	26.2
<b>Total revenue from exchange transactions</b>	<b>53 824 311</b>	<b>(21 357 631)</b>	<b>32 466 680</b>	<b>23 690 528</b>	<b>27 %</b>	
<b>Revenue from non-exchange transactions</b>						
<b>Transfer revenue</b>						
Transfer from controlling entity	254 379 000	(31 088 000)	223 291 000	223 291 000	0 %	
Donations received	-	-	-	40 347		
<b>Total revenue from non-exchange transactions</b>	<b>254 379 000</b>	<b>(31 088 000)</b>	<b>223 291 000</b>	<b>223 331 347</b>	<b>0 %</b>	
<b>Total revenue</b>	<b>308 203 311</b>	<b>(52 445 631)</b>	<b>255 757 680</b>	<b>247 021 875</b>	<b>3 %</b>	
<b>Expenditure</b>						
Employee related expenses	(149 367 505)	16 768 294	(132 599 211)	(133 123 200)	0 %	
Depreciation and amortisation	-	-	-	(41 114 512)		26.3
Impairment loss	-	-	-	(672 758)		26.3
Credit losses on receivables	-	-	-	(347 589)		26.3
Contracted services	(222 700)	(94 185)	(316 885)	(186 228)	41 %	26.4
Repairs and maintenance	(9 614 780)	1 397 920	(8 216 860)	(6 452 334)	21 %	26.5
Loss on foreign exchange	(120 808)	(129 192)	(250 000)	(253 714)	-1 %	
Loss on disposal of assets	-	-	-	(46 654)		26.3
Operating expenses	(81 137 618)	22 980 394	(58 157 224)	(57 355 211)	1 %	
<b>Total expenditure</b>	<b>(240 463 411)</b>	<b>40 923 231</b>	<b>(199 540 180)</b>	<b>(239 552 200)</b>	<b>-20 %</b>	
Capital expenditure	(67 739 900)	11 522 400	(56 217 500)	(51 549 073)	8 %	
<b>Deficit</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(44 079 398)</b>		
<b>Reconciliation</b>						
<b>Format and classification differences</b>						
Property, plant and equipment				50 690 384		
Intangible assets				858 689		
<b>Surplus in the Statement of Financial Performance</b>				<b>7 469 675</b>		

# ACCOUNTING POLICIES

## 1. Presentation of Financial Statements

The financial statements 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 55 (1) (b) of the Public Finance Management Act (Act 1 of 1999), as amended.

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

The financial statements were prepared on the assumption that the entity is a going concern and will continue to be in operation for the foreseeable future.

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

These accounting policies are consistent with the previous period.

### 1.1 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. This excludes investment property.

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.

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 or fair value of the item can be measured reliably.

Property, plant and equipment is initially measured at cost.

Where an asset is acquired at no cost or at a nominal cost, its cost is its fair value as at date of acquisition.

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

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

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

Item	Useful life in years
Plant and equipment	7 to 20
Furniture and fixtures	7
Motor vehicles	7 to 10
Office equipment	5
Leasehold improvements	<Lease period/useful life

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

When significant components of an item of property, plant and equipment have different useful lives they will be counted for as separate items in the assets register and disclosed in the same category to main asset. These component are depreciated separately.

The residual value, the useful life and depreciation method of each asset are reviewed at the end of each reporting date. If the expectation differs from previous estimates, the change is accounted for as a change in accounting estimate. Refer to note 5.

Reviewing the useful life of an asset on an annual basis does not require the entity to amend the previous estimate unless expectations differ from the previous estimate.

Parts of some item of property, plant, and equipment may require replacement at a 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).

## 1.2 Intangible assets

An intangible asset is an identifiable non-monetary asset without physical substance. 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	Useful life in years
Computer software	2 years

Items of intangible assets are derecognised when the intangible asset is disposed of or when there are no further economic benefits or services potential expected from the use of the intangible asset.

The gain or loss arising from the derecognition of an item of intangible assets is included in surplus or deficit when the item is derecognised. The gains 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.

## 1.3 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.

### 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.

## 1.4 Financial assets

NMISA's principal financial assets are receivables from exchange transactions and cash and cash equivalents.

### Receivables from exchange transactions

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

Cash and cash equivalents comprise cash on hand and deposits held on call with banks and are classified as financial assets at amortised cost.

## Impairment and uncollectability

The entity assesses at the end of each reporting period, whether there is any objective evidence that a financial asset or group of financial assets is impaired.

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

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

The impairment loss estimates equal the best estimates within a range of long outstanding assets with similar credit risk characteristics.

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

## 1.5 Financial liabilities

NMISA's principal financial liabilities are payables from exchange transactions.

### 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.

## 1.6 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.

When a lease includes both land and buildings elements, the entity assesses the classification of each element separately.

### Operating leases - lessee

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

## 1.7 Inventories

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

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

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

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

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

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

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

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

The amount of any reversal of any write-down of inventories, arising from an increase in net realisable value or current replacement cost, are recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

## 1.8 Impairment of cash-generating assets

Assets are classified as cash-generating if the entity intends to generate positive cash inflows from the asset and earn a commercial return that reflects the risk involved in holding the asset. Non-cash generating assets are primarily held for service delivery purposes in terms of NMISA's mandate.

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. In assessing value in use, the estimated future cash flow is discounted to its present value, using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the assets.

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.

## 1.9 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:

- (a) depreciated replacement cost approach;
- (b) restoration cost approach; or
- (c) service units approach.

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

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

## 1.10 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.

## Defined contribution plans

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

### 1.11 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.

Where the effect of time value of money is material, the amount of a provision is the present value of the expenditures expected to be required to settle the obligation. The discount rate shall reflect current market assessments of the time value of money and risks specific to the liability.

The entity reviews provisions at each reporting date, and adjust them if necessary, 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. Where discounting is used, the carrying amount of a provision increases in each period to reflect the passage of time. This increase is recognised as an interest expense.

## Contingent liabilities

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

### 1.12 Commitments

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

### 1.13 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, net of trade discounts and volume rebates.

## 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 NMISA;
- 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.

## 1.14 Revenue from non-exchange transactions

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

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

## Gifts and donations, including goods in-kind

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

## 1.15 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; and
- 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.

## 1.16 Change in estimates

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.

## 1.17 Fruitless and wasteful expenditure

Fruitless and wasteful expenditure as defined by Section 1 of the PFMA means expenditure which was made in vain and would have been avoided had reasonable care been exercised.

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.

## 1.18 Irregular expenditure

Irregular expenditure as defined in Section 1 of the PFMA is expenditure other than unauthorised expenditure, incurred in contravention of or that is not in accordance with a requirement of any applicable legislation, including -

- (a) The PFMA.
- (b) The State Tender Board Act, 1968 (Act No. 86 of 1968), or any regulations made in terms of the Act. Any provincial legislation providing for procurement procedures in that provincial government.

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 derecognised when settled or subsequently written-off as irrecoverable.

## 1.19 Budget information

Budgets are prepared on a modified cash basis over the 12-month period of the financial year.

A comparison with the budgeted amounts for the current reporting period have been included in the statement of comparison of budget and actual amounts. The reasons for significant variances are disclosed in the notes to the annual financial statements.

## 1.20 Related parties

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

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

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

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

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

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 financial statements.

## 1.21 Events after reporting date

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

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

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

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

## 1.22 Significant judgement and sources of estimation uncertainty

In preparing the annual financial statements, management is required to make 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 are 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: provision for doubtful debts, useful life, residual value and impairment of assets.

### **Provision for doubtful debts**

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.

### **Useful lives and residual values of property, plant and equipment**

Management made certain estimates with regard to the determination of estimated useful lives and residual values of items of property, plant and equipment, as discussed further in Note 3 to 5. 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.

### **Impairment**

The recoverable service amount of non-cash generating assets and individual assets was determined, based on the higher of value in use and fair values of assets, less cost to sell. These calculations require the use of estimates and assumptions. It is reasonably possible that the value in use or fair value assumption may change, which may then impact on management's estimation and may then require a material adjustment to the carrying value of assets.

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.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 2. New standards and interpretations

### 2.1 Standards and interpretations not yet effective or relevant

The following standards and interpretations have been published and are mandatory for the entity's accounting periods beginning on or after 01 April 2021 or later periods:

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

Following the global financial crisis, a number of concerns were raised about the accounting for financial instruments. This included that (a) information on credit losses and defaults on financial assets was received too late to enable proper decision-making, (b) using fair value in certain instances was inappropriate, and (c) some of the existing accounting requirements were seen as too rules based. As a result, the International Accounting Standards Board® amended its existing Standards to deal with these issues.

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 entities annual financial statements in future.

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

#### **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 amended standard is not expected to have a material impact on the entities annual financial statements in future.

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

#### **IGRAP 7: The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction**

The issues addressed in this Interpretation are: (b) How a minimum funding requirement might affect the availability of reductions in future contributions. (a) When refunds or reductions in future contributions should be regarded as available in accordance with the definition of the asset ceiling in paragraph 08 of GRAP 25. The Interpretation is not expected to have a material impact on the entities annual financial statements in future.

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

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 3. Property, plant and equipment

	2021			2020		
	Cost / Valuation	Accumulated depreciation and impairment	Carrying value	Cost / Valuation	Accumulated depreciation and impair- ment	Carrying value
Plant and equipment	660 677 072	(197 717 052)	462 960 020	621 953 466	(162 968 413)	458 985 053
Furniture and fixtures	4 782 087	(3 738 219)	1 043 868	4 578 931	(3 512 922)	1 066 009
Motor vehicles	677 814	(193 769)	484 045	192 969	(123 017)	69 952
Office equipment	19 819 678	(12 924 824)	6 894 854	16 634 967	(11 079 554)	5 555 413
Leasehold improvements	26 198 456	(10 926 969)	15 271 487	20 508 559	(10 622 844)	9 885 715
<b>Total</b>	<b>712 155 107</b>	<b>(225 500 833)</b>	<b>486 654 274</b>	<b>663 868 892</b>	<b>(188 306 750)</b>	<b>475 562 142</b>

### Reconciliation of property, plant and equipment - 2021

	Opening balance	Additions	Disposals	Depreciation	Impairment loss	Total
Plant and equipment	458 985 053	40 579 266	(1 559)	(35 929 986)	(672 754)	462 960 020
Furniture and fixtures	1 066 009	263 477	-	(285 618)	-	1 043 868
Motor vehicles	69 952	484 844	-	(70 751)	-	484 045
Office equipment	5 555 413	3 661 720	(45 815)	(2 276 460)	(4)	6 894 854
Leasehold improvements	9 885 715	5 701 077	-	(315 305)	-	15 271 487
	<b>475 562 142</b>	<b>50 690 384</b>	<b>(47 374)</b>	<b>(38 878 120)</b>	<b>(672 758)</b>	<b>486 654 274</b>

### Reconciliation of property, plant and equipment - 2020

	Opening balance	Additions	Disposals	Depreciation	Impairment loss	Total
Plant and equipment	434 522 474	61 451 204	(2 824 763)	(33 680 802)	(483 060)	458 985 053
Furniture and fixtures	807 362	589 051	(10 776)	(317 796)	(1 832)	1 066 009
Motor vehicles	241 261	-	(138 330)	(32 979)	-	69 952
Office equipment	6 080 503	1 436 885	(45 148)	(1 854 794)	(62 033)	5 555 413
Leasehold improvements	494 999	9 644 878	-	(254 162)	-	9 885 715
	<b>442 146 599</b>	<b>73 122 018</b>	<b>(3 019 017)</b>	<b>(36 140 533)</b>	<b>(546 925)</b>	<b>475 562 142</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

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

Included in the carrying value of property, plant and equipment is work in progress to the value of R43 765 434 (2020: R28 804 845).

## Expenditure incurred to repair and maintain property, plant and equipment included in Statement of Financial Performance

Figures in Rand	2021	2020
Repairs and maintenance	6 452 334	7 453 655

## 4. Intangible assets

	2021			2020		
	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value	Cost / Valuation	Accumulated amortisation and accumulated impairment	Carrying value
Computer software	11 907 226	(10 548 484)	1 358 742	11 048 537	(8 312 092)	2 736 445

Reconciliation of intangible assets - 2021	Opening balance	Additions	Amortisation	Total
Computer software	2 736 445	858 689	(2 236 392)	1 358 742

Reconciliation of intangible assets - 2020	Opening balance	Additions	Amortisation	Total
Computer software	2 998 905	1 347 007	(1 609 467)	2 736 445

## 5. Change in estimate

The entity has reassessed the useful lives of property, plant and equipment and intangible assets, which resulted in certain assets' remaining useful lives to change by an average of one (1) year. The effect of the change in accounting estimate has resulted in an increase in depreciation and amortisation amounting to R55 934 for the current period.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

Change in depreciation and amortisation resulting from reassessment of useful lives. The following categories are affected:

	Values derived using amended estimate	Value derived from using original estimate	Value impact of change in estimate
Furniture and fixtures	285 618	282 159	3 459
Computer software	2 236 392	2 229 102	7 290
Leasehold improvements	315 305	513 614	(198 309)
Office equipment	2 276 460	2 255 229	21 231
Plant and equipment	35 929 986	35 707 716	222 270
Motor vehicles	70 751	70 758	(7)
	<b>41 114 512</b>	<b>41 058 578</b>	<b>55 934</b>

## 6. Inventories

### Figures in Rand

	2021	2020
Raw materials	5 674 887	6 080 596
Finished goods	2 510 152	2 510 361
	<b>8 185 039</b>	<b>8 590 957</b>
Inventories recognised as an expense during the year, included under operating expenses	405 918	1 919 179

Inventory is carried at lower of cost or net realisable value.

Inventories written-down during the year, included under operating expenses

	581	66 305
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Inventory was not pledged as security for liabilities.

## 7. Receivables from exchange transactions

### Figures in Rand

	2021	2020
Trade receivables	7 634 839	9 121 675
Employee advances and other receivables	35 679	42 626
Less: Provision for impairment of trade receivables	(977 108)	(629 520)
	<b>6 693 410</b>	<b>8 534 781</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

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

## Movement in the provision for impairment of trade receivables

### Figures in Rand

	2021	2020
Opening balance	629 520	168 900
Provision for impairment raised	977 108	629 520
Unused amounts reversed	(629 520)	(168 900)
	<b>977 108</b>	<b>629 520</b>

## 8. Cash and cash equivalents

Cash and cash equivalents consist of:

Cash on hand	9 537	19 081
Bank balances	1 528 048	3 888 427
Short-term deposits*	143 342 822	158 592 480
	<b>144 880 407</b>	<b>162 499 988</b>

There are no restrictions on cash held with banks. Cash and cash equivalents (other than cash on hand) are held with Standard Bank, which is rated AA+ based on rating agency Fitch Ratings.

\*Short-term deposit is the Money Market account held with Standard Bank.

## 9. Provisions

Reconciliation of provisions - 2021	Opening Balance	Additions	Utilised during the year	Reversed during the year	Total
Provision for career ladder	732 190	3 040 943	(732 190)	-	3 040 943
Provision for performance bonuses	15 214 239	9 552 565	(13 406 231)	(1 808 008)	9 552 565
Other provisions	356 230	2 398 720	(356 230)	-	2 398 720
	<b>16 302 659</b>	<b>14 992 228</b>	<b>(14 494 651)</b>	<b>(1 808 008)</b>	<b>14 992 228</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

Reconciliation of provisions - 2020	Opening Balance	Additions	Utilised during the year	Reversed during the year	Total
Provision for career ladder	1 497 257	732 190	-	(1 497 257)	732 190
Provision for performance bonuses	18 475 375	15 214 239	(12 273 475)	(6 201 900)	15 214 239
Other provisions	670 513	356 230	(630 649)	(39 864)	356 230
	<b>20 643 145</b>	<b>16 302 659</b>	<b>(12 904 124)</b>	<b>(7 739 021)</b>	<b>16 302 659</b>

## 10. Payables from exchange transactions

Figures in Rand	2021	2020
Trade payables	1 866 951	6 683 244
Accrued leave pay	6 841 885	5 289 522
Accrued expenses	1 482 248	2 414 937
Deferred income	81 732	-
	<b>10 272 816</b>	<b>14 387 703</b>

## 11. Income received in advance

Prepayments received from customers	771 182	670 964
Other advances received*	1 886 164	1 885 951
	<b>2 657 346</b>	<b>2 556 915</b>

\*Includes an amount of R1 million advance received from National Physical Laboratory (NPL) for a collaboration via a visiting fellowship in the field of mass metrology and the technology necessary for the realisation and dissemination of the unit of mass under the revised SI and R0.9 million received from the Department of Science and Technology (DST) to facilitate the finalisation of the proposal for the establishment of the material characterisation facility. Funds remain unspent due to travel restrictions implemented to combat COVID-19.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 12.Revenue

Figures in Rand	2021	2020
Exchange revenue	23 690 528	38 868 410
Non-exchange revenue	223 331 347	245 328 272
	<b>246 997 704</b>	<b>284 196 682</b>
The amount included in revenue arising from exchanges of goods or services are as follows:		
Rendering of services	14 833 737	21 843 150
Other income	162 449	39 713
Interest received	8 694 342	16 985 547
	<b>23 690 528</b>	<b>38 868 410</b>

The amount included in revenue arising from non-exchange transactions is as follows:

Transfer received from controlling entity towards operating expenditure	103 550 000	115 057 000
Transfer received from controlling entity towards capital expenditure	119 741 000	129 979 000
Donations received	40 347	292 272
	<b>223 331 347</b>	<b>245 328 272</b>

## 13.Employee related expenses

Net earnings	68 589 956	69 729 513
Performance bonuses	7 744 557	8 974 061
Unemployment Insurance Fund (UIF)	601 051	568 095
Third-party payments*	17 651 938	16 505 665
Leave pay provision charge	1 552 363	215 242
Pay As You Earn (PAYE)	32 145 194	25 005 734
Long-service awards	124 914	139 292
Temporary employees	-	1 058 957
Career ladder adjustment	4 713 227	(765 067)
	<b>133 123 200</b>	<b>121 431 492</b>

\*Payments include costs related to medical aid, pension fund contributions, group life, etc.

The difference in amounts between the Statement of Financial Performance and the Cash Flow Statement is due to movements in provisions.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 14. Operating expenses

Figures in Rand	2021	2020
Auditor's remuneration	985 061	968 797
Bursaries	381 551	1 510 869
Catering, events and meetings	112 608	1 887 037
Chemicals and lab consumables	10 188 379	7 711 083
Consulting and professional fees	593 656	922 918
Electricity	3 751 941	2 236 698
External calibration costs	1 360 770	845 736
Health and safety services	483 221	435 099
Human capital development	1 139 169	2 491 068
IT expenses	5 862 813	10 426 466
Insurance	1 587 973	507 960
Inventories written-down to net realisable value	(581)	66 305
Lease rentals on operating lease	19 675 889	12 962 695
Marketing and advertising	589 603	2 898 960
Other expenses	1 043 986	1 473 994
Postage and courier	1 888 293	2 612 649
Printing and stationery	1 081 366	1 489 863
Recruitment costs	140 629	555 465
Research and development costs	86 250	1 983 000
SANAS assessment/Quality expenses	647 618	840 215
Staff welfare	163 405	655 564
Subscription and membership fees	615 259	709 755
Technical components	3 685 099	6 754 760
Telephone and fax	446 422	582 699
Travel - local	33 710	1 935 111
Travel - overseas	(2 074)	6 479 302
VAT on imported services	813 195	-
	<b>57 355 211</b>	<b>71 944 068</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 15. Cash generated from operations

Figures in Rand	2021	2020
Surplus	7 469 675	44 046 640
<b>Adjustments for:</b>		
Depreciation and amortisation	41 114 512	37 750 000
Loss/(profit) on disposal of assets	46 654	(103 026)
Foreign exchange loss	253 714	396 853
Impairment loss	672 758	546 925
Movement in provision for career ladder adjustments	2 308 753	(765 067)
Movement in provision for performance bonuses	(5 661 674)	(3 261 136)
Movement in other provisions	2 042 490	(314 283)
Credit losses	347 589	460 620
<b>Changes in working capital:</b>		
Inventories	405 918	(3 528 676)
Receivables from exchange transactions	1 493 782	(2 052 099)
Prepayments	(12 297 230)	(13 527 340)
Payables from exchange transactions	(4 368 600)	(6 155 760)
Income received in advance	100 431	(118 103)
	<b>33 928 772</b>	<b>53 375 548</b>

## 16. Commitments

### Already contracted for but not provided for

Property, plant and equipment	132 836 669	118 834 061
Operating expenditure	12 559 954	23 721 895
	<b>145 396 623</b>	<b>142 555 926</b>

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

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.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

Figures in Rand	2021	2020
<b>Operating lease commitments - Building</b>		
Minimum lease payments due		
- within one year	20 895 794	-
- in second to fifth year inclusive	97 367 010	-
- later than five years	121 036 397	-
	<b>239 299 201</b>	<b>-</b>
<b>Rental expenses relating to operating leases</b>		
Minimum lease payments	19 675 889	12 962 695
<b>Operating lease commitments - Printers</b>		
Minimum lease payments due		
- within one year	156 470	5 155

## Significant lease arrangements

### Lease rental - Buildings

The lease relates to the use of Buildings for a total period of 9 years and 11 months, commencing on 01 April 2020. The rental increases on 01 April of each consecutive year, the increase will be based on CPI plus 3 %. The rental is payable monthly in advance.

### Lease rental - Printers

The lease relates to the use of Printers for a total period of 12 months, commencing on 01 September 2020. The rental is payable monthly in arrears.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 17. Related parties

Controlling entity	Department of Trade, Industry and Competition ( <b>the dtic</b> )
Members	Ms Jabu Mogadime (Chairperson) Mr Molelekoa Petrus Mohlomi Ms Lindie Lankalebalelo Mr Odirile Dingoko (Deceased November 2020) Ms Nobom Gcinashe Mfabane Dr Tshenge Demana ( <b>the dtic</b> representative)
External members of the Audit and Risk Committee	Mr Zenzele Myeza Ms Romeshni Govender
External members of the IT Steering Committee	Mr Senzo Dlamini Mr Sipho Masinga
Members of key management	Mr Benjamin van der Merwe Dr Wynand Louw Ms Natasha van der Walt Dr Jayne de Vos Mr Teboho Mthombeni Mr Mogau Sehlapelo Dr Zakithi Msimang (Resigned 31 October 2020)
Entities under common control	South African National Accreditation Systems (SANAS) Export Credit Insurance Corporation (ECIC) National Empowerment Fund (NEF) South African Bureau of Standards (SABS) National Creditor Regulator (NCR) National Gambling Board (NGB) National Consumer Commission (NCC) National Consumer Tribunal (NCT) National Lotteries Commission (NLC) National Regulator for Compulsory Specifications (NRCS) Companies and Intellectual Property Commission (CIPC) The Companies Tribunal (CT) Competition Commission Competition Tribunal (CCCT) Industrial Development Corporation (IDC) International Trade Administration Commission of South Africa (ITAC)

### Key management information

Class	Description	Number
Board members	Accounting Authority	5
Executive Committee	Executive management	7

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

Figures in Rand	2021	2020
<b>Related party balances</b>		
<b>Amounts included in Trade Receivable regarding related parties</b>		
South African National Accreditation System (SANAS)	119 126	81 902
South African Bureau of Standards (SABS)	13 906	59 613
<b>Amounts included in Trade Payable regarding related parties</b>		
South African National Accreditation System (SANAS)	10 408	31 129
South African Bureau of Standards (SABS)	-	15 509
<b>Amounts included in Income</b>		
<b>Received in Advance/AP Prepayments regarding related parties</b>		
National Regulator for Compulsory Specifications (NRCS)	-	1 980
South African Bureau of Standards (SABS)	5 566	-
<b>Provision for doubtful debts related to outstanding balances with related parties</b>		
South African Bureau of Standards (SABS)	6 850	-
South African National Accreditation System (SANAS)	6 750	-
<b>Related party transactions</b>		
<b>Sales to related parties</b>		
South African National Accreditation System (SANAS)	250 746	242 391
South African Bureau of Standards (SABS)	35 874	123 424
National Regulator for Compulsory Specifications (NRCS)	36 080	-
<b>Purchases from related parties</b>		
South African National Accreditation System (SANAS)	710 240	1 089 503
South African Bureau of Standards (SABS)	151 274	197 953
<b>Transfer received from related parties</b>		
The Department of Trade, Industry and Competition (the dtic)	223 291 000	245 036 000

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## 18.Members' emoluments

### Executives

2021	Basic salary	Performance bonus	Annual Bonus/ Long service award	Pension contribution	Allowances	Other expenses	Total
Mr Ndwakhulu Mukhufhi (CEO)	2 312 011	481 532	40 128	55 520	24 000	-	2 913 191
Mr Mogau Sehlapelo	1 590 914	325 693	-	37 552	18 000	-	1 972 159
Mr Teboho Mthombeni	1 075 327	132 398	-	152 655	114 000	-	1 474 380
Ms Zakithi Msimang (Resigned 31 October 2020)	819 721	206 517	-	66 802	10 500	1 507	1 105 047
Dr Wynand Louw	1 219 774	229 069	-	108 045	121 860	13 733	1 692 481
Ms Natasha van der Walt	1 276 500	192 749	-	100 278	18 000	3 125	1 590 652
Dr Jayne de Vos	1 240 396	157 485	117 766	115 056	18 000	-	1 648 703
Mr Benjamin van der Merwe	1 117 091	229 069	147 940	195 281	18 000	-	1 707 381
	<b>10 651 734</b>	<b>1 954 512</b>	<b>305 834</b>	<b>831 189</b>	<b>342 360</b>	<b>18 365</b>	<b>14 103 993</b>

2020	Basic salary	Performance bonus	Annual Bonus	Pension contribution	Allowances	Other expenses	Total
Mr Ndwakhulu Mukhufhi (CEO)	2 312 011	481 532	40 128	55 521	24 000	4 360	2 917 552
Mr Mogau Sehlapelo	1 590 914	273 355	-	37 552	18 000	7 424	1 927 245
Mr Teboho Mthombeni	1 102 859	141 671	-	139 092	82 000	4 599	1 470 221
Ms Zakithi Msimang	1 186 412	174 106	73 221	112 698	18 000	2 092	1 566 529
Dr Wynand Louw	1 201 993	250 683	-	106 328	121 860	14 102	1 694 966
Ms Natasha van der Walt	1 259 344	174 106	-	98 684	18 000	2 623	1 552 757
Ms Jayne de Vos	1 257 564	153 195	39 141	113 228	18 000	366	1 581 494
Mr Benjamin van der Merwe	1 156 145	236 756	84 510	158 935	18 000	408	1 654 754
	<b>11 067 242</b>	<b>1 885 404</b>	<b>237 000</b>	<b>822 038</b>	<b>317 860</b>	<b>35 974</b>	<b>14 365 518</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

Figures in Rand	2021	2020
<b>Non-executive</b>		
<b>Board members' emoluments</b>	<b>Fees</b>	<b>Fees</b>
Ms Jabu Mogadime (Chairperson)	94 117	111 924
Ms Ursula Ntsubane (Term ended 28 February 2020)	-	68 340
Ms Bavelile Hlongwa (Resigned 22 May 2019)	-	23 627
Ms Lindie Lankabalelo	113 928	83 777
Mr Odirile Dingoko (Deceased November 2020)	64 320	61 831
Ms Nobom Mfabana	117 401	88 124
Mr Molelekoa Mohlomi	125 008	122 523
	<b>514 774</b>	<b>560 146</b>

Dr Tshenge Demana (the dtic representative) does not receive remuneration for the meetings attended.

<b>Independent committee members</b>	<b>Fees</b>	<b>Fees</b>
Mr Senzo Dlamini	12 060	8 040
Mr Sipho Masinga	12 060	17 418
Mr Zenzele Myeza	28 140	-
Ms Romeshni Govender	24 120	34 031
	<b>76 380</b>	<b>59 489</b>

## 19. Risk management

### Financial risk management

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

COVID-19's impact on organisations is rapidly increasing not only effecting the supply and demand dynamics but has also disrupted the financial markets as well as the macro economy. 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 and ensuring core business activities are kept going.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## Liquidity risk

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

2021	Carrying amount	1 to 5 months	6 to 9 months	10 to 12 months	2 to 5 years	More than 5 years
Payables from exchange transactions	9 828 623	9 828 623	-	-	-	-
	<b>9 828 623</b>	<b>9 828 623</b>	-	-	-	-

2020	Carrying amount	1 to 5 months	6 to 9 months	10 to 12 months	2 to 5 years	More than 5 years
Payables from exchange transactions	14 387 702	14 355 193	-	32 509	-	-
	<b>14 387 702</b>	<b>14 355 193</b>	-	<b>32 509</b>	-	-

## Credit risk

Credit risk for NMISA is mainly limited to cash deposits, cash equivalents and trade debtors. NMISA only deposits cash with major banks with high quality credit standing and limits exposure to any one counter-party.

Trade receivables are derived from revenue earned by, but not limited to, calibrating equipment, materials characterisation, certified reference materials, proficiency testing schemes and primary reference gas mixtures. There is no independent rating and as a result management assesses the credit quality of the customer, taking into account trade references, past experience and other factors. NMISA establishes an impairment that represents its estimate of potential losses in respect of trade receivables.

NMISA is considering all receivables between 90 and 120 days and individually based on payment history for impairment. The provision for impairment is 13 % (2020: 7 %) of the total receivables book.

Figures in Rand	2021	2020
The maximum exposure to credit risk is as follows:		
Trade receivables	7 634 839	9 121 675
Less: Provision for impairment of trade receivables	(977 108)	(629 520)
Rental deposit	605 419	605 419
	<b>7 263 150</b>	<b>9 097 574</b>

As at 31 March 2021, the age analysis of the receivables from exchange transactions net of provision for impairment of trade receivables, was as follows:

Not past due	3 983 667	5 650 496
Past due 31-60 days	275 915	655 172
Past due 61-90 days	220 761	281 576
Past due 91-120 days	139 262	195 304
Past due 120 days over	2 038 126	1 709 607
	<b>6 657 731</b>	<b>8 492 155</b>

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## Cash flow risk

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

## Interest rate risk

NMISA's interest rate risk arises from markets and economic factors, payables, cash and cash equivalents and receivables. NMISA'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.

### Figures in Rand

#### Cash and cash equivalents

Short-term deposits

2021	2020
143 342 822	158 592 480

## Currency risk

NMISA is exposed to this type of risk. NMISA'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.

## 20. Going concern

The 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.

## 21. Events after the reporting date

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

## 22. Irregular expenditure

### Figures in Rand

Expenditure identified - current

2021	2020
432 085	-

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

## Details of the incident

Non-compliance to the requirement of PPPFA Regulation No. 34350 - section 4(1) - in that the request for quote (RFQ) included functionality assessment. The assessment on the functionality criterion was not sufficiently documented and applied in line with requirements.

## 23. Fruitless and wasteful expenditure

Figures in Rand	2021	2020
Opening balance	12 614	-
Add: Expenditure identified - current	-	12 614
Less: Amounts recoverable - current	(12 614)	-
Closing balance	-	12 614

## 24. Rental deposit

Amount	605 419	605 419
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The rental deposit is refundable to the entity at the end of the lease term.

## 25. Retirement benefits

Amount	13 596 633	12 694 654
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NMISA provides retirement benefits through a defined contribution plan to all its employees. The fund is governed by the Pension Funds Act, 1956 (Act No. 24 of 1956). The entity is under no obligation to cover any unfunded benefits.

## 26. Budget differences

### Material differences between budget and actual amounts

- 26.1** The variance is due to a more sluggish demand than anticipated. Furthermore NMISA's courses and training were cancelled due to the COVID-19 pandemic. An online platform has since been created for providing courses and training, new dates are being negotiated with the regional NMIs.
- 26.2** The unfavourable variance is due to a decrease in the balance invested resulting from R31.1 million of allocated transfer refunded to **the dtic**; the transfer received in tranches instead of full amount being received in April as anticipated, as well as settlement of commitments, thus reducing the amount of interest earned.

# NOTES TO THE FINANCIAL STATEMENTS

AS AT 31 MARCH 2021

**26.3** Depreciation, impairment loss, other income, credit losses and gains/ losses on disposals of assets are non cash items which are not budgeted for.

**26.4** Due to staff mostly working from home, less than anticipated hygiene products and services were required, hence funds remain committed but not yet expensed.

**26.5** Variance is due to instruments not being operated at full capacity resulting from the lockdown to combat the COVID-19 pandemic, there has been less components and repairs required and less than anticipated breakages.

## 27. Prepayments

### Figures in Rand

	2021	2020
Prepayments - current assets	35 963 024	24 519 737
Prepayment - non-current assets	916 566	62 623
	<b>36 879 590</b>	<b>24 582 360</b>

NMISA procures specialised equipment (custom made on order or assembled to order by international manufactures according to NMISA specification). 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 thus the delivery lead times for equipment procured by NMISA can be anything up to a year. As a result most suppliers require a certain portion of the award amount to be prepaid on placement of an order or on completion of certain stages in the production process.



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