nmisa
National Metrology Institute of South Africa

ANNUAL REPORT 2017/18

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PART A

GENERAL INFORMATION

1.1 NMISA'S GENERAL INFORMATION

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	EXTERNAL AUDITORS	Nexia SAB&T Pretoria
	BANKERS	Standard Bank Lynnwood Ridge Pretoria
	COMPANY/BOARD SECRETARY	Mr Charles Kgoale

1.2 LIST OF ACRONYMS

AFRIMETS	Intra-Africa Metrology System
AFRA	African Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology
AG	Auditor-General
AGRILASA	Agricultural Laboratory Association of South Africa
AMI	Advanced Metals Initiative
AMS	Advanced Measurement Solutions
AOAC	Association of Official Analytical Communities
APMP	Asia Pacific Metrology Programme
ARAC	Arab Accreditation Cooperation
ARC	Audit and Risk Committee
ARSO	African Organisation for Standardisation
AUC	African Union Commission
AYOQ	African Year of Quality
BD	Business Development
BIPM	International Bureau of Weights and Measures
BRICS	Brazil, Russia, India, China and SA
CC	Consultative Committee
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CFTA	Continental Free Trade Area
CGCSA	Consumer Goods Council of South Africa
CGPM	General Conference on Weights and Measures
CGS	Council for Geosciences
CIE	International Commission on Illumination
CIGRÉ	The International Council on Large Electric Systems
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capabilities
COTII	Committee of Trade and Industry Institutions
CRM	Certified Reference Material
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DDT	Dichlorodiphenyltrichloroethane
DoH	Department of Health
DTI	Department of Trade and Industry
EBSD	Electron Backscatter Diffraction
EDS	Energy Dispersive Spectroscopy
EE	Employment Equity
EEP	Enery Efficiency Programme
EGM	Expert Group Meeting
EHS	Environment, Health and Safety
EMS	Environmental Management System
EPCRC	Environmental Pollution Compliance and Research Centre
ESKOM	Electricity Supply Commission
EURAMET	European Association of National Metrology Institutes
EXCO	Executive Committee
FAMES	Fatty Acid Methyl Esters
GDP	Gross Domestic Profit
GEP	Green Economy Programme
GNSS	Global Navigation Satellite System
GRAP	Generally Recognised Accounting Practice
h	planc's constant
HCD	Human Capital Development
HEI	Higher Education Institution
HSE	Health, Safety and the Environment
HVAC	Heating, Ventilation and Air Conditioning
IAEA	International Atomic Energy Agency
ICT	Information and Communication Technology
IEC	International Electro-technical Committee
ILAC	International Laboratory Accreditation Cooperation
IPAP	Industrial Policy Action Plan
IPSAS	International Public Sector Accounting Standards
IPK	International Prototype of the Kilogram
IR	Ionising Radiation
ISO	International Standards Organisation
iMAT	Materials Characterisation and Inorganic section
IT	Information Technology
JCRB	Joint Committee of Regional Metrology Organisations and the BIPM
KCDB	Key Comparison Database
KPI	Key Performance Indicator
KZN	KwaZulu-Natal
LED	Light-emitting Diode
LNE	Laboratoire national de métrologie et d'essais
MC	Manufacturing Competitiveness
MEA	Multilateral Environment Agreements

MOU	Memorandum of Understanding
MP	Member of Parliament
MRA	Mutual Recognition Arrangement
MRL	Maximum Residue Limits
MSc	Master's degree in Science
MTEF	Medium-Term Expenditure Framework
NA	Avogadro number
NCC	National Consumer Commission
NCCM	National Committee on Chemicals Management
NDP	National Development Plan
NEDLAC	National Economic Development and Labour Council
Nexia SAB&T	Accounting, Audit and Consulting Services (external auditors)
NIM	National Institute of Metrology, China
NIST	National Institute of Science and Technology of the USA
NMI	National Metrology Institute
NMISA	National Metrology Institute of South Africa
NMS	National Measurement Standards
NNR	National Nuclear Regulator
NPA	National Prosecuting Authority
NPL	National Physics Laboratory of the United Kingdom
NRCS	National Regulator for Compulsory Specifications
NRL	National Reference Laboratory
NRF	National Research Foundation
NSBC	National Small Business Chamber
NSI	National System of Innovation
OEM	Original Equipment Manufacturer
OH&S	Occupational Health and Safety
OHSAS	Occupational Health and Safety Assessment Series
OIML	International Organisation of Legal Metrology
PAQI	Pan-African Quality Infrastructure
PFMA	Public Finance Management Act
PhD	Doctor of Philosophy
POPs	Persistent Organic Pollutants
PPECB	Perishable Products Export Control Board
PPP	Public Private Partnership
PRGMs	Primary Reference Gas Mixtures
PTB	National Metrology Institute of Germany
PTS	Proficiency Testing Schemes
QoL	Quality of Life
QMPS	Quality Management Programme System
QS	Quality System

RAM	Resonant Acoustic Mixer
REC	Regional Economic Communities
RI	Regional Integration
RM	Reference Material
RMO	Regional Metrology Organisation
RPPs	Renewable Power Plants
SA	South Africa
SAAQIS	South African Air Quality Information System
SABS	South African Bureau of Standards
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
SAGL	South African Grain Laboratory
SANAS	South African National Accreditation System
SANEDI	South African National Energy Development Institute
SANS	South African National Standards
SARAO	South African Radio Astronomy Observatory
SCM	Supply Chain Management
SCOPA	Standing Committee of Public Accounts
SEM	Scanning Electron Microscope
SHEQ	Safety, Health, Environment and Quality
Si	Silicon
SI	International System of Units
SIM	Inter-American Metrology System
SMME	Small, Micro and Medium Enterprise
SME	Small and Medium Enterprise
SQAM	Standards, Quality Assurance, Accreditation and Metrology
TAF	Technical Advisory Forum
TBTs	Technical Barriers to Trade
TC	Technical Committee
TEI	Tertiary Education Institute
TI	Technical Infrastructure
The Act	Measurement Units and Measurement Standards Act (Act 18 of 2006)
TOFSIMS	Time-of-Flight Secondary Ion Mass Spectrometry
UNIDO	United Nations Development Organisation
UTC	Coordinated Universal Time
UWC	University of the Western Cape
WG	Working Group
XPS	X-ray Photoelectron Spectroscopy

1.3 FOREWORD BY THE MINISTER

It gives me great pleasure in announcing that NMISA achieved 100% performance and yet another consecutive clean audit in the 2017-2018 financial year. This consistent, high level of performance provides confidence in knowing the mandate established under the Measurement Units and Measurement Standards Act No. 18 of 2006 is being carried out efficiently.

NMISA ensures measurement equivalence with the global system of measurements through the correct implementation of the International System of Units (SI) and by keeping, maintaining and disseminating the national measurement standards (NMS). Metrology as the Science of measurement, or effecting accurate measurement, plays a fundamental role in numerous aspects of everyday life and NMISA contributes to quality of life and especially calibration and measurement in the health, food and law enforcement sectors. But it is its contribution to manufacturing, trade and the Industrial Policy Action Plan (IPAP) that allows for locally produced goods to compete in world markets.

The leadership role that NMISA plays in the region is paramount for the regional integration mandate of the **dti** and the envisaged Continental Free Trade Area (CFTA); that would require intra-regional mutual recognition of testing and conformity assessment capabilities. NMISA's efforts to shorten the traceability chain for South Africa and the continent must ensure the competitiveness and international acceptance of all measurements for both inter and intra-trade. In support of this goal, the **dti** will continue to support the recapitalisation of NMISA to deal with the ageing infrastructure challenge and to renew equipment, and has pledged to provide funding towards a new building.

This role will become even more important with the fourth industrial revolution, Industry 4.0, characterised by the human/ machine interface and automation. This will require dynamic (real time) measurement to take over from static measurement and will place a bigger responsibility on the capabilities and offerings of NMISA. I am confident that NMISA will continue to address the challenges ahead with commitment, dedication, integrity and service excellence that has been characteristic of the organisation in the past.

With most of the current Board terms ending in 2018, I would like to thank each of the NMISA Board members for their commitment and dedication to ensure that NMISA remained committed to its mission and guiding principles. Their commitment towards building a strong and effective organisation is admirable and if the new Board follows the current Board's example, I have confidence that the strong foundation they have built will continue in the next term.

I look forward to NMISA's contribution to better the quality of life of all South Africans and the region and ensuring that they deliver the vision of being a measurement centre of excellence inspired to consistently deliver outstanding, innovative and internationally comparable measurement solutions that support our country's trade and enable the protection of the environment.

Minister
the dti
31 July 2018

1.4 FOREWORD BY THE CHAIRMAN

Metrology is the science of measurement and impacts every sphere of society and most importantly, assists with the improvement of the competitiveness of the South African industry in support of the national strategic initiatives. NMISA's business model has been restructured to support the Nine-Point Plan and the implementation of the IPAP. NMISA's delivery and service environment has now been tailored to report against a holistic and consolidated matrix structure in the form of programmes underpinned by regional integration and maintenance of the national measurement standards.

I am pleased to present NMISA's 2017/2018 Annual Report highlighting continued maintenance of primary and secondary standards to realise traceability to the SI units, and to transfer the traceability to industry through calibration, training and technical support. The development and research projects, including the establishment of a capability for the realisation of mass, contribute towards clear deliverables against the strategic objectives through publications, products, services and human capital development.

The organisation achieved 100% of its targets for the year and I am particularly pleased that the organisation has once more managed to maintain an unqualified clean audit opinion. The continued commitment by the Board of Directors in providing guidance and direction complimented by the consistent hard work of all the staff under the leadership of the Chief Executive Officer (CEO) is clearly evident. The organisation has successfully maintained the total quality management system and its South African National Accredditation System (SANAS) credentials for the calibration and analysis laboratories, reference material production laboratories, and for conducting proficiency testing schemes based on International Standards Organisation (ISO) requirements, as well as maintaining certification to ISO 14001 and OHSAS 18001 for occupational health and safety.

The feasibility study for recapitalisation of NMISA's laboratory infrastructure was concluded during the year and submitted to National Treasury for approval to proceed with the next step of the project, in line with the Public Private Partnership (PPP) manual. Although National Treasury could not confirm additional funding towards the project, the **dti** pledged funding to enable the process to continue. An application is being prepared to the Department of Public Works to secure land for the new laboratories.

I would like to thank our stakeholder, the **dti**, for their confidence in NMISA and continued financial support and our local and international collaborators, for their commitment and partnership. In conclusion, I would like to also express my gratitude for the hard work and dedicated service provided by NMISA's board.

Chairman
NMISA
31 July 2018

1.5 THE CEO'S OVERVIEW

NMISA was established under the Measurement Units and Measurement Standards Act, No. 18 of 2006 (The Measurement Act), as the custodian of the national measurement units and NMS. In this role, as part of the South African Technical (Quality) Infrastructure, NMISA maintains and ensures the appropriate application of the SI and other measurement units as defined by NMISA in consultation with the measurement community, for the country.

The trade of goods and services around the world is the lifeblood of a global economy. By ensuring equivalence in measurement, NMISA ensures that the Country can participate fairly and trade freely in these global markets. NMISA contributes to all government key priorities as encapsulated in the National Development Plan (NDP) and operationalised through the IPAP.

During the year under review, NMISA continued delivering on its mandate to provide relevant fit-for-purpose measurement solutions to the South African economy. The fourth industrial revolution and digital transformation provided NMISA with a traceability challenge to support the drive for local manufacturing, beneficiation and the new vision for reindustrialisation in the metals and machinery, automotive and agro-processing sectors. In response to this challenge and the fiscus under pressure, NMISA consolidated the shortening of the traceability chain for South Africa and the African continent and increased its focus on activities that ensured relevance to the community. The eight thematic programmes (Reference Materials, Manufacturing Competitiveness, Quality of Life, Energy Efficiency, Green Economy, Redefinition of the SI, Advanced Measurement Solutions and Commercial Services), established in the previous financial year, were further refined, aligned to the IPAP and other national priorities, and implemented. In line with the **dti's** strategic focus, the programmes were underpinned by regional and international integration.

The organisation continued with the recapitalisation project that started in the 2013/14 financial year to deal with the challenge of ageing infrastructure and equipment. Expenditure on capital equipment for the year was approximately R 181 million, bringing the total spent since 2013/14 to R 532 million. The upgraded equipment is already contributing to improved measurement capability and the ability of the organisation to earn external revenue to enhance long-term sustainability. The feasibility study for the development of new and modern laboratories which was concluded during 2016 is further being supported with the **dti** pledging R126 million per annum within the current Medium-Term Expenditure Framework (MTEF) for continuation with the next phase of the project. The department also endeavoured to channel other savings towards the project to ensure that a modern NMISA can be established and maintained.

During the year, NMISA continued its high-performance standards realised in recent years. The organisation met and/or exceeded all its set targets, including a revenue target of more than R 20 million; a two-fold increase year on year. This shows the success of our focus on fit-for purpose measurement solutions to industry, underpinned by the organisation again receiving an unqualified clean audit opinion.

NMISA adheres to a total quality management system and has identified the regulatory requirements applicableto its services, operations and products to ensure compliance. NMISA received continued certification of its Occupational Health and Safety (OH&S) and Environmental Management System (EMS) to ISO14001 and OHSAS 18001, meeting specified requirements. Almost all the laboratories are accredited to ISO/IEC 17025 while the chemistry laboratories are also accredited to ISO/IEC 17034 (production of reference materials) and are conducting proficiency testing schemes based on the requirements of ISO/IEC 17043.

I would like to thank the NMISians for their contribution to the outstanding results realised during the year as we continue to deliver on our mandate. Within the fiscal constraints, it is important to fly with our strengths and to strengthen key partnerships.

The end of the financial year also marked the end of the term for the NMISA Board of Directors. On behalf of NMISA's Executive Management and staff, I would like to thank the NMISA Board for their continued guidance and support throughout their second and last term. In conclusion, I would like express special appreciation for support from the dti and all our stakeholders and partners both locally and internationally; our success truly depends on your continued support.

I am looking forward to yet another successful year of measurement excellence to build on the more than 70 years of international equivalence.

Mr Ndwakhulu Mukhufhi
Chief Executive Officer NMISA
31 July 2018

"Fly with your strengths and let others compliment you on your weaknesses."

1.6 STATEMENT OF RESPONSIBILITY AND ACCURACY

Submission of the Annual Report by the Chairman of the Board

It is with great pleasure that I, as the Chairman of the Board of NMISA, submit the performance and progress of the entity for the financial year 2017/2018 in terms of the Public Finance Management Act (PFMA, Act 1 of 1999, as amended).

Dr Prinsloo Nevhutalu
31 July 2018

1.7 SUBMISSION TO THE EXECUTIVE AUTHORITY

It is hereby certified that this Annual Report:

- Was prepared by the management of NMISA under the guidance of the Board and the Board Chair, Dr Prins Nevhutalu.
- Accurately reflects the performance outputs that NMISA has achieved given the resources made available in the budget for 2017/2018.

Mr Calvin Sehlapelo, CA (SA)
Chief Financial Officer (CFO)

Mr Ndwakhulu Mukhufhi
Chief Executive Officer (CEO)

Dr Prinsloo Nevhutalu
Accounting Authority

Dr Rob Davies, MP
Executive Authority

1.8 NMISA BOARD MEMBERS AND EXECUTIVE

1.8.1 Board of Directors


Dr Prinsloo Nevhutalu


Mr Ndwakhulu Mukhufhi


Dr Rudzani Nemutudi


Mr Thembani Bukula


Ms Tshidi Molala


Ms Ursula Ntsubane


Dr Tshengedzeni Demana


Mr Tshokolo Nong


Ms Jabu Mogadime


Dr Cleopas Sanangura


Ms Bongani Mathebula

1.8.2 Executive Management


Dr Wynand Louw


Mr Benjamin van der Merwe


Ms Zakithi Msimang


Ms Natasha Nel-Sakharova


Mr Teboho Mthombeni


Mr Calvin Sehlapelo


Dr Jayne de Vos

1.9 STRATEGIC OVERVIEW

1.9.1 NMISA's role and responsibility

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

As the custodian of the national measurement units and national measurement standards (NMS), NMISA maintains and ensures the appropriate application of the international system of units (SI), and other measurement units as defined by NMISA, in consultation with the measurement community, for the country. NMISA also keeps, maintains and disseminates the gazetted NMS. This role is performed through various products and services and is influenced by the external environment.

The trade of goods and services around the world is the lifeblood of the global economy and is increasingly important for domestic economic growth, productivity and investment opportunities. For customers to consider trade to be fair and benefit from it, for component manufacturing to be effective and efficient and for effective health care and the protection of the environment, measurements taken in different parts of the world need to be accurate, equivalent to and accepted by each other. Important decisions (economic, environmental, social and medical) are based on measurement results. NMISA has a very specific role in this context. Without a measurement infrastructure it is difficult to manufacture to international specifications and tolerances to ensure the integrity of commodities, locally and for the export market. Competitive manufacturing relies on accurate, internationally comparable measurement that is achieved through the establishment of the "traceability" of the measurement result to the SI or internationally agreed references. In line with its mandate, NMISA ensures the comparability of measurements made locally with those of our main trading partners.

Measurement thus assists with the competitiveness of the South African industry in support of the national strategic initiatives. Measurements are part of our daily lives and inaccurate measurement can result in losses, disagreement between trading partners and harm to people and the environment - our ***very survival*** depends on the ability to measure accurately. South Africa's ability to provide comparable data informs government in addressing compliance issues that are critical for trade negotiations and overcoming technical barriers to trade. Countries and trade regions impose regulations and directives to trade goods, protect the health of their people and the environment. Stricter legislation and the initiation of environmental programmes are being applied globally that directly impact South Africans and South African trade. It is thus becoming imperative that South Africa understands and implements its own regulatory frameworks that will ensure that measurement underpins the global economic initiativeds and contributes to the overall quality of life in support of the IPAP.

1.9.2 Vision, Mission and Values

VISION

To be a centre of measurement excellence, inspired to consistently deliver outstanding, innovative and internationally- comparable measurement solutions that support the country's trade, people's quality of life and enable the protection of the environment.

MISSION

To keep, maintain and develop national measurement standards and units, and to disseminate traceability in South African industry.

VALUES

- **Measurement excellence.**
- **Social responsibility.**
- **Economic prosperity.**
- **Good governance.**

1.10 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, known as the Measurement Act and provides for the following:

- the use of measurement units of the SI and certain other measurement units;
- the designation of the national measurement units and standards;
- the keeping and maintenance of the national measurement standards and units;
- the establishment and functions of NMISA.

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

South Africa signed the CIPM Mutual Recognition Arrangement (MRA) in 1999. The CIPM MRA was a 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. It is the 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 NMS are mandated to NMISA in the Measurement Act (2006). 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 Convention of the Metre and its organs; the CIPM and the BIPM.

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

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.

The NDP and its flagship programmes for industrial development and research; the IPAP and the National System of Innovation (NSI), places exacting demands on NMISA and its contribution to the development of Southern Africa. All activities in NMISA are structured to support our mandate and aims to position NMISA to fulfil its national and regional obligations, as well as to contribute to quality of life at all levels. NMISA makes a contribution to all government's key priorities, including the Nine-Point Plan to boost economic growth and has aligned its key programmes to the IPAP priority sectors.

Accurate measurement is paramount for fair trade, competitive manufacturing, efficient health care and effective environmental monitoring and law enforcement. The expanding global trade and pressure to eliminate technical barriers to trade (TBTs) creates a constant demand for greater accountability and demonstrated competence in NMIs and plays a leading role in the development of a sound metrology infrastructure in Africa, especially in support of South Africa's immediate neighbours in the Southern African Development Community (SADC). This role is becoming even more important with the advent of a continental free trade agreement (CFTA) as standardisation, metrology, conformity assessment and accreditation are the key components in the implementation of free trade agreements between countries/economic trade blocs.

1.11 ORGANISATIONAL STRUCTURE

NMISA is a Type 3A public entity, managed by a CEO, supported by an Executive Management team and governed by the NMISA Board:

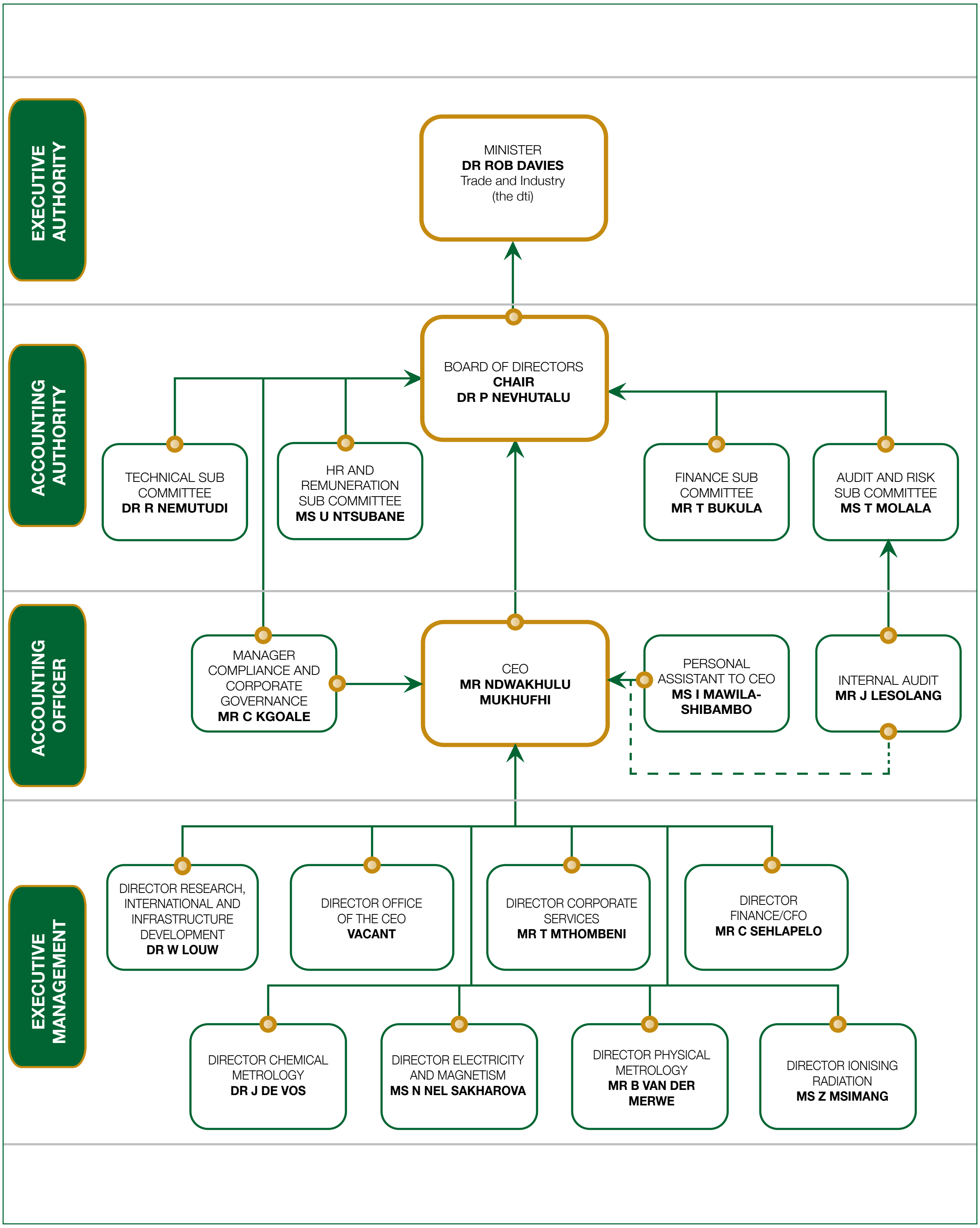


Figure 1. Organisational structure

2.1 SITUATIONAL ANALYSIS

2.1.1 Service delivery environment

NMISA plays a leading role in the development of metrology infrastructure in Africa, especially in support of South Africa's immediate neighbours in SADC. A sound measurement structure is critical to the successful implementation of regional free trade agreements and elimination of TBTs. This role is emphasised in the **dti**'s strategic goals and in South Africa's contribution to the establishment of harmonised regional standards. Comparisons of regional NMI measurement standards are organised to link the region to the international measurement system through NMISA.

As one of the **dti**'s four Technical Infrastructure (TI) institutes, NMISA's activities are critical to the success of the other TIs and support national programmes such as the IPAP. With an increasing focus on local manufacturing, energy and agro-processing, ensuring the quality and safety of imported produce and products is necessary and NMISA's role is expanding to provide not only the physical measurement standards, but also to develop and manufacture certified reference materials (CRMs) for testing and manufacturing. This includes primary reference gas mixtures for environmental monitoring, component manufacturing and health services; ethanol CRMs for law enforcement and the beverage industry; calibration solutions for conformity assessment services and Africa-specific matrix CRMs for food safety testing. Proficiency testing schemes are conducted for calibration and testing laboratories in compliance with third party accreditation.

2.1.2 Organisational environment

NMISA adheres to a total quality management system and has identified the regulatory requirements applicable to its services, operations and products in order to ensure compliance. NMISA received continued certification to ISO 14001 and OHSAS 18001, which specifies requirements for environmental and occupational health and safety management systems. Most of the laboratories are accredited to ISO/IEC 17025, while the chemistry laboratories are accredited to ISO/IEC 17034 and ISO/IEC 17043 (production of reference materials and conducting proficiency testing schemes). The Safety, Health, Environment and Quality (SHEQ) section handles all matters relating to health and safety of staff, from ensuring a safe working environment to environmentally sustainable practises.

2.1.3 Strategic outcome-oriented goals and objectives

NMISA is guided overall by **seven goals**, namely:

Goal 1	Keep, maintain and develop the national measurement standards and provide for the use of the national measurement units.
Goal 2	To ensure that the South African measurement system is internationally comparable, by participating in the activities of the International Committee for Weights and Measures as per the Mutual Recognition Arrangement (CIPM MRA).
Goal 3	To modernise NMISA's infrastructure and equipment through recapitalisation.
Goal 4	Provide measurement knowledge and expertise as a key component of the technical infrastructure with regard to public policy, objectives, measurement and compliance issues in terms of health, safety and the environment.
Goal 5	Provide an integrated human capital development programme for metrology.
Goal 6	Provide essential support to the South African public and private enterprises through dissemination of the national measurement standards, units and expertise.
Goal 7	Adhere to the regulatory requirements of a 3A public entity and sound corporate governance.

The NMISA is guided overall by **twelve strategic objectives**; namely:

1	Provide for the national measurement units by maintaining the SI units, units outside the SI and equivalents of units.
2	Maintain the Schedule of National Measurement Standards (NMS).
3	Keep, maintain and develop measurement systems for bringing national measurement standards and reference methods into being.
4	To ensure internationally recognised and comparable national measurement standards and units by participating in the Metre Convention, CIPM MRA and Intra-Africa Metrology System (AFRIMETS) activities.
5	Establish confidence in the accuracy of the national measurement standards by suitable and documented quality and management system.
6	To maintain the Calibration and Measurement Capability (CMC) claims in the Key Comparison Database (KCDB) as internationally peer-reviewed evidence of South Africa's measurement capability.
7	Recapitalise and modernise NMISA to ensure that the national measurement standards support international trade, health, environmental and safety requirements.
8	As the foundation of the South African measurement system, provide technical measurement expertise and support for public policy objectives, accreditation, standardisation and regulatory affairs.
9	To maintain and ensure continued expertise and establish the necessary skills according to internationally acceptable standards.
10	Disseminate traceability, measurement expertise and services to the South African public and private enterprises by means of calibration, measurement or analysis and certified reference materials.
11	Provide appropriate technology and skills transfer to the South African industry, especially to Small and Medium Enterprises (SMEs).
12	Comply with government directives, the PFMA (1999, as amended), Treasury Regulations and regulatory issues in terms of health, safety and the environment and apply good governance.

PART B

PERFORMANCE INFORMATION

2.2 PROGRAMME HIGHLIGHTS FOR 2017/2018

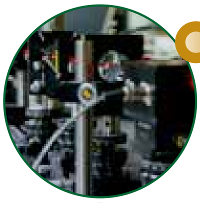
2.2.1 Integrated value chain

The anticipated revision of the SI in November 2018 introduces an increased demand for research and development at NMISA to be able to realise the units independently of our trade partners. The technology of realisation of the units is changing to quantum technologies that necessitates higher qualified staff, more technical and scientific expertise and increased collaboration.

NMISA has reorganised its activities into thematic, multi-disciplinary research programmes, that will deliver outcomes such as improved NMS or measurement solutions to industry. The matrix organisational structure also provides opportunities for staff functional units and sections to pursue career development through assignment to various types of projects within the programmes. This will also allow for easier coordination of student development projects such as the NMISA's Post-graduate Bursary Programme.

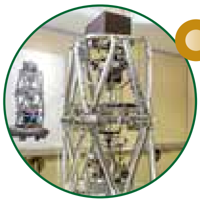
The technical thematic thrusts aim to support green industries, agro-processing and food safety, enhance manufacturing competitiveness, improve the quality of life through accurate measurement for health care and law enforcement, ensure consumer protection and shorten the traceability chain for Africa. For the revised SI, it also focuses on the provision of traceability to the SI units, and the regional and international integration activities ensures that the realisation of the units, the measurement standards kept by NMISA and the services that are provided to sectors of the economy are internationally equivalent and comparable.

NMISA's flagship projects are particularly in support of the Nine-Point Plan and the implementation of the IPAP. The delivery and service environment has now been tailored to report against the matrix structure in the form of programmes underpinned by regional integration and maintenance of the NMS. Brief highlights will be provided against each of the thematic programmes for the year under review.



Energy Efficiency

- Solid state lighting
- Smart grids
- Power and energy
- ACDC transfer difference measurements

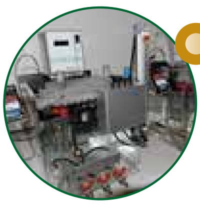


Redefinition of the SI

- Watt balance
- Avogadro Project
- Quantum standards

Reference Materials

- Food and feed matrix reference materials
- Forensic and environmental reference materials
- High purity calibrators
- Mineral benefications



Quality of Life

- Cancer care
- Pharmacology
- Primary healthcare
- Occupational health and safety

Advanced Measurement Solutions

- Time reference signals (MeerKAT)

Manufacturing Competitiveness

- Thin film failure analysis
- Dimensional measurements
- Advanced manufacturing and torque

Green Economy

- Air, terrestrial and aquatic monitoring
- Industrial and applied monitoring
- Alternative technology

Commercial Services

- Law enforcement
- Radiation protection
- Sale of CRMs
- Calibration services

Regional integration and maintenance of NMS underpin the programmes that form the matrix structure of NMISA.

Energy Efficiency

2.2.2 Smart grids

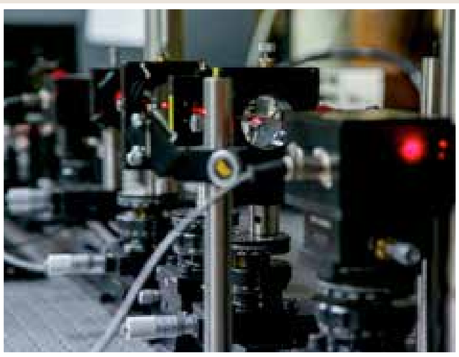
Clean energy relies on energy efficiency as the most important and cost-effective means to mitigate climate change and to improve South Africa's energy security. In order to realise this, energy production and utilisation must incorporate stringent energy efficiency measures.

NMISA concludes a feasibility study on metrology for smart grids in South Africa

NMISA has completed a feasibility study to identify the key measurement parameters underpinning the effective development, implementation and operation of smart grids in South Africa. NMISA currently provides measurement traceability for a number of electrical parameters in the current electricity grid. It is anticipated that the planned transformation to a smart grid would require the development of additional measurement capabilities, especially related to large-scale integration of renewable energy sources.

NMISA engaged widely with relevant stakeholders in the electricity industry in South Africa, including participation in smart grid workshops and seminars, collaboration with academia and industry, as well as consultation with international NMIs.

The outcome of these engagements has established that smart grids in South Africa will have specific measurement requirements; most notably the measurement of power quality and aspects relating to alternating current high voltage measurements (in excess of 100 kV) at the nominal frequency of supply and related harmonic frequencies. These requirements stem from the renewable power plants (RPPs) integrating into the national electricity grid. The accuracy of power quality measurements is an important consideration in terms of RPP compliance to the grid code requirements and fair trade, and requires accurate characterisation of power quality measurement devices and instrument transformers. The detailed technical specifications and costing for these measurement systems are being drafted and finalised.



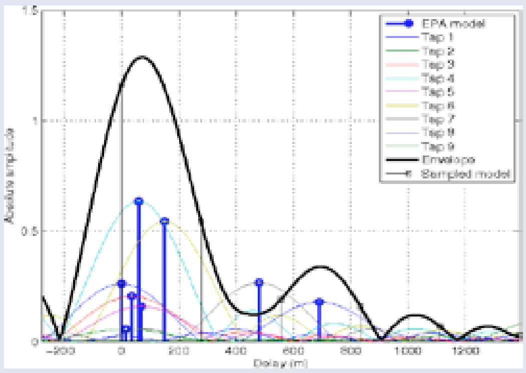
Advanced Measurement Solutions

2.2.3 Time Traceability to SARAO

MeerKAT, a radio astronomy telescope situated outside Carnarvon, Western Cape, and operated by the South African Radio Astronomy Observatory (SARAO), requires time traceability to enable accurate pulsar measurements over very long periods. The MeerKAT observatory will be integrated into a much bigger Square Kilometre Array (MeerKAT) radio astronomy telescope within the next five years.

To enable the traceable time tagging of data captured by MeerKAT, the South African time scale accuracy difference to the coordinated Universal Time scale was decreased from 5 000 nanoseconds to 20 nanoseconds, with a corresponding uncertainty decrease from 200 nanoseconds to less than 10 nanoseconds.

During the year under review, the SARAO time transfer receiver was calibrated; a calibrated time transfer receiver allows the remote linking between the Losberg site and NMISA.



Reference Materials

2.2.4 Fit-for-purpose reference materials

NMISA's Reference Material Programme provides fit-for-purpose Africa-relevant reference materials that are accessible, sustainable and affordable. These reference materials are used for quality control, quality assurance and proficiency testing of laboratories in the food safety, food quality, environmental pollution monitoring and law enforcement sectors, enabling intra-regional trade and supporting local health and safety regulations.

Interactions were held with stakeholders through various platforms including the Agricultural Laboratory Association of South Africa, the Dairy Standards Agency, the Consumer Goods Council's Food Safety Initiative, the European Commission's publicly-funded Reference Materials Producers Workshop, the Association of Official Analytical Communities, the Nestlé Method Alignment Workshop and the Asia Pacific Economic Cooperation Grain Food Safety Workshop. These interactions have strengthened NMISA's role as a reliable and relevant measurement standards provider.

NMISA establishes a matrix reference material production facility

NMISA's Reference Material Production Facility, a long-term project aimed at providing fit-for-purpose proudly South African reference materials, has been concluded. The facility is now equipped with state-of-the-art material processing, production and storage equipment including ultra centrifugal milling, kinetic inversion and resonant acoustic mixers, automated dispensing and packaging equipment for aluminium pouches, cans and glass ampoules, pilot scale freeze dryers and remotely monitored fridges and freezers. The Institute is confident that the new facility will provide Africa and the region with accessible, sustainable and affordable reference materials.

NMISA launches Resonant Acoustic Mixing (RAM) technology

NMISA hosted industry stakeholders at a technical seminar on acoustic mixing and material characterisation to demonstrate the state-of-the-art RAM technologies and material characterisation services available at NMISA. RAM is a modern mixing technology with significantly improved material mixing and reduced mixing times compared to traditional mixers. NMISA is the first institution in the southern hemisphere to own a production scale RAM5 acoustic mixing system.

Supporting measurements available at NMISA, such as nanoscale scanning electron microscopy and x-ray diffraction, would be able to assist with the characterisation of novel materials that can be mixed on the acoustic system for industry sectors such as cosmetics, energetics, pharmaceuticals, polymers, ceramics and nanomaterials.

NMISA launches new national 'Pesticide in Fruit' proficiency testing (PT) scheme

NMISA was approached by the the Department of Agriculture, Forestry and Fisheries (DAFF's) National Analytical Services to provide a customised 'Pesticide in fresh produce' PT scheme. The PT scheme is serving the DAFF national analytical laboratories and five other officially recognised testing laboratories for South African agricultural exports.

The new PT scheme forms part of DAFF's national action plan to manage and monitor the performance of laboratories taking part in regulatory testing of pesticide residues to determine compliance to set maximum residue limits. Seasonality of products will be considered when preparing the PT samples (e.g. pears and apples in summer and citrus in winter).

NMISA successfully conducted four proficiency test rounds for locally-relevant pesticides on apples, oranges, grapes and peaches, matrices that reflect South Africa's major agricultural export products. Nineteen participants registered for the PT scheme: twelve from local testing laboratories and six from the African continent (Malawi, Zambia, Botswana, Zimbabwe, Uganda and Kenya).

Certification of toxic and nutritional elements in wheat flour

South Africa relies on staple foods, such as wheat, maize, sorghum and rice to sustain food security. The presence of toxic elements and species must be reliably detected and monitored in these commodities. NMISA supports a project for the South African Grain Laboratory to value-assign reference samples of wheat flour for toxic and nutritional elements. The project, which commenced in 2008 with the certification of 12 elements in wheat flour, was expanded to include the analysis of 19 elements in 2017/18.

The species-dependent toxicity of arsenic is well-known and widely researched in various environmental matrices and food products. NMISA has commenced with a project to accurately quantify arsenic species in South African wheat, maize, and sorghum.

Organic mycotoxin calibrators

NMISA has a collaborative mycotoxin project with the CSIR Biosciences Unit to provide more affordable and accessible measurement standards for mycotoxin testing by laboratories locally and on the continent. Mycotoxins are toxic substances produced by different types of moulds that grow on food and feed, such as cereals, nuts, spices and dried fruit, and are strictly regulated worldwide. In South Africa, the Foodstuffs, Cosmetics and Disinfectants Act (Act 54 of 1972) and regulations published under Government Notice No. R. 1145, dated 8 October 2004, stipulates maximum residue levels for mycotoxins in all foodstuffs ready for human consumption.

As part of the Bureau International des Poids et Mesures (BIPM) Mycotoxin Metrology Capacity Building and Knowledge Transfer Programme, one of NMISA's staff members was seconded to the BIPM for training on the determination of mycotoxin purities and preparation of mycotoxin calibration solutions. The training supports NMISA's collaborative project with CSIR and the production of mycotoxin calibration standards and matrix reference materials.

Green Economy

2.2.5 Environmental monitoring

NMISA developed and validated methods for the analysis of organic pollutants and toxic elements; developed measurement standards for the analysis of polybrominated flame retardants in abiotic matrices and carbon dioxide in air. NMISA presented a training course to industry on the analysis of trace organic pollutants in various matrices, and provided industry with proficiency testing schemes for stack gas emissions and pesticides in water. Primary reference gas mixtures were provided to industry to ensure continued measurement excellence. New measurement standards were developed for the analysis of fatty acid methyl esters (FAMES) and methanol and water content for the characterisation of biofuels. In support of the development of alternative technologies, there is ongoing collaboration with academia on the development and future fabrication of new photovoltaic devices.

NMISA, in collaboration with local and international research institutions, is actively involved in developing materials characterisation for the fabrication and performance monitoring of advanced, low cost solar cells. An organic solar cell with 5 % conversion efficiency was realised as part of a PhD project. The chemical vapour deposition of air stable perovskite materials was demonstrated and is suitable for being incorporated into high efficiency solar cells. NMISA is partnering with the University of the Western Cape (UWC) and through this collaboration, is a co-user on the advanced, large area, high vacuum deposition system. This partnership has led to the successful completion of an MSc in the field of metal catalysts that is used in the automotive industry for electrodeposition.

Revision of the SI

2.2.6 Kibble/Watt balance and Avogadro projects

The redefinition of the kilogram will replace the artefact definition using the International Prototype of the Kilogram, by assigning fixed numerical values to fundamental “defining constants”: the Planck constant h and the Avogadro number N_A. This will allow the kilogram to be realised by different primary methods. NMISA has begun development on both the Kibble balance and Avogadro projects.

NMISA began a collaborative project over a three-year period with the National Physical Laboratory (NPL) in the United Kingdom to develop a table-top Kibble balance to realise the new definition of the kilogram. NMISA employees will work between six to nine months at NPL under their Fellowship Programme. As a development project, the NMISA team designed a small, portable Kibble balance using a three-dimensional (3D) printer. With the 3D printed balance, Planck’s constant was realised successfully. Mass pieces of 1g to 3g were measured with an accuracy of better than 3 %. An equal arm balance from the mass laboratory was modified with 3D printed parts to operate as a Kibble balance. The final Kibble balance must be able to measure to an accuracy better than 20 micrograms per kilogram).

The German NMI, PTB, has loaned NMISA a silicon sphere for one year for practical experiments relating to the realisation of the Avogadro number. The locally manufactured silicon sphere will be calibrated against the PTB silicon sphere to verify the mass and volume of the NMISA silicon sphere. On completion, a density standard will be established with the verified NMISA silicon sphere.

Manufacturing Competitiveness

2.2.7 Alternative energy and advanced materials

The supply of energy with reduced carbon emissions is vital in protecting South Africa's environment. Despite the increased presence of solar power plants within South Africa, solar photovoltaic systems remain an expensive alternative energy supply for most households. Cheaper alternatives are being developed, but most advanced material-based devices suffer from stability issues emanating from an incomplete understanding of the structure-property relationship and a lack of metrology required for reliable materials characterisation. NMISA is thus involved in the development of low-cost stable solar cells based on advanced materials and relevant materials metrology.

Advanced nanostructured materials and thin films display better performance and unique properties compared to their bulk counterparts. In the case of solar cells, the fabrication of advanced material based solar cells promises high quality performance using less material, which in principle means lower production costs. Through its interactions with international standards bodies and collaborating with local institutions, NMISA is positioning itself to develop materials metrologically critical for the successful industrialisation of advanced materials.

One of the key projects at NMISA focuses on developing hybrid advanced material based solar cells. NMISA partnered with the University of the Western Cape to develop the synthesis and characterisation of solar cells fabricated from nanostructured materials. The key goal is the development of stable, advanced materials through understanding the structure-property relationship and developing materials characterisation capabilities. This project covers a wide scope ranging from synthesis to characterisation and eventually to device fabrication.

Quality of Life

2.2.8 Dosimetry and radiotherapy

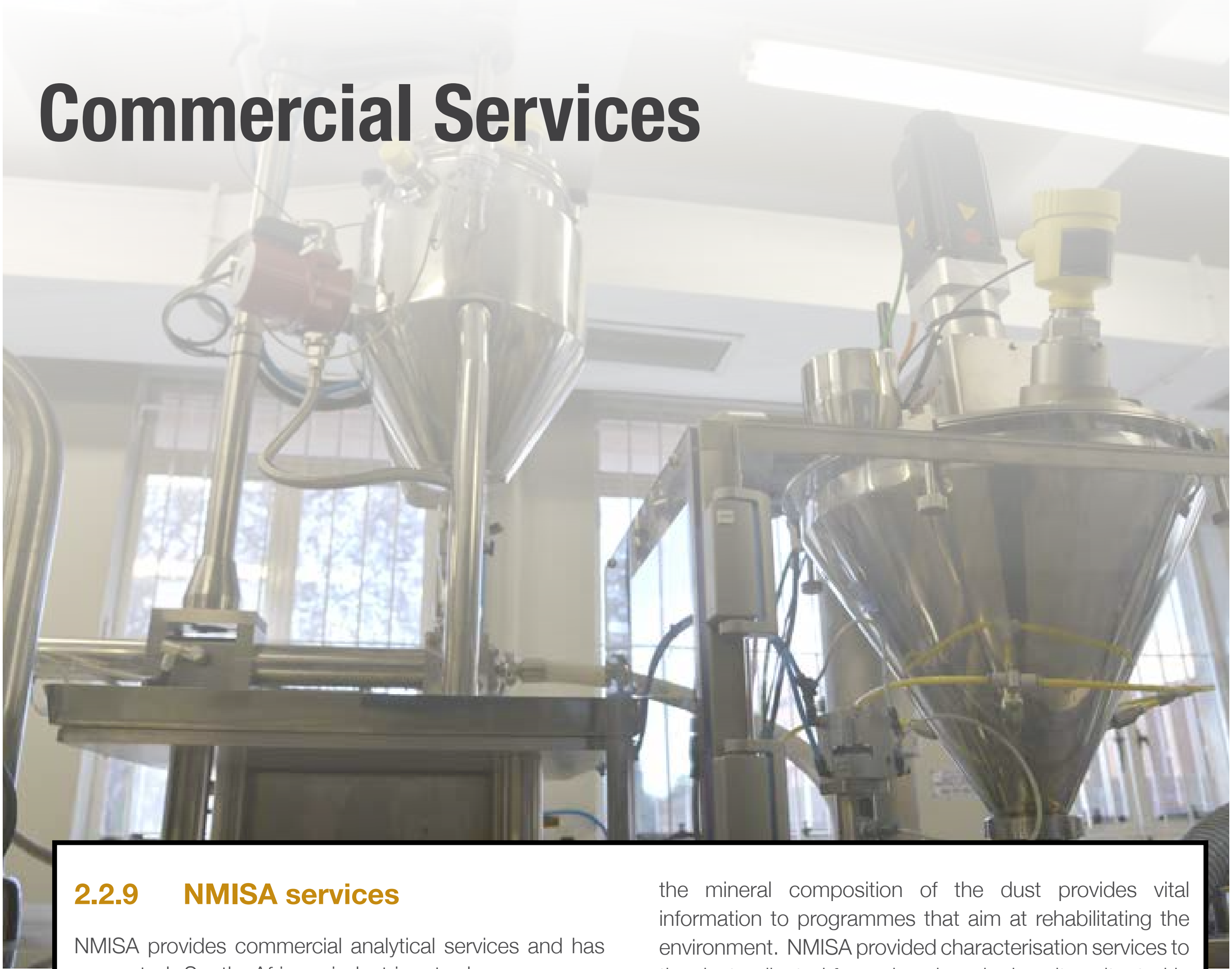
NMISA continued to support several radionuclide production facilities that produce medical isotopes used for the diagnosis and treatment of diseases by performing calibrations of their sources and instruments and providing reference gas mixtures. NMISA also performed calibrations for equipment from several radiotherapy centres. These calibrations contribute to ensuring accurate dose delivery in radiotherapy.

NMISA hosted a national workshop, with sponsorship from the International Atomic Energy Agency, on small-field dosimetry. Small fields are used in radiotherapy centres in the treatment of cancer.

NMISA performed volume measurements for a medical engineering company responsible for manufacturing syringes used for insulin injections. The company is developing techniques to improve dosage delivery for diabetic patients. Contractual discussions are ongoing to enable the volume laboratory to test all new batches manufactured by this company.

NMISA and the National Nuclear Regulator conducted three workshops during 2017/18 on the measurement of low level radionuclides in environmental samples (gamma emitting radionuclides by high purity germanium and beta emitting radionuclides by liquid scintillation counting). This is in line with the agreement to develop capabilities to measure environmental samples submitted by license holders of the NNR, measuring radionuclides that might be emitted to the environment. A proficiency test was organised to demonstrate equivalence and quality of low level gamma-ray spectroscopy measurements performed by laboratories from South Africa.

Commercial Services



2.2.9 NMISA services

NMISA provides commercial analytical services and has supported South African industries to become more competitive in an increasingly globalised economy, to improve the quality of their products and to develop new products. Using multiple techniques, such as x-ray photoelectron spectroscopy, scanning electron microscopy, energy dispersive spectroscopy, time-of-flight secondary ion mass spectroscopy and x-ray diffraction, the facility can analyse the chemical composition of solid materials from a few nanometers to microns deep, determine the crystalline structure of the surface or the bulk material and image the topography of a sample even if it is nano-sized. Using the techniques mentioned, NMISA has rendered it's material characterisation services to various industrial and academic clients, including chemical composition analysis of samples to improve metal extraction processes, the topography of the coatings used for protection and paint adhesion of automotive body parts and determining the implantation depth of ions in semiconductors used for defence equipment.

Mining and minerals

Dust from abandoned mines across South Africa is a major risk to the health of people and the quality of the environment surrounding these mining sites. Measuring the mineral composition of the dust provides vital information to programmes that aim at rehabilitating the environment. NMISA provided characterisation services to the dust collected from abandoned mine sites situated in the Northern Cape, Limpopo and Mpumalanga provinces. The service is vital in determining the volume fraction and aspect ratio of minerals, especially the asbestos fraction, from dust sampled from the abandoned mines.

Nanomaterials and additive manufacturing

NMISA completed analyses for research institutes focusing on developing advanced materials such as nanomaterials and additive manufacturing (3D printing). Scanning electron microscopy (SEM) measurement support was provided for an aerospace project, an initiative of the **dti** to improve the competitiveness of the local aeronautics, space and defence sectors. Additive manufacturing is a major contributor to the fabrication of parts for various industrial applications such as aeroplane body components. The SEM, with electron backscatter diffraction, supports this national initiative by characterising the materials used during the additive manufacturing process.

Regional Integration

2.2.10 Meetings, collaboration activities and training

NMISA not only provides the link to the international measurement system for South Africa, but also for SADC and most of Sub-Saharan Africa, and plays a key role in connecting Africa to the organs of the Metre Convention (CGPM, CIPM and BIPM). NMISA's metrology leadership role in Africa places a special obligation on the institute to properly represent the continent internationally and to shorten the traceability chain for Africa. This role is strongly supported by the **dti** as is evident in the goals of IPAP where metrology is mentioned as essential for regional integration to enable competitive manufacturing, stimulate beneficiation, support agro-processing and product exports, enable advanced manufacturing and to increase intra-regional trade.

This role has become even more important with the signing of the CFTA agreement in March 2018. During 2017, NMISA participated in the first CFTA Technical Committee meeting of the African Union Commission, that must implement the technical issues of the CFTA.

Regional integration also coordinates metrology activities within the technical (quality) infrastructure in South Africa, government departments and other stakeholders.

NMISA hosts the AFRIMETS General Assembly

During July 2017, NMISA hosted the Intra-Africa Metrology System (AFRIMETS) General Assembly that was attended by delegates from more than 30 African countries. Eight of the Technical Committees of AFRIMETS met to discuss comparisons of NMS, proficiency testing schemes and quality systems. In total, 24 comparisons of NMS are currently active in AFRIMETS of which five were finalised and published internationally. A total of 535 calibration and measurement capabilities (CMCs) of African NMIs are now published in the International Calibration and Measurement Capabilities database. As at 31 March 2018, NMISA had a total of 494 published CMCs that ensures the international acceptance of measurement services linked to the CMCs.

IAEA/DAFF training course hosted at NMISA

The DAFF's Directorate: Food Safety and Quality Assurance, in cooperation with the IAEA and NMISA, hosted an international "train-the-trainer" course in maintenance and troubleshooting of analytical instruments used in food and environmental safety monitoring and control as part of the IAEA's Inter-regional Technical Cooperation Project, INT/5/154. South Africa was among 32 low and middle-income countries from Africa, Asia and South America who participated as beneficiaries of the project. Sixteen scientists representing Angola, Botswana, Costa Rica, Chile, Cuba, Bolivia, Honduras, Indonesia, Sri-Lanka, Mongolia, Morocco, Mozambique, Nigeria, Pakistan, Uganda and Venezuela attended the event. Locally, scientists from DAFF and the PPECB participated.

Training was aimed at improving expertise of analytical laboratory scientists in the maintenance of analytical instruments. This will improve accuracy of analytical results reported, supporting the goal of the INT/5/154 project to build capacity to generate and collect credible scientific data that can be used to support positions for setting limits in food safety issues. The platform afforded by the IAEA project can be utilised to strengthen collaboration between local laboratories involved in food testing for monitoring controls and extending such collaborations with laboratories in neighbouring countries, Africa, Asia and South America.

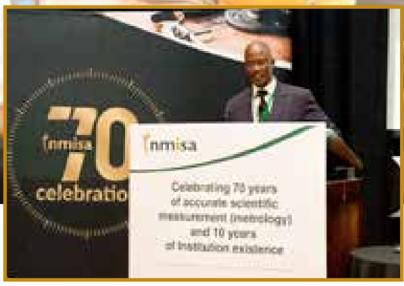
Dosimetry training for the region

In support of measurement in radiotherapy applications and radiation protection, NMISA hosted two scientists from Sudan and one from China for training in dosimetry measurements and total quality management systems. NMISA is the regional centre for training in dosimetry for English speaking countries as designated by the IAEA who sponsored the Sudanese delegates. This training has equipped the scientists to support their industries in dosimetry measurements for radiation protection.

The National Consumer Commission (NCC) partners with NMISA

Measurement forms an integral part of consumer protection, and the weights and measures used in trade and testing for safety and quality of manufactured goods, food and medicine all require accurate, traceable measurement results that are legally sound. The NCC administers the Consumer Protection Act (Act 68 of 2008); with its mandate to promote a fair, accessible and sustainable marketplace for consumer products and services. It further supports the establishment of norms and standards relating to consumer protection. The Act provides for improved standards of consumer information, prohibits unfair marketing and business practices, promotes responsible consumer behaviour, and promotes a consistent legislative and enforcement framework relating to consumer transactions and agreements. NMISA and the NCC have engaged at management level and together have established a direct link between national metrology and the activities of the consumer commission. This will provide the NCC direct access to legally sound and internationally acceptable measurement capabilities through NMISA in the interests of the South African Consumer.

NMISA celebrates 70 years as a laboratory and 10 years as an Institute



2.2.11 Seventy10 celebration

NMISA celebrated 70 years as a metrology laboratory and 10 years as an independent entity, established in May 2007. The Seventy10 celebrations, comprising the African Year of Quality and a scientific conference, were attended by nearly 600 delegates over three days. Delegates, including directors/CEOs and Presidents from more than 30 regional and international NMIs and quality infrastructure entities, attended the celebrations and their representatives provided messages to NMISA on behalf of their NMIs. A highlight was the opening address given by the Commissioner for Trade and Industry from the African Union Commission.

NMISA's scientific conference was attended by approximately 300 delegates that included over 50 African delegates, 30 international guests and 120 delegates from local industry and government. Twelve renowned international invited experts and several local prominent scientists gave presentations on food safety, structured light, the MeerKAT and related metrology calibration requirements, quantum standards and primary means of realising current. The National Regulator for Compulsory Specifications introduced the subject of type testing and verification in the health environment. NMISA experts gave six presentations describing work performed for food safety analysis, the preparation of reference materials, accurate time keeping, vibration and ultrasound measurements for environmental health and accurate dimensional measurements for advanced manufacturing (additive manufacturing and nano-materials).

The opportunity to expose prominent metrologists from many countries to NMISA and African metrology in general was invaluable. NMISA seventy10 had a positive impact on international awareness of NMISA's capabilities which will benefit not only NMISA in future, but the African metrology system at large.

2.3 PERFORMANCE INFORMATION

NMISA has adopted the balanced scorecard approach to set and measure performance targets. The NMISA scorecard is composed of four key components, namely stakeholder/customer, learning and growth (organisational development), innovation and business processes and financial perspective.

Scorecard outline

	Stakeholder and customer perspective	• Trusted business partner and service excellence. • Improved turnaround and response times. • Increase customer satisfaction, thereby increasing referrals.
	Learning and growth (organisational development) perspective	• Improve staff qualification profile. • Transformation (establish pipeline of future skills). • Create management systems (career ladders, performance management, etc.). • Communication (staff meetings, section head forum, staff communique, etc.).
	Innovation and business processes	• Establish long-term multi-divisional anchor research programmes. • Implement systems to manage and protect NMISA IP. • Align and integrate systems and processes.
	Financial perspective	• Financial growth and stability (broaden revenue mix). • Effective financial controls. • Decrease costs of delivered products and services.

NMISA scorecard

Performance indicator	Actual achievement 2016/2017	Planned targets 2017/2018	Actual achievement 2017/2018	Variance from planned targets actual achievement for 2017/2018	Comments on variance
National obligations					
Strategic Objective 1: Provide for the national measurement units by maintaining the SI units, units outside the SI and equivalents of units.					
Gazetted national measurement units	Update Schedule 1 (SI units) and submit to the dti to gazette.	Update Schedule 3 (equivalents of units) and submit to the dti to gazette.	Update schedule 3 (equivalents of units) submitted in Quarter 4.	None	None
Strategic Objective 2: Maintain the schedule of NMS					
Number of national measurement standards maintained submitted to the dti to gazette	56	58	62 maintained	4	Recapitalisation; equipment and improved research and development led to new NMS.
Strategic Objective 3: Keep, maintain and develop measurement systems for bringing national measurement standards and reference methods into being					
Number of improved national measurement standards, secondary standards, reference materials and methods	18	15	20	5	Recapitalisation; equipment and improved research and development led to new NMS.
Strategic Objective 4: To ensure internationally recognised and comparable national measurement standards and units by participating in the Metre Convention, CIPM MRA and AFRIMETS activities.					
Number of membership of International committees for Weights and Measures CIPM and Consultative Committees	10	10	10	None	None
Strategic Objective 5: Establish confidence in the accuracy of the national measurement standards by suitable and documented quality and management system.					
Number of accredited laboratories accredited to ISO 17025 or ISO 17034 and/or maintained quality system	20	20	20	None	None
Strategic Objective 6: To maintain the calibration and measurement capability (CMC) claims in KCDB as evidence of South Africa's measurement capability					
Number of CMCs as published in the KCDB	475	480	494	14	Due to recapitalisation, more capabilities were established.

Performance indicator	Actual achievement 2016/2017	Planned targets 2017/2018	Actual achievement 2017/2018	Variance from planned targets actual achievement for 2017/2018	Comments on variance
Strategic Objective 7: Recapitalise and modernise the NMISA to ensure that the national measurement standards support international trade, health, environmental and safety requirements					
Number of tenders awarded for the modernisation of NMS	New Key Performance Indicator (KPI)	50	64	14	NMISA made savings from the approved Priority List 1 of procurement through instigating a rigorous process to ensure cost-effectiveness of tender awards. The savings made were used to procure approved Priority list 2 tenders items.
Strategic Objective 8: As the foundation of the South African measurement system, provide technical measurement expertise and support for public policy objectives, accreditation, standardisation and regulatory affairs .					
Number of membership of SANS STCs, ISO/ SANS Committees and NRCS regulatory bodies	59	44	49	5	NMISA's updated strategy is to be proactively involved in the mainstream standards and regulations, to ensure that metrology is properly considered for all programmes, as well as to optimise revenue streams.
Number of refereed and/ or peer-reviewed publications, articles, application or technical notes published	35	22	35	13	An increase is due to an improved turnaround time in publishing technical reports by the publishers. These are publications that NMISA has contributed to. Actual publication and review processes are not in our control. NMISA is also not always the main author.

Performance indicator	Actual achievement 2016/2017	Planned targets 2017/2018	Actual achievement 2017/2018	Variance from planned targets actual achievement for 2017/2018	Comments on variance
Number of presentations given at conferences, workshops and TAFs	85	49	103	54	NMISA celebrated ten years as an NMI and 70 years of metrology in South Africa. During the 70/10 proceedings the number of presentations increased.
Strategic Objective 9: To maintain and ensure continued expertise and establish the necessary skills according to internationally acceptable standards.					
Number of post-graduate and undergraduate bursars	17	20	20	None	None
Training expenditure as a % of personnel cost	5.9%	2%	5%	3%	Additional training was arranged to upskill employees.
Number of interns and in-service trainees hosted	20	15	15	None	None
Percentage of filled funded vacancies	7%	6%	95%	89%	The wording of the KPI on the 2017-2020 APP was incorrect and the error was corrected in the 2018-2021 APP. The 89% variance resulted from the fact that the 6% target was set for funded vacancies, while the achievement is based on filled funded vacancies. The achievement for funded vacancies is 5%, resulting in a variance of 1%.

Performance indicator	Actual achievement 2016/2017	Planned targets 2017/2018	Actual achievement 2017/2018	Variance from planned targets actual achievement for 2017/2018	Comments on variance
Strategic Objective 10: Disseminate traceability, measurement expertise and services to South African public and private enterprises by means of calibration, measurement or analysis, certified reference materials.					
Income generated from dissemination activities	R12 089m	R20 010m	R20 149m	R139k	Revenue from a GRAP accounting requirement is R16 365m. In terms of KPI measurement, completed orders received for work still to be done are taken into account and on this basis total additional orders of R3 874m have been concluded. Of this amount ,R2 605m has already been received as a prepayment.
Percentage of customer complaints in the quality system	0.33%	≤5	≤5	None	None
Strategic Objective 11: Provide appropriate technology and skills transfer to the South African industry, especially to SMEs.					
Number of industry and/or regional metrologists trained in accurate measurement	146	66	100	44	There were training requests that were not anticipated and NMISA had to assist. This is part of revenue generation.
Number of courses presented to industry	17	14	24	10	Additional training requests that were not anticipated and NMISA had to assist industry. This is part of revenue generation

Performance indicator	Actual achievement 2016/2017	Planned targets 2017/2018	Actual achievement 2017/2018	Variance from planned targets actual achievement for 2017/2018	Comments on variance
Strategic Objective 12: Comply with government directives, the PFMA (1999, as amended), Treasury regulations and regulatory issues in terms of government regulations.					
Percentage of revenue received expensed	98%	98%	103%	5%	NMISA had a cash surplus of R86m from the 2017 financial year. Some of the funds were utilised in the current year for procurement of items as per the approval by National Treasury.
Percentage of total budget spent on CAPEX	44%	20%	39%	19%	Due to savings made through the procurement process, additional procurement was done.
Completed Annual Audit Plan and follow-up audits as approved by Audit and Risk Committee	100%	100%	100%	None	None

PART C

GOVERNANCE

3.1 INTRODUCTION

Corporate governance is an exercise of ethical and effective leadership by NMISA's Board towards effectively achieving the controls as outlined in the *King IV* report. These include the need for an annual integrated report that focuses on the impact of the organisation in the economic, environmental and social spheres, with a statement by the Audit Committee to the Board and shareholders on the effectiveness of internal financial controls to be included in the integrated report. Stringent corporate governance must show consideration of the strategic role of IT and its importance from a governance perspective. It must also reflect the positioning of Internal Audit as a strategic function that conducts a risk-based internal audit and provides a written assessment of the company's system of internal control, including internal financial controls and the governance of risk through formal risk management processes.

3.2 EXECUTIVE AUTHORITY

Dr Rob Davis, MP, Minister of Trade and Industry, who is accountable to Parliament for NMISA as defined in section 1(c) and (d) of the PFMA (1999, as amended).

3.3 THE ACCOUNTING AUTHORITY/ BOARD CHARTER

The purpose of this document is to set out the mission, duties and responsibilities of the Board of Directors of NMISA. The Board of Directors is NMISA's Accounting Authority in terms of the PFMA (1999, as amended).

As recommended by the King Code, the Board has a Charter setting out its responsibilities, which should be disclosed in its Annual Report. At a minimum, the Charter should confirm:

- The Board's responsibility for the adoption of strategic plans;
- Monitoring of operational performance and management;
- Determination of policy processes to ensure the integrity of the public entity risk management and internal controls;
- Communication policy, and director selection, orientation and evaluation.

3.3.1 The Board

The Board of Directors consists of the following non-executive individual members:

Names	Date of appointment	Designation	Total number of meetings	Total number. of meetings attended
Dr Prinsloo Nevhutalu	05/04/2013	Chairman	7	7
Mr Thembani Bukula	05/04/2013	Member	7	4
Ms Tshidi Molala	05/04/2013	Member	7	3
Dr Rudzani Nemutudi	05/04/2013	Member	7	6
Dr Tshenge Demana	05/05/2013	Member	7	5
Ms Jabu Mogadime	05/04/2013	Member	7	6
Mr. Ndwakhulu Mukhufhi	01/09/2013	CEO	7	7
Mr. Tshokolo Nong	05/04/2013	Member	7	5
Ms Bongani Mathebula	01/10/2015	Member	7	1
Ms Ursula Ntsubane	01/03/2015	Member	7	4
Dr Cleopas Sanangura	05/04/2013	Member	7	7

3.3.2 Sub-committees of the Board

- Audit and Risk Committee
- Finance Committee
- Technical Committee
- Human Resource and Remuneration Committee

Audit and Risk Committee

Names of members	Designation	Total number of meetings held	Total number of meetings attended
Ms Tshidi Molala	Chairman	6	3
Ms Poni Ngwato	Member	6	0
Mr Kgosietsile Kgosiemang	Member	6	6
Dr Cleopas Sanangura	Member	6	6
Mr Ndwakhulu Mukhufhi	CEO	6	5
Ms Ursula Ntsubane	Member	6	6
Mr Tshokolo Nong	Member	6	0

Finance Committee

Names of members	Designation	Total number of meetings held	Total number of meetings attended
Mr Thembani Bukula	Chairman	4	2
Mr Ndwakhulu Mukhufhi	CEO	4	4
Dr Rudzani Nemutudi	Member	4	4
Ms Jabu Mogadime	Member	4	3
Dr Tshenge Demana	Member	4	3

Technical Committee

Names of members	Designation	Total number of meetings held	Total number of meetings attended
Mr Ndwakhulu Mukhufhi	CEO	4	3
Dr Rudzani Nemutudi	Chairman	4	4
Dr Tshenge Demana	Member	4	3
Ms Bongani Mathebula	Member	4	1

Human Resources and Remuneration Committee

Names of members	Designation	Total number of meetings held	Total number of meetings attended
Mr Ndwakhulu Mukhufhi	CEO	4	3
Ms Ursula Ntsubane	Chairman	4	4
Mr Tshokolo Nong	Member	4	3
Ms Bongani Mathebula	Member	4	0

3.3.3 Risk management and internal control

Legislating the implementation of risk management in public sector institutions is part of a macro-strategy of the South African government which aims to ensure achievement of public sector institutional goals and objectives. This mandate of NMISA can be found in Section 76 of the PFMA (1999, as amended), Treasury Regulation TR3.1.10, and Treasury Regulation TR3.1.13. Risk management, therefore, forms an integral part of the Institute's plan to deliver effectively and efficiently on its mandate.

The Board is responsible for determining the policies and processes necessary to ensure the integrity of risk management and internal controls. The Board must ensure that a formal risk assessment is undertaken annually to identify and evaluate key risk areas. The Board must also ensure that it continually reviews and forms its own opinion on the effectiveness of the risk management process.

A Board Committee or a Risk Management Committee will assist the Board in reviewing the risk management process and the significant risks facing NMISA.

The Board's Risk Management Policy should be clearly communicated to all employees to ensure that the risk strategy of the Board is incorporated into the language and culture of NMISA. NMISA continues to recognise the importance of risk management to ensure realisation of objectives and therefore endeavours to comply with legislation as it pertains to its risk management.

3.3.4 Internal Audit and Audit Committees

Key activities and objectives of Internal Audit

NMISA established an Internal Audit Unit in line with the PFMA (1999, as amended) and Treasury Regulations. Internal Audit is an independent, objective assurance and consulting activity, established to add value and improve NMISA's operations. It assists NMISA to accomplish its objectives by bringing a systematic and disciplined approach to evaluate and improve the effectiveness of risk management, internal control and governance processes.

The Internal Audit Unit reports functionally to the Board's Audit and Risk Committee and administratively to the Chief Executive Officer.

Internal audit is a key pillar of good governance. It provides the Board of Directors, the Audit and Risk Committee, the CEO, senior executives and stakeholders with an independent view on whether the organisation has an appropriate risk and control environment, while also acting as a catalyst for a strong risk and compliance culture within an organisation.

The Internal Audit Unit plays a key and independent role within the organisation in assessing the adequacy and effectiveness of risk management, internal controls and governance processes. One of its functions is to ensure that there is improved internal control within the organisation as well as compliance with applicable legislation. Constant and regular monitoring of performance is undertaken.

The Internal Audit Unit prepares a risk-based Three-Year Coverage Plan as well as an Annual Audit Plan for approval by the Audit and Risk Committee. Progress reports against the plans are presented quarterly to the Audit and Risk Committee by the Internal Audit Manager, to enable it to discharge its oversight responsibility.

The Internal Audit Coverage Plan ensures that the internal audit function focuses on high and significant risk areas of the organisation. The Plan is balanced, since it covers both strategic and operational risks, as well as issues of compliance.

Summary of audit work done

The Internal Audit Unit executed and completed all the audits on the approved Internal Audit Coverage Plan for the year under review and significant and major findings were reported to the Audit and Risk Committee on a quarterly basis. In addition, the Internal Audit Unit performed numerous adhoc audits requested by management and the Audit and Risk Committee as part of its consulting activities.

Key activities and objectives of the Audit and Risk Committee

The Audit and Risk Committee derives its mandate from the PFMA (1999, as amended) and the Treasury Regulations, with specific reference to Section 51 of the PFMA (1999, as amended).

The Audit and Risk Committee is independent and carries out its functions without any influence or interventions from the Board or management. The Committee operates in terms of a written Terms of Reference, and it satisfied its responsibilities for the year, in compliance with these terms of reference.

The Committee reviewed all the internal audit reports and is satisfied:

- With the activities of the internal audit function, including its annual work programme, the reports of significant investigations and the responses of management to specific recommendations.
- That Internal Audit conducted its work in accordance with the standards set by the Institute of Internal Auditors.

Other than the findings raised by Internal Audit and addressed by management, nothing significant has come to the Audit and Risk Committee's attention to indicate any material breakdown in the functioning of controls, procedures and systems.

The Committee is satisfied that it has discharged its responsibilities in assisting the accounting officer with the following activities:

- The safeguarding of assets, the operation of adequate systems, control and reporting processes, and the preparation of accurate reporting and financial statements in compliance with the applicable legal requirements and accounting standards.
- Overseeing the activities of, and ensuring coordination between, the activities of internal and external audit.

- Providing a forum for discussing enterprise-wide risks relating to financial, performance and regulatory exposures, and monitoring controls designed to minimise these risks.
- Reviewing NMISA's quarterly financial and performance information, Annual Report, including the annual performance information and Annual Financial Statements.

3.3.5 Compliance with laws and regulations

Compliance with legislation and industry norms and standards is one of the many duties of the Board.

For the function of legislative and regulatory compliance, NMISA has appointed a suitably qualified Manager for Compliance and Corporate Governance to assist the Board and management to ensure compliance with relevant legislation and statutes pertaining to their programmes. Compliance in relation to corporate and financial related compliance issues are the responsibility of the CFO. The CEO has overall, ultimate responsibility to monitor and ensure institutional and financial compliance. The Chairman has executive authority, responsible for overall strategic and governance oversight.

NMISA, as a schedule 3A public entity, needs to comply with the provisions of the PFMA (1999, as amended), the Measurement Act (2006) and the Companies Act (Act 71 of 2008), and in this regard compliance is on par with similar public entities. Although compliance with the prescripts of the King Code on Corporate Governance is not legislated, it has become an industry accepted norm, and in this regard NMISA is compliant about those aspects of the code that are applicable to public and/or State-owned entities.

3.3.6 Fraud and corruption

NMISA acknowledges the fact that the incidence of economic or commercial crime is an increasing phenomenon and has become an integral part of the current corporate and business environment. In this regard, the entity commits itself to –

- Become one of those participants in the economy that will actively and proactively protect all of its assets against threats of crime like fraud, corruption, theft, bribery and others.
- Pursue and bring to justice any perpetrator, whether inside or outside the NMISA, who commits any criminal activities against assets or interest of the organisation.

Apart from material financial implications, economic crimes have further detrimental effects on organisations, such as loss of reputation, the undermining of competitiveness and the erosion of credibility. NMISA subscribes to the national drive to eradicate fraudulent activities and has adopted a strategic approach to the management of economic crime prevention, detection and resolution by:

- Unequivocally communicating to internal and external stakeholders its stance against, and its policy to prevent and deal with instances of economic crimes;
- Practising and upholding good corporate governance;
- Developing and instituting an ethical business environment that will cultivate an anti-crime culture within the entity;
- Conducting regular assessments to identify risks.
- Adopting a risk-based audit approach;
- Strengthening internal controls;
- Implementing proper fraud reporting and whistle-blowing structures;
- Developing a Fraud Response Plan.

3.3.7 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 and Committee meetings. In addition to the directors' 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.

3.3.8 Code of Conduct

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 document 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 the NMISA's Disciplinary Code.

3.3.9 Health, safety, environmental and quality

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.

- A resolution was made at the 2017/18 AFRIMETS Technical Committee for Quality Systems meeting, that NMISA undergo a quality management system (QMS) re-evaluation at RMO level, which covers QMS maintained for a five-year period (2013 – 2017). The NMISA QMS Annual Report was submitted to the JCRB meeting which was held in March 2018.

To maintain NMISA laboratories' accreditation against ISO/IEC 17025 and ISO 17034, periodical surveillance assessments are conducted by SANAS. For the laboratories where accreditation is planned for a five-year cycle, re-accreditation is required by conducting re-assessment supported by the participation of international technical experts. In line with our annual operational plans, eleven laboratories went through surveillance assessments and re-assessments during 2017/18 and they were all either recommended for continued accreditation or granted scope extension.

NMISA has voluntarily implemented and maintained the Health, Safety and Environmental Management System, which is certified against the requirements of ISO 14001 and OHSAS 18001. An occupational hygiene survey was conducted to meet the requirements of the Occupational Health and Safety Act (Act 85 of 1993). The survey included air quality, ergonomics, noise and hazardous chemical substance fumes. An energy efficiency audit was also conducted at all NMISA's buildings.

3.3.10 Company secretary

NMISA has a company secretary in line with the requirements of the Companies Act (2008) and the principles of good corporate governance as guided by the King Code.

The company secretary ensures that NMISA meets its compliance obligations for submission of documents to stakeholders including National Treasury and the **dti**.

The company secretary serves as the direct channel of communication to the Chairman of the Board and provides comprehensive practical support/guidance to the Board Chair and Committee Chairs in the proper compilation/ timely circulation of Board papers for the Board and its Committees. It is the responsibility of the company secretary to asses the training needs of Board members and executive management regarding fiduciary/governance responsibilities.

The Company Secretary assists the Board in the evaluation process of Board members and executive management.

3.3.11 Social responsibility

Cell C's Take a Girl Child to Work

Cell C's Take a Girl Child to Work Day® is a respected movement that affords Grade 10 to 12 female learners the chance to experience a day in the workplace. NMISA was proud to host 17 female learners from Tshwane Secondary School during the 15th anniversary of Cell C's Take a Girl Child to Work Day®. NMISA afforded the female learners opportunities to explore technical and support careers which they might have had no knowledge of, including that of CEO, as well as in areas such as Supply Chain Management, SHEQ, Human Resources, Legal, Inorganic Analysis, Mass Metrology, Dosimetry, Gas Analysis and Photometry. They were awarded certificates for successful participation in the initiative.

World Metrology Day is an annual celebration of the signing of the Metre Convention on 20 May 1875 by representatives of seventeen nations. NMISA celebrated World Metrology Day with the theme: "Measurements for transport". As part of the celebration, the Marketing and Communications team, together with several technical staff members, visited Tshwane Secondary School in central Pretoria to educate learners about metrology and NMISA's impact on society and to encourage high school learners to pursue careers in Mathematics and Science.

KHEALE Initiative

NMISA's "Adopt a School" initiative

NMISA continued its engagements with its Human Capital Development (HCD) partner, the Greater Lebaka Education Enrichment Initiative (known as Kheale Centre). Two students, who are sponsored through the NMISA bursary programme, are progressing well with their studies. One more bursary was offered to another bright student from the centre who achieved outstanding results during the 2017 academic year.

Professionals from various metrology units are involved in mentoring and coaching the bursars and continued to participate in several activities including spending time with learners at the Kheale Centre. The students join other NMISA bursars for vacation work during university breaks throughout the year to gain practical experience in their fields of study.

3.3.12 Audit Committee Report

REPORT FROM THE AUDIT AND RISK COMMITTEE

We are pleased to present our report for the financial year ended 31 March 2018

The Audit and Risk Committee (ARC) is a sub-committee of the Board, appointed by and accountable to the Board. It comprises four Board members and two independent members. The CEO, CFO, external and internal auditors are permanent invitees to the ARC meetings. The ARC and board term of office expired before the external audit outcomes were communicated.

Roles and responsibilities

The ARC hereby reports that it has complied with its responsibilities arising from Section 51 (1)(a)(ii) of the PFMA (1999, as amended) and Treasury Regulation 27.1. The Committee is regulated by an approved Terms of Reference contained in the Committee's charter and has discharged these responsibilities. The Terms of Reference, including roles and responsibilities, were aligned with the requirements of the PFMA (1999, as amended), Treasury Regulations and King IV.

Key focus areas for the 2017/2018 financial year were as follows:

- Effectiveness of internal financial control systems;
- Effectiveness of the Internal Audit function;
- Risk management and monitoring of key strategic risk mitigation actions;
- Adequacy, reliability and accuracy of financial information, accounting practices and non-financial information provided by management;
- Implementation of internal and external audit findings to improve the control environment;
- NMISA's compliance with legal and regulatory provisions;
- Independence and objectivity of both internal and external auditors as well as fostering synergies between the two functions;
- Combined assurance;
- IT governance and management.

Internal Audit and evaluation of control environment

The ARC is responsible for the appointment, compensation, retention and oversight of the Internal Auditors. The Internal Auditors operate within the Charter approved by the Board. Internal Audit reports functionally to the ARC and operationally to the Accounting Officer.

The ARC has approved a risk-based three-year rolling Internal Audit Plan in the 2017/18 financial year. The Committee is reasonably satisfied with the effectiveness and independence of the Internal Audit function. The internal audit also reported on the overall control environment and fraud hotline activities of NMISA.

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

External audit

NMISA appointed Nexia SAB&T as the external auditors. The ARC is satisfied with the independence and objectivity of the external auditors.

Risk Management

The Board has tasked the ARC to oversee governance, legislative and compliance requirements of enterprise risk management responsibilities of the Board. The Board is responsible for ensuring that there is adequate and timely identification and measurement of organisational risk as well as implementation of appropriate mitigation controls.

The Board held a risk identification workshop in the financial year under review where eight strategic risks were identified. The ARC will continue to monitor mitigation strategies proposed by Management.

The ARC has closely monitored the implementation of the Business Continuity Plan and IT Governance Framework. While the ARC acknowledges some improvement in risk mitigation strategies, we are of the opinion that both these areas remain largely unmitigated.

Evaluation of Annual Financial Statements

The Committee evaluated the Annual Financial Statements of NMISA for the year ended 31 March 2018.

Based on the information provided by management, internal and external audit teams, the Committee considers that these statements comply, in all material respects, with the requirements of the PFMA (1999, as amended), and the GRAP basis of preparation set out in Note 1 of the accounting policies in the Annual Financial Statements. The ARC concurs to the adoption of the going-concern assertion.

Ms. Ursula Ntsubane
Audit and Risk Committee

PART D

HUMAN RESOURCE MANAGEMENT

4.1 MANAGEMENT REVIEW

NMISA's Human Resources (HR) initiatives are geared towards maximising the potential of employees by creating an enabling working environment that will attract, inspire excellence, develop and retain a highly competent workforce with the requisite technical and professional skills. To this effect the HR Department had to reposition itself as a business partner that will deliver value-adding solutions to ensure that the organisation's objectives and plans are achieved. HR business partners, especially those who had recently joined the organisation, spent more time with management and employees in their respective business units to gain a better understanding of the business and how they could better support their strategic goals and objectives. Work alignment sessions were arranged for some of the units to ensure cohesion and improved service delivery.

4.2 Investing in NMISA's people

4.2.1 Human Capital Development (HCD)

Our HCD programme seeks to enable effective delivery of NMISA's strategic thrusts through recruiting, developing and empowering talent thus positioning the institution as an employer of choice.

Some of the successes within our HCD programme include three NMISA Master of Science (MSc) students and one undergraduate student completing their degrees during the 2017/18 fiscal year.

4.2.2 Integrated HCD and quality

As part of NMISA's drive to improve brand visibility and enhance awareness around the institution's service offerings, NMISA collaborated with Blue Wizard Productions to develop an episode on national television to provide insight into the career of a gas metrologist. Blue Wizard is a production company commissioned by SABC 1 to produce *iSpani*, a well-known career guidance programme which showcases different careers and is now in its eight season of production.

NMISA has taken an active interest in this opportunity as it also educates the youth of South Africa on career prospects and funding opportunities in the field of metrology. The 48-minute episode was aired on SABC 1 in the first quarter of 2017/18.

Another brand visibility integration was with Dräger, (a company that supplies breathalysers), the South African Breweries and SANAS through a "Drink or Drive" initiative that was launched in December 2016 during the festive season. Four large billboards were placed on major highways in Gauteng, Western Cape and KwaZulu-Natal.

The Mass Laboratory developed a video to create awareness of the role of mass measurements in everyday life. The video has been posted on YouTube for public access.

4.2.3 Employee Wellness Programme

A new service provider, Careways, was appointed to manage NMISA's integrated Wellness Programme, which provides the employees counselling services on the following:

- Stress;
- Work issues;
- Financial issues;
- Legal issues;
- Relationships;
- Family matters;
- Health issues.

The Wellness Programme was successfully launched and there has been a notable increase in the utilisation rate. Relevant electronic desk drops were distributed to all employees on national health days to create awareness on healthy living habits for the prevention of sickness and creation of emotionally balanced and engaged employees. The benefit of this partnersip is to increase productivity.

4.2.4 HR priorities for the year under review

The HR Department has developed measures to increase core skills and staff capability, reduce staff turnover and ensure a fair and equitable work force.

Improve core skills and qualifications

Thirty employees have enrolled for further studies through the HCD programme. They receive financial support and time off for academic activities. Four employees completed their qualifications.

Leadership development

The executive team successfully completed a Senior Management Programme which covered core leadership courses such as Strategic Financial Management, Technology and Innovation and Business and Strategic Management.

Alignment of organisational design to strategic objectives

NMISA started a process to review its organisational structure to ensure alignment with strategic goals and objectives. The HR department, together with management, will be focusing on the process of designing an organisational structure that supports its strategy.

Reduce employee turnover

Staff retention remains a challenge for the organisation; a turnover rate of 10% was reported compared to the 7% in 2016/2017. Although salaries have improved with the implementation of the career ladder and pay progression systems during the past three years, more efforts must be made to improve NMISA's overall employee offerings in terms of benefits and opportunities for career advancement.

Ms Lerato Ntatamala
B.Tech Safety Management

Ms Katlego Thloloe
M.Comm Industrial Relations

Mr Oelof Kruger
MSc Physics

Mr Nico Marome
M.Tech Electrical Engineering

Ms Nwabisa Takata
MSc Chemistry

Ms Prelly Marebane
MSc Chemistry

Ms Jané Slinger
MSc Nanoscience

Ms Zanele Nzimande
BSc Physics

4.2.5 Human Resource (HR) oversight statistics

Personnel cost by programme/activity/objective

Directorate/ Business Unit	Total expenditure for the entity (R'000)	Personnel expenditure (R'000)	Personnel exp. as a % of total exp. (R'000)	Number of employees	Average personnel cost per employee (R'000)
CEO	12 733	9 886	78%	10	785
Chemistry and Materials Metrology	32 738	21 019	64%	30	542
Electricity and Magnetism	31 555	19 062	60%	29	618
Finance	69 948	14 845	21%	17	719
Corporate Services	21 301	12 915	61%	18	395
Ionising Radiation	18 940	11 238	59%	11	718
Physical Metrology	22 076	18 224	83%	27	586
Research, International and Infrastructure Development	14 993	6 840	46%	7	911
Total	**224 284**	**114 029**	**51%**	**149**	**614**

Personnel costs by salary band

Level	Personnel expenditure (R'000)	Personnel exp. as a % of total exp. (R'000)	Number of employees	Average personnel cost per employee (R'000)
Executive management	13 961	12%	8	1745
Middle management	26 337	23%	24	1097
Professional qualified	58 775	52%	87	676
Skilled	13 384	12%	23	582
Semi-skilled	1 572	1%	5	314
Total	**114 029**	**100%**	**147**	**776**

Performance rewards

Programme/ activity/ objective	Performance rewards	Personnel expenditure (R'000)	% of performance rewards to total personnel cost (R'000)
Executive management	1081	13 961	8%
Middle management	2 569	26 337	10%
Professional qualified	6 347	58 775	11%
Skilled	1319	13 384	10%
Semi-skilled	214	1 572	14%
Total	**11 529**	**114 029**	**10%**

Training costs

Directorate/ business Unit	Personnel expenditure (R'000)	Training expenditure (R'000)	Training expenditure as a % of personnel cost)	Number of employees trained	Average training cost per employees
CEO	9 886	302	3,05%	8	3
Chemistry	21 019	703	3,35%	35	17
Electricity and Magnetism	19 062	234	1,23%	30	12
Finance	14 845	102	0,69%	19	121
Corporate Services	12 915	2 794	21,63%	132	29
Ionising Radiation	11 238	72	0,64%	12	8
Physical Metrology	18 224	547	3,00%	30	34
Research, International and Infrastructure Development	6 840	757	11,06%	9	34
Total	**114 029**	**5 512**	**4,8%**	**275**	**33**

Employment and vacancies

Directorate/Business Unit	2015/16 No. of employees	2016/17 approved posts	2016/17 no. of employees	2016/17 vacancies	Funded vacancies
CEO	10	12	10	2	1
Chemistry	26	40	30	10	3
Electricity and Magnetism	27	35	29	6	5
Finance	20	23	17	6	4
Corporate Services	13	23	18	5	1
Ionising Radiation	11	12	11	1	0
Physical Metrology	26	38	27	11	5
Research, International and Infrastructure Development	12	25	7	18	1
Total	**145**	**208**	**149**	**59**	**20**

Employment changes

Salary band	Employment at beginning of period	Appointments	Terminations	Promotions	Employment end of the period
Top management	7	1	0	0	8
Middle management	23	2	2	1	24
Professional qualified	85	7	7	1	86
Skilled	26	4	5	0	23
Semi-skilled	6	0	0	5	6
Total	**147**	**14**	**14**	**7**	**147**

Reasons for staff leaving

Reason	Number	% of total number of staff leaving
Death	0	0%
Resignation	9	75%
Dismissal	0	0%
Retirement	0	0%
Ill health	0	0%
Expiry of contract	3	25%
Total	**12**	**100%**

Labour relations: Misconduct and disciplinary action

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

Equity target and employment equity status

Levels	Male									
	African		Coloured		Indian		White		Foreign Nationals	
	Current	Target	Current	Target	Current	Target	Current	Target	Current	Target
Top management	3	2	0	0	0	0	2	2	0	0
Senior management	0	0	0	0	0	0	0	0	0	0
Middle management	8	9	0	0	2	1	4	4	0	0
Professional qualified	31	30	3	4	2	2	13	14	4	4
Skilled	9	9	0	1	0	0	0	0	0	0
Semi-skilled	4	4	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0
Total	**55**	**54**	**3**	**5**	**4**	**3**	**19**	**20**	**4**	**4**

Levels	Female									
	African		Coloured		Indian		White		Foreign Nationals	
	Current	Target	Current	Target	Current	Target	Current	Target	Current	Target
Top management	1	2	0	0	0	0	2	2	0	0
Senior management	0	0	0	0	0	0	0	0	0	0
Middle management	6	6	0	1	0	0	4	4	0	0
Professional qualified	16	18	1	1	0	1	15	14	1	1
Skilled	13	14	0	2	0	0	3	3	0	
Semi- skilled	2	2	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0	0	0
Total	**38**	**42**	**1**	**4**	**0**	**1**	**24**	**23**	**1**	**1**

Levels	Disabled staff							
	African		Coloured		Indian		White	
	Current	Target	Current	Target	Current	Target	Current	Target
Top management	0	0	0	0	0	0	0	0
Senior management	0	0	0	0	0	0	0	0
Middle management	0	0	0	0	0	0	0	0
Professionally qualified	0	1	0	1	0	0	0	1
Skilled	0	1	0	0	0	0	0	0
Semi-skilled	0	0	0	0	0	0	0	0
Unskilled	0	0	0	0	0	0	0	0
Total	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**


INTER-REGIONAL TECHNICAL
OPERATION PROJECT INT5154:

PART E

FINANCIAL INFORMATION

5.1 CHIEF FINANCIAL OFFICER'S REPORT

5.1.1 Overview of financial performance

NMISA's ability to carry out its mandate is dependent on funding received through grant income from the **dti**. In previous financial years, NMISA motivated for an increase in the baseline funding as necessitated by increased demand for the services we offer, as well as upgrading of existing aging infrastructure. Due to the challenging economic climate and the fiscal constraints faced nationally creating pressure on the fiscus, this increase could not be accommodated.

As evidenced in the chart below, there has been a decline in the transfer received from R264 million in 2017 to R253 million in 2018. The decline has a potential negative impact on the institute's growth and strategic direction. It has, however, necessitated the need for external revenue generation activities to enhance sustainability both in the short-, medium-, and long-term.

The graph further indicates that the grant to be received in the outer years of the MTEF, while slightly increasing, will be lower in 2021 than in 2017.

5.1.2 Revenue

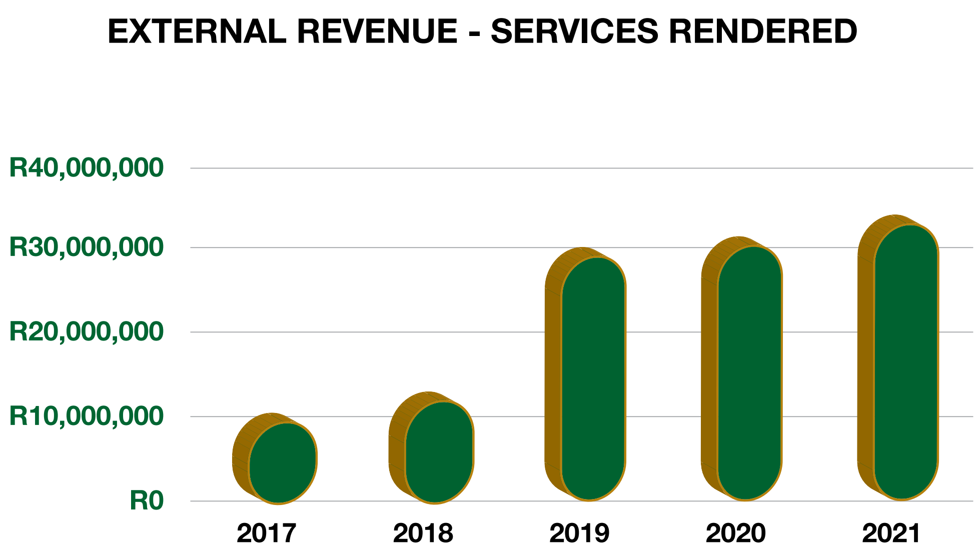
NMISA has three main sources of revenue: grant income, revenue from rendering of services and interest income. The grant income of R253 million (2017: 264 million) represents 89% (2017: 90%) of total revenue.

The table below indicates revenue from all sources:

Sources of revenue	2018			2017		
	Budget	Actual amount	Over/under collection	Budget	Actual amount	Over/under collection
Transfer revenue	252 803 000	252 803 000	-	264 193 000	264 193 000	-
Rendering of services	20 010 000	16 365 433	3 644 567	13 151 000	12 088 925	1 062 075
Interest received	16 000 000	14 444 941	1 555 059	12 500 000	15 833 226	(3 333 226)
Other income	-	72 742	(72 742)	-	51 783	(51 783)
Donations received	-	472 802	(472 802)	-	92 071	(92 071)
	288 813 000	**284 158 918**	**4 510 407**	**289 844 000**	**292 259 005**	**(2 415 005)**

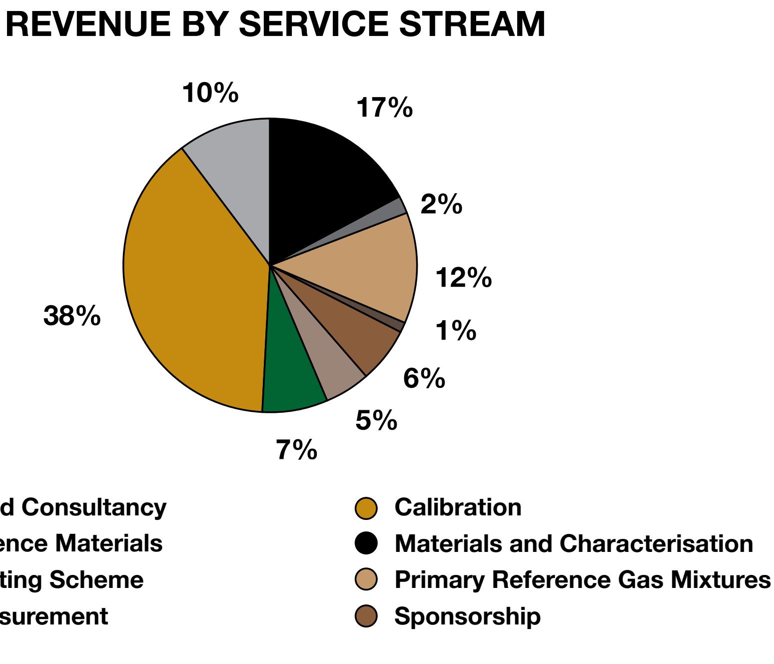
Given the projected decline in grant funding, NMISA initiated measures to increase externally generated revenue through the rendering of services. The Institute was below its target of R20 million in terms of Generally Recognised Accounting Procedures (GRAP) for the current financial year, however there was an increase in revenue generated by 35% to R16.4 million (2017: R12 million). The shortfall in revenue in terms of GRAP was achieved from purchase orders received from clients prior to the end of the financial year of R3.7 million. Of this amount R2.6 million has been received as prepayment after the financial year end and R1.1 million is still expected to be received when the work is completed.

The chart below depicts the projected revenue growth from the rendering of services over the MTEF period. NMISA experts to grow external revenue by 155% by 2021.



As part of strategies to ensure the achievement of targeted revenue, NMISA negotiated and entered into medium-term contracts with customers and sponsors in the current financial year as well as Memoranda of Understanding with other government departments and entities. The income from these arrangements had not yet been realised by year end but commitments have been made by customers through purchase orders or concluded contracts. It is also expected that upon the enactment of compliance regulations by the relevant authorities, there will be a marked increase in the requirement for NMISA services by the industry at large. Revenue for NMISA is received through calibration, materials and characterisation analyses, reference material services and measurement, testing and analysis, training and consulting services and includes income received as sponsorships.

The chart below depicts revenue per revenue source.



NMISA also generated income from interest on investments of invested funds of R14 million (2017: R16 million). The reduction in interest income is due to the utilisation of cash available to settle creditors and commitments delivered in the year under review.

5.1.3 Expenditure

The increase in expenditure is a statement to the growth strategy which NMISA has embarked on over the previous MTEF period and implementation of its mandate in terms of international participation, human capital development, equipment recapitalisation and maintenance. In pursuing these objectives, compensation of employees has increased to 40% (2017: 35%) as a percentage of total budget. This is due to the increased spending on human capital development (HCD) programmes, bursary schemes and implementation of salary benchmarking processes. The strategy is aimed at not only maintaining but raising the qualification profile of the Institute and increasing the employment equity profile to ensure that the Institute is equipped to meet the evolving stringent measurement requirements both locally and internationally.

The increase in depreciation and amortisation as well as repairs and maintenance is mainly due to the increased asset register. Other operational expenditure amounted to R75 million (2017: R59 million) and is in line with budgeted expenditure.

5.1.4 Working capital

The high cash balance is required for the payment of the reported commitments for goods and services that have yet to be delivered. Trade receivables have increased to R6 million from R3 million in 2017. This is as a result of increased revenue generated in the current financial year. Although the receivables equate to 37% of revenue generated, 89% of the receivables are due for less than 30 days. Only 3% (2017: 2%) of these have been impaired. The trade payables balances of R10 million (2017:R19 million) has reduced drastically; this is in line with the Institute's commitment to settle its creditors within 30 days as per Treasury Regulations while the majority of the balance is held under "current period". The Institute is currently in the process of further enhancing systems to ensure further improved compliance and accountability. Provisions have increased to R22 million from R15 million in 2017. This is as a result of provision made for management career ladder adjustments in the current financial year.

5.1.5 Capital investment

In line with our 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 since 2014 to R405 million in the current financial year. The rate of capital equipment growth is expected to decline over the MTEF period as capital expenditure is channelled towards the construction of a new campus.

5.1.6 Commitments and surplus

NMISA procures equipment that is technically specialised, custom made or assembled to order according to our precise specifications, mostly from international manufacturers or NMIs. The delivery lead times for this equipment varies from five months to beyond 12 months. The resultant impact for such orders is that funds are rolled over from year to year in the form of commitments. The commitments reported in the current financial year amount to R134 million (2017: R131 million) with 80% (2017: 76%) committed towards capital expenditure. Planning in terms of procurement is done well in advance to reduce the monetary value of commitments at the end of the financial year with a large number of tenders concluded in the second quarter of the financial year. In addition, all approved orders are actively monitored with regard to delivery times.

NMISA realised a cash surplus of R25.8 million, after taking into account commitments and all future obligations as reported. As per Section 53(3) of the PFMA (1999, as amended), NMISA as a Schedule (3A) entity may not retain cash surplus that was realised in the previous financial year without the prior written approval of the National Treasury. Therefore, NMISA will make an application to National Treasury for the retention of the 2017/18 surplus as well as any future surplus in the MTEF period to utilise for the construction of the new campus.

The surplus of R60 million, as indicated in the Statement of Financial Performance, is as a result of an accounting mismatch as revenue for capital expenditure is recorded in the Income Statement while the expense is capitalised to the Balance Sheet. Secondly, commitments for operational goods and services not yet rendered are only expensed through the Income Statement on delivery.

5.1.7 Supply Chain Management (SCM) overview

During the period under review, the SCM Unit, which operates as a shared service for business requirements, further embraced and incorporated all SCM reform legislation promulgated by National Treasury.

In prior financial years, the SCM system was subjected to an extensive review and business process re-engineering to meet business needs, ensure compliance and enhance efficiencies. The SCM Unit is thus 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 movements of NMS equipment internally and for our clients in support of our calibration services. NMISA has embraced the implementation of the National Treasury Central Supplier Database (CSD) and has migrated its supplier database to the CSD.

The Institute did not incur any unauthorised or fruitless and wasteful expenditure in the year under review. However, even under stringent controls and processes, the Institute incurred irregular expenditure amounting to R14 762 (2017: R0). The expenditure was incurred to enhance the marketing activities as well as the memorabilia hand book related to the seventy10 celebrations. This was done to ensure the successful hosting of the event and to ensure the rich legacy of the Institute is well recorded for participants and the public at large.

5.1.8 Financial outlook

As a result of the expected reduction in grant funding from the fiscus, the financial sustainability of NMISA in the medium-term will be impacted. The revenue sources of the Institute need to cover all capital and operational costs on a year-to-year basis.

The Institute is trading as a going concern and will continue to receive grant funding from the **dti** over the MTEF period. The **dti** has confirmed R738 million, of which R390 million is allocated for capital expenditure towards the construction of a new NMISA campus. The **dti** has further confirmed that this capital expenditure budget will be provided for the next 20 years towards this end. 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.

Given the difficult operating environment, NMISA has strategically focused to reposition itself on how all potential revenue sources can be effectively exploited. 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 the 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's programme.

Mr Calvin Sehlapelo CA (SA)
Chief Financial Officer
31 July 2017

5.2 INDEPENDENT AUDITOR'S REPORT

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

Report on the audit of the financial statements

Opinion

We have audited the financial statements of the National Metrology Institute of South Africa set out on pages 66 to 96, which comprise the statement of financial position as at 31 March 2018, 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.

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 2018, 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 (PFMA).

Basis for opinion

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

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 the 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 International Ethics Standards Board for Accountants' Code of ethics for professional accountants (parts A and B).

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

The Board, which constitutes the accounting authority, is responsible for the preparation and fair presentation of the financial statements in accordance with the South African Standards of Generally Recognised Accounting Practice (GRAP) and the requirements of the Public Finance Management Act of South Africa, 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.

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

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is included in Annexure A to the auditor's report.

Report on the audit of the annual performance report

Introduction and scope

In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof we have a responsibility to report material findings on the reported performance information against predetermined objectives for selected objectives presented in the annual performance report. We performed procedures to identify findings but not to gather evidence to express assurance. Our procedures address the reported performance information which must be based on the approved performance planning documents of the entity. We have not evaluated the completeness and appropriateness of the performance indicators established and included in the planning documents. Our procedures also did not extend to any disclosures or assertions relating to planned performance strategies and information relating to future periods that may be included as part of the reported performance information. Accordingly our findings do not extend to these matters. 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 objectives presented in the annual performance report of the National Metrology Institute of South Africa for the year ended 31 March 2018.

Objectives	Pages in annual performance report
Strategic Objective 1: Provide the national measurement units by maintaining the SI units, units outside the SI and equivalent units	35
Strategic Objective 2: Maintain the Schedule of National Measurement Standards	35
Strategic Objective 3: Keep, maintain and develop measurement systems for bringing national measurement standards and reference methods into being	35
Strategic Objective 4: To ensure internationally recognised and comparable national measurement standards and units by participating in the Metre Convention, CIPM MRA and AFRIMETS activities	35
Strategic Objective 5: Establish confidence in the accuracy of the national measurement standards by suitable and documented quality and management system	35
Strategic Objective 6: To maintain the calibration and measurement capability (CMC) claims in KCDB as evidence of South Africa's measurement capability	35
Strategic Objective 7: Recapitalise and modernise the NMISA to ensure that the national measurement standards support international trade, health, environmental and safety requirements	36
Strategic Objective 8: As the foundation of the South African measurement system, provide technical measurement expertise and support for public policy objectives, accreditation, standardisation and regulatory affairs	36-37
Strategic Objective 9: To maintain and ensure continued expertise and establish the necessary skills according to internationally acceptable standards	37
Strategic Objective 10: Disseminate traceability, measurement expertise and services to South African public and private enterprises by means of calibration, measurement or analysis, certified reference materials	38
Strategic Objective 11: Provide appropriate technology and skills transfer to the South African industry, especially to SMEs	38
Strategic Objective 12: Comply with government directives, the PFMA, treasury regulations and regulatory issues in terms of Government regulations	39

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.

Other matter

Although we identified no material findings on the usefulness and reliability of the reported performance information for the selected objectives, we draw attention to the following matter:

Achievement of planned targets

Refer to the annual performance report on pages 35 to 39 for information on the achievement of planned targets for the year and explanations provided for the under/ overachievement of targets.

REPORT ON THE AUDIT OF COMPLIANCE WITH LEGISLATION

Introduction and scope

In accordance with the PAA and the general notice issued in terms thereof we have a responsibility to report material findings on the compliance of the entity with specific matters in key legislation. We performed procedures to identify findings but not to gather evidence to express assurance.

We did not raise material findings on compliance with the specific matters in key legislation set out in the general notice issued in terms of the PAA.

OTHER INFORMATION

The National Metrology Institute of South Africa's accounting authority is responsible for the 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 the auditor's report.

Our opinion the financial statements and 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.

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.

If, based on the work we have performed, on the other information obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact.

Internal control deficiencies

We considered internal control relevant to our audit of the financial statements, annual performance report and compliance with legislation, however the objective is not to express any form of assurance thereon. We did not identify any significant deficiencies in internal control.

Auditor tenure

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 2 years.

Nexia SAB&T

Nexia SAB&T
Philemon Mawire
Director
Registered Auditor
27 July 2018

Annexure – Auditor's responsibility for the audit

As part of an audit in accordance with the ISAs, we exercise professional judgement and maintain professional scepticism throughout our audit of the financial statements, and the procedures performed on reported performance information for selected objectives and on the entity's compliance with respect to the selected subject matters.

Financial statements

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

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

Reported performance information

In addition to our responsibility for the assurance engagement on reported performance information as described in the auditor's report, we also:

- identify and assess risks of material misstatement of the reported performance information, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. In making those risk assessments we consider internal control relevant to the management and reporting of performance information per selected objective in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.
- evaluate the documentation maintained by the entity that supports the generation, collation, aggregation, monitoring and reporting of performance indicators and their related targets for the selected objectives.
- evaluate and test the usefulness of planned and reported performance information, including presentation in the annual performance report, its consistency with the approved performance planning documents of the entity and whether indicators and related targets were measurable and relevant.
- Evaluate and test the reliability of information on performance achievement to determine whether it is valid, accurate and complete.

Quality control relating to assurance engagements

In accordance with International Standard on Quality Control 1, we maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements and professional standards.

Communication with those charged with governance

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

We also confirm to the accounting authority that we have complied with relevant ethical requirements regarding independence, and communicate all relationships and other matters that may reasonably be thought to have a bearing on our independence, and where applicable, related safeguards.

5.3 STATEMENT OF FINANCIAL POSITION

FOR THE YEAR ENDED 31 MARCH 2018

Figures in Rand	Note(s)	2018	2017 restated*
Assets			
Current assets		**211 564 790**	**213 746 607**
Receivables from exchange transactions	7	6 066 057	3 046 341
Inventories	8	172 270	369 404
Prepayments	28	15 444 445	11 612 047
Cash and cash equivalents	9	189 882 018	198 718 815
Non-current assets		**407 478 559**	**347 363 257**
Property, plant and equipment	3	403 923 782	341 943 565
Intangible assets	4	2 239 225	3 174 227
Prepayments	28	710 133	1 640 046
Rental deposit	24	605 419	605 419
Total assets		**619 043 349**	**561 109 864**
Net assets and liabilities			
Net assets		**585 580 687**	**525 561 793**
Accumulated surplus		585 580 687	525 561 793
Current liabilities		**33 462 662**	**35 548 071**
Payables from exchange transactions	10	10 144 188	19 174 635
Provisions	29	22 834 100	15 214 570
Income received in advance	6	484 374	1 158 866
Total net assets and liabilities		**619 043 349**	**561 109 864**

5.4 STATEMENT OF FINANCIAL PERFORMANCE

FOR THE YEAR ENDED 31 MARCH 2018

Figures in Rand	Note(s)	2018	2017 restated*
Revenue	11	**284 158 918**	**292 259 005**
Revenue from exchange transactions	11	**30 883 116**	**27 973 934**
Rendering of services		16 365 433	12 088 925
Other income		72 742	51 783
Interest received		14 444 941	15 833 226
Revenue from non-exchange transactions	11	**253 275 802**	**264 285 071**
Transfer from controlling entity		252 803 000	264 193 000
Donations received		472 802	92 071
Expenditure		**(224 225 268)**	**(183 507 432)**
Employee related expenses	13	(114 553 582)	(101 153 527)
Depreciation and amortisation	3&4	(34 718 620)	(23 764 699)
Impairment loss	3	-	(1 036 150)
Credit losses on receivables	14	(137 697)	(36 250)
Repairs and maintenance	3	(9 784 337)	(4 468 840)
Contracted services		(138 904)	(119 760)
Operating expenses	12	(64 892 128)	(52 928 206)
		(85 244)	**(810 675)**
Profit/(deficit) on disposal of assets		143 675	(181 031)
Foreign exchange loss		(58 431)	(629 644)
Surplus for the year		**60 018 894**	**107 940 898**

5.5 STATEMENT OF CHANGES IN NET ASSETS

FOR THE YEAR ENDED 31 MARCH 2018

Figures in Rand	Note(s)	Accumulated surplus
Restated balance as at 31 March 2015		**280 817 970**
Surplus for the year as previously reported		137 149 216
Prior period error	30	(346 291)
Restated balance as at 31 March 2016		**417 620 895**
Surplus for the year as previously reported		116 190 898
Prior period error	30	(8 250 000)
Restated balance as at 31 March 2017		**525 561 793**
Surplus for the year		60 018 894
Balance as at 31 March 2018		**585 580 687**

5.6 CASH FLOW STATEMENT

FOR THE YEAR ENDED 31 MARCH 2018

Figures in Rand	Note(s)	2018	2017 Restated*
Cash flows from operating activities			
Receipts		**280 490 544**	**292 122 003**
Rendering of services		12 697 059	11 951 923
Transfer from controlling entity		252 803 000	264 193 000
Interest received		14 444 941	15 833 226
Other income		545 544	143 854
Payments		**(193 677 481)**	**(144 905 758)**
Employee related expenses		(106 779 913)	(91 526 629)
Suppliers		(86 897 568)	(53 379 129)
Net cash flows from operating activities	15	**86 813 063**	**147 216 245**
Cash flows from investing activities			
Purchase of property, plant and equipment	3	(95 229 607)	(176 130 811)
Purchase of intangible assets	4	(1 094 697)	(2 331 479)
Proceeds from sale of property, plant and equipment		674 444	61 276
Net cash flows from investing activities		**(95 649 860)**	**(178 401 014)**
Net decrease in cash and cash equivalents		**(8 836 797)**	**(31 184 769)**
Cash and cash equivalents at the beginning of the year		198 718 815	229 903 584
Cash and cash equivalents at the end of the year	9	**189 882 018**	**198 718 815**

5.7 STATEMENT OF COMPARISON OF BUDGET AND ACTUAL AMOUNTS

FOR THE YEAR ENDED 31 MARCH 2018

Figures in Rand	Final budget	Actual	Variances	% Variance	Notes
Revenue	**288 813 000**	**284 302 593**	**4 510 407**	**2%**	
Revenue from exchange transactions	**36 010 000**	**31 026 791**	**4 983 209**	**13%**	
Rendering of services	20 010 000	16 365 433	3 644 567	18%	27.1
Interest received	16 000 000	14 444 941	1 555 059	10%	27.2
Other income and gains on disposal of assets	-	216 417	(216 417)		27.6
Revenue from non-exchange transactions	**252 803 000**	**253 275 802**	**(472 802)**		
Transfer from controlling entity	252 803 000	252 803 000	-		
Donations received	-	472 802	(472 802)		27.6
Expenditure	**(184 261 800)**	**(224 283 699)**	**40 021 899**	**22%**	
Employee related expenses	(111 668 405)	(114 553 582)	2 885 177	3%	27.3
Depreciation and amortization	-	(34 718 620)	34 718 620		27.6
Credit losses on receivables	-	(137 697)	137 697		27.6
Repairs and maintenance	(9 907 000)	(9 784 337)	(122 663)	(1%)	27.4
Contracted services	(250 000)	(138 904)	(111 096)	(44%)	27.5
Foreign exchange loss	(100 000)	(58 431)	(41 569)	(42%)	27.7
Operating expenses	(62 336 395)	(64 892 128)	2 555 733	4%	27.5
Capital expenditure	(104 551 200)	(96 324 304)	(8 226 896)	(8%)	27.8
Deficit	**-**	**(36 305 410)**	**36 305 410**		

Reconciliation

Format and classification differences

Cash flows from investing activities		
Property, plant and equipment		95 229 607
Intangible assets		1 094 697
Surplus in the Statement of Financial Performance		**60 018 894**

ACCOUNTING POLICIES

1. Basis of preparation

The Annual Financial Statements were prepared in accordance with the standards of GRAP, including any interpretations, guidelines and directives issued by the Accounting Standards Board in accordance with Section 55 (1) (b) of the PFMA (1999, as amended).

These Annual Financial Statements were prepared on an accrual basis of accounting and are in accordance with historical cost convention 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 are consistent with the prior year, are disclosed below.

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 reporting 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.
- The cost or fair value of the item can be measured reliably.

Property, plant and equipment are 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 the date of acquisition.

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

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

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

Item	**Useful life in years**
Plant and machinery	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 improvements is depreciated over the shorter of the lease period or the useful life.

When significant components of an item of property, plant and equipment have different useful lives they will be accounted for as separate items in the asset register and disclosed in the same category to the main asset. These components 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 items of property, plant and equipment may require replacement at regular intervals, the cost of replacing parts of such items is capitalised if the recognition criteria is met. The carrying amount of those parts that are replaced is derecognised in accordance with the derecognition provisions.

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

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

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

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

1.2 Intangible assets

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 accumulated 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
Software	2

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

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

1.3 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 initially 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 trade and other receivables and cash and cash equivalents.

Trade and other receivables

Trade and other receivables 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 all 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 trade and other payables.

Trade and other payables

Trade and other payables 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 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, and 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.
- 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 weighted average cost formula. The same cost formula is used for all inventories having a similar nature and use to the entity.

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

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

1.8 Provisions and contingencies

Provisions

A provision is recognised when:

- The entity has a present obligation (legal or constructive) 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 amount 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 the time value of money is material, the amount of a provision shall be the present value of the expenditure expected to be required to settle the present 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 adjusts 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.

1.9 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 responsibilities thereby incurring future expenditure that will result in the outflow of cash.

1.10 Revenue from exchange transactions

An exchange transaction is one in which an 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.

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 associated with the transaction will flow to NMISA.
- The stage of completion of the transaction at the reporting date can be measured reliably.
- 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.

1.11 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 a non-exchange transaction is measured at the amount of the increase in net assets recognised by the entity. NMISA receives an unconditional grant via the **dti**.

1.12 Foreign currency translation

A foreign currency transaction is recorded, on initial recognition in the functional currency, 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 dates:

- Foreign currency monetary items are translated using the closing rate.
- Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction.

1.13 Changes in estimates and prior period errors

Changes 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 effects 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.

Prior period errors

Prior period errors are omissions from, and mistatements in, the entity's financial statements for one or more prior periods, arising from a failure to use (or misuse of) reliable information that was available when the financial statements for those periods were authorised for issue and could reasonably be expected to have been obtained and taken into account in the preparation and presentation of those financial statements.

Such errors include the effect of mistakes in applying the accounting policy, oversight or misinterpretation of facts.

Prior period errors identified are corrected retrospectively, if material, as an adjustment to the carrying amount of assets or liabilities, statement of financial performance and offset to the opening balance of accumulated surplus. The prior period error note in the Annual Financial Statements disclose the effect of the correction, as well as the cumulative effect on the change in net assets. All relevant comparative figures are restated.

1.14 Fruitless and wasteful expenditure

Fruitless and wasteful expenditure as defined by Section 1 of the PFMA (1999, as amended) mean 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.

1.15 Irregular expenditure

Irregular expenditure as defined in Section 1 of the PFMA (1999, as amended) 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 (1999, as amended).

(b) The State Tender Board Act (Act 86 of 1968), or any regulations made in terms of the Act.

(c) 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 de-recognised when settled or subsequently written-off as irrecoverable.

1.16 Budget information

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

A comparison with the budgeted amounts for the current reporting period has been included in the statement of comparison of budget and actual amounts. The reasons for significant variances are disclosed in the notes to the Annual Financial Statements.

1.17 Related party disclosures

Parties are considered to be related if one party has the ability to control the other party or exercise significant influence over the other party in making financial and operating decisions or if the related party and another party are subject to common control.

Related parties include individuals who have significant influence over the entity, such as members of the Board and key management personnel. Transactions between NMISA and related parties (other than members of the Board and key management personnel) during the reporting period, not on ordinary terms or not in the ordinary course of business, as well as comparative information are disclosed in the notes to the Annual Financial Statements. Board members and key management emoluments are also disclosed.

1.18 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).
- 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.

1.19 Impairment of non-financial assets; 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 as surplus.

1.20 Impairment of non-financial assets; non-cash-generating assets

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

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

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

- Depreciated replacement cost approach.
- Restoration cost approach.
- 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.

1.21 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 plan

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

1.22 Significant judgements 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 and 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 ANNUAL FINANCIAL STATEMENTS

2. New standards and interpretations

2.1 Standards and interpretations approved but not yet effective in the current year

In the current year, the entity had the following standards and interpretations that are approved but not yet effective for the current financial year:

GRAP 20: Related party disclosures

The objective of this standard is to ensure that a reporting entity's financial statements contain the disclosures necessary to draw attention to the possibility that its financial position and surplus or deficit may have been affected by the existence of related parties and by transactions and outstanding balances with such parties.

This standard requires disclosure of related party relationships, transactions and outstanding balances, including commitments, in the financial statements of the reporting entity. The standard is effective for reporting periods beginning on or after 1 April 2019.

NMISA has adopted the standard - disclosure of related party relationships, transactions and balances is made in Notes 16 and 17 of the annual financial statements.

GRAP 32: Service concession arrangements: grantor

This standard applies to a contractual agreement between a grantor and an operator in which the operator uses the service concession asset to provide a mandated function on behalf of the grantor for a specified period of time.

This standard requires that the grantor shall recognise an asset provided by the operator as a service concession asset if the grantor controls or regulates what services the operator provides. The standard is effective for reporting periods beginning on or after 1 April 2019.

NMISA currently has no service concession arrangements; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 108: Statutory receivables

The objective of this standard is to prescribe accounting requirements for the recognition, measurement, presentation and disclosure of statutory receivables. The standard is effective for reporting periods beginning on or after 1 April 2019.

NMISA currently has no receivables arising from legislative requirements; it is therefore unlikely that the standard will have material impact on the entity's financial statements.

IGRAP 17: Service concession arrangements where a grantor controls a significant residual interest in an asset

This Interpretation of the Standards of GRAP provides guidance to the grantor where it has entered into a service concession arrangement, but only controls, through ownership, beneficial entitlement or otherwise, a significant residual interest in a service concession asset at the end of the arrangement, where the arrangement does not constitute a lease. This Interpretation of the Standards of GRAP shall not be applied by analogy to other types of transactions or arrangements.

A consensus is reached, in this Interpretation of the Standards of GRAP, on the recognition of the performance obligation and the right to receive a significant interest in a service concession asset. NMISA does not currently have any service concession arrangements; therefore this interpretation is not expected to have an impact. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no service concession arrangements, it is therefore unlikely that the interpretation will have a material impact on the entity's annual financial statements.

GRAP 109: Accounting by principals and agents

The objective of this standard is to outline principles to be used by an entity to assess whether it is party to a principal agent arrangement, and whether it is a principal or an agent in undertaking transactions in terms of such an arrangement. The standard does not introduce new recognition or measurement requirements for revenue, expenses, assets and/or liabilities that result from principal-agent arrangements.

The standard does, however, provide guidance on whether revenue, expenses, assets and/or liabilities should be recognised by an agent or a principal, as well as prescribe what information should be disclosed when an entity is a principal or an agent. The standard is effective for reporting periods beginning on or after 1 April 2019.

NMISA currently has no principal-agent arrangements; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 34: Separate financial statements

The objective of this standard is to prescribe the accounting and disclosure requirements for investments in controlled entities, joint ventures and associates when an entity prepares separate financial statements. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no investments in controlled entities, joint ventures and associates; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 35: Consolidated financial statements

The objective of this standard is to establish principles for the presentation and preparation of consolidated financial statements when an entity controls one or more other entities. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no subsidiaries or control over any entities, it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 36: Investments in associates and joint ventures

The objective of this standard is to prescribe the accounting for investments in associates and joint ventures and to set out the requirements for the application of the equity method when accounting for investments in associates and joint ventures.

This standard shall be applied by all entities that are investors with significant influence over, or joint control of, an investee where the investment leads to the holding of a quantifiable ownership interest. The effective date of the standard has not yet been set by the Minister of Finance

NMISA currently has no investments in associates and joint ventures; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 37: Joint arrangements

The objective of this standard is to establish principles for financial reporting by entities that have an interest in arrangements that are controlled jointly (i.e. joint arrangements). This standard shall be applied by all entities that are a party to a joint arrangement. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no joint arrangements; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 38: Disclosure of interest in other entities

The objective of this standard is to require an entity to disclose information that enables users of its financial statements to evaluate the nature of, and risks associated with, its interests in controlled entities, unconsolidated controlled entities, joint arrangements and associates, and structured entities that are not consolidated; and the effects of those interests on its financial position, financial performance and cash flows. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no interest in other entities; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

GRAP 110: Living and non-living resources

The objective of this standard is to prescribe the recognition, measurement, presentation and disclosure requirements for living resources; and disclosure requirements for non-living resources. The effective date of the standard has not yet been set by the Minister of Finance.

NMISA currently has no living and non-living resources; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

IGRAP 18: Interpretation of the standard of GRAP on recognition and derecognition of land

This interpretation provides guidance on when an entity should recognise and derecognise land as an asset in its financial statements. The interpretation applies to the initial recognition and derecognition of land in an entity's financial statements. It also considers joint control of land by more than one entity. The effective date of the interpretation has not yet been set by the Minister of Finance

NMISA is planning to buy land in the near future; this interpretation will have an impact on the entity's annual financial statements in future.

IGRAP 19: Liabilities to pay levies

This interpretation addresses the recognition of a liability to pay a levy if that liability is within the scope of GRAP 19. It also addresses the recognition of a liability to pay a levy whose timing and amount is certain. The effective date of the interpretation has not yet been set by the Minister of Finance

The entity has no current or future obligation to pay a levy; it is therefore unlikely that the standard will have a material impact on the entity's annual financial statements.

3. Property, plant and equipment

	2018			2017		
	Cost	Accumulated depreciation and impairment	Carrying value	Cost	Accumulated depreciation and impairment	Carrying value
Furniture and fixtures	5 736 309	(3 603 015)	2 133 294	5 843 582	(3 654 071)	2 189 511
Office equipment	13 827 528	(7 722 955)	6 104 573	13 130 650	(6 561 765)	6 568 885
Plant and equipment	492 351 402	(100 660 172)	391 691 230	404 955 128	(76 147 967)	328 807 161
Motor vehicles	394 792	(107 264)	287 528	431 308	(311 022)	120 286
Leasehold improvements	8 484 593	(4 777 436)	3 707 157	6 189 124	(1 931 402)	4 257 722
	520 794 624	**(116 870 842)**	**403 923 782**	**430 549 792**	**(88 606 227)**	**341 943 565**

Reconciliation of property, plant and equipment: 31 March 2018

	Opening balance	Additions	Disposals	Depreciation	Total
Furniture and fixtures	2 189 511	428 577	(10 369)	(474 425)	2 133 294
Office equipment	6 568 885	1 584 985	(16 940)	(2 032 357	6 104 573
Plant and equipment	328 807 161	90 718 754	(533 160)	(27 301 525)	391 691 230
Motor vehicles	120 286	201 822	-	(34 580)	287 528
Leasehold improvements	4 257 722	2 295 469	-	(2 846 034)	3 707 157
	341 943 565	**95 229 607**	**(560 469)**	**(32 688 921)**	**403 923 782**

Reconciliation of property, plant and equipment: 31 March 2017

	Opening balance	Additions	Disposals	Depreciation	Impairment loss	Total
Furniture and fixtures	2 302 688	526 721	(20 661)	(549 380)	(69 857)	2 189 511
Office equipment	5 764 415	3 306 156	(49 759)	(2 240 797)	(211 130)	6 568 885
Plant and equipment	180 380 520	168 817 168	(171 885)	(19 646 554)	(572 088)	328 807 161
Motor vehicles	143 645	191 462	-	(31 746)	(183 075)	120 286
Leasehold improvements	925 393	3 289 304	-	43 025	-	4 257 722
	189 516 661	**176 130 811**	**(242 305)**	**(22 425 452)**	**(1 036 150)**	**341 943 565**

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

General repairs and maintenance	9 784 337	4 468 840

4. Intangible assets

	2018			2017		
	Cost	Accumulated amortisation and impairment	Carrying value	Cost	Accumulated amortisation and impairment	Carrying value
Software	6 954 528	(4 715 303)	2 239 225	5 859 831	(2 685 604)	3 174 227

Reconciliation of intangible assets: 31 March 2018

	Opening balance	Additions	Amortisation	Total
Software	3 174 227	1 094 697	(2 029 699)	2 239 225

Reconciliation of intangible assets: 31 March 2017

	Opening balance	Additions	Amortisation	Total
Software	2 181 995	2 331 479	(1 339 247)	3 174 227

5. Change in estimate: Property, plant and equipment and intangible assets

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 2 years. The effect of the change in accounting estimates has resulted in a decrease in depreciation amounting to R 2 399 634 for the current year.

Change in depreciation and amortisation resulting from reassessment of useful lives. The following categories are affected:	Value derived from using amended estimate	Value derived from using original estimate	Value impact of change in estimate
Furniture and fixtures	474 425	587 916	(113 491)
Intangible assets	2 029 699	2 625 335	(595 636)
Leasehold improvements	2 846 034	2 846 034	-
Motor vehicles	34 580	38 430	(3 850)
Office equipment	2 032 357	2 688 499	(656 142)
Plant and equipment	27 301 525	28 332 040	(1 030 515)
	34 718 620	**37 118 254**	**(2 399 634)**

Figures in Rand	2018	2017

6. Income received in advance

Prepayments received from customers	484 374	1 158 866

7. Receivables from exchange transactions

Trade receivables	6 073 539	3 079 660
Employee advances and other receivables	186 896	23 362
Less: Provision for impairment of trade receivables	(194 378)	(56 681)
	6 066 057	**3 046 341**

NMISA does not hold any collateral as security.

The impairment of trade receivables has been determined with reference to probability of collection of the amounts.

Movement in the provision for impairment of trade receivables		
Opening balance	56 681	63 611
Raised during the year	194 378	-
Amounts written off as uncollectible	-	(2 472)
Reversed during the year	(56 681)	(4 458)
	194 378	**56 681**

8. Inventories

Raw materials	81 654	105 999
Finished goods	90 616	263 405
	172 270	**369 404**

Inventories recognised as an expense during the year, included under operating expenses	197 134	96 865

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

9. Cash and cash equivalents

Cash and cash equivalents consist of:

Cash on hand	4 550	12 156
Bank balances	2 865 294	15 141 326
Short term deposits*	187 012 174	183 565 333
	189 882 018	**198 718 815**

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

Figures in Rand	2018	2017

10. Payables from exchange transactions

Trade payables	5 049 979	13 181 990
Accrued expenses	5 093 966	5 955 322
Other payables	243	4 295
Deferred income	-	33 028
	10 144 188	**19 174 635**

11. Revenue

Rendering of services	16 365 433	12 088 925
Other income	72 742	51 783
Interest received	14 444 941	15 833 226
Non-exchange revenue	253 275 802	264 285 071
	284 158 918	**292 259 005**

The amount included in revenue arising from exchanges of goods or services is as follows:

Rendering of services	16 365 433	12 088 925

The amount included in revenue arising from other income is as follows:

Credit losses recovered	890	-
Insurance claims payout	-	51 783
Other sundry income	71 852	-
	72 742	**51 783**

The amount included in revenue arising from interest received is as follows:

Interest received – external investments	14 444 941	15 795 898
Interest charged on trade and other receivables	-	37 328
	14 444 941	**15 833 226**

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

Transfer received from controlling entity towards operating expenditure	106 470 000	101 400 000
Transfer received from controlling entity towards capital expenditure	146 333 000	162 793 000
Donations received	472 802	92 071
	253 275 802	**264 285 071**

Figures in Rand	2018	2017

12. Operating expenses

Auditor's remuneration	830 133	551 209
Bursaries	1 320 016	1 242 946
Catering, events and meetings	1 549 534	303 038
Chemical, gas and laboratory consumables	5 902 427	6 756 998
Conference fees	437 465	245 881
Consulting and professional fees	416 934	624 026
Electricity	2 894 639	2 743 070
External calibration costs	1 014 569	949 970
Health and safety services	405 013	635 058
Insurance	443 849	463 782
IT expenses	2 816 772	3 802 516
International assessors expenses	283 652	46 311
Lease rentals on operating lease	11 453 144	10 465 319
Marketing and advertising	2 019 725	1 388 250
Other expenses	1 553 300	1 316 515
PPP project expense	1 192 392	1 608 152
Payroll costs	509 519	388 649
Postage and courier	1 694 243	750 211
Printing and stationery	1 998 011	1 492 534
Recruitment costs	487 311	1 198 388
SANAS assessment/quality expenses	508 801	496 269
Staff welfare	125 606	166 040
Subscriptions and membership fees	663 500	707 528
Technical components	12 948 359	3 722 115
Telephone and fax	719 956	710 472
Training	3 754 152	3 962 477
Travel – local	1 223 009	2 621 317
Travel - overseas	5 726 097	3 569 165
	64 892 128	**52 928 206**

Figures in Rand	2018	2017

13. Employee related costs

Net earnings	59 818 804	53 378 197
Performance bonuses	13 363 313	12 674 492
Unemployment Insurance Fund (UIF)	544 913	522 443
Third party payments*	13 171 823	12 281 562
Leave pay provision charge	523 303	912 153
Pay As You Earn (PAYE)	19 889 075	19 553 198
Long service awards	179 754	111 015
Temporary employees	1 681 020	1 079 673
Career ladder adjustments	5 210 220	497 913
Compensation for occupational disease and injuries	171 357	142 881
	114 553 582	**101 153 527**

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

14. Credit losses

Provision for doubtful debts and debts written off	137 697	36 250

15. Cash generated from operations

Surplus	60 018 894	107 940 898
Adjustments for:		
Depreciation and amortisation	34 718 620	23 764 699
(Profit)/loss on disposal of assets	(143 675)	181 031
Credit losses	137 697	36 250
Foreign exchange loss	58 431	629 644
Impairment loss	-	1 036 150
Movement in provision for leave	523 304	912 153
Movement in provision for performance bonuses	2 383 919	8 250 000
Movement in provision for career ladder adjustments	4 712 307	497 913
Changes in working capital:		
Inventories	197 134	(96 865)
Receivables from exchange transactions	(3 127 715)	(628 258)
Prepayments	(2 902 485)	(1 982 670)
Payables from exchange transactions	(9 088 876)	6 096 099
Income received in advance	(674 492)	579 201
	86 813 063	**147 216 245**

Figures in Rand	2018	2017

16. Commitments

Already contracted for but not provided for		
Capital expenditure	107 303 711	100 152 754
Operating expenditure	27 146 795	31 348 080
	134 450 506	**131 500 834**
Not yet contracted for and authorised by Accounting Authority		
Capital expenditure	-	2 000 000
Total capital commitments		
Already contracted for but not provided for	107 303 711	100 152 754
Not yet contracted for and authorised by Accounting Authority	-	2 000 000
	107 303 711	**102 152 754**

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

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 NMIs 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.

Operating leases

Surplus is stated after the following has taken into account:

Operating lease rental expense	**10 535 483**	**10 465 319**
Operating leases commitments - printers		
- Due within one year	567 133	562 058
- Due in second to fifth year inclusive	50 157	646 039
	617 290	**1 208 097**
Operating lease commitments - building		
- Due within one year	11 176 268	10 059 647
- Due between two to five years	-	11 065 612
	11 176 268	**21 125 259**

Significant lease arrangements

Lease rental - building

The lease relates to the use of buildings for a total period of eight years, commencing on 1 April 2011. The lease was for an initial period of three years, after the expiry of the initial period the lease period was extended by five years to 31 March 2019. The rental increases on 1 April of each consecutive year; the increase will be based on CSIR's annually approved rental rates. The rental is payable monthly in advance.

Lease rental - printers

The lease relates to the use of printers for a total period of 36 months, commencing on 1 May 2016. The rental shall be increased annually, by an amount based on the combined effects of currency fluctuations, increase in statutory costs, suppliers' price increases and variations in the Consumer Price Index, compounded annually. The rental is payable monthly in arrears.

17. Related parties

Relationships

Controlling entity	Department of Trade and Industry (dti)
Board members	Dr Prinsloo Nevhutalu Mr Thembani Bukula Ms Tshidi Molala (resigned 01 March 2018) Dr Rudzani Nemutudi Mr Tshokolo Nong Ms Jabu Mogadime Dr Cleopas Sanangura Dr Tshenge Demana (the dti representative) Ms Ursula Ntsubane Ms Bongani Mathebula (resigned 28 February 2018)
External members of the Audit and Risk Committee	Mr Kgosietsile Kgosiemang
External members of the IT Steering Committee	Mr Senzo Dlamini Mr Sipho Masinga (appointed 12 June 2017)
Members of key management	Mr Ndwakhulu Mukhufhi Mr Benjamin van der Merwe Mr Calvin Sehlapelo Dr Wynand Louw Ms Zakithi Msimang Ms Natasha Nel-Sakharova Dr Jayne de Vos Mr Teboho Mthombeni
Entities under common control*	South African National Accreditation Systems (SANAS) Companies Tribunal (CT) Export Credit Insurance Corporation (ECIC) National Empowerment Fund (NEF) South African Bureau of Standards (SABS) National Credit Regulator (NCR) National Gambling Board (NGB) National Consumer Commission (NCC) National Consumer Tribunal (NCT) National Lotteries Board (NLB) National Lotteries Trust Fund (NLTF) National Regulator for Compulsory Specifications (NRCS) Companies and Intellectual Property Commission (CIPC)

* The entities and NMISA are under common control of the **dti**.

All other entities in the national sphere of government are considered to be related but have not been disclosed unless transactions with those entities took place on terms that were not on ordinary terms or not in the ordinary course of business.

Key management information

Class	Description	Number
Board members	Accounting Authority	8 (2017: 10)
Executive Committee	Directors	8 (2017: 8)

18. Members'emoluments

Executive management emoluments 2018

	Basic salary	Annual bonus	Performance bonus	Pension contribution	Allowances	Other expenses	Total
Mr Ndwakhulu Mukhufhi*	1 884 299	32 410	461 959	45 246	-	45 157	2 469 071
Mr Benjamin van der Merwe	919 156	61 931	120 542	87 642	-	35 372	1 224 643
Mr Calvin Sehlapelo (appointed 5 September 2017)	774 220	-	-	9 031	-	1 984	785 235
Dr Wynand Louw	1 155 186	-	155 331	93 901	103 860	73 455	1 581 733
Ms Zakithi Msimang	966 633	51 636	164 540	73 073	-	115 887	1 371 769
Ms Natasha Nel-Sakharova	1 025 197	-	-	80 536	-	10 567	1 116 300
Dr Jayne de Vos	949 436	61 937	81 530	88 535	-	11 409	1 192 847
Mr Teboho Mthombeni	1 060 225	-	-	93 171	-	6 988	1 160 384
	8 734 352	**207 914**	**983 902**	**571 135**	**103 860**	**300 819**	**10 901 982**

* The performance bonus of R 461 959 for the CEO relates to 2013/14, 2014/15, 2015/16 and 2016/17 financial years.

Executive Management emoluments 2017

	Basic salary	Annual bonus	Performance bonus	Pension contribution	Allowances	Other expenses	Total
Mr Ndwakhulu Mukhufhi	1 773 744	30 612	-	42 595	-	14 020	1 860 971
Mr Benjamin van der Merwe	865 019	58 287	85 712	82 506	-	3 948	1 095 472
Ms Phetsile Magagula (resigned 31 March 2017)	1 156 078	-	52 068	85 922	9 004	80 365	1 383 437
Dr Wynand Louw	1 114 002	-	110 448	90 830	103 860	23 435	1 442 575
Ms Zakithi Msimang	909 768	48 598	116 997	68 791	2 651	350	1 147 155
Ms Natasha Nel-Sakharova	965 122	-	87 278	75 817	20 115	6 738	1 155 070
Ms Jayne de Vos	893 531	57 568	86 958	83 347	-	20 041	1 141 445
Mr Teboho Mthombeni (appointed 1 June 2016)	838 163	-	-	73 586	-	2 706	914 455
	8 515 427	**195 065**	**539 461**	**603 394**	**135 630**	**151 603**	**10 140 580**

Figures in Rand	2018	2017
Non-executive Management emoluments		
Dr Prinsloo Nevhutalu	72 347	50 463
Mr Thembani Bukula	23 316	24 960
Mr Tshokolo Nong	55 454	51 636
Ms Tshidi Molala (resigned 01 March 2018)	43 242	47 473
Dr Rudzani Nemutudi	63 568	56 968
Mr Kgosietsile Kgosiemang (external member)	20 858	35 923
Mrs Jabu Mogadime	54 418	44 466
Dr Cleopas Sanangura	56 416	64 690
Ms Bongani Mathebula (resigned 28 February 2018)	16 080	32 822
Ms Ursula Ntsubane	62 907	88 711
Mr Senzo Dlamini	16 080	-
Mr Sipho Masinga (appointed 12 June 2017)	18 561	-
	503 247	**498 112**

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

Figures in Rand	2018	2017

19. Risk management

Financial risk management

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

Liquidity risk

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

The table below illustrates NMISA's exposure to liquidity risk from financial liabilities:

2018

	Carrying amount	1 to 3 months	6 to 9 months	10 to 12 months	2 to 5 years	more than 5 years
Trade and other payables	10 144 188	9 806 298	337 890	-	-	-
TOTAL	**10 144 188**	**9 806 298**	**337 890**	**-**	**-**	**-**

2017

	Carrying amount	1 to 3 months	6 to 9 months	10 to 12 months	2 to 5 years	more than 5 years
Trade and other payables	19 174 635	18 618 570	556 065	-	-	-
TOTAL	**19 174 635**	**18 618 570**	**556 065**	**-**	**-**	**-**

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 for private companies. 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 3% (2017: 2%) of the total receivables book. The majority of the receivables are from the private sector.

The maximum exposure to credit risk is as follows:

	2018	2017
Trade receivables	6 073 539	3 079 660
Less: Provision for impairment of trade receivables	(194 378)	(56 681)
Rental deposit	605 419	605 419
	6 484 580	**3 628 398**

Figures in Rand	2018	2017

As at 31 March 2018, the age analysis of the receivables from exchange transactions net of provision for impairment of trade receivables, was as follows:

Not past due	4 727 197	2 552 322
Past due 1 - 30 days	691 949	383 708
Past due 31 - 60 days	248 627	46 298
Past due 61 – 90 days	77 419	37 962
Past due 90 days and over	133 969	2 689
	5 879 161	**3 022 979**

Cash flow risk

NMISA manages its cash flow risk by aligning the monthly allocation 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 invoicing.
- The PFMA (1999, as amended) 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 the risk of changes in market interest rates relates primarily to cash in notice deposits held with banks:

Cash and cash equivalents		
Short-term deposits	187 012 174	183 565 333

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, suppliers are required to provide firm prices to minimise the risk.

20. Going concern

The Annual Financial Statements were 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 the settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

21. Events after reporting date

NMISA submitted a request for retention of surplus to National Treasury in respect of the cash surplus realised in the 2016/17 financial year. Subsequent to the financial year-end, National Treasury confirmed on 24 May 2018 that an amount of R40,7 million relating to the request was not approved for retention. These funds will be deposited into the National Revenue Fund through the **dti** in the 2018/19 financial year.

Figures in Rand	2018	2017

22. Contingent liabilities

22.1 An amount of R 26 409 for the performance bonus of the Director (Physical Metrology) who acted as interim CEO for the 2012/13 financial year is still outstanding. The outcome of this matter will be confirmed by the performance evaluation feedback from the Accounting Authority.

22.2 NMISA has an on-going litigation case with Radabell CC. Radabell approached the court to substitute NMISA's decision to cancel a tender and replace it with an award to Radabell CC or alternatively award them damages suffered as a result of the cancellation. As at 31 March 2018 judgement had been reserved in this matter. Should NMISA lose the case, Radabell will be entitled to interlocutory application costs, main application costs and the amount of the tender that would have been awarded to them. The total amount that could be payable if judgement is against NMISA cannot be reliably determined.

23. Fruitless and wasteful expenditure

Opening balance	15 612	36 330
Add: Fruitless and wasteful expenditure – current year	-	15 612
Less: Amounts condoned	-	(36 330)
Less: Debt raised	(15 612)	-
	-	**15 612**

24. Rental deposit

Rental deposit	605 419	605 419

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

25. Irregular expenditure

Opening balance	18 388	544 838
Add: Irregular expenditure – current year	14 763	-
Less: Amount condoned	(33 151)	(526 450)
	-	**18 388**

The above irregular expenditure was as a result of non-compliance with SCM processes and regulations.

26. Retirement benefits

Contribution to pension fund	13 174 175	12 281 562

NMISA provides retirement benefits through a defined contribution plan to all its employees. The fund is governed by the Pension Funds Act (Act 24 of 1956). The entity is under no obligation to cover any unfunded benefits.

Figures in Rand	2018	2017

27. Budget differences

Material differences between budget and actual amounts

27.1. The 18% variance was as a result of funds from sponsorships only received after year end as well as other contracts entered into with customers for which work had not been completed by year end.

27.2. The unfavourable variance arose due to surplus funds being utilised for payments on commitments resulting in a reduction on the bank balance, yielding lower interest returns than anticipated.

27.3. The 3% variance is not significant, due to provision made for career ladder adjustments.

27.4. The 1% variance is due to some of the planned maintenance being delayed; therefore funds are committed but not yet expensed.

27.5 The 4% variance is insignificant, resulting from higher than anticipated price increases.

27.6. Depreciation, impairment loss, other income, credit losses and gains/losses on disposal of assets were not budgeted for.

27.7. Foreign exchange variance arose due to appreciation of the Rand.

27.8. The procurement of tenders planned for has been concluded. Although these tenders have not come through into this report, all the tenders have been awarded, therefore funds are committed but not yet expensed.

28. Prepayments

Prepayments – current asset	15 444 445	11 612 047
Prepayments – non-current asset	710 133	1 640 046
	16 154 578	**13 252 093**

NMISA procures specialised equipment (custom made on order or assembled to order by international manufacturers according to NMISA specifications). Some of the equipment is only used by NMIs and the components need to be characterised and tested on assembly.

This equipment must be thoroughly tested, verified and calibrated to ensure traceability to IS before delivery thus the delivery lead times for equipment procured by NMISA can be anything up to a year and in some cases beyond a year; as a result most of the 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.

Figures in Rand	2018	2017

29. Provisions

Reconciliation of provisions - 2018

	Opening balance	Additions	Utilised during the year	Leave cashed out	Total
Annual leave provision	3 066 657	3 589 692	(2 800 934)	(265 454)	3 589 961
Provision for career ladder adjustments	497 913	5 210 220	(497 913)	-	5 210 220
Provision for performance bonuses	11 650 000	13 256 467	(10 872 548)	-	14 033 919
	15 214 570	**22 056 379**	**(14 171 395)**	**(265 454)**	**22 834 100**

Accumulated annual leave from the previous leave cycle not taken by 30 September each year is forfeited. The average number of leave days per employee is 8.96 (2017: 9.24).

Reconciliation of provisions - 2017

	Opening balance	Additions	Utilised during the year	Leave cashed out	Total
Annual leave provision	2 154 504	7 343 002	(6 082 300)	(348 549)	3 066 657
Provision for career ladder adjustments	-	467 913	-	-	497 913
Provision for performance bonuses	3 400 000	11 650 000	(3 400 000)	-	11 650 000
	5 554 504	**19 490 915**	**(9 482 300)**	**(348 549)**	**15 214 570**

Accumulated annual leave from the previous leave cycle not taken by 30 September each year is forfeited. The average number of leave days per employee is 9.24 (2016: 7.23).

30. Prior period error

Performance bonuses were incorrectly accounted for on a cash basis instead of accrual basis in previous financial years, the error was corrected in the current financial year.

The correction of error results in adjustments as follows:

	2017	2016
Statement of Financial Position		
Prior year decrease in Accumulated Surplus	3 400 000	3 053 709
Current year decrease in Accumulated Surplus	8 250 000	346 291
Increase in Provision for performance bonuses	(11 650 000)	(3 400 000)
	-	-
Statement of Financial Performance		
Increase in performance bonuses	8 250 000	346 291

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