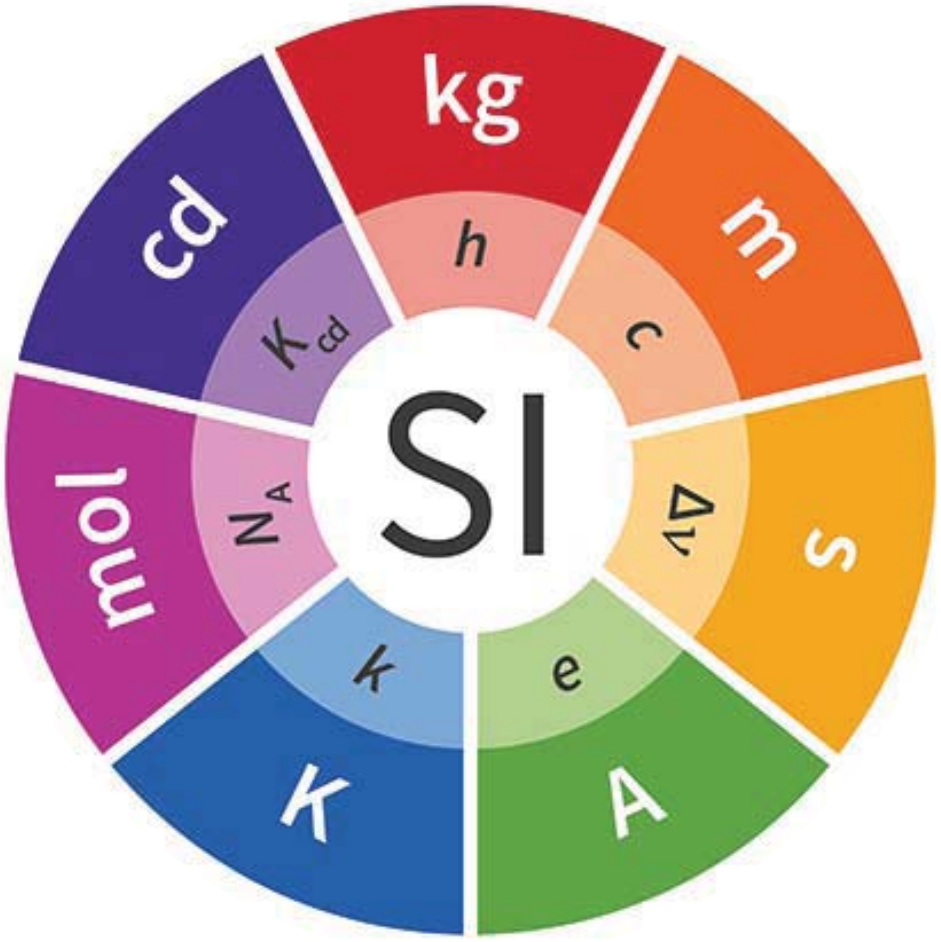
nmisa

National Metrology Institute of South Africa

ANNUAL PERFORMANCE PLAN

2019/22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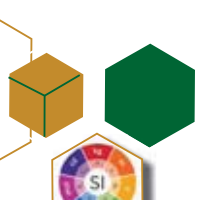

FOREWORD BY THE MINISTER

Dr Rob Davies, MP
Minister of Trade and Industry

The National Metrology Institute of South Africa underpins all accurate measurements for the country and the Region contributing to the overall quality of life, trade and regulatory environments. NMISA is therefore responsible for ensuring measurement equivalence with the global system of measurement, the SI. NMISA as part of South Africa's quality infrastructure is key in the operation of domestic markets and global competitiveness by ensuring the integrity of measurements conducted at various stages of the value chains of different commodities and manufactured products for the local and export markets. The continued participation of NMISA and other South African TI entities in International technical infrastructure activities is imperative to ensure a solid technical infrastructure system that allows the economy to take advantage of export opportunities in a dynamic environment with rapid technological development and associated changes in regulations.

In November 2018 at the General Conference on Weight and Measures, delegates voted for the revision of the SI. The kilogram, ampere, kelvin and the mole are the base units that will be revised. These changes will come into effect on 20 May 2019, a day marking World Metrology Day. For the period 2019-2024, NMISA will continue in its efforts by embarking on projects that will ensure primary realisation of the relevant SI base units and equivalence to the global system. Coupled with the revision of the SI units, NMISA has refocused its strategy to further support regulations, trade and the industry as well as aiding SMEs in providing appropriate services for manufacturing and beneficiation. Furthermore, metrology services performed by State-owned Entities will be consolidated under NMISA as a cohesive shared service to better support the South African Government and industry. The transfer of Legal metrology function to NMISA will ensure alignment of regulations and scientific metrology for a seamless and symbiotic management and allocation of resources thus ensuring protection of the public and locking out unreliable goods.

In the IPAP for 2018/19-2020/21, a lack of understanding and therefore underutilisation of NMISA and other Technical Infrastructure offering by emerging industries and other stakeholder including Government Departments and SOEs was identified as a key challenge that needs resolving. As a member of the TI entities, NMISA supports a variety of regulators, as identified in the IPAP, a delay in the implementation of regulations negatively impacts on the effectiveness of the institutions programme. I welcome the strategic thrust of NMISA to enhance efforts related to measurement support for Government regulatory efficiency. NMISA will continue to play a leading role in providing metrology services and support to better equip industries in the SADC Region to be competitive in domestic and International markets.

I would like to take this opportunity to endorse the NMISA Strategic Plan 2019-2024 and Annual Performance Plan 2019-2022.

Dr Rob Davies, MP
Minister
the dti

OFFICIAL SIGN-OFF

It is hereby certified that this Annual Performance Plan:

- Was developed by the management of NMISA under the guidance of the Board and the Board Chair, Ms J Mogadime,
- Was prepared in line with the current Strategic Plan of NMISA, and
- Accurately reflects the performance targets that NMISA will endeavour to achieve, given the resources made available in the budget for 2019/20 – 2021/22.

Prepared and compiled by NMISA Directors and Managers.

Mr Calvin Sehlapelo
Chief Financial Officer

31 January 2019

Mr Ndwakhulu Mukhufhi
Accounting Officer

31 January 2019

Ms Jabu Mogadime
Accounting Authority

31 January 2019

Approved by:

Dr Rob Davies
Executive Authority

ABBREVIATIONS AND ACRONYMS

AFFRMP	Africa Food and Feed Reference Material Programme
AFRA	African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology
AFRIMETS	Intra-Africa Metrology System
APP	Annual Performance Plan
BIPM	International Bureau of Weights and Measures
BRIC	Brazil, Russia, India and China
CAPEX	Capital Expenditure
CC	Consultative committee
CEO	Chief Executive Officer
CFTA	Continental Free Trade Area
CGPM	General Conference on Weights and Measures
ChemMAT	Chemistry and Materials Characterisation
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
DCLF	Direct Current Low Frequency
DDG	Deputy Director General
Dr	Doctor
DS	Dosimetry
EHS	Environment, Health and Safety
EM	Electricity and Magnetism
EXCO	Executive Committee
HCD	Human Capital Development
HR	Human Resources
ICT	Information and Communication Technology
IPAP	Industrial Policy Action Plan
IR	Ionising Radiation
ISO	International Standards Organisation
KCDB	Key Comparison Database
KPI	Key Performance Indicator
LED	Light Emitting Diode
MAT	Materials Characterisation Group
MEA	Multilateral Environment Agreements
MRA	Mutual Recognition Arrangement
MRL	Minimum Residue Levels
MTEF	Medium Term Expenditure Framework

NEDLAC	National Economic Development and Labour Council
NIST	National Institute of Standards and Technology (NMI of the USA)
NLA	National Laboratory Association South Africa
NMI	National Metrology Institute
NMISA	National Metrology Institute of South Africa
NMS	National Measurement Standard
NRC	National Research Council (Canada)
NRCS	National Regulator for Compulsory Specifications
NTB	Non-Tariff Barriers
NSI	National System of Innovation
OEM	Original Equipment Manufacturer
OH&S	Occupational Health and Safety
OIML	International Organisation of Legal Metrology
OPEX	Operational Expenditure
PFMA	Public Finance Management Act
POP	Persistent Organic Pollutant
PPP	Private Public Partnership
PTS	Proficiency Testing Schemes
RIID	Research International and Infrastructure Development
RMO	Regional Metrology Organisation
RS	Radioactivity Standards
SA	South Africa
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
SANAS	South African National Accreditation System
SANS	South African National Standards
SEDA	Small Enterprise Development Agency
SEM	Scanning Electron Microscope
SHEQ	Safety Health Environment and Quality
SI	International System of Units
SKA	Square Kilometre Array
SME	Small, Medium Enterprises
SMME	Small, Medium and Micro Enterprises
SOE	State-owned Entity
TBT	Technical Barrier to Trade
TC	Technical Committee
TCS	Technical Cooperation Section
the dti	The Department of Trade & Industry
TI	Technical Infrastructure
VOIP	Voice Over Internet Protocol
XPS	X-ray Photoelectron Spectroscopy

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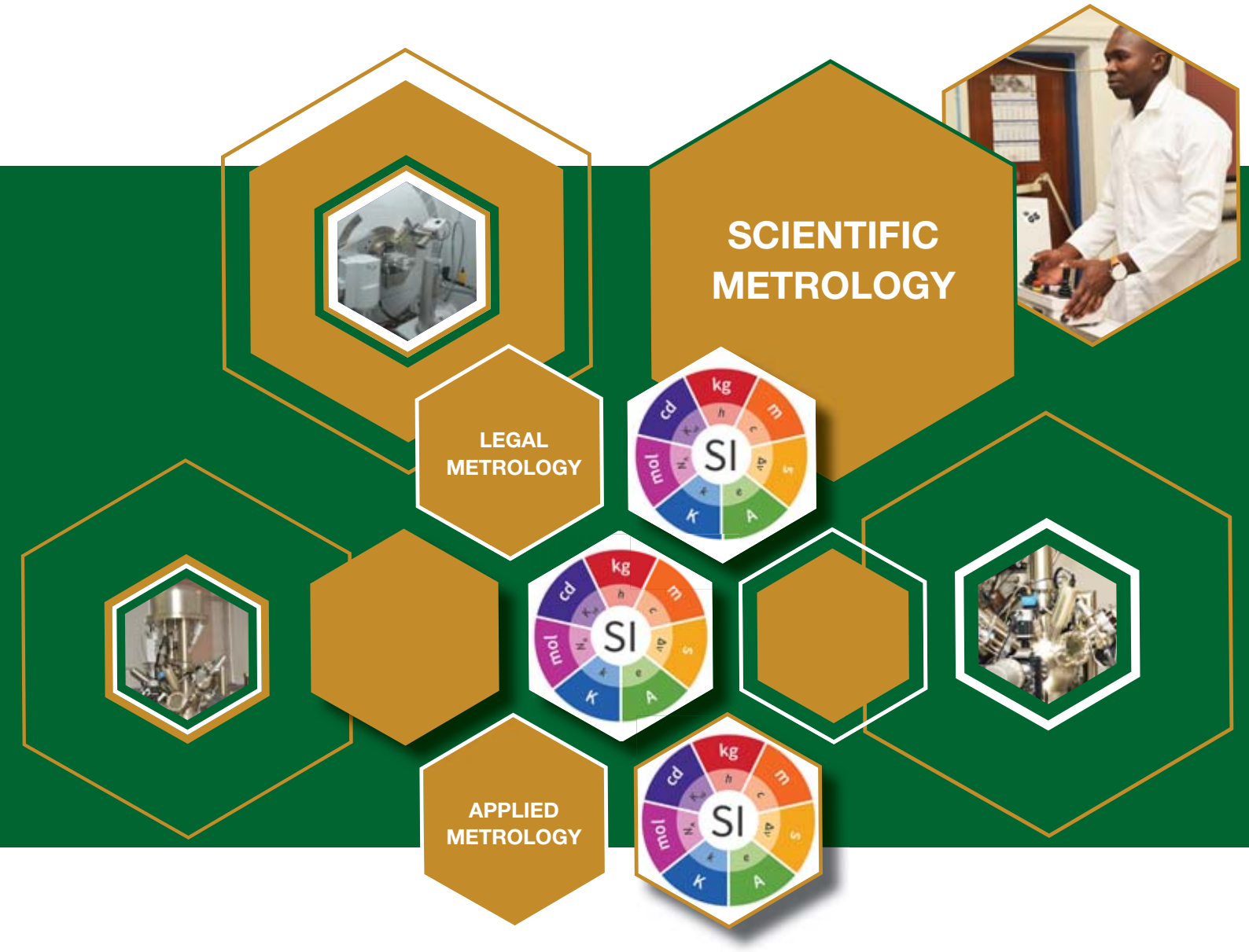


PART A: STRATEGIC OVERVIEW

1 UPDATED SITUATIONAL ANALYSIS

1.1 ORGANISATIONAL STRUCTURE

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

NMISA was established under the Measurement Units and Measurement Standards Act, No. 18 of 2006 (The Measurement Act)

- to provide for the use of measurement units of the International System of Units (SI);
- to designate other measurement units for use and to provide for the designation of the National Measurement Standards (NMS), and
- to provide for the keeping and maintenance of the NMS.

NMISA is a Type 3A Public Entity, managed by a Chief Executive Officer (CEO), supported by an Executive Management team and governed by the NMISA Board. The organisational structure is shown in figure 1 below. In the MTEF period the structure at the level of Executive Management will be changed to align with the Strategic goals from the Strategic Plan 2019-2024:

Strategic thrust 1: Metrology for Regulatory purposes and in support of Government laboratories, for compliance and for development of regulations,

Strategic thrust 2: Metrology consolidation for SOEs to provide efficient shared services,

Strategic thrust 3: Metrology for Industry including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation and export, and

Strategic thrust 4: Location of Legal metrology under NMISA to effectively implement the Legal metrology act.

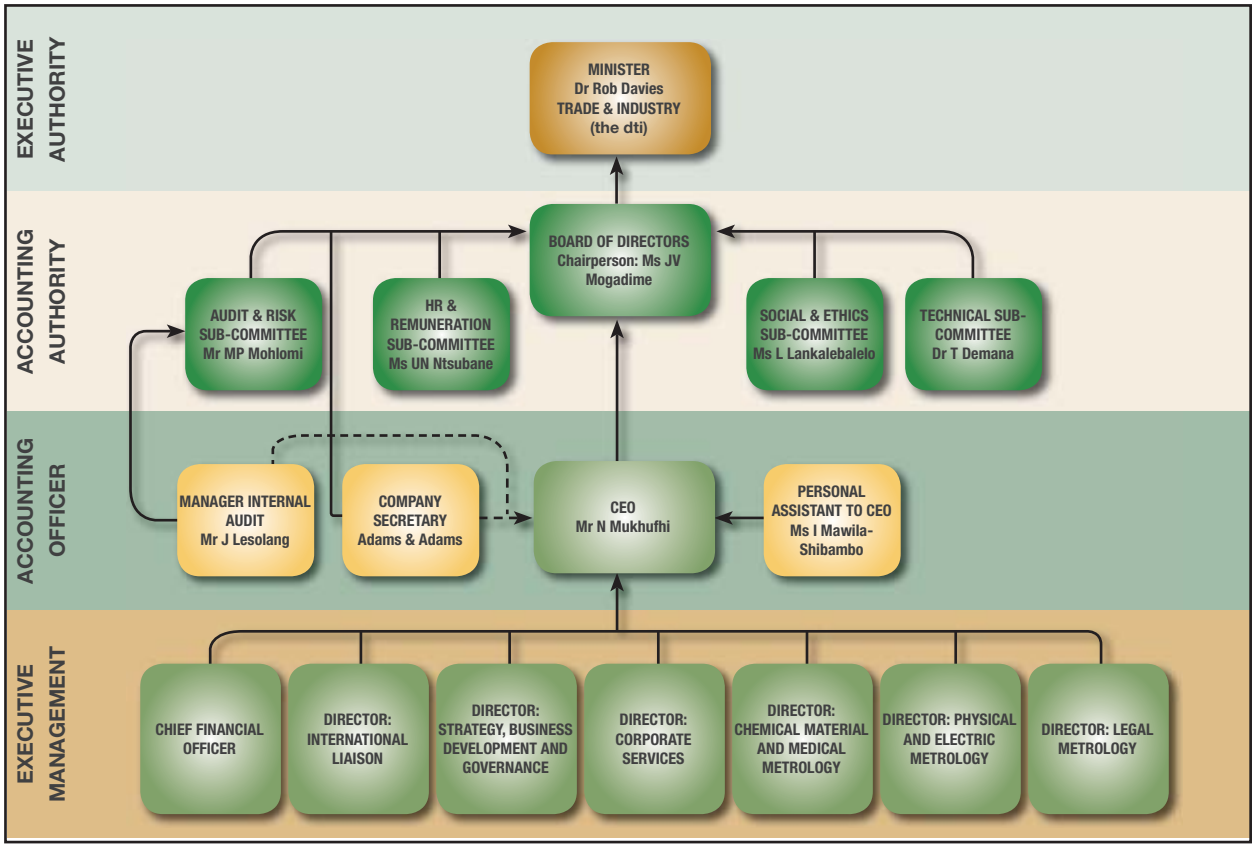


Figure 1. Governance Structure

1.2 PERFORMANCE DELIVERY ENVIRONMENT (EXTERNAL)

The trade of goods and services around the world is the lifeblood of the global economy, and is increasingly important to domestic economic growth, productivity and investment opportunities. For customers to consider trade to be fair and benefit from it, for component manufacturing to be effective and efficient and for effective health care and the protection of the environment, measurements taken in different parts of the world needs to be accurate, equivalent to each other, and accepted by each other. Important decisions (economic, environmental, social and medical) are based on measurement results. NMISA contributes to all Government key priorities and the National Development Plan (NDP) and has aligned its key programmes to the IPAP priority sectors and the goal of the National Industrial Policy Framework to "prevent industrial decline and support the growth and diversification of South Africa's manufacturing sector".

NMISA has a very specific role in this context and without a measurement infrastructure, it is difficult for the country 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.

South Africa is a signatory to the Metre Convention, a treaty dating back to 1875. Under this Convention the International Bureau of Weights and Measures (BIPM) was created to act in matters of world metrology, particularly concerning the demand for measurement standards of ever-increasing accuracy, range and diversity, as well as to address the need to demonstrate equivalence between National Measurement Standards. The SI was also established under the Metre Convention and is overseen by the International Committee for Weights and Measures (CIPM). The whole system is governed by the General Conference on Weights and Measures (CGPM), whose members are the states that signed the Metre Convention. South Africa adhered to the treaty in 1964 and NMISA in 1999 signed the CIPM Mutual Recognition Arrangement (MRA). The CIPM MRA gives users reliable quantitative information on the comparability of National metrology services and 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 Capabilities (CMCs) and calibration and analysis certificates issued by NMIs.

As the custodian of the South African NMS, NMISA develops and maintains primary and secondary standards for South Africa and establishes their comparability to other National Measurement Standards. These standards are disseminated to the South African industry through a range of services and products and in the case of a measurement dispute, reference analyses are provided to ensure conformity.

NMISA aligned its activities to the nine-point plan of the IPAP:

- **Revitalisation of Agriculture and Agro Processing Value Chain:**
    - Determining contaminants in food and beverages in support of food safety and to identify "fake foods",
    - Ensuring accurate measurement of nutrients, functional foods and especially amino acids in food and biopharmaceuticals, and
    - Reference material production facility for Persistent Organic Pollutants (POPS) in fruit and vegetables, mycotoxins in maize and other matrices particular to Sub-Saharan Africa.

- **Advancing Beneficiation:**
    - A state-of-the art Materials Characterisation facility for accurate surface and bulk measurements of composition, morphology and structural properties of metals and nanomaterials, with a special emphasis on nanoscience/manufacturing and Industry 4.0, and
    - Developing dimensional accuracy evaluation and diagnostic methods for additive manufacturing.

- **Unlocking the potential of SMEs and Co-operatives:**
    - Virtual reality based training modules in accurate measurement,
    - Training SMEs in accurate measurement and the Quality Infrastructure, and
    - Providing direct measurement assistance to SMEs with the potential to export.

- **Implementation of Higher Impact IPAP:**
    - Improve the National Measurement Standards to be on par with the developed world, i.e. at primary standard level, in general support of industrialisation and health services,

- Primary standard for mass (Watt/Kibble balance),
- Primary standard for voltage,
- Primary standard for micro-pressure and low-liquid-flow, and
- Standard for ultrasound (medical sonar, etc.).

- **Growing the Oceans Economy:**
  - Underwater acoustics calibration capability to calibrate equipment used to measure distance under water in support of safety and security, Oceanography, Maritime research, Marine Biology, aquaculture etc,and
  - Reference materials for fish toxins.

- **Resolving the Energy Challenge:**
  - In support of air monitoring, provide reference measurements to determine sizes of fine to coarse dust particles,
  - Primary standard for Resistance measurements (Quantum Hall) in support of the distribution network and diagnostic measurements,
  - Produce a prototype solar cell based on silicon nanowire technology for manufacturing in South Africa,
  - Assist alternative energies through the provision of measurement standards for Smart Grids, and
  - Provide reference measurements for energy efficient lighting to facilitate the full uptake of LED technology by households and industry in South Africa.

- **Crosscutter Broadband Rollout:**
  - Support the ICT industry through measurement standards for Fibre Optics,
  - A National Timekeeping facility at a level required by the SKA and in support of Broadband, and establish a regional time network,
  - Establish the feasibility of developing an African Time Network, and
  - Metrology support for telecommunication regulations enforced by ICASA and NCC.

- **Crosscutter Science and Technology:**
  - Develop Quantum Measurement Standards and measurement services based on structured light in collaboration with local universities and top NMIs, and
  - Implement an Avogadro project for a primary standard for Amount of Substance (chemistry).

And in support of Health, Environmental Monitoring, Law enforcement and Customer protection:

- Monitoring dioxins, halogenated flame retardants, pesticides and other contaminants in sediment, soil and water,
- Monitoring greenhouse gasses towards clean air,
- Assessing the purity of raw chemical substances to prevent harmful substances entering products,
- Classification of biodegradable plastics to ensure correct labelling, recycling, etc.,
- Ensuring correct dosage when ionising radiation (x-rays, etc.) is used for diagnostics (x-ray imaging) or treatment (irradiation of cancerous tumours),
- Ensuring accurate monitoring of radiation workers (miners, hospital x-ray and radiation centres, nuclear power plants, research facilities, etc.), and
- Provide and enable Government Department laboratories to do accurate blood alcohol measurements, accurate speed measurements, reference materials for forensic analysis, etc.

Contribution to IPAP, Quality of Life, Manufacturing and Industrial Development, Trade and Commerce, Safety and Security, Energy Saving and Green Energies, Environmental Protection, Food Safety, Information and Telecommunications and regional development is proactively supported by various programmes and is guided **overall by the four strategic outcome orientated goals** that support its mandate, mission and vision, and which in a broader sense contributes to the objectives of **the dti** and the implementation of the National Development Plan.

Technological advances over the past decade are placing stringent demands on metrology. New areas in metrology, such as nanotechnology, optical techniques, quantum-based technologies, material sciences, etc. are developing rapidly and require new measurement methods and measurement standards. In response, NMISA is investing more funds into research activities and are actively pursuing opportunities for collaboration with their peers to pool resources. NMISA thus engages in research towards the improvement of existing standards and to facilitate the development of new measurement standards to address emerging National needs.

1.2.1 International and Regional Participation

NMISA ensures that the interests of South Africa, SADC and Africa are protected at the highest possible level Internationally. The CIPM has established ten Consultative Committees (CCs) to oversee and arrange for the comparison of National Measurement Standards. The CCs bring together the world's experts in their specified fields as advisors on scientific and technical matters and are pivotal in the arrangement of key comparisons that compare the measurement capabilities and determine the measurement equivalence of National Measurement Standards. NMISA has full membership to nine of the ten CCs, guest membership of the 10th (Consultative Committee for Units) and membership of the CIPM.

Membership of the CCs allows NMISA to give input to strategies and participate in the comparison of NMS and measurement capability at the highest level, i.e. a direct comparison to the NMS of developed countries and upcoming developing countries, that includes all the major trading partners of South (and Southern) Africa. In the absence of membership to a CC and its working groups, NMISA will have to wait for a second round of comparisons in a Regional Metrology Organisation (RMO) such as AFRIMETS, where the "second tier" NMIs compare their standards. As the only NMI in Africa with membership of all the CCs, NMISA provides the link to the International Measurement System to Africa and thus plays a leading role in the development of metrology infrastructure in Africa, especially in support of South Africa's immediate neighbours in SADC. This is crucial for the successful implementation of Regional Free Trade Agreements. This role is emphasised in **the dti**'s strategic goals and the South African contribution towards mutual acceptance of testing results in the Region (Regional Integration).

NMISA uses its leadership role in SADCMET and AFRIMETS, the Sub-regional and Continental RMOs, to leverage revenue earning opportunities. The income from activities on the continent has increased five-fold in the past 3 years.

1.2.2 The Technical Measurement Environment

Participation in International activities at CC and Technical Committee (TC) levels serve to benchmark South Africa's capability to compete in measurement equivalence that directly impacts on our ability to disseminate traceability to the country. To do this, metrologists must be extremely proficient at measurement science and techniques. It also requires sophisticated techniques, time and money and very good planning to align with the International call for participation and the availability of scientists and resources in the laboratory. This must be balanced with National collaborative projects and research projects that are on-going as part of the performance requirements in each laboratory.

Training and development of young scientists remains critical as the metrology skills are not readily available in the market, especially young black professionals. An integrated training and development plan has been developed to assist, whether experienced or new in the field, in improving skills and ensuring a pipeline of young metrologists through the bursary program, training in metrology and internships. These young professionals are provided with skills suited for industry and where possible appointed as metrologists. It is in the ambit of those young professionals to grasp the learning opportunities afforded to them.

1.2.3 The National Role

The NMS maintained and disseminated by NMISA underpins and/or supports directly and indirectly the daily activities of South Africa on almost all levels. As one of **the dti**'s Technical Infrastructure (TI) entities, the activities of NMISA are critical to the success of the other TIs. Standardisation, metrology, conformity assessment and accreditation are the key issues in the implementation of Free Trade Agreements between countries/economic trade blocks. NMISA plays a role in providing technical support for many other acts and regulations, ranging from the Occupational Health and Safety Act (Act 85 of 1993) to the Atomic Energy Act (Act 90 of 1967). It serves the more than 1300 accredited laboratories in South Africa and provides measurement and measurement assistance to over 400 industrial companies.

The National significance of NMISA is illustrated as not only the link between the International measurement system and the South African measurement system, but in the Vertical Integration that allows South Africa to have a credible domestic measurement system to facilitate and ensure trade, commerce, manufacturing, services and consumer and environmental protection.

1.3 ORGANISATIONAL DELIVERY ENVIRONMENT (INTERNAL)

1.3.1 The Organisation

NMISA manages its technical activities in a cross-cutter fashion in 8 programmes:

- Revision of the SI (Primary Measurement Standards in Africa),
- Quality of Life,
- Reference Materials and the Green Economy,
- Energy Efficiency,

- Manufacturing Competitiveness,
- Advanced Measurement Solutions,
- Regional and International Integration, and
- Commercial Services.

The technical activities are supported by Finance and Corporate Services Divisions.

The Thematic thrust programmes allow for the use of expertise from different technical areas to contribute to National and Regional priorities such as the gas economy and environmental monitoring in support of climate change programmes, food safety and export protection, additive manufacturing, advanced materials & nanotechnology and to support the Regional and Continental free trade areas.

NMISA adheres to a total quality management system managed by the SHEQ office, handling all matters relating to accreditation of technical competencies and the health & safety of staff. This is achieved by ensuring a safe working environment, the identification of laboratory and workplace hazards/aspects and ensuring environmental sustainability, through training of staff in safety awareness, inspections and compliance with the relevant legislation. The laboratories which can be accredited by SANAS are officially accredited to ISO/IEC 17025 and in the case of chemistry, ISO/IEC 17034 for production of certified reference materials. Accreditation to ISO/IEC 17043 (for conducting proficiency testing schemes) is being attained for the laboratories officially providing PTs. Three laboratories can't be accredited yet due to a lack of National expertise. They will declare their competency according to the CIPM MRA rules.

1.3.2 TECHNICAL ACTIVITIES

NMISA has identified the regulatory requirements applicable to its services, operations and products in order to maintain regulatory compliance. NMISA has achieved certification of its Occupational Health and Safety (OH&S) and EHS Management System guided by ISO 14001 and OHSAS 18001 which specifies requirements for Environmental Management Systems (EMS) and an OH&S Management System, to enable NMISA to control its OH&S risks/ environmental aspects and improve its OH&S and EMS performance.

NMISA delivers its services through:

Calibrations:

Delivering direct traceability to the National Measurement Standards (NMS), NMISA serves the accredited calibration and testing laboratories by performing calibrations to the highest accuracy (smallest uncertainty). Calibration is also provided directly to industry in cases where there are no accredited calibration laboratories, or the desired accuracy can only be provided by NMISA.

Reference Measurements and certification of reference materials:

NMISA provides reference measurements and analysis according to its calibration range and services. In addition, NMISA has built capability to value assign chemical samples and gas mixtures for customers, including purity. This capability allows NMISA to produce pure standard CRMs or calibration solutions and Primary Reference Gas Mixtures (PRGMs) that are Internationally recognised and accepted.

Measurements, testing and analysis:

NMISA offers advanced measurement services to industry. This includes method development for customers to assist with problem solving and performing analysis in support of various industry projects.

Training and Consultancy:

The expertise residing in the staff of NMISA is an important contribution to the development of a skilled and capable workforce through training in Measurement Science. NMISA assists SADC and Africa in capacity building by providing consultation services and training to their metrologists and provide a National Metrology Training Academy for South African metrologists and analysts. Special development projects to assist SMEs have been created. NMISA staff is also involved as invited lecturers in graduate courses at numerous universities and is the official partner of the Metrology and Applied Science Research Unit (MeASURe) of the University of Cape Town.

The technical strategic objectives of NMISA can be linked to the strategic thrusts and are delivered by the research programmes.

Research, International and Infrastructure Development (RIID) ensures that NMISA is appropriately linked to the International metrology fraternity, fosters collaboration with other NMIs and source funding from development partners. It coordinates the activities of NMISA in the other Technical Infrastructure institutions and manages the relationship with the Sub-regional (SADCMET) and Regional (AFRIMETS) metrology organisations.

2 REVISIONS TO LEGISLATIVE AND OTHER MANDATES

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

In accordance with the Act, during 2016, NMISA Gazetted the updated Measurement Units and National Measurement Standards. With the revision of the SI in 2018, NMISA is responsible to update the Measurement Units to comply to the revised SI. The updated Units will be Gazetted in 2019 and an annual review will be implemented to ensure that all International developments in units are appropriately legislated.

The revision of the Trade Metrology Act, Act no. 77 of 1973 to the act now known as the Legal Metrology Act, Act No. 9 of 2014 by the National Regulator for Compulsory Specifications (NRCS) included measuring instruments in health, safety and environment. Originally the Act only covered the area of mass, volume and length involving monetary transactions. These developments meant that, not only instruments used in trade for mass, volume and length requires verification, but an additional scope of instruments in health, safety and environment.

the dti has embarked on a revision of the Measurement Act to align it with the latest developments Internationally and locally. During the period, it is expected that an update to Act No. 18 of 2006 will be enacted. Main issues to be addressed include the role of NMISA to provide measurement services and traceability to Government Department measurement facilities (police forensics, Department of Health forensic laboratories, Department of Transport Law Enforcement Agencies, etc.) and the provision of metrology shared services to SOEs. Finally, better alignment is necessary with the Legal Metrology Act.

3 OVERVIEW OF 2019/20 BUDGET AND MTEF ESTIMATE

3.1 2019/20 TO 2021/22 BUDGET ESTIMATES

NMISA CONSOLIDATED BUDGET 2018/19-2021/22

	2019/20 R'000 5.6% (existing)	2020/21 R'000 5.5% (existing)	2021/22 R'000 5.5% (existing)
Revenue	**288 452**	**304 317**	**321 053**
Transfers received	245 820	259 340	273 604
Rendering of service	33 328	35 161	37 094
Investment income	9 304	9 816	10 355
Expenditure	**288 452**	**304 317**	**321 053**
Administrative and operating expenditure	77 103	81 343	85 820
Employee cost	131 239	140 425	150 255
Repairs and maintenance	8 464	8 931	9 421
Recapitalisation project	70 719	72 640	74 526
Audit fees	927	978	1 031

3.2 EXPENDITURE ESTIMATES

R thousand	Audited Outcome 2015/16	Audited Outcome 2016/17	Audited Outcome 2017/18	Approved Budget 2018/19	Average Growth Rate (%)	Expenditure/ Total Average (%)	Medium-term Estimate			Average Growth Rate (%)	Expenditure/ Total: Average (%)
					2015/16 - 2018/19		2019/20	2020/21	2021/22	2018/19 - 2021/22	
Administration	63 804	84 391	74 424	77 293	6,6%	41,0%	82 016	87 121	92 547	6,2%	37,6%
Keep, maintain and disseminate National measurements	77 727	91 677	149 859	127 505	17,9%	59,0%	135 717	144 556	153 980	6,5%	62,4%
Total expense	**141 531**	**176 068**	**224 283**	**204 798**	**13,1%**	**100,0%**	**217 733**	**231 677**	**246 527**	**6,4%**	**100,0%**

3.2 EXPENDITURE ESTIMATES (CONTINUED)

Statement of Financial Performance	Budget	Audited Outcome	Budget	Audited Outcome	Budget	Audited Outcome	Approved Budget	Audited Outcome	Outcome/ Budget Average (%)	Average Growth Rate (%)	Expenditure/ Total: Average (%)	Medium Term Estimate			Average Growth Rate (%)	Expenditure/ Total: Average (%)R thousand
R thousand	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19			2019/20	2020/21	2021/22	2018/19 - 2021/22	
Revenue																
Tax Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Non-tax revenue	**22 285**	**27 785**	**25 651**	**28 066**	**27 841**	**31 500**	**30 223**	**40 372**	**9,6%**	**13,3%**	**11,4%**	**42 632**	**44 977**	**47 449**	**5,5%**	**14,8%**
Sale of goods and services other than capital assets of which:	9 135	11 928	13 151	12 089	14 466	16 365	15 912	31 561	4,8%	38,3%	6,4%	33 328	35 161	37 094	5,5%	11,6%
Administrative fees	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales by market establishment	9 135	11 928	13 151	12 089	14 466	16 365	15 912	31 561	4,8%	38,3%	6,4%	33 328	35 161	37 094	5,5%	11,6%
Other sales	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other non-tax revenue	13 150	15 857	12 500	15 977	13 375	15 135	14 311	8 811	4,8%	-17,8%	4,9%	9 304	9 816	10 355	5,5%	3,2%
Transfers received	**250 895**	**250 895**	**264 193**	**264 193**	**252 803**	**252 803**	**235 731**	**232 784**	**90,4%**	**-2,5%**	**88,6%**	**245 820**	**259 340**	**273 604**	**5,5%**	**100,0%**
Total revenue	**273 180**	**278 680**	**289 844**	**292 259**	**280 644**	**284 303**	**265 954**	**273 156**	**100,0%**	**-0,7%**	**100,0%**	**288 452**	**304 317**	**321 053**	**5,5%**	**100,0%**
Expenses																
Current expenses	**131 661**	**141 531**	**161 221**	**176 068**	**171 058**	**224 283**	**183 032**	**204 798**	**100,0%**	**13,1%**	**100,0%**	**217 733**	**231 677**	**246 527**	**6,4%**	**100,0%**
Compensation of employees	79 774	72 336	90 228	92 904	95 742	112 702	102 444	122 653	57,1%	19,2%	53,5%	131 239	140 425	150 255	7,0%	60,4%
Goods and services	51 887	54 354	70 993	59 399	75 316	76 862	80 588	82 145	42,9%	14,8%	36,6%	86 494	91 252	96 272	5,4%	39,6%
Depreciation	-	14841	-	23 765	-	34 719	-	-	-	-100,0%	9,9%	-	-	-	-	-
Interest, dividends and rent or land	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transfers and subsidies	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total expenses	**131 661**	**141 531**	**161 221**	**176 068**	**171 058**	**224 283**	**183 032**	**204 798**	**100,0%**	**13,1%**	**100,0%**	**217 733**	**231 677**	**246 527**	**6,4%**	**100,0%**
Surplus/(Deficit)	**141 519**	**137 149**	**128 623**	**116 191**	**109 586**	**60 020**	**82 922**	**68 358**		**-20,7%**		**70 719**	**72 640**	**74 526**	**2,9%**	

3.2 EXPENDITURE ESTIMATES (CONTINUED)

Financial position	Budget	Audited Outcome	Budget	Audited Outcome	Budget	Audited Outcome	Budget estimate	Approved budget	Outcome/ Budget Average (%)	Average Growth Rate (%)	Nett change/ total: Average (%)	Medium Term Estimate			Average Growth Rate (%)	Nett change/ total: Average (%)
	2015/16		2016/17		2017/18		2018/19		2015/16 - 2018/19			2019/20	2020/21	2021/22	2018/19 - 2021/22	
Carrying value of assets of which:	112 526	191 699	128 624	345 118	109 586	406 163	82 922	68 358	96,7%	-29,1%	67,8%	72 719	72 640	74 526	2,9%	100,0%
Acquisition of assets	(140 546)	(102 594)	(128 623)	(178 462)	(109 586)	(96 324)	(82 922)	(68 358)	-102,1%	-12,7%	-42,7%	(70 719)	(72 640)	(74 526)	2,9%	-100,0%
Investments	-	-	-	1 640	-	-	-	-	-	-	0,1%	-	-	-	-	-
Inventory	-	273	-	370	-	172	-	-	-	-100,0%	0,0%	-	-	-	-	-
Loans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accrued investment interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Receivables and pre-payments	420	14 328	-	15 263	-	22 825	-	-	0,1%	-100,0%	2,4%	-	-	-	-	-
Cash and cash equivalents	16 851	229 904	-	198 719	-	189 882	-	-	3,2%	-100,0%	29,7%	-	-	-	-	-
Non-current assets held for sale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Defined benefit plan assets	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Derivatives financial instruments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total assets	**129 797**	**436 204**	**128 624**	**561 110**	**109 586**	**619 042**	**82 922**	**68 358**	**100,0%**	**-46,1%**	**100,0%**	**70 719**	**72 640**	**74 526**	**2,9%**	**100,0%**
Accumulated surplus/(deficit)	125 897	421 021	128 624	537 212	109 586	585 580	82 922	68 358	99,2%	-45,4%	96,7%	70 719	72 640	74 526	2,9%	100,0%
Capital and reserves	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital reserve fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borrowings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Financial lease	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accrued interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Deferred income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trade and other payables	1 653	15 183	-	20 334	-	10 628	-	-	0,3%	-100,0%	2,2%	-	-	-	-	-
Benefits payable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalised value of pensions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Provisions	2 247	-	-	3 564	-	22 834	-	-	0,4%	-	1,1%	-	-	-	-	-
Managed funds (e.g. poverty alleviation fund)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Derivatives financial instruments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total equity and liabilities	**129 797**	**436 204**	**128 624**	**561 110**	**109 586**	**619 042**	**82 922**	**68 358**	**100,0%**	**-46,1%**	**100,0%**	**70 719**	**72 640**	**74 526**	**2,9%**	**100,0%**
Contingent liabilities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**				**-**	**-**	**-**		

3.3 RELATING EXPENDITURE TRENDS TO STRATEGIC OUTCOME ORIENTED GOALS

NMISA operates in a matrix structure in thematic research programmes co-ordinated by a Research Project office to deliver outcomes such as improved National Measurement Standards (NMS) and measurement solutions to industry. This also provides opportunities for staff in the functional areas to pursue career development through assignment to various types of projects within the programmes and allow for easier co-ordination of student development projects such as the NMISA post-graduate bursary programme.

Future research and development projects, where a large part of the organisation needs to be involved and play a role, require resourcing from more than one technical area utilising the skills base within both the technical and support areas. The NMISA structure changed to reflect the Strategic goals during the strategic period 2019-2024 as illustrated in figure 2 below.

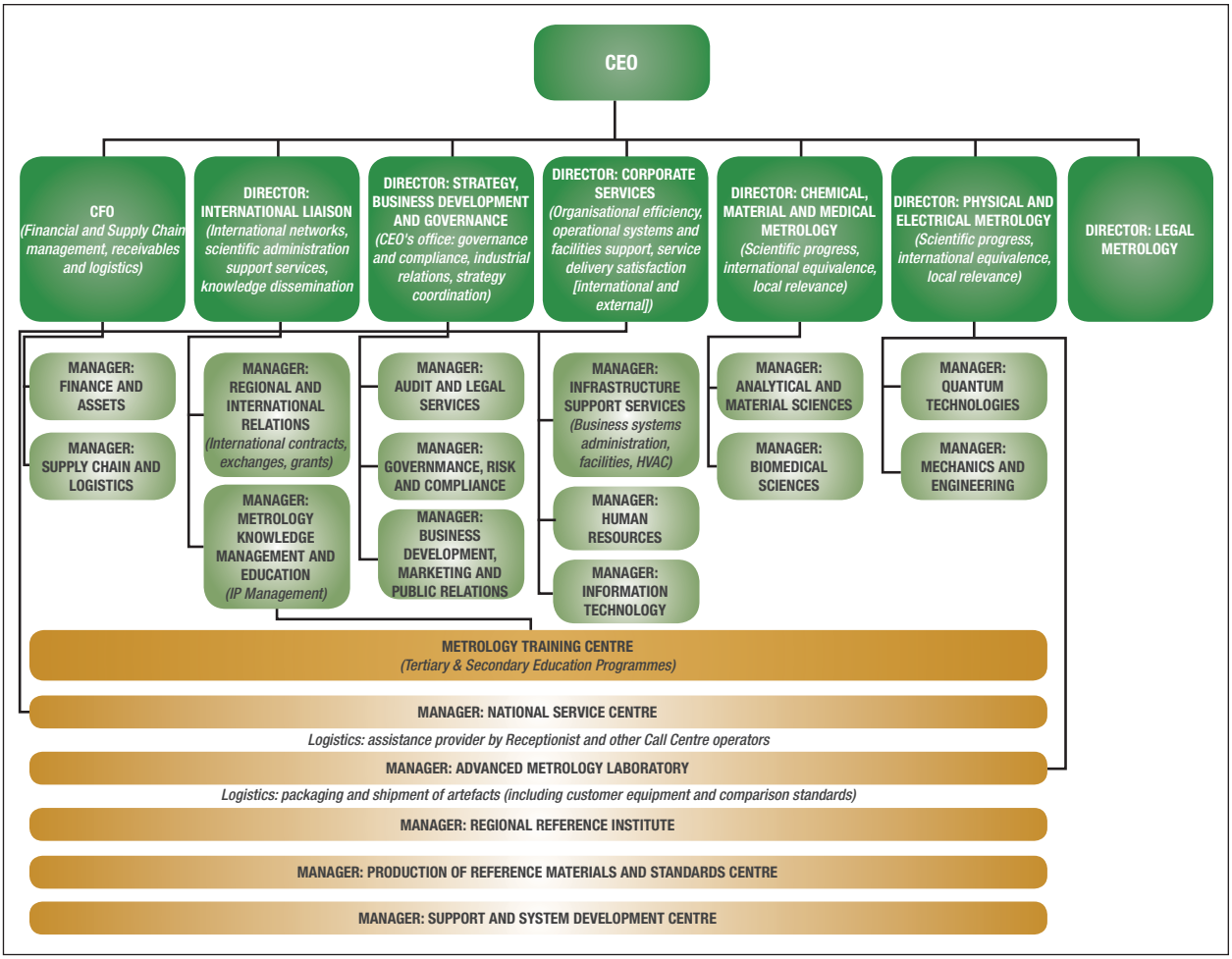


Figure 2. NMISA Structure

Projects in support of National priorities, are reported under the sector or thematic programme. The matrix approach also includes projects to maintain and improve National Measurement Standards (NMS), establish new NMS and services/ products in a specific area that includes limited resources from other areas (e.g., to establish traceability for solid state lighting or in support of special projects that require expertise residing in the software development group).

Benchmarking at National and International level to establish the required level of NMS and services for the South African and Regional economy is also captured per thematic project. In addition to the thematic programmes, the dissemination and measurement services are co-ordinated in dedicated sector-based programmes or commercial services and the quality infrastructure, International liaison and Regional Integration, within International and Regional Integration.

Recapitalisation

NMISA's ability to develop new NMS and to maintain and/or improve the existing NMS to levels required by industry is under threat from an ageing infrastructure. This includes the NMS as well as the building infrastructure.

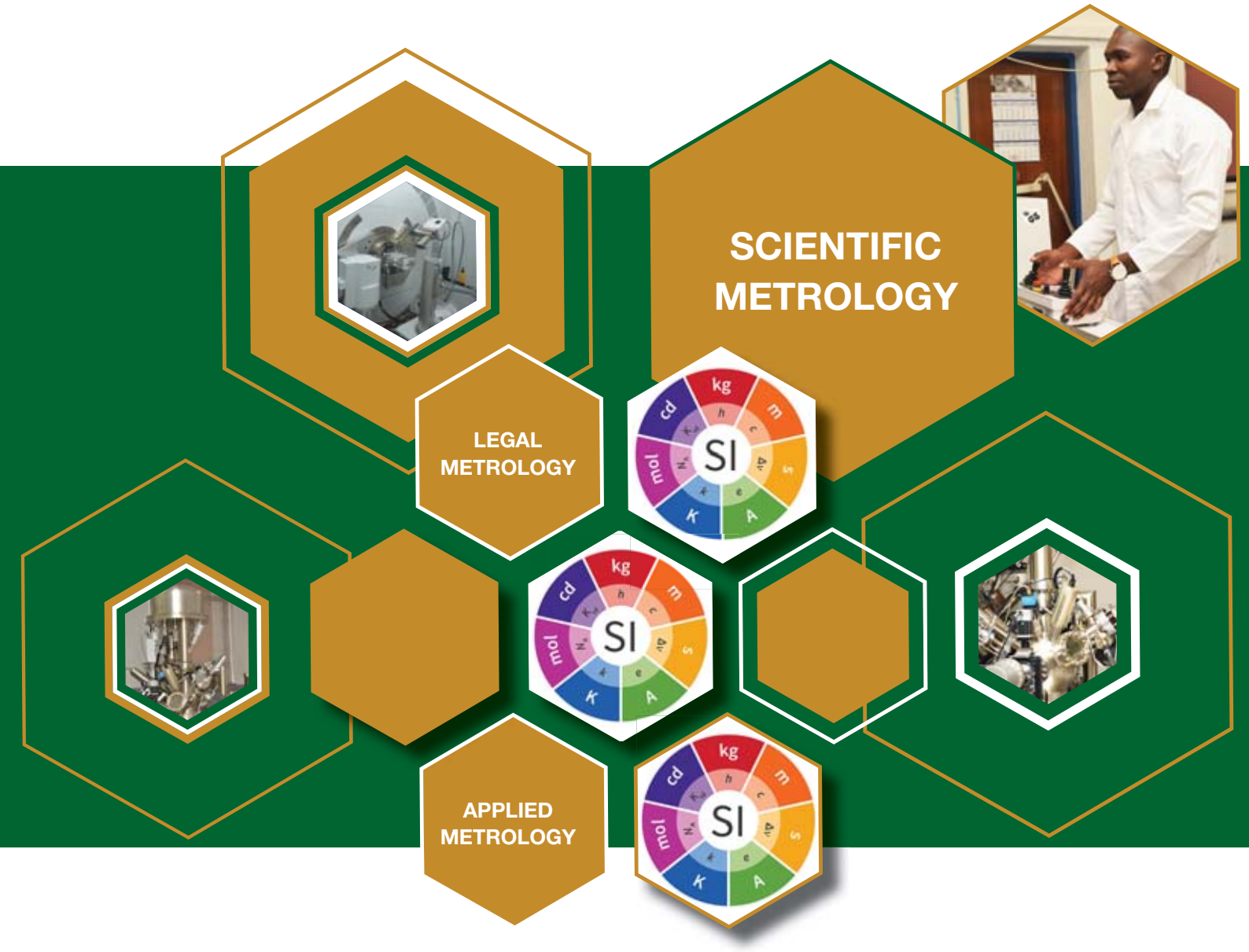
The NMS and other standards are continually reviewed to ensure that they still meet the needs of the South African industry through engagement with industry, stakeholders through technical advisory forums and participation in National interest forums. *"Typically, the accuracy required of National Measurement Standards doubles every ten years."* With doubling requirements, modern metrology laboratories need to be custom built with advanced environmental control, clean power supplies, surgical grade clean rooms and anti-vibration flooring.

Infrastructure should further be designed and planned in such a way that it can be upgraded at regular intervals to meet increasing stringent environmental conditions and to stay abreast of technology developments in measurement sciences. The result is that the equipment replacement strategy of NMISA needs to take cognisance of not only the replacement of aged equipment, but also that instrumentation procured now may also be obsolete in three to five years.

NMISA is located on the CSIR's Scientia Campus in Pretoria, still occupying the metrology laboratories, as when the CSIR National Metrology laboratory, the forerunner of NMISA, took occupation of the site in the 1960's. With no major building infrastructure investment in its history, NMISA became a tenant to the premises in 2007, the building infrastructure has reached its technical limit of modifications.

In response, NMISA motivated for a recapitalisation of the NMS and new building infrastructure and a project was registered at National Treasury as a PPP Project. A transaction advisor and project officer were appointed for preparation of a feasibility study towards re-capitalisation.

With the assistance of the PPP unit of National treasury, a feasibility study has been finalised for the best model for the new building infrastructure, and for a sustainable model for the continuous upgrade and maintenance of the NMS and during 2018, **the dti** indicated a continued contribution for the period towards the recapitalisation of NMISA. A due diligence is being performed to ascertain what can be achieved with the indicated contribution and land is now being sought for a new "NMISA" campus.



PART B: PROGRAMME AND PROJECT PLANS

4 SUB-PROGRAMMES AND PLANS

4.1 RESEACH PROGRAMME CONTRIBUTIONS

NMISA contributes to all Government key priorities and the 12 National outcomes and has aligned its key programmes to the IPAP priority sectors and the National System of Innovation (NSI) goals with a special focus on:

- Units, NMS and measurement capabilities (shortening the traceability chain for Africa, revised SI),
- Reference Materials (feed and food safety, African specific matrix CRMs, etc.),
- Manufacturing competitiveness (advanced manufacturing, Agro-processing and beneficiation),
- Green Economy (environmental monitoring and cleaner production),
- Energy Efficiency (accurate measurement and development of energy saving technologies),
- Quality of Life (medical diagnostics and treatment, law enforcement, environmental health and Safety, etc.),
- Advanced Measurement Solutions (in support of National priority programmes such as the SKA, infrastructure development, novel measurement techniques based on Structured light, etc.),
- Commercialisation (business development, logistics, etc.), and
- Regional Integration (advancement of conformity assessment, AfCFTA, connection of the National and Regional metrology system Internationally, etc.).

4.2 PROGRAMME BUDGETS

Research programme budgets and outputs are shown for the MTEF period, i.e. 2019 to 2021. The project details with specific deliverables and dates are available in the Scientrix planning system and the Programme business plans for 2019/20.

Description	2019/20 R'000	2019/20 Main Deliverables	2020/ 21 R'000	2021/22 R'000
Realisation of the redefinition of the SI The future definition of the kilogram will be in terms of Planck's constant (Watt/Kibble balance) and the Avogadro or X-ray Crystal Density experiment, that will also be the primary standard for amount of substance, the mole. NMISA will update its realisation of the ampere and kelvin. Research projects are being started for a primary gas thermometer and the determination of the electron charge. These projects will culminate in new standards only in the next period, i.e. 2021 to 2023.	22 450	New National Measuring Standard for mass as per the redefinition of the kilogram, Kibble (Watt) balance.	34 000	11 850
• Watt balance (Kibble project)				
• Establish vacuum weighing capability				
• Gas thermometry				
Quality of Life A cross cutter that will cover the quality of life assessing what needs to be established to support the different regulatory requirements that have been put in place in the country for health covering for example Bio diagnostics, measurements for pressure, temperature, radiation (ionising and non ionising) and medical gases.	18 710	Support to the regulators in the implementation of the Legal Metrology Act, accurate measurements solutions and metrology expertise, techniques to support medical diagnostic, and treatment of diseases, traceability for medical gases. Establishment of calibration capability for blood pressure and medical measurements.	11 640	11 980
• Primary health care				
• Pharmacology				

Description	2019/20 R'000	2019/20 Main Deliverables	2020/ 21 R'000	2021/22 R'000
• Occupational Health and Safety				
• Cancer care				
Reference Materials (RMs) • Service-oriented supplier,knowledgeable on exactly what our stakeholders require and efficiently optimise those requirements to provide fit-for-purpose Africa-relevant reference materials. • Certified Reference Materials, Reference materials for Quality Control and Proficiency Testing Scheme purposes. • Be accessible, sustainable and affordable.	25 580	Fit-for-purpose Africa-relevant reference materials to safeguard exports, provide accurate measurement of imports, provide food safety and assists the AfCFTA.	23 110	23 340
• Matrix RMs (incl. African Food and Feed RMs) • Materials processing • High purity calibrators				
• Forensic RMs				
• Mineral Beneficiation RMs				
Green Economies Defined as the sampling of the various matrices within the different biomes to derive information on the potential impact of anthropogenic activities. Routine environmental monitoring in air, rivers and in sentinel species such as birds and invertebrates needs accurate measurement, i.e. measurement standards. The most common form of industrial monitoring undertaken in South Africa is stack emission monitoring that includes air monitoring for specific pollutant classes as well as other types of pollution such as heat and noise generation.	12 880	Reference measurement solutions tailored to support environmental monitoring, industrial and applied monitoring and alternative technologies (solar). Primary calibrants: • Automotive gas primary mixtures, and • Stack emission gas primary mixtures.	15 070	14 730
• Air, terrestrial and aquatic monitoring				
• Industrial and applied monitoring				
• Alternative technologies (incl nano)				
Energy Efficiency The Energy Efficient Solutions programme facilitates broad penetration of energy-efficient solutions for electrical energy producers and consumers nation-wide. In support of IPAP, this programme develops and promotes measurement capabilities that enable the efficient usage and saving of electrical energy.	18 710	• Improved National standards for Power and Energy: • Metrology for Smart Grids, • Standards, calibration facility for LEDs, and • High temperature calibration standards and facility.	11 640	11 980
• Power and energy				
• Solid state lighting				
• Smart grids				
• Electrical quantities				
Manufacturing Competitiveness The Manufacturing Competitiveness program supports the South Africa manufacturing industry to be a competitive roll player particularly for the export market.	28 680	• Improved capabilities in dimensional, torque and pressure measurements. • Machine Tool Calibration facility that will focus on the preventive action during manufacturing process. • Large torque and force facilities in support of large ship and boat building. • Line scale measuring instruments for African NMIs.	24 070	25 600
• Force, torque and hardness measurements				

Description	2019/20 R'000	2019/20 Main Deliverables	2020/ 21 R'000	2021/22 R'000
• Machine and tool evaluation				
• Additive manufacturing				
• Traceability for length, pressure and flow measurements				
• Development of measuring instruments				
Advanced Measurement Solutions The Measurement Solutions Programme combines research and development projects where a new measurement technique or system requiring substantial innovation is required to meet scientific or industrial challenges.	10 130	• High accuracy time synchronisation. • Time reference to SKA. • Thin film (nanoscale) measuring device based on structured light. • New method based on structured light to measure chirality in reference materials.	8 700	8 100
• Structured light for thin film, chirality, time over air				
• Time reference signals (SKA)				
• System Design Group and special projects				
Regional and International Integration NMISA links the SA and Regional measurement system to the International measurement system through participation in the Metre Convention and its organs, the CIPM and BIPM. This role is crucial for a successful CFTA and for local beneficiation.	16 100	• Include metrology in the CFTA and implement a continental system for the acceptance of measurement results amongst African countries. • A training academy for Africans. • Consultancy service in metrology to African NMIs. • Quality systems for African NMIs. • Collaboration with Chinese NMI and Provincial metrology institutes to ensure quality of products imported and safety of food exported.	17 510	17 940
• International Integration (BIPM, CIPM, etc) 34				
• Regional Integration (SADC, CFTA, QI, AFRIMETS, etc)				
• International bilateral cooperation to safeguard imports and ensure acceptance of SA products, especially in Asia (China, Japan, India, etc.)				
• Consultancy to African NMIs				
Commercial Services All developed reference materials and measurement and calibration services that are offered to industry. These services also include e-commerce, IT, proficiency testing schemes, consultancy and technical assessments.	16 990	• Market programme for NMISA services. • Double revenue from services and products during the MTEF period. • Distribution facility for NMISA products (reference materials and measuring equipment). • Involve NMISA in tenders that require measurement.	19 030	20 090
• Law enforcement				
• Sale of PRGMs/CRMs and PTS				
Office of the CEO, Corporate Services and Finance Support services required to ensure business continuity for NMISA.	25 550	HR, IT, Facilities, Marketing and Comms, Internal Audit, Planning and Risk monitoring, Legal, Compliance and Governance, SHEQ.	30 100	31 100

4.3 HUMAN CAPITAL DEVELOPMENT AND EQUITY

In the development towards a more modern NMI with a strong research and development component, the qualification profile of NMISA has to be addressed. Projects to enhance the profile include both the internal development of staff, as well as dedicated bursary and post-graduate studentship schemes.

NMISA will continue to focus on recruiting black professionals as the institute's employment equity profile is behind set targets. This is due to a limited pool of suitably trained black professionals, as well as an outflow of newly trained metrologists to calibration laboratories and industry. Various programmes have been implemented to address employment equity and to boost the recruitment and retention of black professionals. The projected employment equity profile, based on the Provincial and National economically active population, as illustrated in figure 3.

Evaluating past trends in staff turn-over rate, resignation demographics, upcoming retirements, ability to appoint skilled black professionals and placement of graduates (trained through the Human Capital Development programme) a growth rate of ≈2% is projected. Efforts will also be made to improve the representivity of female professionals at all levels and focus on recruitment of people with disabilities where the target was set at 2 %.

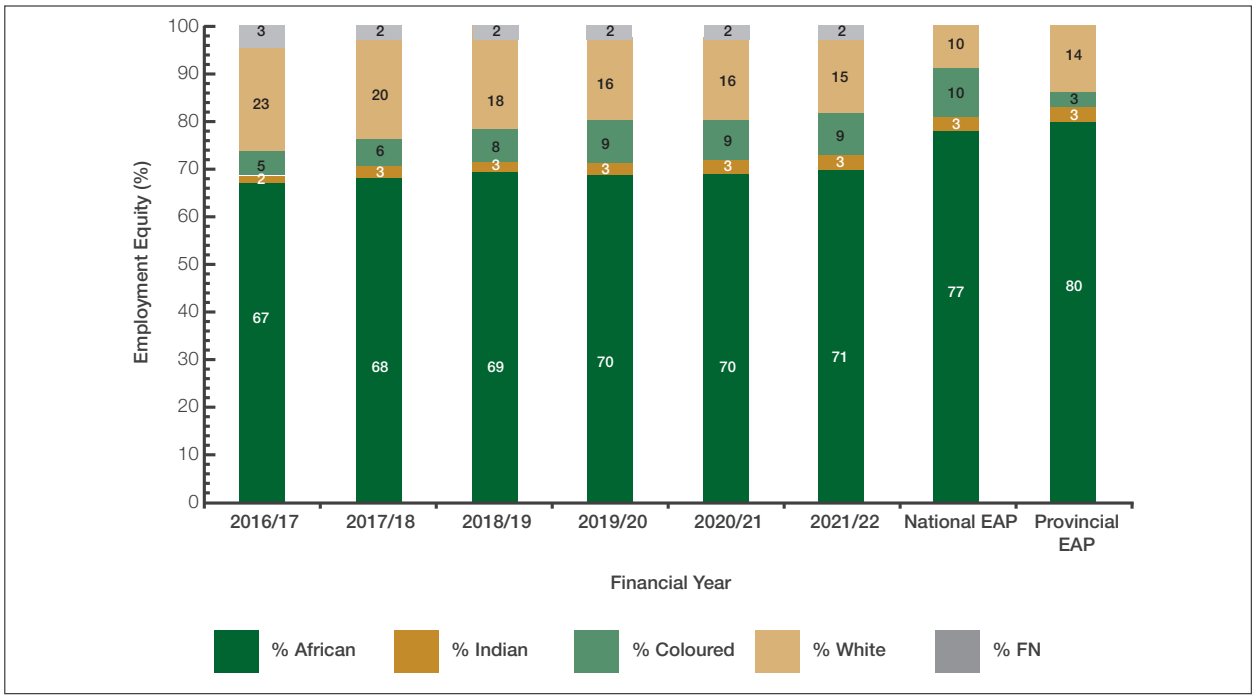


Figure 3. Employment Equity/Staff Demographics

4.4 NMISA PERFORMANCE INDICATORS

An updated performance matrix has been included below, covering the period 2019/20 to 2021/22.

NMISA has adopted the balanced scorecard approach to set and measure performance targets. This scorecard addresses the maintenance of the National Measurement Standards and the administrative support provided to ensure the outputs of the organisation. Four key components are addressed, namely International agreements and participation, stakeholder/ customer (technical), organisational development (learning and growth) and financial and business process perspective.

National obligations: NMISA provides for the use of the measurement units of the SI and certain other units, the designation of National Measurement Standards and Units, and for keeping and maintaining the National Measurement Units and Standards. This also includes improving existing NMS and methods and developing new NMS, secondary standards and new reference methods.

International participation and equivalence: As part of the Metre Convention system, NMISA ensures International measurement comparability by participating in the activities of the CIPM. This includes active participation in the Consultative Committees and demonstrated measurement capabilities as published in the BIPM Key Comparisons Database (KCDB).

Internal organisation (learning and growth) perspective: Internal growth perspective addresses human resources, thereby demonstrating the organisation's capacity to deliver on its mandate by maintaining a skilled, competent and transformed work force. Key priorities include:

- Improve core skills and qualifications,
- Reduce employee turnover,
- Transformation,
- Improve job satisfaction, and
- Improve internal communications in the HR function.

Stakeholder/customer perspective (technical): Includes scientific and technical outputs, products and services developed to support the South African commerce and industry in a fast-paced global economy.

Financial and business process perspectives: The focus is on the financial performance and sustainability of the organisation. Key priorities that are addressed include:

- Financial growth and stability is ensured by broadening the revenue mix,
- Effective financial controls,
- Develop and update policies and procedures,
- Improving internal processes, aligning and integrating systems and processes,
- Improving internal communications,
- Establishing long-term cross cutter research programmes, and
- Implementing systems to manage and protect NMISA's intellectual property.

The Performance Indicators of the balanced scorecard are supported by Programme Plans and deliverables. The main activities, in line with the strategy that has been presented, to attain these Key Performance Indicators (KPIs) are summarised in Annexure A.

4.5 PERFORMANCE INDICATORS AND PERFORMANCE TARGETS PER PROGRAMME

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

4.5.1 Programme Performance Indicators

	Performance indicator		Actual Performance			Estimated Performance 2019/20	Medium term targets		
			2016/17	2017/18	2018/19		2019/20	2020/21	2021/22
Strategic Outcome Oriented Goal 1: Shorten the Traceability Chain for Africa by maintaining the Units and NMS at an Internationally Recognised level									
Implementation of the Revised International System of Units (SI).	1.	Number of SI base units realised	New KPI	New KPI	New KPI	6	6	6	6
	2.	Number of new and improved NMS and reference materials and reference methods	18	15	19	20	20	24	24
Linking the National and Regional measurement system Internationally.	3.	Number of memberships maintained	10	9	9	10	10	10	10
	4.	Number of ILS and PTS organised and completed	New KPI	New KPI	New KPI	9	9	10	10
	5.	Percentage of metrological services covered by CMCs	New KPI	New KPI	New KPI	80%	80%	83%	85%

4.5 PERFORMANCE INDICATORS AND PERFORMANCE TARGETS PER PROGRAMME (continued)

	Performance indicator		Actual Performance			Estimated Performance 2019/20	Medium term targets		
			2016/17	2017/18	2018/19		2019/20	2020/21	2021/22
Strategic Outcome Oriented Goal 2: Ensure an Effective Dissemination of the Units and NMS to National and Regional laboratories									
Provide for the Measurement needs of RSA and the Region.	6.	Number of accredited laboratories and new laboratory accreditations	20	20	21	26	26	26	26
	7.	Number of metrologists trained	146	66	96	100	100	90	138
	8.	Number of courses provided including four SMEs	17	14	24	24	24	24	29
	9.	Number of interns and in-service trainees hosted	20	15	20	15	15	24	23
	10.	Amount of Income generated	R12 089 000	R20 149 000	R31 000 000	R38 018 270	R38 018 270	R50 268 974	R65 953 586
	11.	Percentage of actual expenditure to budget	New KPI	New KPI	98%	98%	98%	98%	98%
Strategic Outcome Oriented Goal 3: To provide Metrology for Regulatory Purposes									
Efficient National Regulations.	12.	Revised Measurement Act to support and contribute to national regulation	New KPI	New KPI	New KPI	Revise the Measurement Act and submit to **the dti**	Revise the Measurement Act and submit to **the dti**	Amended Measurement Act	-
Strategic Outcome Oriented Goal 4: Metrology Services for Government and State-owned Enterprises									
Shared Metrology Services for Government Departments and SOEs.	13.	Number of government departments and SOEs serviced by NMISA	New KPI	New KPI	New KPI	3	3	4	6
	14.	Percentage increase in visibility of NMISA	New KPI	New KPI	New KPI	20% increase in visibility	20% increase in visibility	10% increase in visibility	10% increase in visibility
	15.	Percentage of customer satisfaction	0.33%	Less than 5%	95%	95%	95%	95%	95%

4.5.2 Quarterly targets for 2021/22

Output	Performance Measure or Indicator	Baseline	Annual Target 2019/20	1st Quarter Milestone	2nd Quarter Milestone	3rd Quarter Milestone	4th Quarter Milestone
Strategic Outcome Oriented Goal 1: Shorten the Traceability Chain for Africa by maintaining the Units and NMS at an Internationally Recognised level							
Implementation of the Revised International System of Units (SI).	Number of SI base units realised.	6	6 SI base Units realised.	Project plans for realisation of 6 base units.	Progress reports on realisation of 6 base units.	Progress reports on realisation of 6 base units.	Six (6) SI base units realised.
	Number of new and improved NMS and Reference Materials and reference methods.	20	20	0	2	10 (8)	20(10)
Linking the National and Regional measurement system Internationally.	Number of memberships maintained.	10 Consultative Committees	10 memberships maintained.	10	10	10	10
	Number of ILCs and PTS organised and completed.	New KPI	Organise and complete 9 Inter Laboratory Comparisons (ILCs) and Proficiency Testing Schemes (PTs).	Project plans for 9 PTS and ILCs submitted.	Progress reports for 9 PTS and ILCs.	4 out of 9 PTS and ILCs completed.	9 PTS and ILCs completed.
	Percentage of metrological services covered by CMCs.	70%	80 % of Metrological Services covered by CMCs.	70 %	73%	78%	80 %

Output	Performance Measure or Indicator	Baseline	Annual Target 2019/20	1st Quarter Milestone	2nd Quarter Milestone	3rd Quarter Milestone	4th Quarter Milestone
Strategic Outcome Oriented Goal 2: Ensure an Effective Dissemination of the Units and NMS to National and Regional laboratories							
Provide for the Measurement needs of RSA and the Region.	Number of accredited laboratories maintained and new laboratory accreditations.	21	21 Maintained 5 new accreditations.	21 maintained.	21 Maintained and 2 new accreditations.	23 Maintained and 1 Peer review accreditation.	24 Maintained and 1 new peer review accreditation and 1 new accreditation.
	Number of Metrologists trained.	100	100 Metrologists Trained.	10	30 (20)	60 (30)	100 (40)
	Number of courses provided including SMEs.	24	18 Courses provided including SMEs.	1	7(6)	15(8)	18 (3)
	Number of Interns and in-service trainees hosted.	15	15 Interns and in-service trainees hosted.	15 hostsed	15 hostsed	15 hostsed	15 hostsed
	Amount of Income generated.	20 149 000	R38 018 270	R3 000 000	R10 000 000 (R7 000 000)	R22 618 270 (R12 618 270)	R38 018 270 (R15 400 000)
	Percentage Actual expenditure to budget.	98%	98%	10%	40%	60%	98%
Strategic Outcome Oriented Goal 3: To provide Metrology for Regulatory Purposes							
Efficient National Regulations.	Revised Measurement Act to support and contribute to National regulation.	New KPI	Review and revise the Measurement Act.	Internal inputs and the consolidation of the inputs. Form Steering Committee for the review of regulation to advise and input into acts and regulation.	Steering Committee with external process.	Revision of regulation reviewed linked to metrology. Draft Act submitted to the board.	Revised Measurement Act. Submitted to **the dti**.
Strategic Outcome Oriented Goal 4: Metrology Services for Government and State-owned Enterprises							
Shared Metrology Services for Government Departments and SOEs.	Number of Government Departments and SOEs serviced by NMISA.	New KPI	3	0	1	2(1)	3(1)
	Percentage increase in visibility of NMISA.	To be determined at the end of Q4.	20% increase in visibility of the NMISA in South Africa and the Region.	5%	10% (5%)	15% (5%)	20% (5%)
	Percentage customer satisfaction.	≥95%	≥95%	≥95%	≥95%	≥95%	≥95%

4.6 RISK MANAGEMENT AND FRAUD PREVENTION PLAN

4.6.1 Risk Management Process

NMISA adheres to a disciplined and integrated approach towards risk management that supports the alignment of strategy, process, people, and technology, and allows the organisation to identify, prioritize, and effectively manage its critical risks. By understanding all its risks in an Integrated framework, NMISA properly executes strategies to successfully achieve its goals, objectives and to meet its set performance targets.

4.6.2 Risk Assessment Approach

4.6.2.1 Identification of risks

Risk was defined as: "The possibility of an event occurring that will have an impact on the achievement of objectives, measured in terms of impact and likelihood." All risks including financial risks (loss of assets), compliance risks (laws, regulations and policies) risks impacting on the reputation of NMISA, as well as any other risks (such as political, external, litigation risks, etc.) were considered.

4.6.2.2 Rating of risks

Relative ratings have been allocated to each specific risk on the following scales:

a) Likelihood (the probability of the occurrence of the risk event), and

b) Impact (the potential effect on the organisation of the risk event).

Rating is on a 1 to 5 scale.

Likelihood

Likelihood is the probability that the identified risk will occur within a specified period of time, before taking into account existing mitigating controls, rated as follows:

Likelihood Rating	Measurement Criteria	Qualification Criteria
Almost Certain 5	The risk is already occurring, or has a high likelihood of occurring more than once during the next 12 months.	The risk is almost certain to occur in the current circumstances.
Likely 4	The risk will easily occur, and is likely to occur at least once during the next 12 months.	More than an even chance of occurring.
Possible 3	There is an above average chance of the risk occurring more than once during the next 3 years.	Could occur often.
Unlikely 2	The risk has a low likelihood of occurring during the next 3 years.	Low likelihood, but could happen.
Rare 1	The risk is unlikely to occur during the next 3 years.	Not expected to happen - event would be a surprise.

Impact

Impact is the potential loss to the organisation should the risk materialise, rated as follows:

Impact Rating	Continuity of Service Delivery	Safety & Environmental	Technical Complexity	Financial
Catastrophic (Note: Also considered as Critical) 5	Risk event will result in widespread and lengthy reduction in continuity of service delivery to customers for a period greater than 48 hours.	Major environmental damage. Serious injury (permanent disability) or death of personnel or members of the public. Major negative media coverage.	Use of unproven technology for critical system / project components. High level of technical interdependencies between system components.	Can lead to the termination of business activity.
Critical 4	Reduction in service delivery or disruption for a period ranging between 24 & 48 hours over a significant area.	Significant injury of personnel or public. Significant environmental damage. Significant negative media coverage.	Use of new technology not previously utilised by the organisation for critical systems / project components.	Increase in costs/ decrease in revenue > 10%.
High 3	Reduction in service delivery or disruption for a period between 8 & 24 hours over a regional area.	Lower level environmental, safety or health impacts. Negative media coverage.	Use of unproven or emerging technology for critical systems / project components.	Increase in costs/ decrease in revenue: 5% - 10%.
Moderate 2	Brief local inconvenience (work around possible). Loss of an asset with minor impact on operations.	Little environmental, safety or health impacts. Limited negative media coverage.	Use of unproven or emerging technology for systems / project components.	Increase in costs/ decrease in revenue < 5%.
Low 1	No impact on business or core systems.	No environmental, safety or health impacts and/or negative media coverage.	Use of unproven or emerging technology for non-critical systems / project components.	Minimal or no impact on costs/ revenue.

4.6.2.3 Inherent Risk

Inherent risk is defined as the exposure arising from risk factors in the absence of deliberate Management intervention(s) to exercise control over such risk factors.

Inherent risk rating = impact x likelihood *(in the absence of mitigating controls).*

4.6.2.4 Inherent risk rating scales

Description	Thresholds	Threshold Interpretation
Catastrophic/ Critical	Between 16 and 25	**Unacceptable –** Very high inherent risk
High	Between 11 and 15	**Unacceptable –** High inherent risk
Moderate	Between 6 and 10	**Cautionary –** Medium inherent risk
Low	Between 1 and 5	**Acceptable –** Low inherent risk

4.6.2.5 Residual risk rating scales

Description	Thresholds	Suggested Action	Suggested Timing
Catastrophic/ Critical	Between 16 and 25 – **Unacceptable**	Management should take immediate action to reduce risk exposure to an acceptable level.	Immediate action required.
High	Between 11 and 15 – **Cautionary to Unacceptable**	Management should take immediate action and constantly monitor the risk exposure and related control adequacy.	Immediate action to medium-term, within three months.
Moderate	Between 6 and 10 - **Cautionary**	Management should constantly monitor the risk exposure and related control adequacy.	Medium-term, within three months.
Low	Between 1 and 5 - **Acceptable**	Management may consider reducing the cost of control.	Monitor, no action required.

4.6.2.6 Periodic review of risks

At least once a year, NMISA will undertake a thorough re-assessment of its risks.

4.7 MATERIALITY FRAMEWORK

4.7.1 Introduction

In terms of the Treasury Regulation 28.3.1, Accounting Authorities must "For purposes of material [section 55(2) of the Act] and significant [section 54(2) of the Act], develop and agree a framework of acceptable levels of materiality and significance with the relevant Executive Authority."

NMISA is required by law to operate within the PFMA and its accompanying Treasury Regulations as a Schedule 3A Public Entity.

4.7.2 Materiality versus Significance

4.7.2.1 Materiality

Information is material if its omission or misstatement could influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size of the item or error judged in the particular circumstances of its omission or misstatement. Thus, materiality provides a threshold or cut-off point, rather than being a primary qualitative characteristic which information must have if it is to be useful.

4.7.2.2 Significance

A transaction is significant if conducting the transaction is vitally important to fulfil the organization's mandate and for it to operate effectively. Significance is larger than materiality as significant transactions may impact the organization as a whole. A transaction may be material but not significant whereas all significant transactions are material.

4.7.3 Quantitative and Qualitative factors

Although significance may contain quantitative elements, it may require more qualitative considerations in comparison to materiality. This in turn requires professional judgment and particular regard for the specific transaction in the context of the entity's business as a whole.

4.7.4 Nature of the transaction

In setting a monetary value for significance, it may be practicable to differentiate between the following two types of transactions:

4.7.4.1 Transactions that are operational in nature, i.e. part of the entity's normal, everyday business.

For those transactions that are operational in nature, a higher significance level may be set as these transactions are approved within a very specific framework, i.e. the entity's Corporate Plan, Strategic Plan and / or Annual Budget.

4.7.4.2 Transactions that are strategic in nature, i.e. outside the entity's normal, everyday business, or transactions that are non-routine or that would impact the business or financial position of the entity as a whole.

For those transactions that are strategic in nature, a lower significance level may be set considering the strategic impact thereof. Therefore, any transaction, which in the Accounting Authority's opinion may in any way influence the decisions or actions of the Executive Authority or the Legislature to which the entity is accountable should be seen as significant.

For those transactions that are strategic in nature, the entity will calculate separate materiality / significance figures based on:

- The nature of the account balance,
- The nature of the transaction, and
- The aspect of the financial statements being considered.

4.7.5 Assessment and determination of materiality for NMISA

The materiality of transactions will be assessed from both quantity and quality points of view. Therefore, both the amount (quantity) and nature (quality) of information need to be considered in setting and determining whether the event/matter is material or not.

4.7.5.1 Quantitative Materiality

The basis selected for materiality is total revenue, taking into account authority limits, audit risk, previous year's audit findings and professional judgment.

The following guideline will be applied to the basis selected:

Basis	Guideline	% used	Rand value per approved budget	Materiality amounts
Total Revenue	0.5% - 1%	0.5	R284 158 918	R1 420 795
Total assets	1% - 2%	1	R619 043 349	R6 190 433

4.7.5.2 Qualitative Materiality

Qualitative characteristics that have been used by management to assess the materiality of an item, includes the following:

- Public accountability,
- Compliance with legislation,
- Disclosure requirements,
- Reporting requirements in terms of section 5 of the Auditor General's Act,
- Sensitive situations, including irregularities, illegal and questionable transactions, and
- Importance of information for users.

Management determines the Qualitative materiality in line with the Quantitative materiality.

4.7.5.3 Reporting of the framework

The materiality framework and significance levels will be reviewed annually in the last quarter of the financial year in line with the preparation of the Annual Performance Plan by management based on the levels of risks and the adequacy of the internal controls and accounting systems, to ensure the identification of material and significant transactions.

4.7.5.4 Framework of acceptable levels of Materiality & Significance

Materiality and significance levels will be influenced by considerations such as legal and regulatory requirements. NMISA Materiality and Significance Framework in terms of the Public Finance Management Act and accompanying Treasury Regulations, is detailed in the table below:

Material		
Section 50 (1)	The Accounting Authority of a Public Entity must - on request, disclose to the Executive Authority responsible for the Public Entity or the Legislature to which the Public Entity is accountable, all material facts, including those reasonably discoverable, which in any way influence the decision or actions of the Executive Authority or that Legislature.	Quantitative – 0.5% of total revenue. Acquisition of assets as listed and approved on the published capital list.
Section 55 (2)	The Annual Report and Financial Statements must: 1. Fairly present the state of affairs of the Public Entity, its business, its financial results, its performance against pre-determined objectives and its financial position as at the end of the financial year concerned, 2. The Annual Report and Financial Statements must include particulars of: Any material losses through criminal conduct and any irregular expenditure and fruitless and wasteful expenditure that occurred during the financial year, Any criminal or disciplinary steps taken as a consequence of such losses or irregular expenditure or fruitless and wasteful expenditure, Any losses recovered or written off, Any financial assistance received from the State and commitments made by the State on its behalf, and Any other matters that may be prescribed. 3. Include the Financial Statements of any subsidiaries.	Quantitative – 0.5% of total revenue. Any value or qualitative aspect would be considered material. All such transactions will be considered material and discussed with the Executive Authority.
Section 66 (1)	An institution to which the PFMA applies may not borrow money or issue a guarantee, indemnity or security, or enter into any other transaction that bind or may bind that institution or the Revenue Fund to any future commitment, unless such borrowing, guarantee, indemnity, security or other transaction is authorized the PFMA, and In the case of Public Entities, is also authorized by other legislation not in conflict with the PFMA.	All events / transactions will require disclosure – 100% compliance.
Significant		
Section 54 (2)	Before a Public Entity concludes any of the following transactions, the Accounting Authority for the Public Entity must promptly and in writing inform the relevant Treasury of the transaction and submit relevant particulars of the transaction to its Executive Authority for approval of the transaction. Establishment or participation in the establishment of a company, Participation in a significant partnership, trust, unincorporated joint venture or similar arrangements, Acquisition or disposal of a significant shareholding in a company, Acquisition or disposal of a significant asset, Commencement or cessation of a significant business activity, and A significant change in the nature or extent of its interest in a significant partnership, trust, unincorporated joint venture or similar arrangement.	All events/ transactions will require disclosure – 100% compliance.

Table 1. Main Risks of NMISA

4.8 FRAUD PREVENTION PLAN

4.8.1 Introduction

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 pro-actively protect all of its assets against threats of crime like fraud, corruption, theft, bribery and others, and
- Pursue and bring to justice any perpetrator, whether inside or outside NMISA, who commits any criminal activities against assets or interest of the organisations.

Apart from material financial implications, economic crime has further detrimental effects on organisations such as loss of reputation, the undermining of competitiveness and erosion of credibility. NMISA subscribes to the National drive to eradicate fraudulent activities and has adopted a strategic approach to 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 dealing with instances of economic crime,
- Practicing and upholding good cooperate 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 risk-based audit approach,
- Strengthening internal controls,
- Implementing proper fraud reporting and whistle-blowing structures, and
- Developing a Fraud Response Plan.

4.8.2 Policy Stance

NMISA is committed to protecting all its monetary, physical and human assets under its custodianship from attempts by any individual to gain a financial benefit or otherwise in an unlawful, dishonest or unethical manner.

All individuals within and dealing with NMISA must believe that:

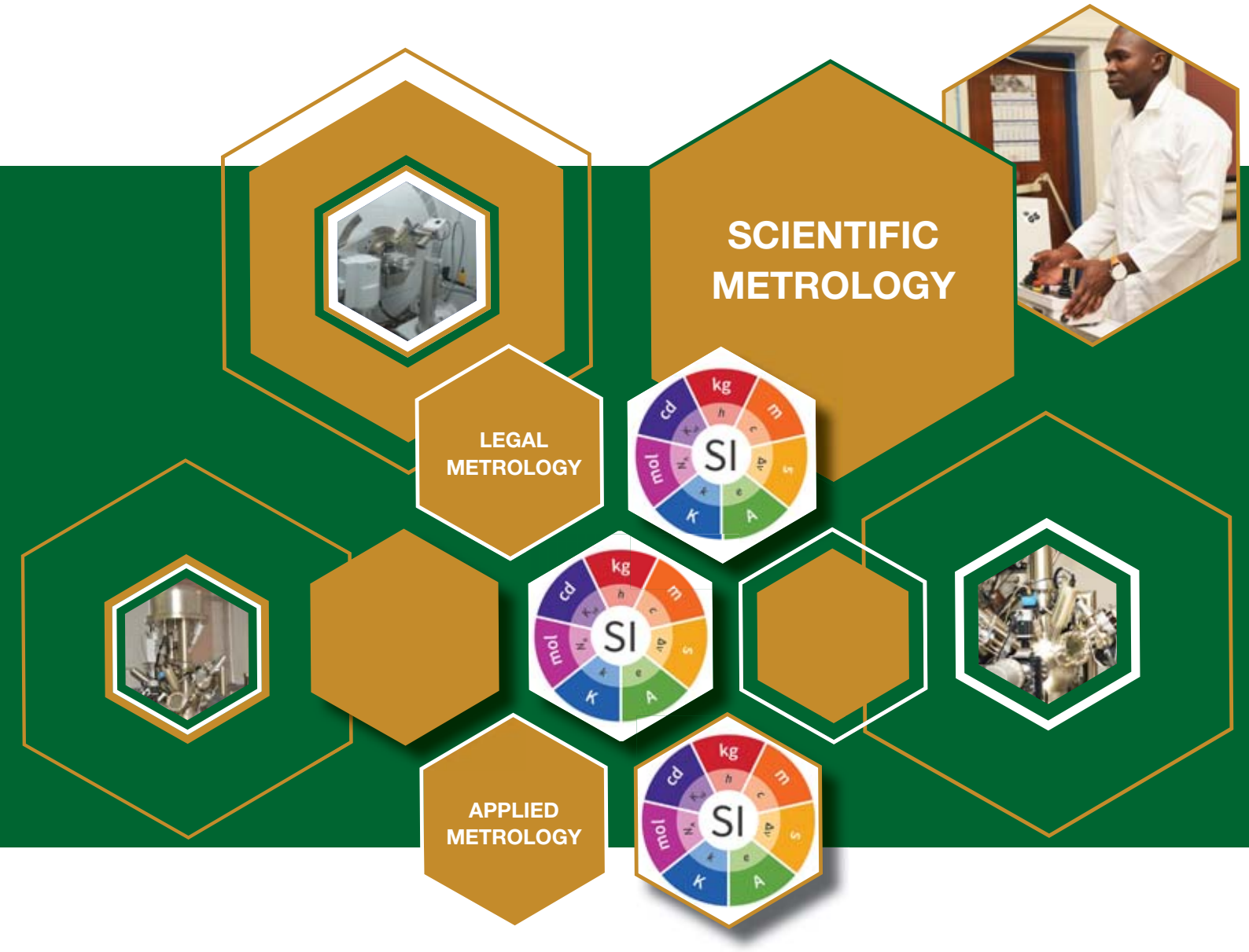
- The entity is honest and ethical in its business dealings,
- They are treated with respect, reward and disciplined in a fair and just manner,
- The fight against commercial crime is of paramount importance to the organisation, and that they are part of that fight and their efforts will be acknowledged,
- The stance of zero tolerance will be taken against any employee who commits a crime,
- Violations will be investigated and disciplinary action and or criminal prosecution will be instituted, and
- Board members and management are bound by the same ethics.

The Audit and Risk Committee, established in terms of the PFMA will be responsible for the administration, revision and interpretation of the Fraud Prevention Plan. It is therefore the responsibility of each EXCO member to ensure that potential fraud risk pertaining to his/her functional area of responsibility are continuously monitored and managed.

The Fraud Prevention Committee which will be constituted as a special task team from time to time shall consist of the Chief Executive Officer, Chief Financial Officer, HR Manager, Governance, Risk and Compliance, and an Internal Audit will be convened on an ad hoc basis to deal with any matters that may require immediate action.

All instances of fraud, alleged fraud or similar irregularity, will be pursued by thorough investigations and if guilt is established:

- Appropriate disciplinary action will be taken against any perpetrator,
- Criminal prosecution will be initiated if appropriate,
- Civil action will be instituted if appropriate, and
- Any other appropriate legal action or remedy will be initiated.



ANNEXURE A: INDICATOR PROFILES

5 ANNEXURE A: INDICATOR PROFILES

A summary of Performance Indicators developed for NMISA appears in section 4.5 with a more detailed overview in the following sections:

Number	Indicator Description	Strategic outcome-oriented Goal
1	Realisation of the SI base Units.	Shorten the Traceability Chain for Africa by maintaining the Units and NMS at an Internationally recognised level.
2	Number of new and improved National Measurement Standards and reference materials and methods.	
3	Number of memberships maintained.	
4	Number of Inter Laboratory Comparisons and Proficiency Testing Schemes organised and completed.	
5	Percentage metrological services covered by CMCs.	
6	Number of accredited laboratories and new laboratory accreditations.	Ensure an Effective Dissemination of the Units and NMS to National and Regional laboratories.
7	Number of Metrologists trained.	
8	Number of courses provided including SMEs.	
9	Number of interns and in-service trainees hosted.	
10	Amount of income generated.	
11	Percentage Actual expenditure to Budget.	
12	Revised Measurement Act to support and contribute to National regulation.	To provide Metrology for Regulatory Purposes.
13	Number of Government Departments and SOEs serviced by NMISA.	Metrology Services for Government and State-Owned Enterprises.
14	Percentage increase visibility of NMISA.	
15	Percentage customer satisfaction.	

Table 2. Performance Indicators

5.1 DETAILED INDICATOR DESCRIPTIONS

Indicators were defined according to the ***Framework for Strategic Plans and Annual Performance Plans*** document, published by National Treasury.

Technical Indicator descriptions

KPI 1: REALISATION OF THE SI BASE UNITS	
Indicator output	**Implementation of the Revised International System of Units (SI)**
Short definition	Realisation of the 6 base units. NMISA will realise 4 base units as primary realisation until 20 May 2019, from 21 May when the Revised SI comes into effect NMISA will realise 3 primary base units and 3 secondary base units.
Purpose/importance	Ensure equivalence with the International system of unit to shorten the traceability chain for South Africa and the Region by providing primary realisation of the base units in Africa and saving costs for South Africa.
Source/collection of data	NMISA report to **the dti** confirming the current correctness and appropriateness of the Gazetted schedules or including the updated schedules for the National Measurement Units, for publication in the Government Gazette.
Method of calculation	Simple count.
Baseline	6
Target and target date for the indicator (31 March 2020)	6
Data limitation	None
Quality Assurance strategy	Periodically reviewed against the updates of the SI units, units outside the SI and equivalents of units.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	The South African measurement units need to be equivalent Internationally.
Indicator responsibility	Technical divisions.

KPI 2: NUMBER OF NEW AND IMPROVED NMS AND REFERENCE MATERIALS AND REFERENCE METHODS	
Indicator title (Output)	**Implementation of the Revised International System of Units (SI)**
Short definition	The number of new NMS developed and improved.
Purpose/importance	Legislative requirement for NMISA.
Source/collection of data	New NMS, improved NMS and/or procedure validation report developed to the point of completed verification/validation as evidence in an NMI report and/or chemistry reference materials and measurements register.
Method of calculation	Simple count.
Baseline	20
Target and target date for the indicator (31 March 2020)	20
Data limitation	Verification/validation is done Internationally, final benchmarking results may be delayed.
Quality Assurance strategy	The process is underpinned by accreditation or peer review by the International NMI community to the relevant International standards and adherence to the CIPM MRA.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Does not necessarily increase from year to year. This indicator is in response to periodic industry requirements for CRMs and reference methods to be developed and for NMS to be improved.
Indicator responsibility	Technical divisions.

KPI 3: NUMBER OF MEMBERSHIPS MAINTAINED	
Indicator title (Output)	**Membership of the 10 CCs and Participation in the CIPM and related structures**
Short definition	Membership of and active participation in the committees, the Region and International treaties. The work done in the related committees feeds into the CIPM MRA.
Purpose/importance	Legislative requirement for NMISA. Represent South Africa and the Region Internationally at the organs of the Metre Convention & other Measurement Treaties).
Source/collection of data	Membership to the Committees and CIPM as listed in the BIPM website; appointment and invitation to the measurement treaties for participation and/or country reports.
Method of calculation	Simple count.
Baseline	10 Consultative Committees.
Target and target date for the indicator (31 March 2020)	10 Consultative Committees.
Data limitation	None.
Quality Assurance strategy	The committees and structures have formal appointment processes.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Active participation in International committees to ensure NMISA's adherence to International standards and impact policy decisions.
Indicator responsibility	Technical Divisions.

KPI 4: NUMBER OF ILCS AND PTS ORGANISED AND COMPLETED	
Indicator title (Output)	Organise and complete 9 inter laboratory comparisons (ILCs) and proficiency testing schemes (PTS)
Short definition	Initiate 9 inter laboratory comparisons/PTs from the NMISA, the ILCs are defined/established prior to commencement of the year.
Purpose/importance	To ensure NMISA is comparable with other NMIs and to assist SADC NMIs to obtain equivalence with South Africa Inter-regional trade.
Source/collection of data	Project plans, progress reports and/or final reports (draft A, B and final report).
Method of calculation	Simple count.
Baseline	9
Target and target date for the indicator (31 March 2020)	9
Data limitation	The results are dependent on participation of Regional NMIs.
Quality Assurance strategy	Detailed plans and reports.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly .
Desired performance	To build capability in the identified parameters.
Indicator responsibility	Technical divisions.

KPI 5: PERCENTAGE METROLOGICAL SERVICES COVERED BY CALIBRATION AND MEASUREMENT CAPABILITIES (CMCS)	
Indicator title (Output)	80% of metrological services covered by CMCs
Short definition	A measurement capability claim that has been reviewed and accepted by International peers, and then published in the BIPM International Metrology database (key comparison database appendix C).
Purpose/importance	Provides stakeholders with confidence that a claimed measurement capability which Internationally accepted and Internationally equivalent.
Source/collection of data	SHEQ report showing the number of CMCs in Appendix C on the International (BIPM) Key Comparison Database (KCDB), published at www.bipm.org, NMISA scopes of accreditation and calibration certificates.
Method of calculation	Number of services linked to the official number of active CMCs published in the KCDB for South Africa as at 31 March (screen print and date); simple calculation.
Baseline	New KPI, approximately 70%.
Target and target date for the indicator (31 March 2020)	80% of metrological services.
Data limitation	Direct link of services provided against 1 or more CMCs.
Quality Assurance strategy	Quality assurance is inherent in this KPI, as the values are Internationally peer-reviewed and published.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Capabilities that meet stakeholder needs.
Indicator responsibility	Director RIID together with SHEQ.

KPI 6: NUMBER OF ACCREDITED LABORATORIES AND NEW LABORATORY ACCREDITATIONS	
Indicator title (Output)	Accredited or CIPM MRA Peer reviewed with maintained quality system accredited to ISO 17025, ISO 17034 and ISO 17043 for PT SCHEMES
Short definition	Activities to support maintenance of the TQMS at an Internationally acceptable level (peer-reviewed quality system), peer review for new accredited QMS.
Purpose/importance	Quality Assurance requirement for NMISA.
Source/collection of data	Confirmation of continued accreditation; or peer review reports or schedule of accreditation or certificate of accreditation.
Method of calculation	Simple count.
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	26
Data limitation	None.
Quality Assurance strategy	Total Quality Management System and maintained schedule of accreditation to the relevant International standards or self-declared parameters under the CIPM MRA peer review system).
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Maintained Total Quality Management System and maintained schedule of accreditation or self-declared parameters under the CIPM MRA.
Indicator responsibility	SHEQ.

KPI 7: NUMBER OF METROLOGISTS TRAINED	
Indicator title (Output)	Number of metrologists trained in accurate measurement
Short definition	To develop skills and competencies required to provide essential measurement support to industry, commercial calibration labs and NMIs in the Region.
Purpose/importance	To ensure knowledge transfer to industry, commercial calibration labs and Regional NMIs.
Source/collection of data	NMISA Certificate of Training or an official report or attendance list.
Method of calculation	Simple count (people).
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	100
Data limitation	None.
Quality Assurance strategy	Published schedule of training opportunities to Regional NMIs.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Capacity building for the Region as mandated by the Measurement Act.
Indicator responsibility	Director RIID together with Technical Directors.

KPI 8: NUMBER OF COURSES PROVIDED	
Indicator title (Output)	Number of courses presented to industry, SMEs and other institutes
Short definition	To develop skills and competencies required to provide essential measurement support to industry, SMEs and other institutes.
Purpose/importance	Proof of the dissemination of the NMS and Units to industry and the user community at larger.
Source/collection of data	Official signed attendance list of participants attending the course or workshop given or letter from institute hosting course.
Method of calculation	Simple count (courses).
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	18
Data limitation	None.
Quality Assurance strategy	Collaboration with NLA for presenting courses using NMISA experts. Published list of courses for Regional NMIs.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Increased industry training and SMEs trained in support of the quality infrastructure.
Indicator responsibility	Director RIID together with Technical Directors.

KPI 9: NUMBER OF INTERNS AND IN-SERVICE TRAINEES HOSTED	
Indicator title (Output)	A skilled, competent and transformed workforce
Short definition	Number of interns and in-service trainees hosted.
Purpose/importance	To provide work experience for graduates in line with their studies and improve their employability. To build pipeline of skilled and competent professionals to address current and future skills needs and transform the organisation.
Source/collection of data	Internship contracts, training/work plans, certificates.
Method of calculation	Simple count, (total number of interns and in-service trainees hosted/trained during the financial year).
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	15
Data limitation	None.
Quality Assurance strategy	Completed training in line with training plans.
Type of indicator	Equity.
Calculation type	Cumulative.
New indicator	No.
Reporting cycle	Quarterly.
Desired performance	Well trained interns who can be placed in NMISA or other organisations.
Indicator responsibility	Human Resources.

KPI 10: AMOUNT OF INCOME GENERATED	
Indicator title (Output)	Income generated through services (dissemination activities)
Short definition	Income generated through calibration, services (PTS and reference measurements), sales (CRMs), consultation, research funds and donor projects (REVENUE) excluding interest.
Purpose/importance	To provide measurement traceability to industry through calibration, measurement services, analysis, consultation, research grants and donor projects.
Source/collection of data	A report of income is downloadable from NMISA financial system and provided by Finances.
Method of calculation	Simple count (Revenue in line with GRAP plus confirmed purchase orders and income received in advance).
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	R38 018 270
Data limitation	None.
Quality Assurance strategy	Financial performance audited by both internal and external auditors.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	No.
Reporting cycle	Quarterly.
Desired performance	Meet and exceed annual financial revenue target for sustainability.
Indicator responsibility	Commercial Services with technical divisions.

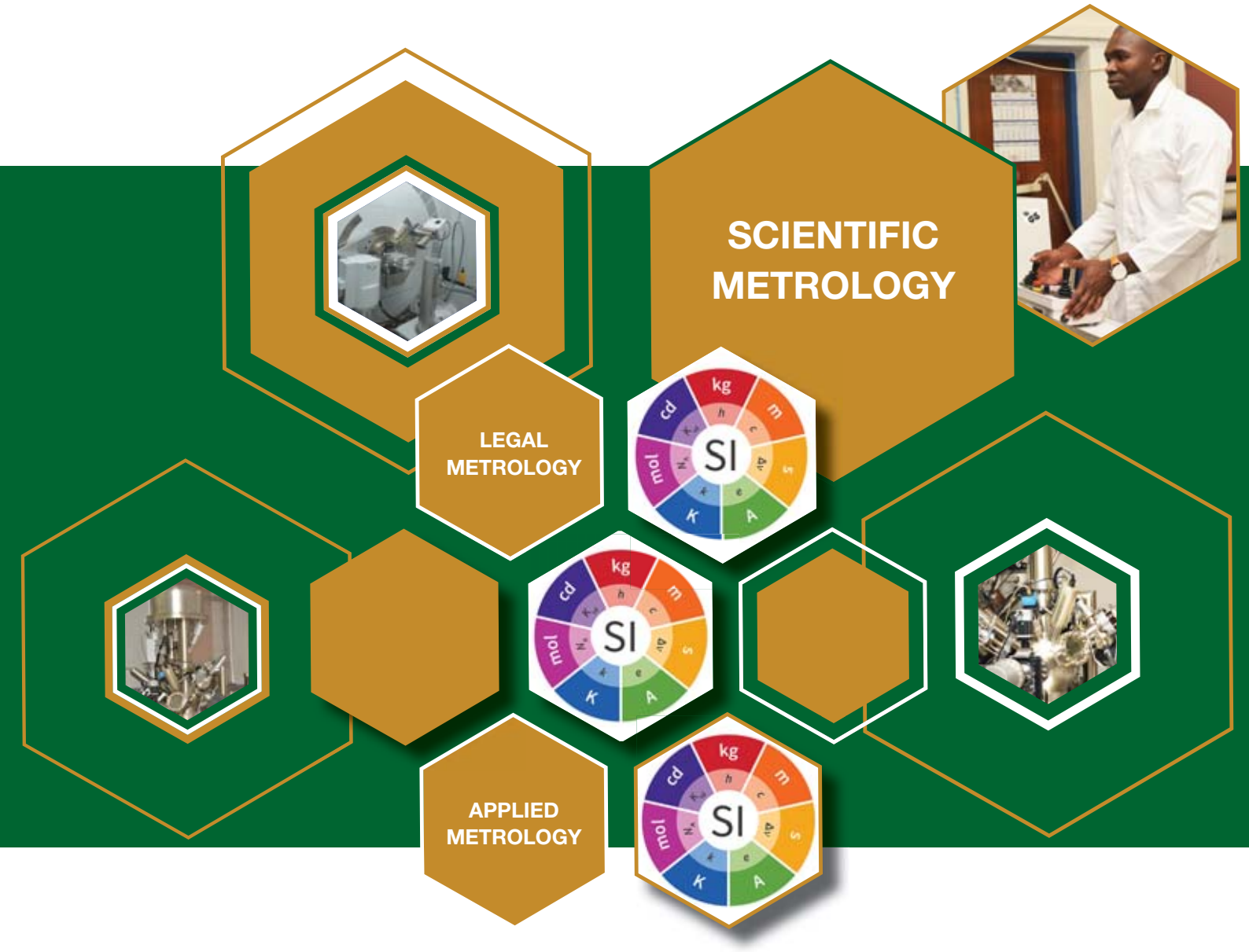
KPI 11: PERCENTAGE ACTUAL EXPENDITURE TO BUDGET	
Indicator title (Output)	Establish financial systems and processes to ensure compliance with regulatory frameworks
Short definition	Percentage of revenue received expensed and commitments.
Purpose/importance	Established systems and processes to ensure compliance to regulatory frameworks (PFMA).
Source/collection of data	Statement of financial performance and other financial reports.
Method of calculation	Actual spending including commitments/ income received.
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	98 %
Data limitation	None.
Quality Assurance strategy	GRAP compliance and Combined Assurance .
Type of indicator	Internal compliance to regulatory frameworks.
Calculation type	Cumulative.
New indicator	No.
Reporting cycle	Quarterly.
Desired performance	Full compliance with regulatory frameworks and unqualified audit report.
Indicator responsibility	CFO, together with EXCO.

KPI 12: REVISED MEASUREMENT ACT TO SUPPORT AND CONTRIBUTE TO NATIONAL REGULATION	
Indicator title (Output)	Revise the measurement act to support and contribute to national regulation
Short definition	The revision of the Measurement Act to support regulation.
Purpose/importance	For the protection of the State by ensuring accurate measurement.
Source/collection of data	Confirmation of the Steering Committee including external stakeholders, process for engaging with external stakeholders, submission of draft Act to the Board and submission of revised Act to **the dti**.
Method of calculation	Inputs made towards the revision of the Act.
Baseline	New KPI.
Target and target date for the indicator (31 March 2020)	Submit to **the dti** the revised Measurement Act.
Data limitation	None.
Quality Assurance strategy	None.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	Yes.
Reporting cycle	Quarterly.
Desired performance	Amendment of the Measurement Act.
Indicator responsibility	All Directors.

KPI 13: NUMBER OF GOVERNMENT AND SOEs SERVICED BY NMISA	
Indicator title (Output)	Metrology service provider for Government services and State-owned Entities
Short definition	NMISA providing metrology related services to Government.
Purpose/importance	Consolidation of metrological services in Government and SOEs to save costs.
Source/collection of data	Service Level Agreements/contracts, with Government or SOE Customers.
Method of calculation	Simple count.
Baseline	New KPI.
Target and target date for the indicator (31 March 2020)	3
Data limitation	None.
Quality Assurance strategy	Contracts with related parties.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	No.
Reporting cycle	Quarterly.
Desired performance	Saving Government costs by creating effectiveness.
Indicator responsibility	Marketing and COMMS with all divisions.

KPI 14: PERCENTAGE INCREASE VISIBILITY OF NMISA	
Indicator title (Output)	20% Increase visibility of NMISA in South Africa and the region
Short definition	Increase in the visibility of the organisation.
Purpose/importance	To provide traceability within SA and the Region by shortening the traceability ensuring growth in industrialisation, employment within SA and not exporting jobs.
Source/collection of data	Statistical report showing progress throughout the quarters.
Method of calculation	Using Advertising Value Equivalence calculations done by a contracted service provider. Cumulative.
Baseline	AVE to be determined in March 2019.
Target and target date for the indicator (31 March 2020)	20% increase in visibility.
Data limitation	The baseline will be determined in the 1st quarter and monitored throughout the financial year.
Quality Assurance strategy	Advertising value equivalent done.
Type of indicator	Output.
Calculation type	Cumulative.
New indicator	New.
Reporting cycle	Annual.
Desired performance	Increase visibility by 20% of NMISA to our stakeholders.
Indicator responsibility	Corporate Services Director.

KPI 15: PERCENTAGE CUSTOMER SATISFACTION	
Indicator title (Output)	External client satisfaction
Short definition	Percentage of customer complaints against all service jobs.
Purpose/importance	To provide industry with a sense of ownership and confidence in NMISA measurements by providing a superior service. NMISA strives for less than 5%.
Source/collection of data	Report on the review of customer complaints taken from the Quality System (Customer Action Requests-CARs).
Method of calculation	Number of customer complaints per quarter/ total jobs per quarter.
Baseline	2018/19 achievement.
Target and target date for the indicator (31 March 2020)	≥95%
Data limitation	Client complaints not raised as CARs to the organisation.
Quality Assurance strategy	Quality System.
Type of indicator	Output.
Calculation type	Non-cumulative.
New indicator	No.
Reporting cycle	Quarterly.
Desired performance	Zero customer complaints are ideal, any customer complaints received to be timeously addressed and cleared satisfactorily.
Indicator responsibility	SHEQ.



ANNEXURE B: VISION AND MISSION

6 ANNEXURE B: VISION AND MISSION

6.1 VISION

To be the leading Metrology and Measurement Centre of excellence on the African continent connecting Africa to the World.

6.2 MISSION

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

6.3 VALUES

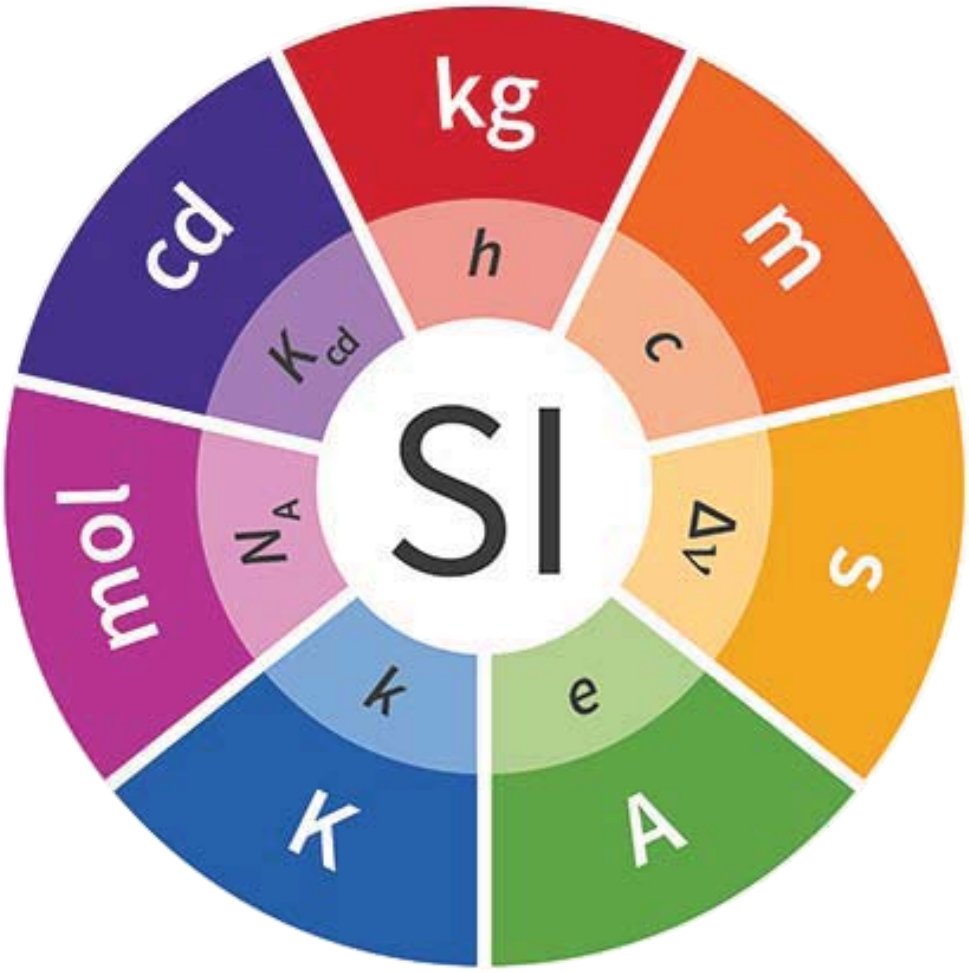
- Measurement excellence,
- Social responsibility,
- Economic prosperity, and
- Good Governance.

Countries and advanced developing countries are increasingly using TBTs and NTBs to protect their markets. SQAM issues supported by Technical Infrastructure policies and institutions are set to play an increasing role in global trade, in line with TBTs and NTBs".

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

South Africa (NMISA) signed the International Committee for Weights and Measures (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 BIPM, CIPM MRA and associated procedures to establish the equivalence of NMS and the SI governs the activities of NMISA to ensure a proper measurement system for South Africa. This is then disseminated to industry according to local needs.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SI

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