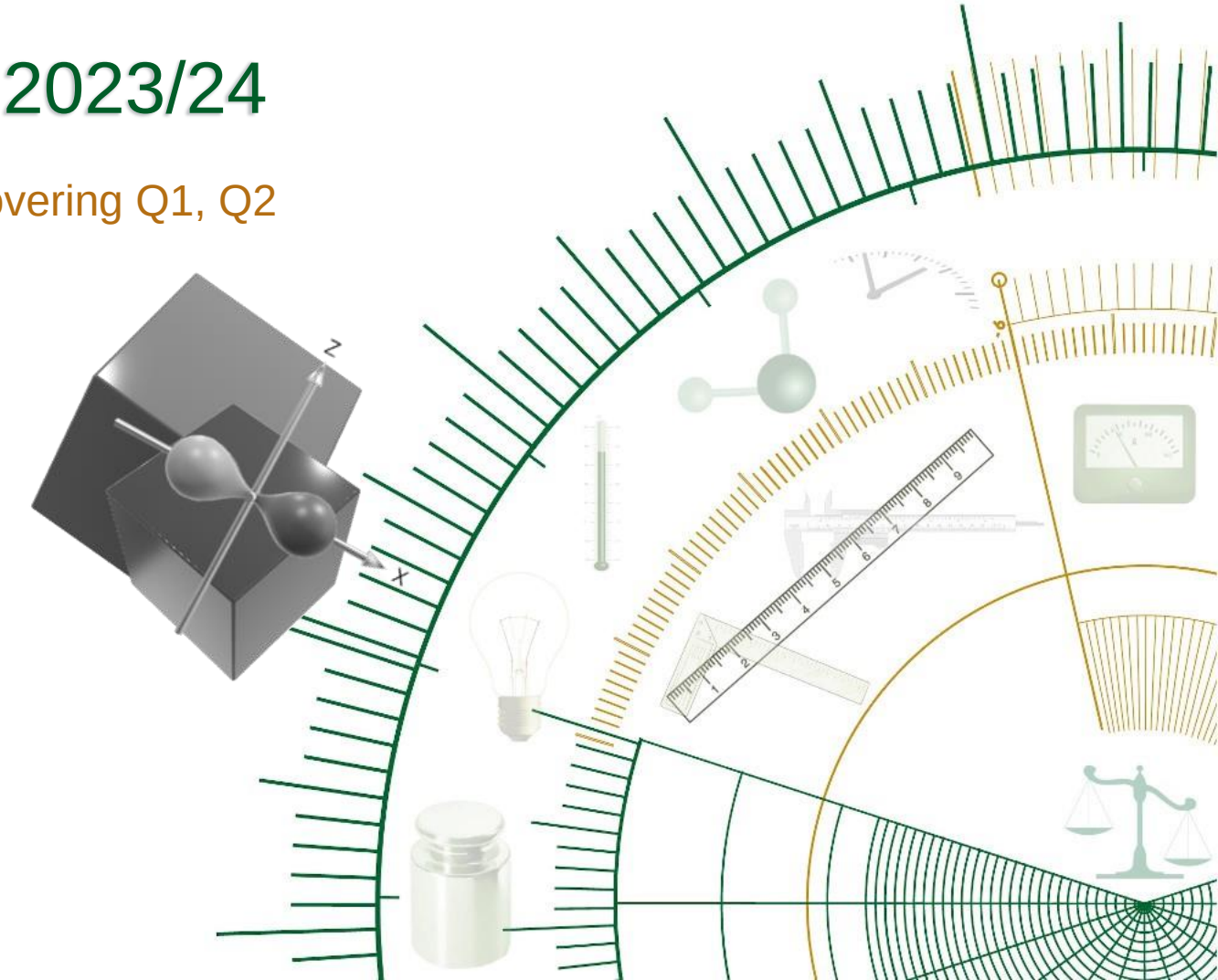
Quarterly Performance Report 2023/24

Financial and Non-financial performance briefing covering Q1, Q2 and Q3 performance for FY 2023/24

- Dr Gugulethu Motshwene: Board Chairperson
- Dr Jayne de Vos: CEO (Acting)
- Mr Victor Mabuli: CFO (Acting)



NMISA Presentation to the Portfolio Committee on Trade Industry and Competition

27 February 2024

Your measure of excellence

“The newly appointed NMISA Board is eager to serve the South African industry, contributing to economic recovery and ensuring prosperity and quality of life”

FOREWORD BY THE CHAIRPERSON

NMISA, established under the Measurement Units and Measurement Standards Act, is pivotal in linking South Africa to the International System of Units (SI). Our commitment to international equivalence ensures quality assurance for trade partners, overcoming technical barriers globally.

In the next few years, we are focussing on the fulfilment of our mandate, efficient service delivery, stakeholder collaboration, and a skilled workforce. Emphasis lies on diversifying revenue sources, contract research for innovative solutions, and exceeding client expectations.
Our Training Centre will further expand its courses globally, fostering international collaboration. We are planning additional courses that will serve the mining, manufacturing, and transport industries with advanced materials characterisation, benefiting metal, polymer, and energy storage sectors.

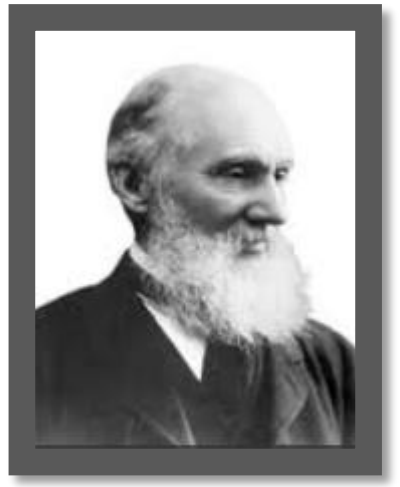
The institute will also be more active in addressing environmental challenges, offering reference values and testing services. In the energy sector, we will continue to support green initiatives, ensuring accuracy in energy-efficient technologies and contributing to South Africa's hydrogen strategy.
Anticipating increased food trade under AfCFTA, NMISA provides African-centric reference measurements and Proficiency Testing Schemes, empowering food and agricultural labs.

In healthcare, we provide traceability for medical devices, contributing to patient safety and quality healthcare. Exploring metrology for emerging technologies, NMISA aligns with stakeholders for sustainable growth.

The newly appointed NMISA Board is eager to serve the South African industry, contributing to economic recovery and ensuring prosperity and quality of life.

Presentation outline

- Legislative Mandate
- Board Members & Structure
- Non-Financial Performance Results for Q1, Q2 and Q3
- Financial Performance Results for Q1, Q2 and Q3
- Contribution to ***the dtic*** group output targets
- Customer Case Studies
- Operational Summary
- Stakeholder Engagements
- Challenges and Concluding remarks



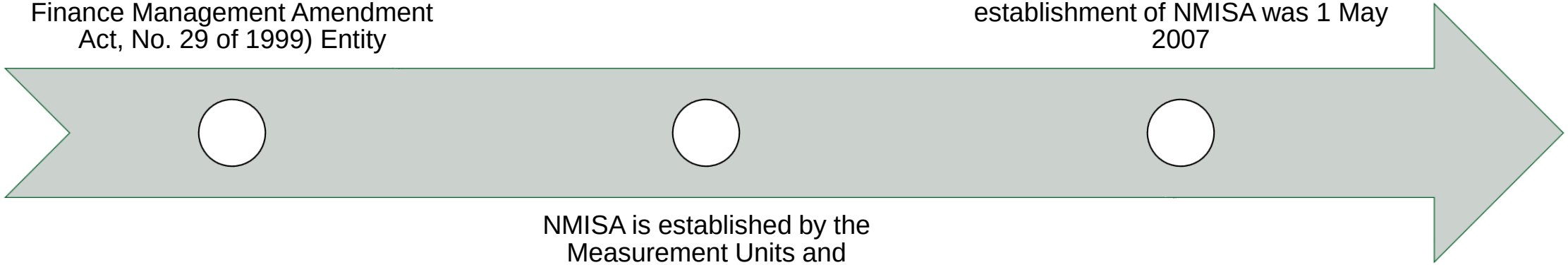
"When you can measure what you are speaking about and express it in numbers, you know something about it, …
…but when you cannot measure it; when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind"

Lord Kelvin

Legislative Mandate

Legislative mandate

The National Metrology Institute of South Africa (NMISA) is a Schedule **3** Part **A** of the Public Finance Management Act, 1999 (Act No, 1 of 1999 as amended by the Public Finance Management Amendment Act, No. 29 of 1999) Entity



NMISA is established by the Measurement Units and Measurement Standards Act, 2006 (Act No.18 of 2006), referred to as the “Measurements Act”

NMISA is a non-profit state-owned enterprise (SOE), established without shares and equity for public benefit, and therefore a company registration number is not applicable. The effective date of the establishment of NMISA was 1 May 2007

Empowering Measurement Act No. 18 of 2006

Government Gazette

REPUBLIC OF SOUTH AFRICA

Vol. 501 Cape Town 28 March 2007 No. 29752

THE PRESIDENCY

No. 275 28 March 2007

It is hereby notified that the President has assented to the following Act, which is hereby published for general information:–

No. 18 of 2006: Measurement Units and Measurement Standards Act, 2006.

ACT

To provide for the use of measurement units of the International System of Units and certain other measurement units; to provide for the designation of national measurement units and standards; to provide for the keeping and maintenance of national measurement standards and units; to provide for the establishment and functions of the National Metrology Institute; to provide for the repeal of certain laws; and to provide for matters connected therewith.

- To provide for the use of measurement units of the International System of Units and certain other measurement units;
- To provide for the designation of national measurement units and standards
- To provide for the keeping and maintenance of national measurement standards and units
- To provide for the establishment and functions of the National Metrology Institute
- To provide for the repeal of certain laws; and
- To provide for matters connected therewith

Our mandate and role - perspective

The priority focus is to service the customer aligned with the implementation, interpretation, and application of the NMS based on the SI units

To provide for the use of the SI units and approve other units for use in RSA; to develop and maintain **primary scientific standards of physical quantities for RSA**

To compare those standards with other national standards to **ensure global measurement equivalence**

Perform reference analysis, and provide reference standards; and in any RSA court, **NMISA's results will be accepted as the most accurate value**

To maintain and develop **primary methods for chemical analysis** to certify reference materials for RSA and the region

To produce African specific matrix reference materials to enable accurate analysis and **conformity assessment of feed and food products**

customer excellence | customer satisfaction

Vision, mission and values

Vision

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

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

Values

- **QUALITY**
  - Integral to the quality infrastructure of South Africa, the NMISA fully adheres to the principles of quality and contributes to the infrastructure for the implementation of quality in society.
- **MEASUREMENT EXCELLENCE**
  - The pinnacle of measurement accuracy and excellence is traceability to the International System of Units and the connection of the regional measurement system internationally. The NMISA not only provides this link to the region but lives excellence in the measurements it conducts for the community.
- **SOCIAL RESPONSIBILITY**
  - The mandate to establish and maintain the national measurement standards is augmented by the NMISA's leadership role in all measurement issues and awareness creation and training of society
- **ECONOMIC PROSPERITY**
  - The NMISA provides accurate measurement and an internationally accepted measurement system that is a prerequisite for production, trade, and the provision of health services and is the building block for economic prosperity.
- **GOOD GOVERNANCE**
  - The moral basis on which all activities of the NMISA and its international status are based, is evidenced in its performance and its record of clean audits

NMISA's Objectives - 2019/20-2023/24

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 (applicable to all industries);

Strategic Thrust 3:

- Metrology for Industry, including assistance to SMEs to provide appropriate services in support of manufacturing, beneficiation, and export;

Strategic Thrust 4:

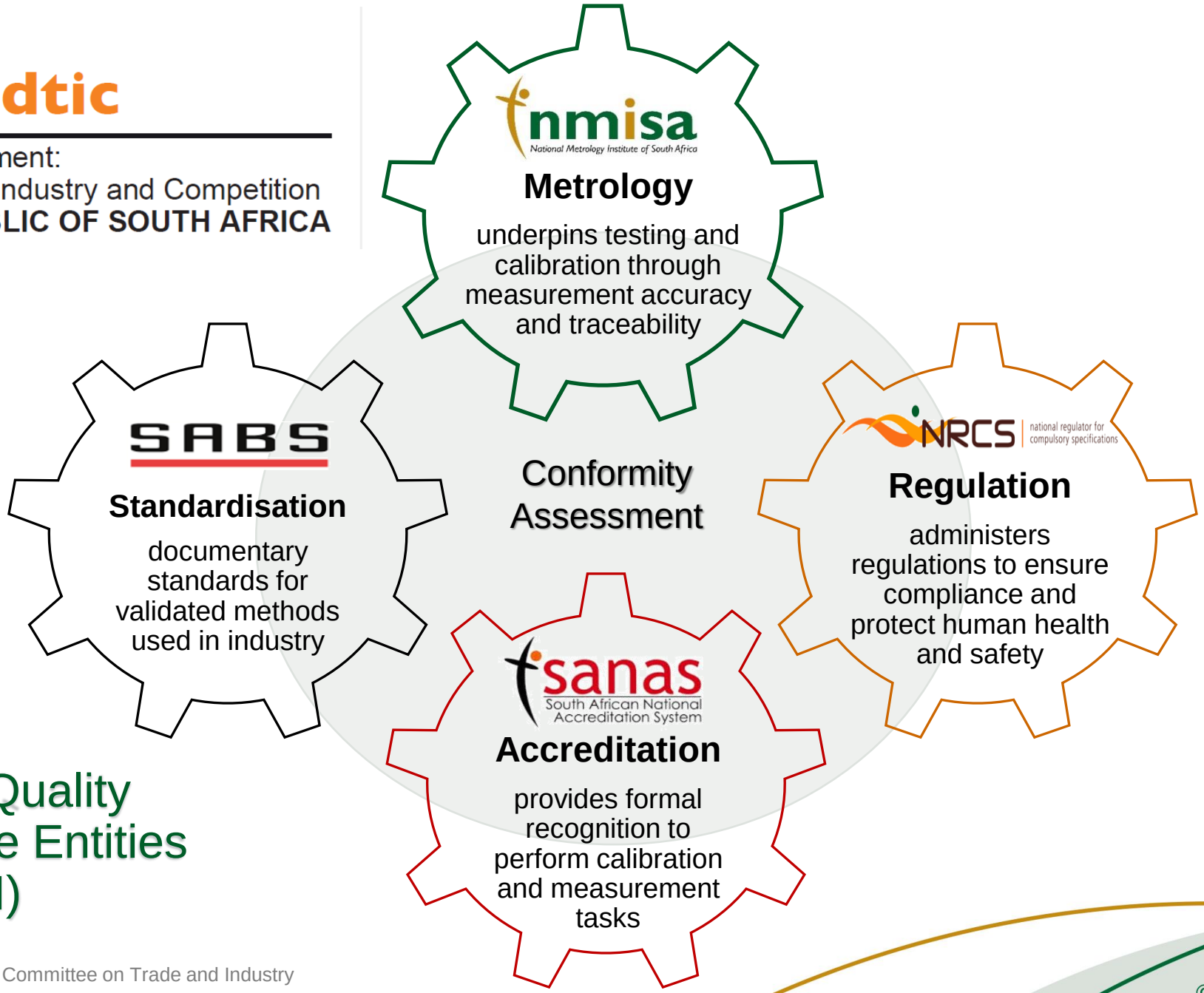
- Strategic alignment with the legal metrology function in the country to enhance the application of advanced scientific and applied metrology to support the implementation of the Legal Metrology Act.

the dtic

Department:
Trade, Industry and Competition
REPUBLIC OF SOUTH AFRICA

nmisa
National Metrology Institute of South Africa

National Quality Infrastructure Entities (NQI)



Importance of Metrology in Regulation

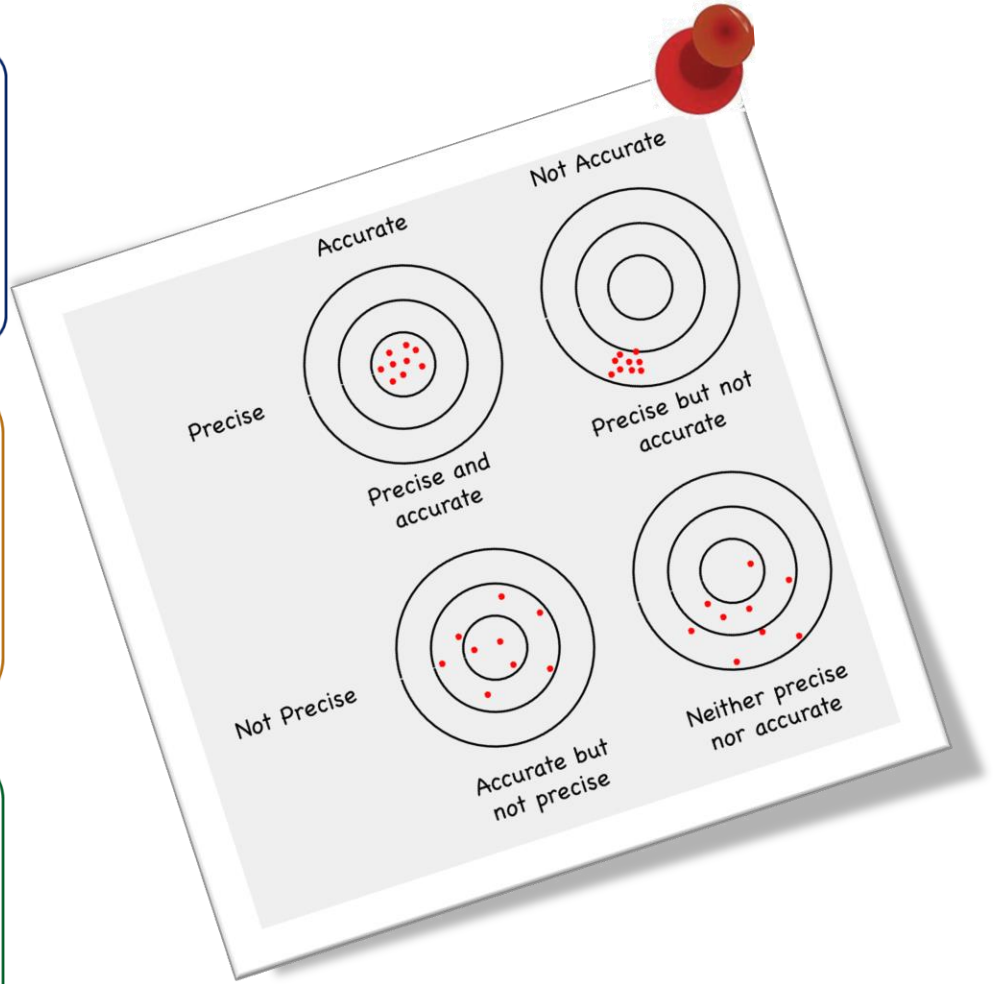
Measurements that are not accurate provide data that is incorrect.

Wrong measurements provide incorrect data that will lead to wrong and dangerous conclusions or results.

Calibrated instrumentation provides accurate measurements that provide **confidence**.

Ensures that services or products meet the required specifications and are **accepted** in local and international markets.

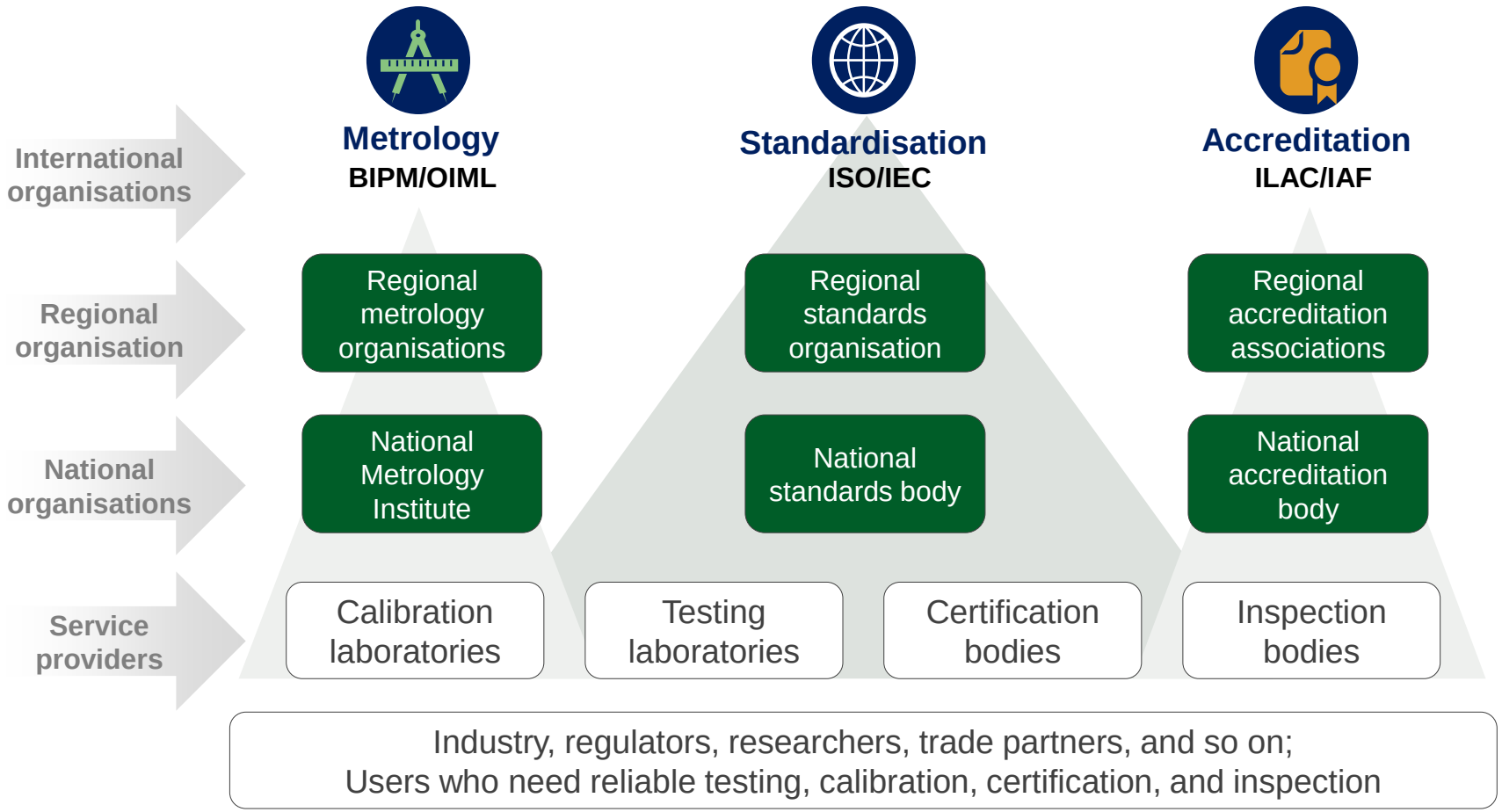
As part of the South African Technical/Quality Infrastructure, NMISA **maintains measurement equivalence** with the global 'system of measurements' as a **foundation** of all measurements performed in South Africa.



Accurate measurement supports

Globalisation of trade in manufactured goods, raw materials, and food & feed:	requires traceable, comparable and mutually acceptable measurements across the world
	companies that get it right through Quality Infrastructure the first time have a distinct competitive advantage
Lean manufacturing:	Higher productivity, flexibility, efficiency, product reliability and less waste
	Fewer errors in decision making
	Increased human safety
Market acceptance of cultivated and manufactured products:	Independent measurement and verification demonstration of product superiority
	Conformity assessment; Measurement deficiencies create trade imbalances

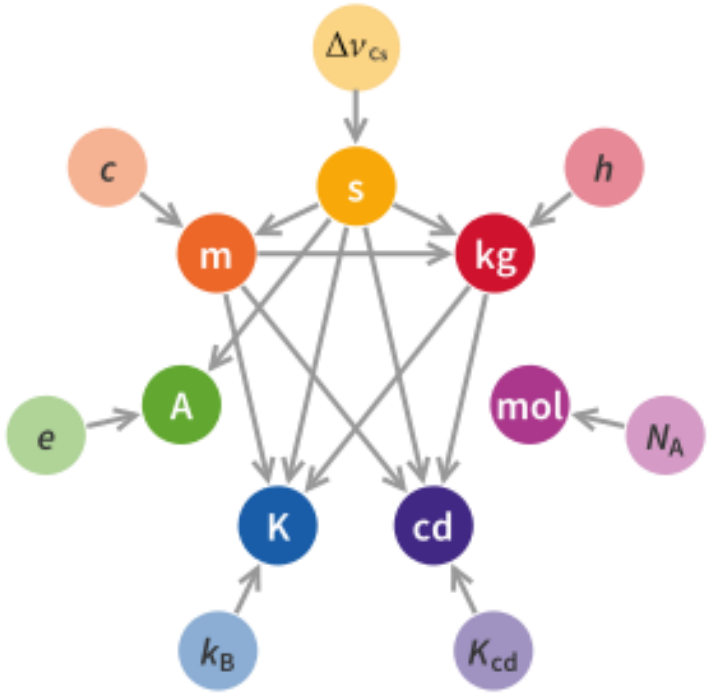
Ensuring product quality in the region….

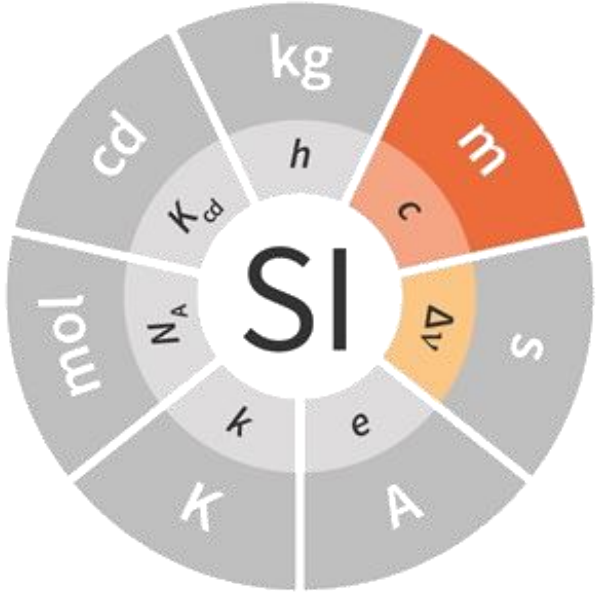


The SI defining constants - 2019

SI defining constants

Symbol	Defining constant	Exact value
$\Delta\nu_{Cs}$	hyperfine transition frequency of Cs	9 192 631 770 Hz
c	speed of light	299 792 458 m/s
h	Planck constant	$6.626\,070\,15 \times 10^{-34}$ J·s
e	elementary charge	$1.602\,176\,634 \times 10^{-19}$ C
k	Boltzmann constant	$1.380\,649 \times 10^{-23}$ J/K
N_A	Avogadro constant	$6.022\,140\,76 \times 10^{23}$ mol^{-1}
K_{cd}	luminous efficacy of 540 THz radiation	683 lm/W

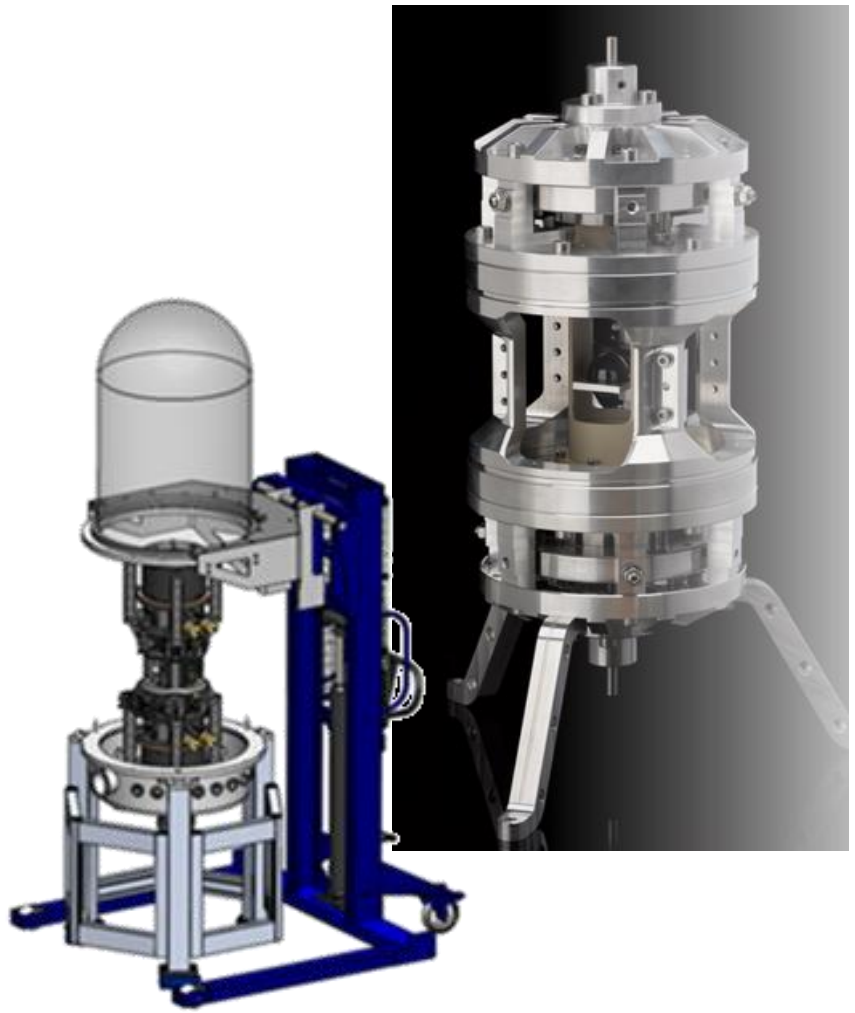




Time	Length	Mass	Electric current	Tempera-ture	Amount of substance	Luminous intensity
S second	**m** meter	**kg** kilogram	**A** ampere	**K** kelvin	**mol** mole	**cd** candela

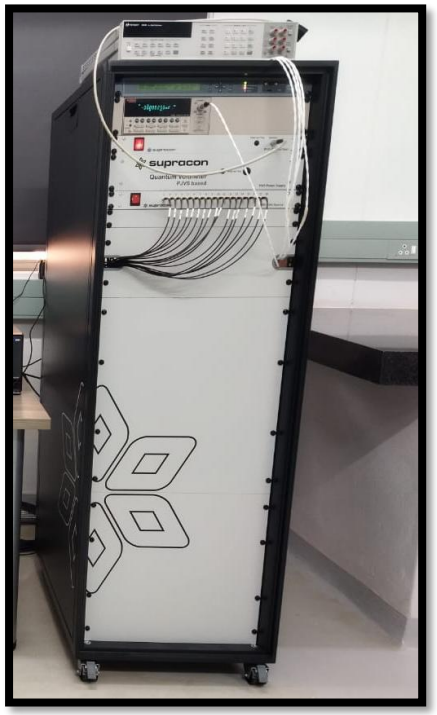
Kibble Balance – new standard for mass

- NMISA recapitalisation investment in new equipment to realise the SI for Mass independently
- Primary example being the Kibble Balance Mass standard
  - Independent realisation for mass, and related parameters in South Africa
- Enables South Africa to shorten the traceability chain for Africa
- The new ‘high-accuracy’ standards required for the Kibble balances are also used independently to provide traceability for:
  - Electrical measurements and power meters to understand power consumption
    - voltage, resistance, and current
  - Gravity
  - provide traceability for the geoscience community, mining, exploration
    - g
- Cost: ~ R9 million
- Resource expertise: 2 staff, one retiring end of April 2024
  - One of the underlying factors supporting the HCD programme



Realising mass using the Kibble balance

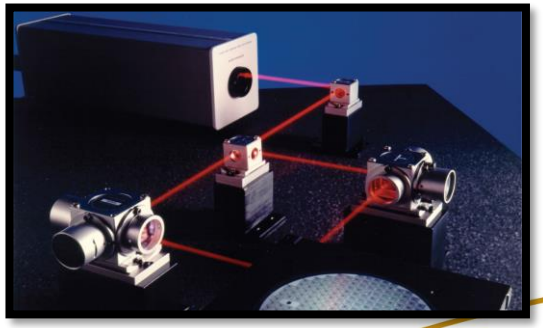
$$m = \frac{VI}{gv}$$



Programable Josephson array (PJVS) to measure voltage (*V*), (Costs ~ MR 6,5)

Gravimeter to provide accurate gravity (*g*) measurement, (Costs ~MR 7)

Quantum Hall to measure current (*I*), (Costs ~ MR 10,6)



Laser system (part of Kibble balance) to measure velocity (*v*), (Costs ~ MR 9)

The equation for how mass is realised.
It shows why all the other accurate measurements are required.
The ultimate aim is to measure mass accurately to about 2 parts in 10^8

Board Members & Structure

Board members (term ended): 2019-2023

- **Ms Jabu Mogadime (Previous Board Chairperson)**

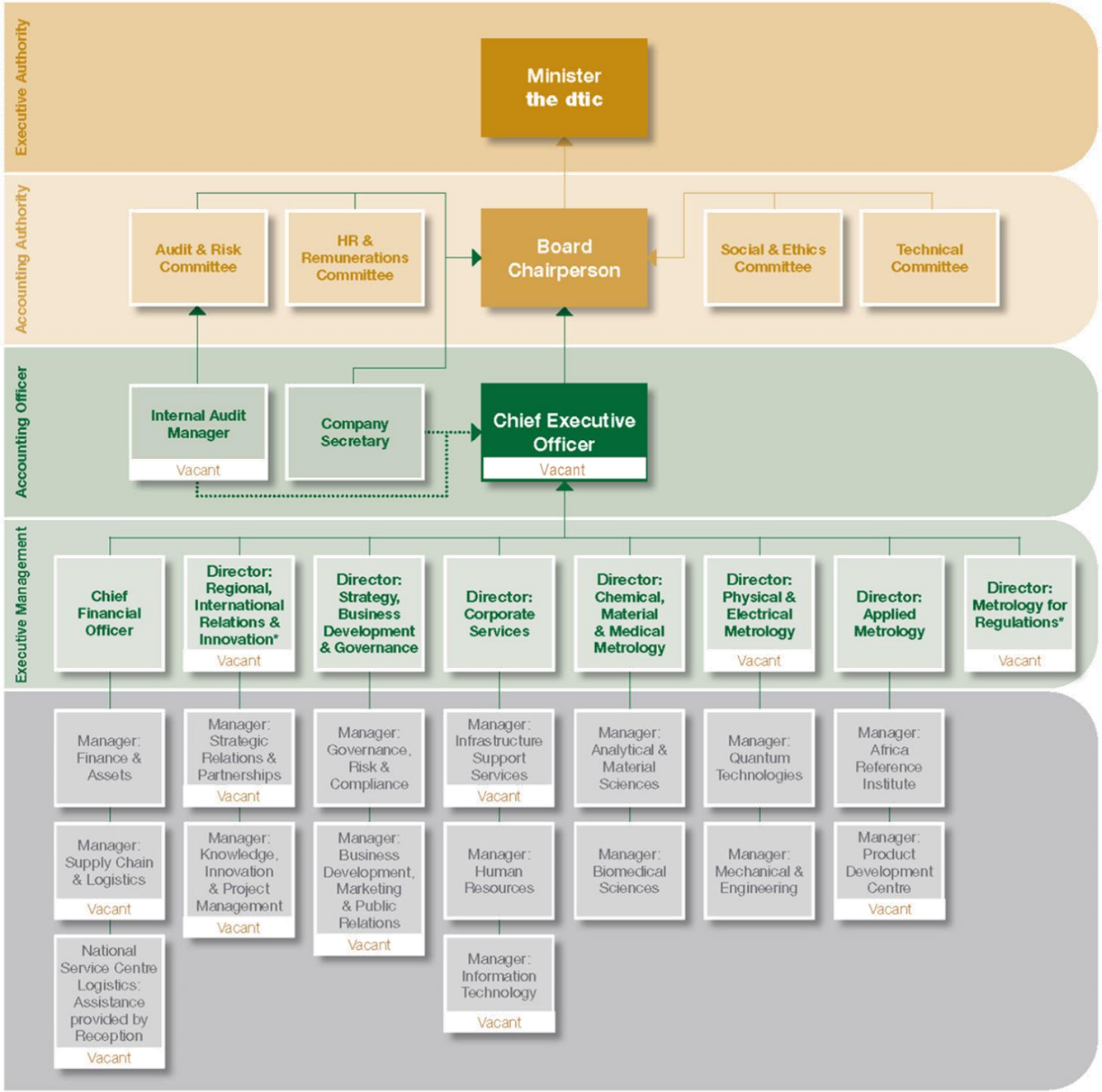
Board Members (previous Board)	Committees
Ms Jabu Mogadime	Board Chairperson
Mr Petrus Mohlomi	Audit and Risk Committee
Ms Lindie Lankalebalelo	Social and Ethics Committee
Dr Anneline Chetty	HR and Remuneration Committee
Ms Nobom Mfabana	HR and Remuneration Committee
Dr Tshenge Demana	Technical Committee
Dr Nimrod Zalk	Technical, Social & Ethics Committee
Ms Romeshni Govender	Served on the AR Committee

For noting: The previous Board of Directors term ended 30 June 2023

New Board members: 2023-2027

Dr Precious Motshwene (Current Board Chairperson)

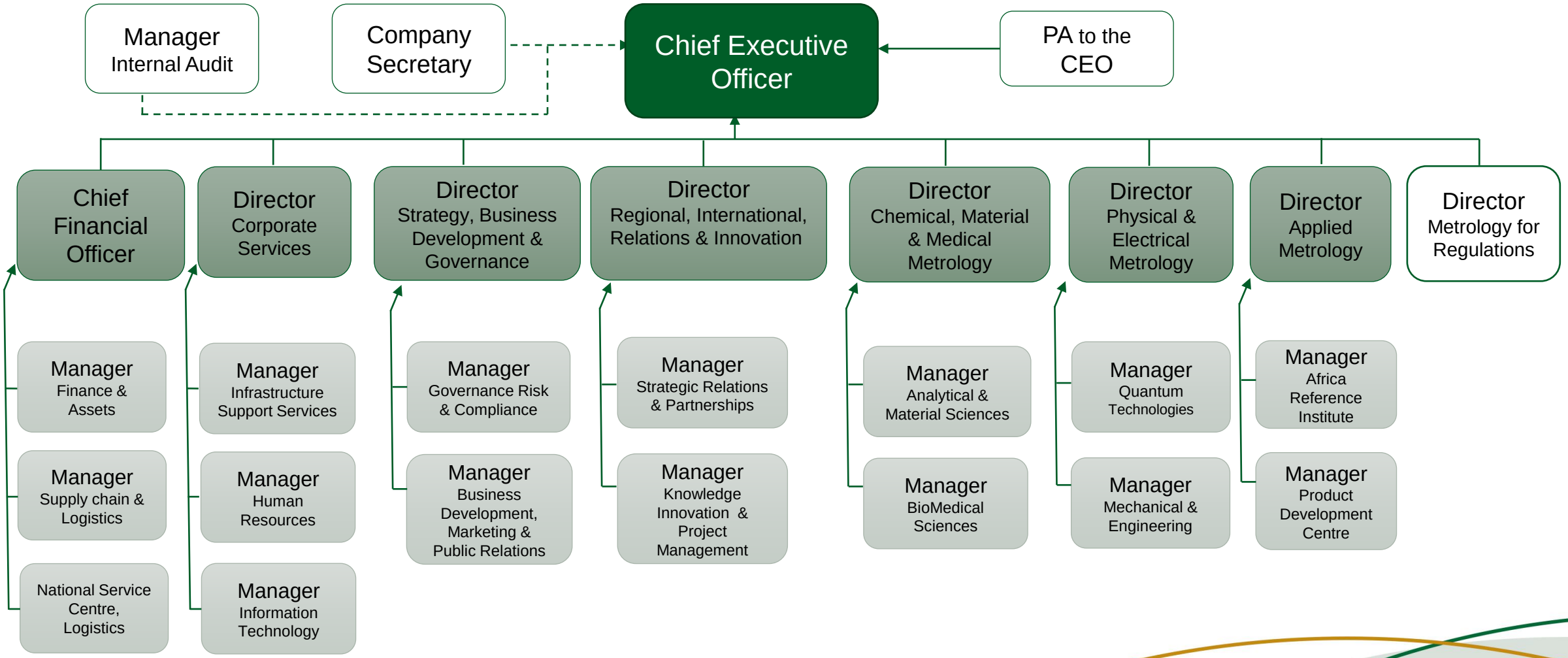
Board Members 2023-2027	Committee	Gender
Dr Gugulethu Motshwene	**Chairperson of the new Board**	**African Male**
Ms Babalwa Songongo	Audit & Risk committee chairperson	African Female
Dr James Tshilongo	Ad-Hoc Tender committee chairperson	African Male
Professor Lorna Holtman	Social & Ethics committee chairperson	White Female
Ms Sara Prins	HR & Remuneration committee chairperson	White Female
Professor Andy Buffler	Technical committee chairperson	White Male
Ms Senamile Masango	Board member	African Female
Dr Alufelwi Tshavhungwe	Board member	African Male
Dr Wynand Louw	Board member	White Male



Official Organisational structure

(*under review*)

NMISA's management structure



Non-Financial Performance for Q1, Q2 and Q3

KPI Performance Q1 (1)

Output		Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	1st Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
Programme: Administration (including the units and NMS)								
Provide for the measurement needs of South Africa and the Region	KPI 1	Non-permanent positions filled and work-place ready after intervention	30 interns hosted	12 interns/in-service trainees hosted	Host 10 interns/in-service trainees	16	5 interns started their training during the quarter, 11 interns training overlapped into the new year. Internship period was reviewed and changed from 12 months to 24 months	None
	KPI 2	Amount of income generated	R26 697 333	R36 522 741	R3 652 274	. R2 115 479	The demand for products and services was lower than anticipated.	Marketing of services and products.
	KPI 3	Percentage actual expenditure to budget	98%	98%	10%	35%	Purchase orders raised for 12 months for some of the recurring services	Not Applicable
	KPI 4	Number of accredited laboratories maintained and new laboratory accreditations	24 maintained and 1 new accreditation	25 maintained and 1 new accreditation	25 maintained	25 accreditations maintained	Not Applicable	Not Applicable
	KPI 5	Percentage increase in visibility of NMISA	20% increase in visibility	10% increase in visibility	2.5%	2.7%	Social Media increases due to digital marketing	Not applicable
	KPI 6	Percentage customer satisfaction	≥95%	≥95%	≥95%	100%	No customer complaint registered, self-service on customer portal	Not applicable

KPI Performance Q1 (2)

	KPI 7	Number of additional government departments, SOEs	4	3	-	-	Not Applicable	Not Applicable
	KPI 8	Percentage increase of NMISA clients from the private sector	5% increase in the number of clients from the private sector served	10% increase in the number of clients from the private sector served	-	-	Not Applicable	Not Applicable
	KPI 9	Participate in **the dtic** technical infrastructure (TI) review	Participated in **the dtic** TI review	Participate in the dtic TI review	-	-	Not Applicable	Not Applicable
	KPI 10	Percentage funded vacancies	6%	5%	10%	8%	Recruitment was halted pending prioritization and confirmation of budget.	Twelve out of nineteen positions were approved to be filled. Three positions were partially approved pending confirmation of budget while four were deferred to the next financial year.
	KPI 11	Reduced turnaround times for filling vacancies in line with the approved recruitment plan	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher. Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels	All new positions filled in line with the approved recruitment plan: Turnaround times for filling vacancies in line with the approved recruitment plan	All new positions filled in line with the approved recruitment plan: 4 months for job levels C5 and higher. 3 months for lower job levels	No positions were filled during the quarter due to delays in confirmation of the available budget and approval of the recruitment plan.	Recruitment was halted pending prioritization and confirmation of budget.	Twelve out of nineteen positions were approved to fill. Three positions were partially approved pending confirmation of budget while four were deferred to the next financial year.

KPI Performance Q1 (3)

	KPI 12	Percentage of NMISA support to the transformation agenda of South African and African markets	New KPI	70% of NMISA transactions to contribute to transformation of South African (in support of SME) and regional (in support of the AfCFTA) market	10 %	83%	More transactions for the supply of products or services were made from local suppliers	Not applicable
Programme: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support								
Implementation of the revised SI.	KPI 13	Number of SI base units realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	6	Not applicable	Not applicable
	KPI 14	Number of new and improved NMS and reference materials and reference methods	17	13	0	3	Reports finalised in during the period	Not Applicable
	KPI 15	Number of ILCs and PTS organised and completed	Organised and complete 30 ILCs and PTS	Organise and complete 14 ILCs and PTS	0	0	Not Applicable	Not Applicable
	KPI 16	Number of metrologists trained	133 metrologists trained	35 metrologists trained	0	19	The metrologists trained were a result of the training centre. efforts to respond to the industry needs.	Not Applicable
	KPI 17	Number of courses provided including SMEs	24 courses provided including SMEs	25 courses provided including SMEs	5	6	There were training course requests that came through earlier than expected.	Not Applicable

KPI Performance Q1 (4)

	KPI 18	Number of memberships maintained	10 CCs	Maintain membership of 10 CCs	10	10 memberships maintained	Not Applicable	Not Applicable
	KPI 19	Percentage of metrological services covered by CMCs (i.e., internationally accepted)	85% of metrological services covered by CMCs	90% of metrological services covered by CMCs	-	-	Not Applicable	Not Applicable

KPI Performance Q2 (1)

Output		Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	2nd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
Programme: Administration (including the units and NMS)								
	KPI 1	Non-permanent positions filled and work-place ready after intervention	30 interns hosted	12 interns/in-service trainees hosted	Host 12 interns/in-service trainees	19 (YTD)	interns that resigned during the period were included	None
	KPI 2	Amount of income generated	R26 697 333	R36 522 741	R8 217 616.72	R6 241 302.74 (YTD: R8 356 781.74)		
	KPI 3	Percentage actual expenditure to budget	98%	98%	40 %	58 %	Purchase orders for some recurring expenses raised for the full financial year.	None
	KPI 4	Number of accredited laboratories maintained and new laboratory accreditations	24 maintained and 1 new accreditation	25 maintained and 1 new accreditation	25 Maintained	24 accreditations maintained	Resignation of Technical Signatory in one of the accredited laboratories (1614)	SANAS application for the evaluation of the personnel (1614)
	KPI 5	Percentage increase in visibility of NMISA	20% increase in visibility	10% increase in visibility	5% (2.5 %)	**7,0 %** (4,3 %)	Increased effort in new posting and sharing on social media.	None
	KPI 6	Percentage customer satisfaction	≥95%	≥95%	≥95%	98.95 %	Improved customer service through customer portal	None

KPI Performance Q2 (2)

Output		Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	2nd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
	KPI 7	Number of additional government departments, SOEs	4	3	-	-	Not Applicable	Not Applicable
	KPI 8	Percentage increase of NMISA clients from the private sector	5% increase in the number of clients from the private sector served	10% increase in the number of clients from the private sector served	-	-	Not Applicable	Not Applicable
	KPI 9	Participate in **the dtic** technical infrastructure (TI) review	Participated in **the dtic** TI review	Participate in the dtic TI review	Report to the Board on progress on the review	Report to the Board on progress on the dtic TI review	None	None
	KPI 10	Percentage funded vacancies	6%	5%	8 %	8 %	Recruitment was halted due to Delegation of Authority challenges.	Prioritisation to be done in line with the cost containment measures and recruitment will resume after Delegation of Authority challenges have been resolved
	KPI 11	Reduced turnaround times for filling vacancies in line with the approved recruitment plan	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher	All new positions filled in line with the approved recruitment plan: Turnaround times for filling vacancies in line with the	All new positions filled in line with the approved recruitment plan: 4 months for job levels C5 and higher	One position was filled within the set timelines after approval of the Recruitment plan.	Recruitment was halted due to Delegation of Authority challenges.	Prioritisation to be done in line with the cost containment measures and recruitment will resume after Delegation of

KPI Performance Q2 (3)

Output		Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	2nd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
			Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels	approved recruitment plan	3 months for lower job levels			Authority challenges have been resolved.
	KPI 12	Percentage of NMISA support to the transformation agenda of South African and African markets	New KPI	70% of NMISA transactions to contribute to transformation of South African (in support of SME) and regional (in support of the AfCFTA) market	25 %	98.25 %	224 of 228 transactions from African suppliers	None
Programme: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support								
Implementation of the revised SI.	KPI 13	Number of SI base units realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	None	None
	KPI 14	Number of new and improved NMS and reference materials and reference methods	17	13	0	0 (YTD **3**)	Not applicable	Not applicable
	KPI 15	Number of ILCs and PTS organised and completed	Organised and complete 30 ILCs and PTS	Organise and complete 14 ILCs and PTS	0	2	Aflatoxins in Peanut Slurry and Resistance Standards	Not Applicable

KPI Performance Q2 (4)

Output		Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	2nd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
	KPI 16	Number of metrologists trained	133 metrologists trained	35 metrologists trained	0	16 (YTD **22**)	UNIDO sponsorship enabled more metrologists to be trained than was originally envisaged.	None
	KPI 17	Number of courses provided including SMEs	24 courses provided including SMEs	25 courses provided including SMEs	5	12 (YTD **31**)	More courses were presented in Q2 because of additional opportunities that arose.	None
	KPI 18	Number of memberships maintained	10 CCs	Maintain membership of 10 CCs	10	10 memberships maintained	Not Applicable	Not Applicable
	KPI 19	Percentage of metrological services covered by CMCs (i.e. internationally accepted)	85% of metrological services covered by CMCs	90% of metrological services covered by CMCs	-	-	Not Applicable	Not Applicable

KPI Performance: Q3 (1)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
Programme: Administration (including the units and NMS)							
Jobs supported by interventions	Non-permanent positions filled and work-place ready after intervention	30 interns hosted	12 interns/in-service trainees hosted	Host 12 interns/in-service trainees	14	Internship period was initially 12 months, management reviewed the period to 24months. There are external stakeholders whom NMISA is hosting Interns for, such as HSRC and Innovation Hub.	None
Measurement products and services provided to industry. New measurement services for energy efficient lighting and for maintaining the national power grid, Provision of certified	Amount of income generated	R26 697 333	R36 522 741	R9 861 140	R7 921 757	Less demand of NMISA services than what was expected.	The total year to date revenue for the NMISA is R16 278 538.61 SLAs, RFQ/Tenders with government entities, SOEs and Departments

KPI Performance: Q3 (2)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
reference gas mixtures for air monitoring	Percentage actual expenditure to budget	98 %	98 %	60 %	71 %	Purchase orders for some recurring expenses raised for the full financial year.	None
	Number of accredited laboratories maintained and new laboratory accreditations	24 maintained and 1 new accreditation	25 maintained and 1 new accreditation	25 maintained	25 Laboratories accredited.	Not Applicable	Not Applicable
Increased market enquiries managed through a new Contact Centre	Percentage increase in visibility of NMISA	20 % increase in visibility	10 % increase in visibility	7,5 % (2,5 %)	10,6 % YTD (3,6 % Q3)	KPI requires a 10% increase in visibility annually, and the quarterly target is 2.5%. The actual achievement for Quarter 3 is 3.57%, therefore, the target was achieved and exceeded by 1.07%. The visibility target was achieved and exceeded due to a high AVE received from an earned media broadcast post on the essential oil accreditation services as well as increased efforts towards digital marketing	None
Improve customer service by digitalisation of NMISA business systems through implementation of an	Percentage customer satisfaction	≥95 %	≥95 %	≥95	98,9 %	Improved customer service through customer portal	None

KPI Performance: Q3 (3)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
ERP, CMS and project management systems							
Provide measurement support services in areas outside the 5 main metros: Specific outreach programmes to provide measurement services within districts and SEZs included Measurement support for law enforcement	Number of additional government departments, SOEs	4	3	1	4	Contracts that were in progress were finalised and signed in Q3	None
Measurement services for local industry for quality control of manufactured products to enhance localisation	Percentage increase of NMISA clients from the private sector	5 % increase in the number of clients from the private sector served	10 % increase in the number of clients from the private sector served	-	-	Not Applicable	Not Applicable (Annual target)
	Participate in **the dtic** technical infrastructure (TI) review	Participated in **the dtic** TI review	Participate in the dtic TI review	-	-	Not Applicable	Not Applicable
Permanent jobs filled at NMISA	Percentage funded vacancies	6 %	5 %	6 %	1 %	Recruitment was halted due to budget constraints.	Two funded vacant positions were approved by the board in Q3, Recruitment

KPI Performance: Q3 (4)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
							processes will be resumed in Q4
	Reduced turnaround times for filling vacancies in line with the approved recruitment plan	Fill all new positions in line with the approved recruitment plan within 4 months for job levels C5 and higher Fill all vacant positions in line with the approved recruitment plan within 3 months for lower job levels	All new positions filled in line with the approved recruitment plan: Turnaround times for filling vacancies in line with the approved recruitment plan	All new positions filled in line with the approved recruitment plan: 4 months for job levels C5 and higher and 3 months for lower job levels	No positions filled in Q3	Recruitment was halted due to budget constraints	Two vacant positions were approved by the board in Q3, Recruitment processes will be resumed in Q4
	Percentage of NMISA support to the transformation agenda of South African and African markets	New KPI	70 % of NMISA transactions to contribute to transformation of South African (in support of SME) and regional (in support of the AfCFTA) market	25 %	95%	R 7,926,990.4 of R8,334,156.76 transactions from African suppliers	None
Programme: Applied Measurement Services and Products for Industry, SOEs and Regulatory Support							

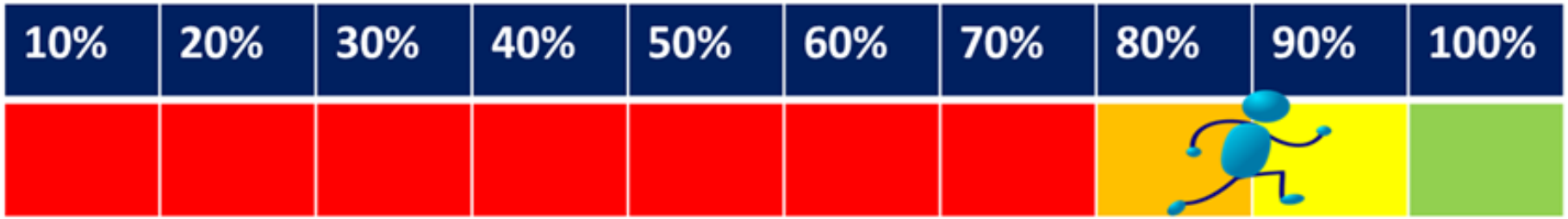
KPI Performance: Q3 (5)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
Implementation of the revised SI, linking the national and regional measurement system internationally to support international trade agreements.	Number of SI base units realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Reports on the 6 base units of the SI realised	Not Applicable	Not Applicable
	Number of new and improved NMS and reference materials and reference methods	17	13	0	0	None	None
	Number of ILCs and PTS organised and completed	Organised and complete 30 ILCs and PTS	Organise and complete 14 ILCs and PTS	0	3	Final reports for three PTs were issued in Q3	None
	Number of memberships maintained	10 CCs	Maintain membership of 10 CCs	10	10	None	None
	Percentage of metrological services covered by CMCs (i.e. internationally accepted)	85 % of metrological services covered by CMCs	90 % of metrological services covered by CMCs	-	-	Not Applicable	Not Applicable
Linking the national and regional measurement system Internationally	Number of metrologists trained	133 metrologists trained	35 metrologists trained	1	2	There was a request for Calibration training in Radiotherapy measurements and Temperature laboratory secondment training	None

KPI Performance: Q3 (6)

Output	Performance Measure or Outcome Indicator	Baseline	Annual Target 2023/24	3rd Quarter Milestone	Actual Achievement	Reason for Variance	Corrective Action
Provide for the measurement needs of South Africa and the region through knowledge development. Develop a support programme specifically for SMMEs	Number of courses provided including SMEs	24 courses provided including SMEs	25 courses provided including SMEs	5	10	Increased training demands, there were more courses provided than scheduled.	None

Performance against set targets overall for Q3

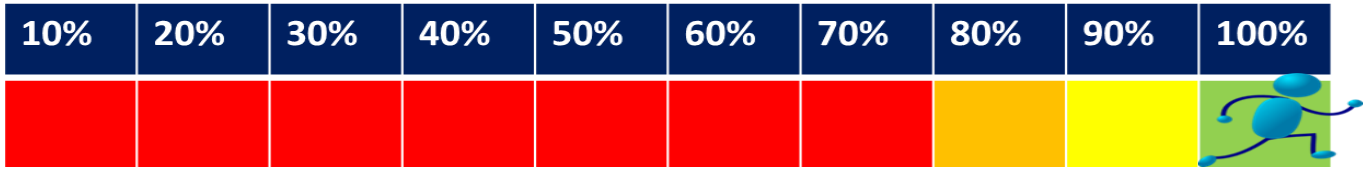


9 KPIs were overachieved
4 KPIs were achieved
3 KPIs not achieved
3 KPIs not yet due for reporting

84,2% Q3 performance achieved

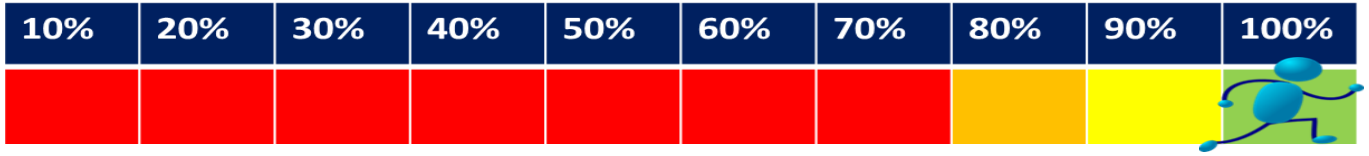
KPI Targets achieved for Q3

KPI 4 – Number of accredited laboratories maintained

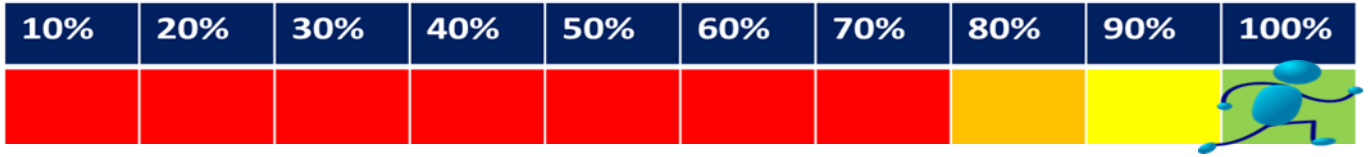


KPI 13 – Number of SI Base Units realised

KPI 14 – Number of new and improved NMS, Reference materials, and reference methods

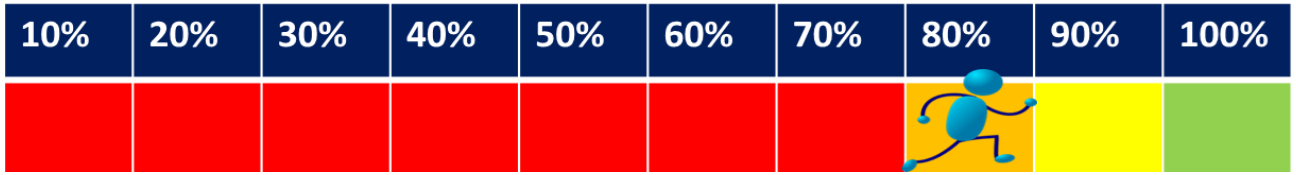


KPI 18 – Number of Memberships Maintained

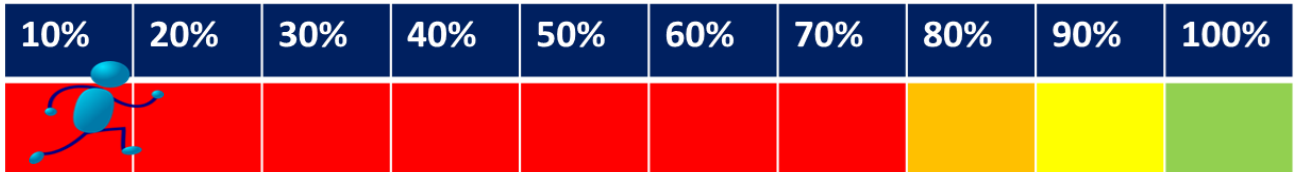


KPI Targets **not** achieved for Q3

KPI 2 – Income Revenue Generated



KPI 10 – Percentage funded vacancies



KPI 11 – Turnaround time for filling new positions

KPI Targets overachieved for Q3 (1)

KPI 1 - Non-permanent positions filled and work-place ready after intervention

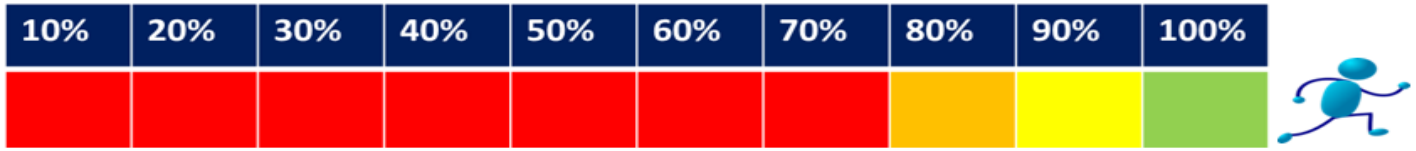
KPI 3 – Percentage Expenditure to Budget

KPI 5 – Percentage increase in NMISA Visibility

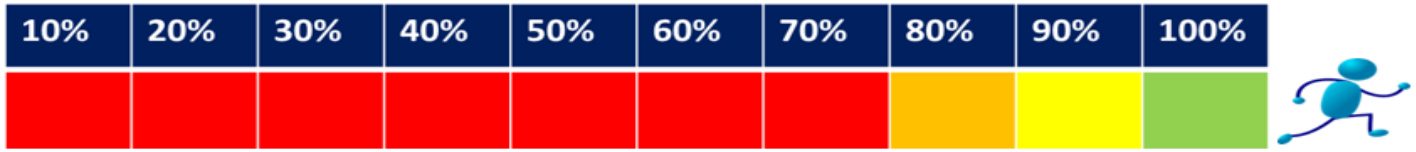
KPI 6 – Percentage customer satisfaction

KPI Targets overachieved for Q3 (2)

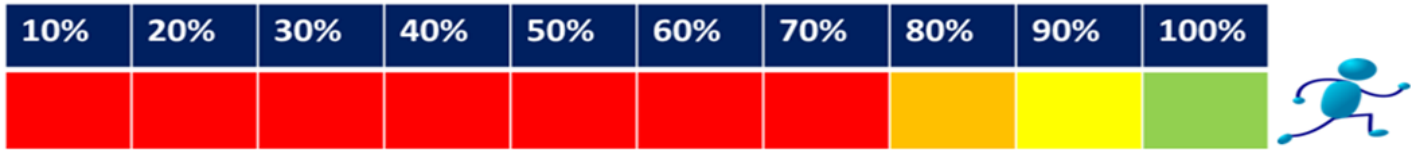
KPI 7 - Number of additional government departments & SOEs.



KPI 12 – Percentage of NMISA support to the SA's Transformation Agenda



KPI 15 – Number of ILCs and PTS organised and completed.



KPI 16 – Number of Metrologists trained

KPI Targets overachieved for Q3 (3)

KPI 17 – Number of courses provided including SMEs.

Financial Performance for Q1, Q2 and Q3

Statement of Financial Performance – Q1, Q2 and Q3 of 2023/24

STATEMENT OF FINANCIAL PERFORMANCE	Q1 June 2023	Q2 - September 2023	Q3 December 2023
REVENUE			
Revenue from exchange transancations	**4 193 760**	**14 563 634**	**25 493 132**
Rendering of services	2 115 479	8 356 782	16 278 539
Interest received	2 078 281	6 203 852	9 211 593
Other inome	-	3 000	3 000
Revenue from non-exchange transancations			
	169 691 000	**169 691 000**	**169 691 000**
Transfer from controling entity	169 691 000	169 691 000	169 691 000
Total Revenue	**173 884 760**	**184 254 634**	**195 184 132**
ERXPENDITURE			
	- 49 269 651	**- 130 356 911**	**- 181 282 473**
Employee related expenses	- 20 672 232	- 56 810 740	- 79 847 619
Depreciation and amortisation	- 9 038 338	- 22 925 524	- 32 207 010
Other expenses	- 19 559 081	- 50 620 647	- 69 227 844
Surplus / (Deficit) for the year	**124 615 109**	**53 897 723**	**13 901 659**

- Revenue increasing over the three quarters
- Grant reduction still to be applied
- Interest generated mainly from grant received
- Cost are driven by the operations of the organisation

Statement of Financial Performance – 31 December 2023

Transfers from the dti	Approved Budget	YTD Budget	Actual	Percentage variance	Year-end Forecast
Transfer from the dti for Operating expenditure	(124,041,000)	(124,041,000)	(124,041,000)	0%	(111,637,000)
Transfer from the dti for Capital expenditure	(45,650,000)	(45,650,000)	(45,650,000)	0%	(41,085,000)
	(169,691,000)	**(169,691,000)**	**(169,691,000)**	**0%**	**(152,722,000)**

- Grant reduction of R17m

External Revenue by service streams	Approved Budget	YTD Budget	Actual	Percentage variance	Year-end Forecast
Assessments	(321,500)	(218,000)	(103,568)	-52%	(200,000)
Calibration	(7,396,400)	(3,991,900)	(5,303,399)	33%	(6,216,400)
Other revenue	(3,465,000)	(1,165,000)	(192,787)	-83%	(200,000)
Proficiency Testing Scheme	(2,366,745)	(1,163,000)	(273,751)	-76%	(1,250,000)
Reference Materials	(6,867,096)	(4,063,000)	(3,663,814)	-10%	(5,040,000)
Reference Measurements	(6,721,000)	(3,535,000)	(2,712,191)	-23%	(4,683,700)
Sponsorships	(3,050,000)	(1,450,000)	(120,883)	-92%	(200,000)
Training and Consulting	(6,335,000)	(3,151,450)	(3,506,946)	11%	(4,900,000)
Cylinder Rental fee	-	-	(401,200)		(550,000)
	(36,522,741)	**(18,737,350)**	**(16,278,539)**	**-13%**	**(22,690,100)**

- Overall below budget
- Calibration the only revenue stream exceeding revenue

Interest Received and other income	Approved Budget	YTD Budget	Actual	Percentage variance	Year-end Forecast
Interest received from investment	(4,000,000)	(2,997,000)	(9,211,593)	207%	(12,300,000)
Other income	-	-	(3,000)		-
	(4,000,000)	**(2,997,000)**	**(9,214,593)**	**207%**	**(12,300,000)**

- Interest generated mainly from grant received

Statement of Financial Performance – 31 December 2023

Compensation of employees	Approved Budget	YTD Budget	Current year Actual	Current year commitments	Actual plus commitments	Percentage variance	Year-end Forecast
	R	R	R	R	R	%	R
Compensation of employees	129,117,535	96,777,520	79,371,708	-	79,371,708	18%	121,180,061
Temporary employees	300,000	180,000	99,045	149,420	248,465	-38%	300,000
Compensation - Board members	700,000	350,000	376,866	-	376,866	-8%	500,000
	130,117,535	**97,307,520**	**79,847,619**	**149,420**	**79,997,039**	**18%**	**121,980,061**

- Filling of critical vacancies only

Operating Expenditure	Approved Budget	YTD Budget	Current year Actual	Current year commitments	Actual plus commitments	Percentage variance	Year-end Forecast
	R	R	R	R	R	%	R
Administrative expenses	10,098,788	7,355,213	3,448,810	826,618	4,275,428	42%	7,036,599
Audit cost: External	800,000	800,000	747,473	-	747,473	7%	747,473
Calibration expenses	1,097,194	622,594	35,867	-	35,867	94%	497,194
Catering, events and meetings	698,850	318,850	240,625	18,558	259,183	19%	488,850
Chemical, Gas and Lab consumables	6,143,092	4,321,092	2,373,917	1,628,055	4,001,971	7%	4,593,092
Communication - Land Line	342,000	256,500	47,125	-	47,125	82%	92,000
Consultants: Business and advisory services	2,392,478	192,478	526,956	476,457	1,003,413	-421%	1,392,478
Consultants: Legal costs	627,526	627,526	643,103	7,475	650,578	-4%	950,000
Consumable: Stationery, printing and office supplies	1,191,130	678,630	539,279	-	539,279	21%	891,130
IT Costs - Maintenance	11,346,000	2,757,000	10,608,014	523,031	11,131,045	-304%	11,346,000
Marketing and Adverting	1,472,950	872,950	282,744	104,902	387,645	56%	1,392,950
Operating leases - Leasehold	26,014,200	19,507,500	24,009,073	2,060,030	26,069,103	-34%	30,071,990
Repairs and maintenance	9,101,048	4,975,739	3,300,367	2,586,943	5,887,310	-18%	7,101,048
Technical components	1,991,756	923,656	657,074	47,481	704,555	24%	992,756
Training and development	1,800,279	1,312,279	722,107	160,383	882,490	33%	1,300,279
Travel and subsistence - International	3,648,915	2,375,415	2,143,783	-	2,143,783	10%	2,048,915
Travel and subsistence - Local	1,300,000	874,000	325,968	-	325,968	63%	800,000
	80,066,206	**48,771,422**	**50,652,287**	**8,439,930**	**59,092,217**	**-21%**	**71,742,754**

- Forecasted to be within the budget by year-end
- Rental and IT costs remain the significant operating cost contributor

- Note: Budget still to be adjusted in line with the reduction of the grant

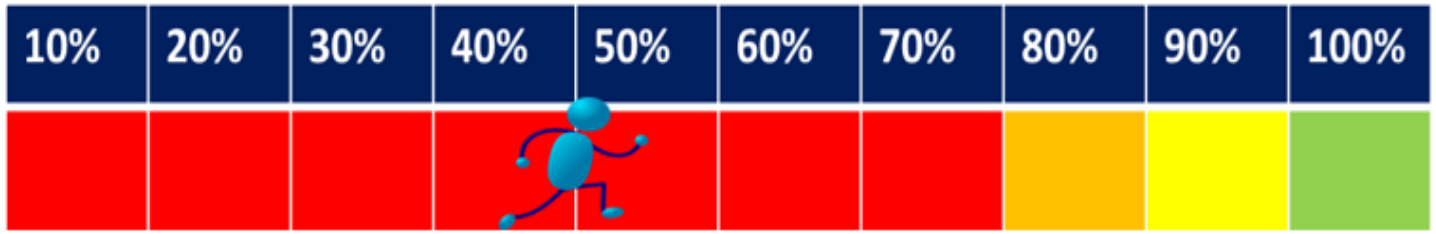
Statement of Financial Position – 31 December 2023

STATEMENT OF FINANCIAL POSITION	Q1 June 2023	Q2 September 2023	Q3 December 2023
Current Assets	**130 948 594**	**262 141 456**	**158 194 623**
Receivables from exchange transactions	8 208 233	4 014 036	6 012 215
Invetories	9 005 538	8 977 749	9 149 116
Prepayments	24 656 525	27 767 954	24 810 182
Cash and cash equivalent	89 078 298	221 381 716	118 223 110
Non-Current Assets	**549 114 468**	**542 076 355**	**531 193 591**
Property, plant and equipment	538 382 159	537 603 417	525 658 638
Intangible assets	1 218 852	1 441 126	2 503 141
Prepayments	6 481 645	-	-
Rental deposits	3 031 812	3 031 812	3 031 812
Total Assets	**680 063 062**	**804 217 811**	**689 388 214**
Net Assets	**662 230 146**	**786 845 254**	**676 121 099**
Accumulated surplus	662 230 146	786 845 254	676 121 099
Current Liabilities	**17 832 916**	**17 372 557**	**13 267 115**
Payables from exchange transactions	17 832 916	17 372 557	13 267 115
Total Net Assets and Liabilities	**680 063 062**	**804 217 811**	**689 388 214**

- Overall increase in total assets driven by increase in cash and cash equivalent
- Decline in receivable indicating improvement in collections
- Decline in payables reflecting the improvement in paying of suppliers
- Limited investment in PPE during the period under review

Contribution to the dtic group output targets

The dtic output targets for Q1



Dtic output targets (Yearly targets)

9 output targets (11 KPIs)

YTD

- 6 KPIs Not achieved
- 4 KPIs Achieved
- 1 KPI overachieved

The dtic output targets Q3 (1)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
Investment						
Two new SEZs designated and support work with provinces related to industrial parks	Collaboration firms within SEZs for the provision of measurement services	Number of new SOEs and/or companies within SEZs serviced by NMISA *(included in NMISA KPI 7)*	New KPI	At least 1 new service agreement with a SOE/firm within a SEZ	**5**	1. Contract: Openserve/Telkom – NMISA; signed December 2023 2. SLA: NMISA – RTMC; currently at RTMC to comment on one last proposal 3. RFQ/Tender – 5-year period: NMISA – NRF/SAEON; awarded November 2023 4. RFQ/Tender – 1 year period: NMISA – NRF/iThemba Labs; awarded October 2023 5. RFQ/Tender – 3-year period: NMISA – NRF/SAEON; awarded October 2023
Industrial Production						
R40 milliard additional local industrial output committed or achieved R40 milliard additional local industrial output	Creating awareness of NMISA's products and services in support of quality assurance in the manufacturing, mining, and related industries, to	Increased visibility of NMISA through awareness campaigns and marketing activities aimed at the manufacturing, mining and related industries.	New KPI	At least 1 stakeholder engagement and 1 article published for the manufacturing, mining, or related industries	**2**	NMISA featured two articles related to Metrology in Manufacturing: - The Importance of Metrology in Manufacturing in Engineer IT (article) (Link) - The importance of Metrology in manufacturing (panel discussion) (Link)

The dtic output targets Q3 (2)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
committed or achieved	increase uptake	*(Included in NMISA KPI 5)*			Stakeholder engagement (WL and Clive) from Christelle	
Export and Trade						
1 Implementation of the AfCFTA	Support the implementation of the AfCFTA agreement through active participation in the activities of regional metrology bodies	Number of interlaboratory comparisons (ILCs) and PTS organised and completed within AFRIMETS. *(Included in NMISA KPI 15)*	New KPI	2	**2**	New PT scheme for aflatoxins in peanut butter slurry
Industrial Support						
R8 milliard support programmes for SMMEs, and women and youth-empowered businesses	Develop a support programme specifically for SMMEs	Number of SMMEs trained or supported by measurement services offered by NMISA	New KPI – SMME	10	3	Essential oil testing Mycotoxins in peanut butter slurry Mass Metrology Course (Malben Engineering) Malben Mass Course.jpg

The dtic output targets Q3 (3)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
R15 milliard support programmes to enterprises outside the 5 main metros	Extend the reach of the national measurement system to increase support to districts outside the 5 main metros	Number of outreach activities undertaken to further extend measurement services to districts outside the main metros	New KPI	4 outreach activities concluded	1	NACA conference in Limpopo (included interaction with local municipalities)
Jobs						
100 000 new jobs created through interventions: a. 50 000 job opportunities (not permanent) b. 50 000 full-time permanent jobs	Internal job opportunities created by NMISA through its Internship Programme	a. Number of non-permanent jobs created for the year *(NMISA KPI 1)*	34 interns hosted	25 interns hosted	19	Including the interns that resigned during the period.

The dtic output targets Q3 (4)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
Energy						
Expedited regulatory amendments and flexibility to promote energy efficiency	Supporting energy efficiency standards and/or regulations for lighting products through testing services for LED lighting sources	Number of stakeholder engagements and publications to improve awareness and uptake of new measurement services for LED sources offered by NMISA	New KPI	At least 1 stakeholder engagement on energy efficiency hosted by NMISA	1	NMISA engaged with the SAPVIA - The South African Photovoltaic Industry Association. The two entities are in the process of entering into a MOU to formalise collaboration.
Green Economy Targets						
1 Finalisation of green hydrogen commercialisation framework	Support the green hydrogen strategy plan for SA with internationally recognised measurement traceability	Progress reports on a research and development plan for new measurement standards and/or methods for green hydrogen gas and related products	New KPI	Report on a feasibility study on metrology services for green hydrogen	(1 by end Q4)	Progress report in Q3: NMISA formed part of the team sponsored by GIZ German Cooperation to visit Germany on a green hydrogen scoping study in November 2023. This included site visits and engagements with German industries on the implementation of green hydrogen, production, safe transport and storage; development of standards for hydrogen.

The dtic output targets Q3 (5)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
Stakeholder Engagement and Impacts						
5 Conference summits and international forums hosted	Participate in the international committees established to enact the Metre Convention Treaty to link the national and regional measurement system internationally	Number of memberships maintained and active participation in the CIPM and Consultative Committees	New KPI	10	10	NMISA participated in meetings of the following international committees: - CCL WG Nano scale - CCM WG Kibble Balance - CIE Quadrennial Session General Assembly and Board Meetings - CC AUV - AFRIMETS General Assembly meetings -PAQI
1000 Case studies of firms, workers, entrepreneurs, professionals, or communities impacted by the dtic measures: including 12 local films/documentaries telling the SA story	Case studies of stakeholders impacted by products or services delivered by NMISA	Number of case studies concluded	New KPI	20	9	2 case studies completed in Q1, 6 case studies in Q2 1 reported in Q3

The dtic output targets Q3 (6)

DTIC Outcome	NMISA Output	Output Indicator	Baseline	Annual Target 2023/24	Year to date	Comments
Red Tape and State Capability Targets						
10 High-impact measures to reduce red tape or improve turn-around times in the administration of incentives and work of agencies	Digitalisation of operational processes and customer service management	Number of digital solutions for business systems and/or technical projects implemented to increase operational efficiency and improve client experiences	New KPI	Implement a digital solution for technical projects	2	Improved **customer management service** process by leveraging digital technologies and digitised data using a customer portal. **2**. Introduced QR codes on the certificates.

Summary of ***the dtic*** output targets for Q3

64 % achievement of the dtic output targets

9 output targets (11 KPIs)
YTD

- 4 KPIs Not achieved
- 4 KPIs Achieved
- 2 KPI overachieved

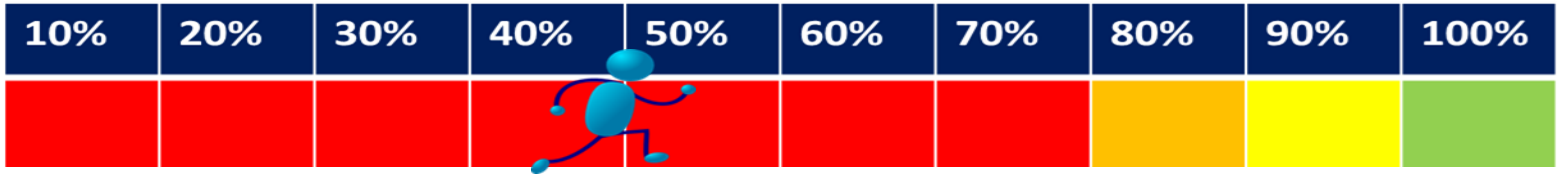
- 3 targets will be met at the end of Q4, HR target will not be met,
- Expecting 91 % achievement

DTIC output targets Not Achieved for Q3

Stakeholder Engagements & Impact - Number of Case Studies Concluded

Jobs - Number of Interns hosted

Industrial Support - Number of SMMEs trained or supported by measurement services offered by NMISA

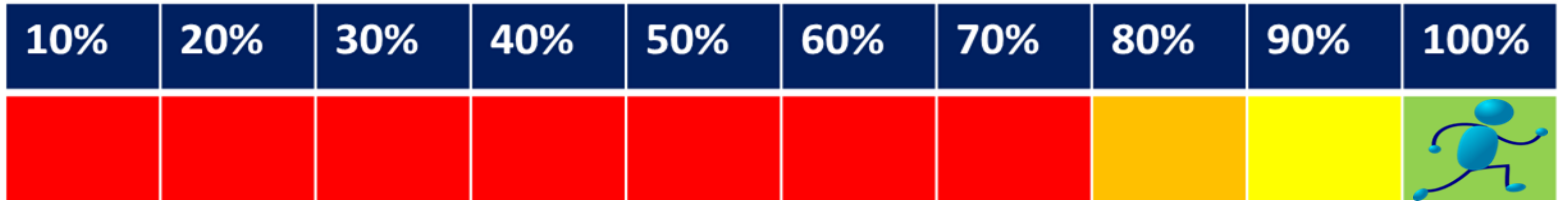


Industrial Support – Number of Outreach Activities undertaken

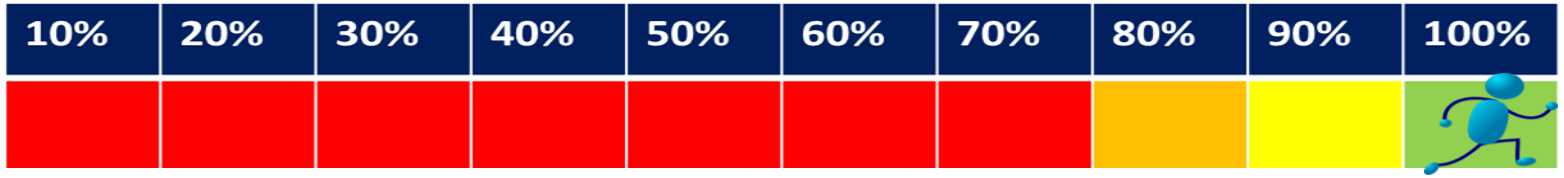
DTIC output targets Achieved for Q3

Energy– Number of engagements and publications to increase awareness

Green Economy – Report on feasibility study on Metrology services for green hydrogen



Stakeholder engagements & Impacts – Number of memberships maintained



Red tape and Capability Targets– Number of digital solutions for business systems

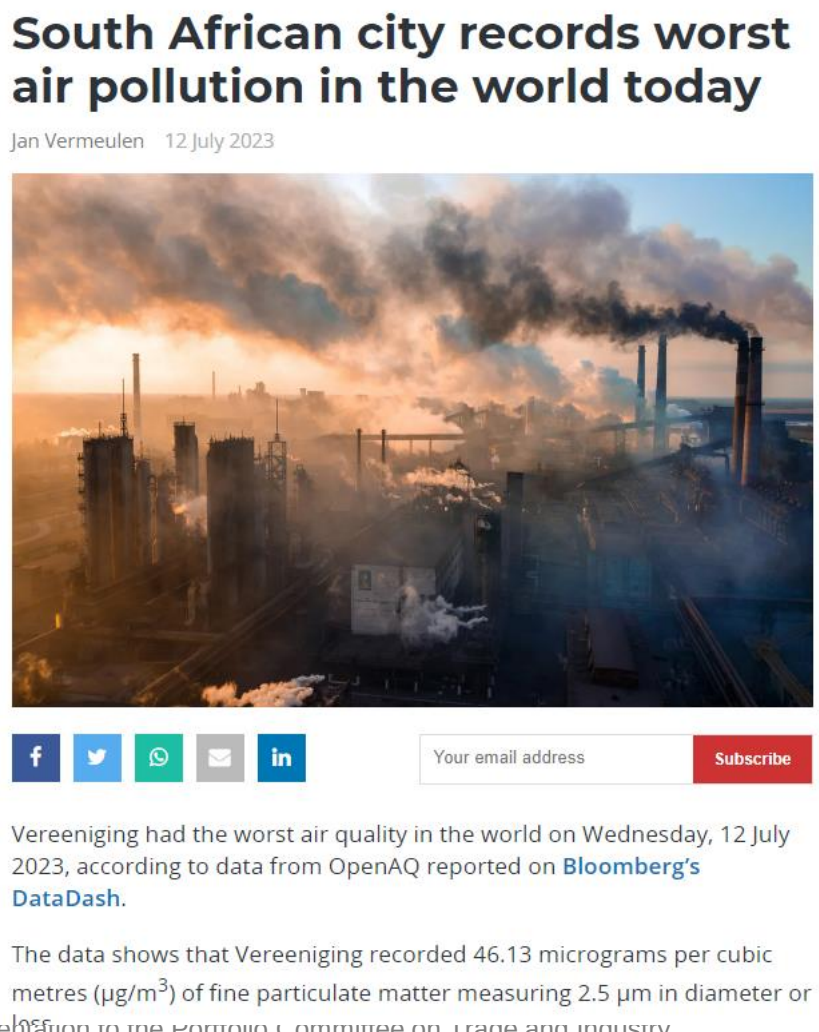
DTIC output targets Overachieved for Q3

Investment - Number of new SOEs and/or companies within SEZs serviced by NMISA

Industrial production – Increased visibility of NMISA through Awareness campaigns

Customer Case Studies Q1, Q2 and Q3

Air Quality Monitoring



South African city records worst air pollution in the world today

Jan Vermeulen 12 July 2023

Your email address Subscribe

Vereeniging had the worst air quality in the world on Wednesday, 12 July 2023, according to data from OpenAQ reported on Bloomberg's DataDash.

The data shows that Vereeniging recorded 46.13 micrograms per cubic metres ($\mu g/m^3$) of fine particulate matter measuring 2.5 µm in diameter or less

Air Quality services

- Capabilities to assist air pollution stakeholders with ensuring clean air
- Capabilities to provide public confidence in gas emissions
- Capabilities to assist with citizens' rights to clean air
- NMISA produces air quality reference material, they are used for calibrating air quality measuring equipment.

Climate Monitoring through Primary Reference Gas Mixtures

NMISA enabling Climate Monitoring through its Primary Reference Gas Mixtures

C&M Consulting Engineers

Pretoria

C&M Consulting Engineers is a laboratory established in 1988 in South Africa, specialising in the calibration of atmospheric emission monitoring instruments and providing air pollution monitoring services.

One of their key responsibilities is reporting emission data to the South African Air Quality Information System for both private and public-owned air quality stations.

Compliance with national and global emission monitoring standards requires the use of primary reference gas mixtures (PRGMs) to ensure accurate and comparable measurement results. Importing the PRGMs from overseas pose significant challenges for small and medium-sized enterprises (SMMEs), in terms of cost and timeframes, and since shipping can take up to 6 months by sea, the validity period in which the PRGM can be used is affected.

To address these challenges, C&M Consulting Engineers has been utilising primary reference gas mixtures (PRGMs) from the National Metrology Institute of South Africa (NMISA) for the past 20 years. By calibrating their instrumentation with traceable NMISA PRGMs, the laboratory ensures the generation of reliable and accurate emission monitoring data.

C&M Consulting Engineers performs approximately 450 to 500 calibrations annually, supporting over 80 air quality stations throughout South Africa. The use of NMISA PRGMs enables these stations to comply with minimum emission standards and facilitates the comparison of pollution levels across the country by anchoring the results to the National Measurement Standard. This standardized approach enhances the accuracy and reliability of emission data, facilitating informed decision-making and effective pollution control strategies.

Support in terms of Partnerships, Quality of Life, and Green Economy through:

- accurate emission monitoring supports the dtic strategy of developing **partnerships** between government and private entities that are mutually beneficial to South African citizens
- contribution to dtic outcome on industrialisation through **green economy** initiatives that promote economic growth with consideration for the protection of the environment and reducing atmospheric emissions, and
- ultimately contributing to the **quality of life** for all South African citizens by providing cleaner air for all.

As per Riaan Kruger, Director at C&M Consulting Engineers: *"We chose to use NMISA above other local suppliers and even international imports as we believe in the service and quality provided by NMISA and focused on building our longstanding relationship with NMISA as a core supplier."*

Photo 1: Calibration of atmospheric monitoring instruments at C&M Consulting using NMISA PRGMs.

Essential Oils – supporting SMMEs

Essential Oils | NMISA gets international accreditation

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- NMISA accreditation provides exciting news for the South African Essential Oils Industry
- Now Essential Oils from South Africa can be tested locally and exported globally
- Contribution to job creation and improved GDP
- All essential oils should be tested at NMISA

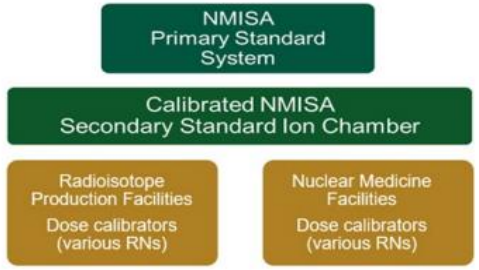
Support for NECSA and NTP

Accurate Activity Assessment of Radioisotopes for NTP Radioisotopes Enabling Export of Calibrated Lifesaving Radiopharmaceuticals to International Nuclear Medicine facilities.

NTP Radioisotopes SOC Ltd

Together with its global partners, NTP Radioisotopes supplies up to a third of the world's supply of lifesaving medical radioisotope Molybdenum-99 (Mo-99). Mo-99 is used as an easily transportable form of its natural decay product, Technetium-99m, which is the most widely used medical imaging radioisotope. Iodine-131 (I-131) is a radioactive isotope of iodine that is used in nuclear medicine procedures to diagnose and treat conditions of the thyroid, including hyperthyroidism and thyroid cancer.

The NMISA Radioactivity Standards laboratory is a primary standards laboratory, which provides measurement traceability to NTP Radioisotopes for radionuclides used in nuclear medicine. During 2022-2023, NMISA calibrated various Mo-99 solutions and I-131 therapy capsules for NTP Radioisotopes. These calibrated radionuclides were used as reference standards to perform the calibration of five radioactivity calibrators (well-type gas-filled ionisation chamber instruments) at the NTP Radioisotopes production facility.



The calibrated radioactivity calibrators at NTP were used to assay the activity of radioisotopes produced and supplied to nuclear medicine facilities in South Africa and sold to international nuclear medicine facilities or companies. The calibration of radioactivity calibrators at radioisotope producers (such as NTP Radioisotopes) and nuclear medicine facilities are essential to ensure that the correct and accurate amount of radioactivity is administered to patients undergoing cancer treatment or diagnostic procedures. Thus, the impact of radionuclide metrology is applicable to patients undergoing nuclear medicine procedures globally.

As per Mr Makwetja Moloisi, Production Manager at NTP Radioisotopes: *"The results from NMISA have an impact on quality assurance on our products in ensuring that our equipment is reading accurately, and this translate to all our customers by also ensuring they measure within our set standards."*

Photo 1: The calibrated NMISA secondary standard ionization chamber which was used to perform calibrations of various radionuclides for NTP Radioisotopes and nuclear medicine facilities.

Training to Ghana Standards Authority in Temperature Metrology

Practical Training by NMISA to the Ghana Standards Authority in the Field of Temperature Metrology

Ghana Standards Authority:
Ghana

The Ghana Standards Authority aimed to enhance its metrology capabilities by addressing specific objectives. These included the need to attain a comprehensive understanding of the Water Triple Point (reference temperature), refine their expertise in managing uncertainties, particularly in relation to the international (BIPM KCDB) databases, and actively engage in regional metrology initiatives. Furthermore, they sought to gain proficiency in calibrating thermocouples within the temperature range of 1200°C to 1500°C.

The organisation approached NMISA to assist with hands-on training and after three months spent at the NMISA, they are reporting a significant impact in the accuracy of their measurements and an improvement in the quality system. The Trainee credits the success of his attachment to the experienced personnel at the NMISA who explained concepts related to thermometry calibration in depth and helped him to understand areas where adjustments are required.

In addition, the Ghana Standards Authority has witnessed an increase in productivity due to the incorporation of automated systems. streamlining the data analysis processes, resulting in more efficient operations and improved accuracy in achieving desired outcomes. The gains in overall system efficiency, enable improved service delivery to clients.

Training on the calibration of fixed points, and the identification, calculation, and application of uncertainties in respect of BIPM KCDB databases, is still ongoing and should be completed soon. As per Mr Odoom, Senior Scientific Officer at the Ghana Standards Authority and recipient of the training: *"The conducive learning environment and well-equipped systems make NMISA an excellent choice for anyone seeking metrology services."*

Photo 1: Mr Odoom during the Training process

NMISA assists SMME to set up an accredited calibration laboratory

The Dosimetry Standards laboratory at NMISA assisted *Bruin Ou Engineering Consultants Pty Ltd* with the expertise required to set up a calibration laboratory to the required level for accreditation. NMISA provided the following service to the customer:

- Technical training in ionising radiation metrology to meet the minimum requirements for technical competence.
- Hands-on training that included aspects within the laboratory such as documenting, reporting, analysing and validation of data.
- Full beam characterisation and beam measurement output calibration for his laboratory, thus providing the customer with direct measurement traceability.
- Consultation on key accreditation requirements, which has been invaluable to the customer in setting up his laboratory to comply with ISO/IEC 17025:2017.

Mr Freddie Arendse with his laboratory's SANAS ISO/IEC 17025:2017 Certificate of Accreditation for Ionizing Radiation Metrology Calibrations.

Mr Freddie Arendse, company owner, commended NMISA for its excellent service delivery and capabilities. He stated, *"I managed to build a fully automated bench. NMISA again was critical to the commissioning of my calibration bench as they were able to utilise their equipment to firstly provide me with a traceable output and spent weeks mapping out my gamma beam profiles. Without them my self-built calibration bench would not be accepted within the industry. My needs were not only met but exceeded. NMISA support and influence is why Bruin Ou Engineering Consultants Pty Ltd is a certified SANAS accredited Ionizing radiation laboratory. NMISA is more than just a service provider to me. I lean on them for advice and clarity in all matters related to the product and service I offer. They are my partner and very critical to my ongoing success.*

Due to my background within the non-destructive testing space and understanding of the operational requirements, I am now able to service the industry faster. Thus, clients are able to not only work more efficiently but safer, as well knowing the devices are calibrated to the highest standards recognised worldwide."

NMISA's Integral Role in Advancing the Square Kilometers Array Observatory (SKAO)

The Square Kilometer Array Observatory (SKAO)

The emergence of the Square Kilometer Array Observatory (SKAO) marks a significant milestone in the realm of radio astronomy. Established as an Intergovernmental Organisation and head-quartered at Jodrell Bank in the UK, the SKAO, founded in 2021, currently boasts nine member countries, including South Africa. This collective effort is spearheading the global initiative to conceive and construct the SKA telescope, a next-generation research infrastructure (RI) that stands as the pinnacle of radio telescopic innovation.

The SKA telescope, with its dual host locations in Southern Africa and Australia, presents a monumental undertaking. The African continent will be home to thousands of meticulously crafted dishes, concentrated primarily in South Africa, while Western Australia will house hundreds of thousands of aperture arrays. This ambitious design arises from the necessity to harness the immense power of a multitude of antennas working harmoniously, culminating in the SKA's distinction as a revolutionary radio astronomy-driven Big Data facility.

Within this intricate ecosystem, the South African-based facet of the SKA telescope, designated as SKA MID will seamlessly integrate with the existing MeerKAT radio telescope, situated in the vicinity of Carnarvon in the Karoo region. MeerKAT, conceived as a precursor to the SKA, plays an essential role in this evolutionary leap. This amalgamation will comprise a colossal array of nearly 200 dishes, establishing itself as the largest radio astronomy research infrastructure platform worldwide. In this pursuit, the National Metrology Institute of South Africa (NMISA) operates as a pivotal contributor. The Institute played a vital part in the development of MeerKAT's dish hardware as part of the research and consulting team concerning Measurement Traceability and provided Time and Frequency expertise for time reference signals required at the accuracy needed.

NMISA's collaboration includes technical cooperation discussions, and the Institute is currently in consultation with SKAO on future collaboration efforts that include:

- Joining the SKAO's Technical Advisory Group (TAG) for time, considering that accurate time signals are at the heart of the interpretation of the radio signals received by the increased number of telescopes.
- Amplifying its contributions to the international community's initiatives, leveraging its Time and Frequency expertise.
- Providing value by drawing from the Institutes' experience with the MeerKAT project, and expertise in measurement traceability.
- Enhancing the value proposition of the Institute to the SKAO project by consistently investigating new opportunities as the project evolves.

These endeavors resonate with the strategic objectives of ***the dtic*** in support of the Aerospace and Defense Masterplan, aligning with the SKAO International Treaty, and is a testament to the NMISA's commitment to cutting-edge research and innovation as part of their support to Industry.

As per Dr Romeo Gamatham, Research Scientist - Time and Frequency Systems at the South African Radio Astronomy Observatory (SARAO): *"NMISA is a key strategic partner which provides high precision calibration services and quality time data products. Factoring in the precision time correction values from NMISA leads to accurate time traceability of the MeerKAT radio telescope enabling world-class science in the field of Pulsar timing observations."*

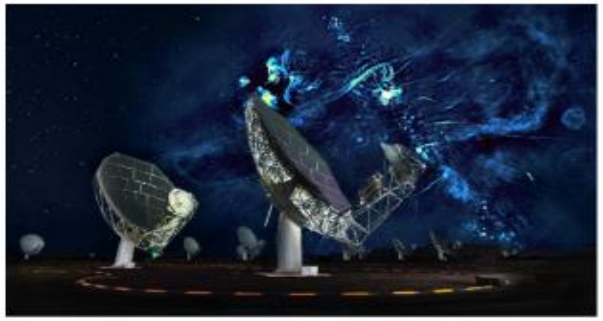


Image 1: The core of the MeerKAT array telescope, in the Northern Cape province of South Africa, with a radio image of the Milky Way showing the previously unknown 'MeerKAT bubbles' (from top right towards lower left) surrounding the black hole at the centre of our galaxy. Credit: SARAO, I Heywood (Oxford), S Dagnello (NRAO/AUI/NSF).

NMISA Contributing to Capacity Building on the Continent

Malawi Bureau of Standards (MBS)
Malawi

The Malawi Bureau of Standards (MBS) is responsible for promoting Standardisation, Quality Assurance, and Metrology in Malawi. Metrology activities are enforced through the Metrology Act (No. 10 of 2016) which prescribe the use of instrument, weights, and measures in the commercial and industrial sector of the economy to ensure traceability to international standards through calibration and verification activities. MBS intends to increase its accreditation scope to include calibration of volume measures to support mainly the medical and pharmaceutical industries.

Through its Africa Reference Institute, NMISA provided hands-on, laboratory-based training to MBS personnel in volume measurements at their laboratories in Blantyre. The training provided both theoretical and practical experience to allow participants to improve their technical skills and to learn by doing, to enhance their understanding through the application of the knowledge in their own laboratory situation.

This helped to further expand participants' knowledge related to volume measurements. As per Mr Ronald Makhole, the Metrology Officer responsible for the volume laboratory:" This *was an eye opener, we were struggling to validate our processes, with this training I think we are now ready for accreditation*". Accreditation provides laboratory recognition of technical competence for specific measurements based on third-party assessment and following international standards.

Collaboration between the institutes that form part of each African country's national quality infrastructure, enhances harmonisation of standardisation, metrology, accreditation and conformity assessment activities and services on the continent. Ultimately it strengthens the African quality infrastructure, which is an essential enabler of inter-continental trade under the African Continental Free Trade Area.

Photo 1: Theoretical training and classroom discussions

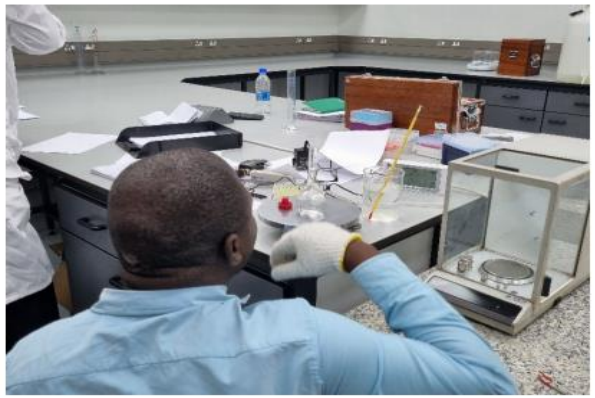


Photo 2: Mr Lottie Katungwe - Setting a meniscus on a flask.

Photo 3: Calibration of a Flask. (left to right) Malimbano Banda, Lottie Katungwe, Claims Chiyembekezo and Macwilliams Nkhoma

NMISA contributes to a Unified Food Safety System in Africa

Tanzania Bureau of Standards (TBS)
Tanzania

NMISA is conducting Training Sessions for delegates from the Tanzania Bureau of Standards (TBS), under the United Nations Industrial Development Organisation (UNIDO) QUALITAN project.

The main objective of this training is to:

- Improve the skills and competence of technical staff working in the testing laboratories of TBS.
- Strengthen the existing Food Chemistry testing facilities.
- Extend the scope of accreditation.
- Increase understanding of International Standard Operating Procedures.
- Improve the testing accuracy and precision.
- Increase understanding of the estimation of measurement uncertainty in Food Chemistry.

This training supports the dtic strategy in terms of African-led trade and investment through the AfCFTA:

- The trade between South Africa and Tanzania involves several food commodities and contributes to the development of a unified and effective food safety system within the AfCFTA.
- While most of the food products are exports that originate from South Africa, it is important that inspection on the Tanzanian side is supported by reliable measurements.
- These kinds of training initiatives promote collaboration and knowledge exchange among African countries. It allows experts and scientists from NMISA to share best practices, techniques, and research findings.
- This collective learning strengthens the overall capacity of the region in terms of food safety and encourages a harmonised approach to testing methods.

Photo 1 (left to right): Habakuki Kalebo Stephano (TBS); Nontete Nhlapo (NMISA) and Frank Mpipi Tenganiza (TBS)

Achieving operational efficiency and cost reduction for Namibia Geotechnical Industry Solutions (NGIS)

Namibia Geotechnical Industry Solutions (NGIS), Namibia

Namibia Geotechnical Industry Solutions (NGIS) is a Small and Medium Enterprise operating in Namibia.

NGIS sought expert assistance to identify and address the detrimental effects of oxidants on their plant solvent, specifically the breakdown of alamine 336.

NMISA conducted comprehensive tests and analyses to trace the breakdown components of the plant solvent and successfully identified the presence of specific substances and their impact on the processing plant. This valuable insight enabled NGIS to implement targeted solutions and effectively mitigate the challenges they were facing.

As per Mr Wenzel Gaeseb, Managing Director of NGIS: *"The quality of work and the knowledge of the staff on instruments are not only outstanding but ground-breaking in that the services helped us to navigate towards becoming a knowledge-based and informed society."*

Economic Impact:

The understanding garnered from the tests NMISA conducted alleviated the solvent degradation problem which in turn:

- has the potential to reduce the capital and the operating cost of the processing plant circuit by 35 %,
- improve the extraction efficiency and therefore the profitability of the operation.

Photo 1: Samples from plant solvent

Photo 2: Liquid-liquid extraction process of the samples

PET Labs for Q3

Enhancing Radiopharmaceutical Quality

Background on the company

PET Labs is a South African radiopharmaceutical operations company, dedicated to nuclear medicine and the science of radiopharmaceutical production. PET Labs houses a commercial radiopharmaceutical manufacturing and distribution centre.

Funding/support provided

The company does not have the means to perform radionuclidic purity analysis as per compendial methods. NMISA was able to provide the required periodic radionuclidic purity analysis to determine the presence of long-lived radionuclidic impurities using its high-purity lithium-germanium detector.

Impact of the support/funding provided

The products from PET Labs are administered to patients, and therefore subject to regulatory requirements concerning Good Manufacturing Practice (GMP) principles. These principles include Quality Assurance (QA), and the analysis by NMISA proves that the products scientifically adhere to the required international standard and are therefore safe for patients. In addition, should PET Labs be subject to a regulatory inspection, the internal validation report will be backed up by the NMISAs analysis, and will serve as evidence regarding the quality of the PET Lab products and processes.

Comments by owner/Employee(s)

NMISA provides access to a high purity germanium detector which is otherwise not readily available. In addition, NMISA was helpful and accommodating considering the logistical challenges inherent to short-lived radioisotope products.

SMME

- Dr Gerdus Kemp
- Gauteng
- 12 jobs supported
- Self-funded

Gamma-ray spectrometry system comprised of a HPGe detector inside a lead shield, cooled with liquid nitrogen. The detector is used for radioanalysis of various samples and is operated through a digital signal analyser with software on a computer.

Only one Case Study was submitted in Q3.

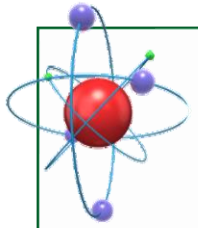
There are several Case Studies currently in draft which will be finalised and submitted in Q4.

Some were ready for submission but required rework when the format was adjusted.

Operational Summary

Africa Reference Institute (ARI)

- Training Centre
- Industry Metrology Laboratory
- Reference Measurement Laboratory
- Production of Standards & Reference Materials
- Support & Systems Development Centre

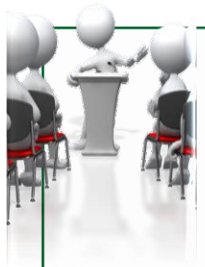


NMISA has invested extensively in the Scientific Metrology fundamentals

NMISA's strategy is focusing more on streamlining the applied metrology impact of its products and services

Hence the establishment of an Institute, comprising specialised *Centres* that will focus nationally and regionally (a gateway) – into Africa and beyond

The Institute will support production and promote the dissemination of quality assurance tools and services through its PDC



Training in best practices and enhancing the fundamentals of metrology and the sciences will be a key focus (TC)

The reference measurement and Industry calibration laboratories will provide services aligned with business development opportunities (RML and IML)

ARI – Applied Sector Focus (supporting industry)

8 – Law Enforcement

Forensic Metrology and Road Safety

1 - Materials Science & Services

Surface and structure, Solid State, Advanced Materials and PSD, Materials Property Testing and Manufacturing Competitiveness

7 – Digital Economy

Standard Frequencies and Time Signals, Telecommunication Metrology

2 – Agriculture, Food and environmental monitoring

Agricultural Production and Processing, Food and Feed Safety and Labeling, Environmental monitoring and Waste Management, Pharmaceuticals and Cosmetics, Earth Observation

6 – Energy efficiency

Energy Efficient Lighting, Liquid Natural Gas, Renewable Energy, Smart Grid Technology

3 – Health and Safety

Medical Instruments; Air, Surface and Water disinfection, Medical Gases, Laboratory Medicine and Health Care, Radiation Safety

5 – Training

Short Courses, Programmes, Consultancy and Strategic Liaisons

4 – Conformity Assessment Support

Proficiency Testing schemes, Reference Materials and Standards Production, Production and High Technology Centre

As ***the dtic*** identifies new sectors, the programmes, and related projects will adapt

R&D Thematic programmes: underpinning the Applied sector focus

Revision of the SI	• Shortening of the traceability chain for Africa (Core Metrology-Primary realization)
Green Economies	• Environmental monitoring, alternative energies, climate change, waste management, mining, maritime environmental issues, etc.
Advanced Manufacturing	• Accurate dimensional measurement, tool evaluation, additive manufacturing, Materials Science, Nanotechnology, etc.
Reference Material Programme	• African Food and Feed certified reference materials, laboratory control samples, PT schemes; RMPF
Quality of Life	• Traceability brachytherapy, dosimetry, medical devices calibration, law enforcement, etc.
Energy Efficiency	• Energy saving technologies (supporting energy efficient lighting, electrical appliances, smart grids, etc.)
Advanced Measurement Solutions	• Time Reference Measurement solutions, digital economies, Quantum technology, and Telecommunications (4IR)
Commercial Services	• Applied Metrology Focus areas, Conformity Assessment, Regional/ International Integration, Training and Consultation services, ARI-RML, IML, PDC, etc.

Building towards a client-centric NMISA

Sector Focus

- AfCFTA
- Agriculture and Food Safety
- Climate Change
- Environmental Monitoring
- Waste Management
- Radiation
- Digital Economy
- Health & Safety
- Energy Efficiency
- Manufacturing competitiveness
- Mining, etc

Our Clients

Where should we position ourselves?

What is our Mandate: Client strategy?

What are our Objectives and Key Results?

Do we understand our Clients?

Feature article

ECONOMY / IMPORTS AND EXPORTS

AfCTFA set to boost chemical and cosmetic exports

12 Oct 2023 - by Staff reporter

"It is estimated that the AfCFTA has a potential to boost intra-Africa trade by 52.3% by eliminating import duties and to double this trade if non-tariff barriers are reduced. Access to African markets through the AfCFTA is expected to expand the size of Africa's economy to US$29 trillion by 2050. This offers huge opportunities for the cosmetic sector," Jackison said.

Senior Manager of Analytical and Material Sciences at the National Metrology Institute of South Africa (NMISA), Dr Maria Fernandes-Whaley, said the institute's efforts in the essential oils industry offered tangible benefits to South African businesses in the chemicals, cosmetics and related sectors.

"The recent launch of the first accredited testing service for essential oils in Southern Africa by NMISA holds tremendous promise for not only the essential oils industry but also for various sectors, including chemicals and cosmetics, under the AfCFTA," Fernandes-Whaley said.

Fernandes-Whaley said NMISA's accreditation to the international standard ISO/IEC 17025 carries significant implications for local industries, particularly those in the chemicals and cosmetics sectors.

She said a key advantages of NMISA's accredited testing service is the international recognition of test reports and certificates of analysis for essential oils.

"This recognition eliminates the need for further testing when South African companies export their products, which can be a cumbersome and costly process. As a result, producers in Southern Africa, including those in the cosmetics sector, will gain a competitive edge by enhancing the credibility and quality assurance of their products on the international market," Dr Fernandes-Whaley said.

The dtic has embarked on provincial awareness workshops which provide a platform for information sharing with the private sector and an opportunity to identify local companies with export capacity. – SAnews.gov.za

Full article available at: https://www.freightnews.co.za/article/afctfa-set-boost-chemical-and-cosmetic-exports

NMISA Training Centre

- The establishment of the NMISA Training Centre is to serve as an aggregator between government, academia, and Industry – a gateway to skills improvement and application
- Providing training in measurement science, calibration, and consultancy in those fields critical to economic growth in South Africa and our partner countries regionally
- The NMISA TC is building on the courses available from the NLA, and adding consultancy and strategic liaison in SADC and Africa
- **Vision: To be one of the leading training providers on all aspects related to measurement science on the continent**

Courses offered……..

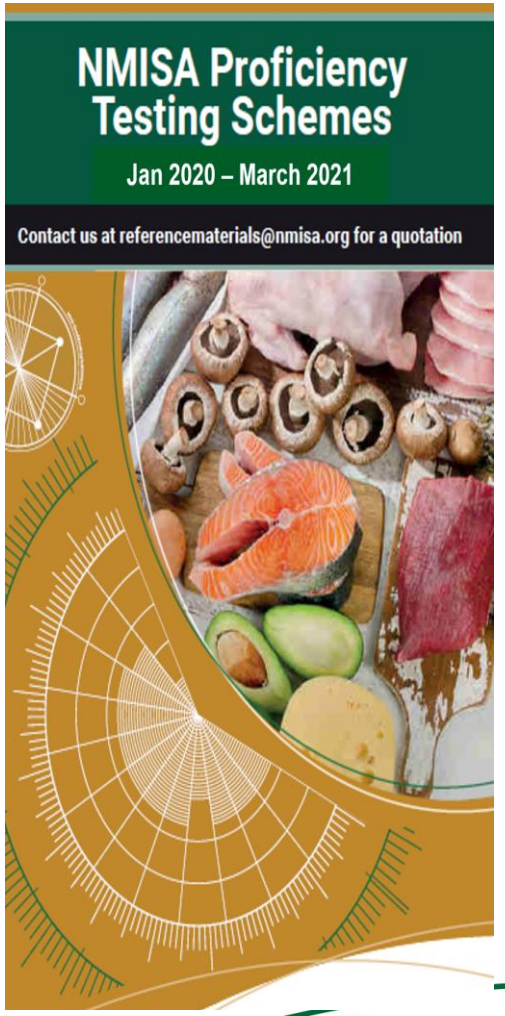
Physical Metrology
- Force Metrology
- Uncertainty of Measurement
- RF & Microwave Metrology Fundamentals

Chemical Metrology
- Introduction to Gas Chromatography
- Mycotoxin Summer School
- Toxic Elements Summer School

….and many more

Reference Material Production Centre

- Ultra-centrifugal milling
- Cutting mill, Cryomilling
- Kinematic inversion mixer
- Acoustic mixer
- Shaking Sieves
- Pilot scale freeze drier
- Controlled atmosphere automated dispensing and packaging
- Automated ampouling system
- Semi-automatic canning system
- Vacuum drying oven
- Environmental control chamber, incubators
- Fridges & freezers
  (-80°C, -20°C,+4°)



Since 2013
Additional investment has provided an independent Reference Material Production Centre

ARI Reference Measurement Laboratory

- Main objective:

  To serve as a reference measurement centre with authoritative expertise and capability in the context of the Africa Continental Free Trade Area (AfCFTA)
- Providing reference measurement solutions in those fields critical to economic growth in South Africa and the region by rendering metrology services to government and state-owned enterprises (SOEs)
- Metrology is an integral part of the regulatory environment
- NMISA is an essential measurement service provider to the industry, especially where gaps in measurement are identified
- Reference Measurement laboratories include:
  - Analytical reference measurement services
  - Surface and structure reference measurement services
  - Reference measurement services for LEDs
- Aim to support academia, industry laboratories, and government laboratories
- Working closely with the NQI in support of Conformity Assessment

ARI Industry Metrology Laboratory

- It's a **Calibration Centre** for fast throughput calibration services
- The aim is to establish a Calibration Hub for the services needed that support all sectors of industry and government regulatory frameworks, and are aligned with NMISA strategic goals
- Main focus is to disseminate accurate calibration services
- Vision: to provide cost-effective industry calibration measurement services for high volume niche applications
- Conformity Assessment Support programme:
  - Vibration calibration
  - Gas Flow calibration
  - Baseline development
  - Tape Tunnel upgrade
  - Industrial Dimensional calibration
  - ILCs and PT schemes
  - Reference Material Production Facility
- Building a dedicated IML facility (alongside the Training Centre)

Product Development Centre

- Not yet fully conceptualised (under construction)
- Support and Systems Design Centre
  - Electronics Workshop
  - Mechanical workshop
- Systems Design Group
  - Software and hardware design (2 x electronic system design engineers)
  - Includes our mechanical engineers, mechanically minded scientists & metrologists
- Production of Standards and Reference Materials
  - Reference Material Production Facility (matrix reference materials)
  - Development and production of standards
- Working closely with the PEM Mechanical and Engineering business unit
  - 3D printers (thermoplastic and metal) – additive manufacturing
  - Computed Tomography (CT) scanner (Automotive inspection)
  - Coordinate Measuring Machines (CMM)

Stakeholder Engagements

Stakeholder Engagements

Engagements with	Date	Purpose
National Laboratory Association Brunch	4 Oct 23	NMISA sponsored a table at the NLA brunch where laboratory related issues were highlighted.
Seychelles Bureau of Standards	19 Oct 23	Visit to all South African TI Institutions coordinated by the dtic
Takachiho Trading Company	30 Oct 23	Discussions on improved processes for High purity Nitric oxide (NO) gas mixtures measurements
RAPDASA 2023	30 Oct - 1 Nov 23	NMISA staff manned an exhibition stand where we displayed information about precision and expertise relevant to projects in additive manufacturing.
Banking Association of SA	3 Nov 23	Discussion about the banking industry's possible involvement in Quantum project work
Celebration Event - Essential Oils Accreditation	3 Nov 23	NMISA hosted a small, informal event for employees working in essential oil testing to celebrate the Institute's recent accreditation to ISO 17025: 2017 for essential oil testing on Friday the 3rd of November. The event was also supported by stakeholders from the **dtic**, UNIDO, SAEOPA, and SECO who supported NMISA on this journey from the initiation phases.
AGOA Summit	3 Nov 23	Engage with SA manufacturers related to AGOA to create awareness of NMISA
Industry Engagement: Force and Torque	1 Dec 23	NMISA hosted an Industry Engagement to inform our clients of the latest trends in Force & Torque Metrology, recent developments in the Laboratories, incl. new calibration capabilities, and market the industry-specific training courses being offered by the labs
RTMC Workshop – the Science behind Law Enforcement	1 Dec 23	The Road Traffic Management Corporation (RTMC) hosted a workshop aimed at educating Pretoria Traffic Officials at the Tshwane Metro Police Department Headquarters. NMISA and the NRCS presented information relating to legal metrology and the science behind measurements to assist officers in aligning with regulations from the Department of Transport and Road Traffic Management ahead of the festive season.
CSIR 4IR Group	4 Dec 23	Engagement to discuss potential collaboration within the digital economies framework.
Zambia Bureau of Standards, ZCSA, and ZMA Board Members	5 Dec 23	Visit to all South African TI Institutions coordinated by the dtic

Not direct stakeholder engagement …

Although not direct stakeholder engagement, but Industry and stakeholders are using the NMISA Training Centre, and this is an avenue for further stakeholder engagement

Name of courses/training	Section/division	Staff/bursar	Outcome
Laboratory risk management course	CMM-AMS (Gas Analysis)	Prelly Marebane	Gaining practical skills to conduct risk assessment and management.
ISO/IEC 17025:2017 Competency requirements for calibration and test laboratories	CMM-AMS (Inorganic & Organic Analysis)	Group Training 12 employees	Requirements for SANAS accreditation to the standard and for complying with NMISA TQMS
Hardware & Software (M41 and AST)	Organic Team	Group Training 4 employees	Hardware Familiarisation by a Factory trained Service Engineer. Including cleaning of source & detector, changing detector, cleaning purge valve, replacing purge valve filters and understanding tune reports. Software Training and/or Application Support by a Chemetrix Application Specialist. Advanced software training - MassHunter Qual & Quant.
Total Quality Management	SHEQ	Mehloti Ngobeni	Enhancing the TQMS implementation skills.
Contract Management	SBG	Phindile Zikhali	Plan and organise contracts for goods and service, define the scope of work, process, agreement, and management philosophy, direct and control the contract administration, negotiate contracts and terms, evaluate, negotiate and enforce service level agreements, and renegotiate and/or terminate contracts.
Introduction to Metrology	PEM	Cortney van Harte	Understanding of basic Metrology concepts.
Method Validation (Calibration)	PEM	Cortney van Harte	Requirements for confirming that the analytical procedure employed for a specific test is suitable for its intended use.
Metrology in testing labs	PEM	Edwin Mofokeng	Understanding of basic Metrology concepts for testing laboratories.
Method Validation (Calibration)	PEM	Cindy McFarlane	Requirements for confirming that the analytical procedure employed for a specific test is suitable for its intended use.
Solidworks Advanced Part Modelling and Surface Modelling	PEM	Mbuso Sibisi	Improve how to use multibody solids, sweeping and lofting features, and the more advanced shaping capabilities of Solidworks.
Solidworks Essential Plus	PEM	Mbuso Sibisi	Developing skills in sheet metal, weldments, and drawing tools.

Challenges and Concluding remarks

SWOT analysis

Strength

- As mandated by the Measurements Act, and supported by ***the dtic***, a leading NMI on the continent
- Representing South Africa and the Region internationally
- Very strong measurement capabilities, providing the necessary traceability in support of Trade and Industry

Weaknesses

- Aged laboratory Infrastructure (buildings and environmental) that needs upgrading (as part of the funding request for a new building that was not achieved)
- Difficulty in securing funding from NT
- Poor awareness by other Departments of the value of NMISA

Threats

- New developments internationally with a Revised International System of Units agreed to in November 2018 and implemented on 20 May 2019
- NMISA's ability to meet these new primary realisations to ensure that South Africa participates globally
- Losing the recapitalisation funding (after 5 years) for new Equipment; and inadequate Grant funding to realise the mandate

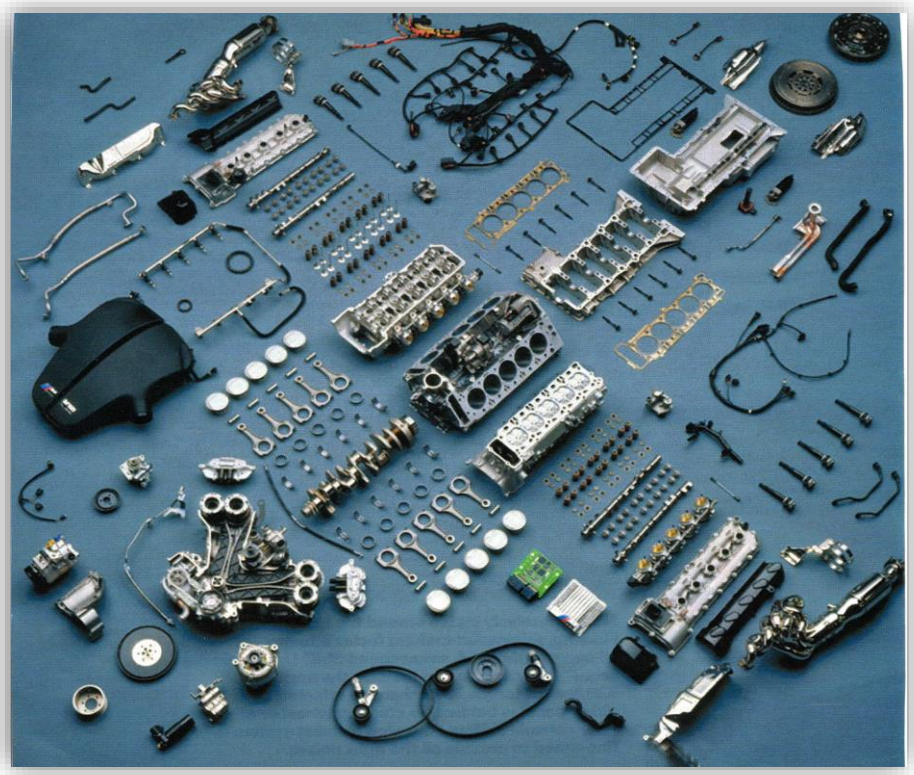
Opportunities

- Ideally positioned to provide South Africa with the measurement capabilities crucial for participation in the AfCFTA
- ideally positioned to help South Africa participate meaningfully in the fourth Industrial revolution
- Recapitalisation funding secured for 5 years, utilized to develop HCD and upgrade National Measurement Standards

Primary standards vs secondary standards

Ferrari V-10 Formula 1 racing engine

- Primary standards need to be maintained after development or procurement from another NMI that has purpose-built the Primary standard
- Although revenue focus is needed, NMISA cannot dismantle or repurpose Primary standards to provide routine measurement services
- NMISA has needed to adapt to provide alternative services, but the primary focus remains our mandate to ensure realisation to the Primary SI unit
- Keep and Maintain the National Measurements Standards for dissemination of the measurement/ calibration service to Industry
- Provide Secondary realisation as needed; and not dismantle or repurpose any NMS for routine services, unless the capability is available



An engine broken down into its component parts

Human resources (1)

Staff terminations

- Twelve employees resigned from the organisation, 58% of the resignations were from metrology functions while 42% were from support functions
- Three employees (two executives and one chief scientist) retired from the organisation
- The organisation put a moratorium on new appointments due to the budget cuts
- Only one position (a senior Manager Internal Audit) was approved for replacement to cater for governance functions

Human resources (2)

Labour matters

- Two employees were dismissed, one employee referred the matter to the CCMA and the process is still underway
- Two executives were put on precautionary suspension for a period up to four months. One executive ‘s contract ended during the year while one is still on precautionary suspension
- Two senior managers were put on precautionary suspension for more than two months. Charges were dismissed for one manager while the other manager is still on precautionary suspension
- Three employees were put on precautionary suspension and have since resumed work after the suspension was lifted
- Projected amount for the acting appointments is R922 035

Concluding remarks for Q3

- Stakeholder engagements will continue to improve
  - The roll-out of the dedicated centres (The Africa Reference Institute drive in support of AfCFTA, the Training Centre, and our Reference Materials Production Centre) will support increased support to Industry
- Case Studies
  - Clients are not always willing to provide the Testimonials requested
  - NMISA is working to address this for Q4; and acknowledge the update submission from ***the dtic***
- The financial budget cuts will constrain meeting the NMISA mandate
- High staff turnover, and filling critical roles remains a challenge
- NMISA will improve the working relationship with the NQI to improve support for Conformity Assessment in South Africa and the region through our Quality partners in SADC and PAQI

Metrology……

- Industry engages with the tip of the iceberg – what is seen, not always used or understood
- What is not visible is the amount of ‘keep and maintain’ measurement that goes on below the surface to disseminate the traceability
- This remains the core of the National Metrology Institute - ensuring and enabling trade for South Africa

nmisa

National Metrology Institute of South Africa

Thank You

We measure what matters