

APP and Budget 2024/25

Briefing by the Technical Infrastructure Institutions on their annual performance plans and budgets

The Portfolio Committee on Trade, Industry and Competition

Dr Precious Motshwene, NMISA Board Chairperson

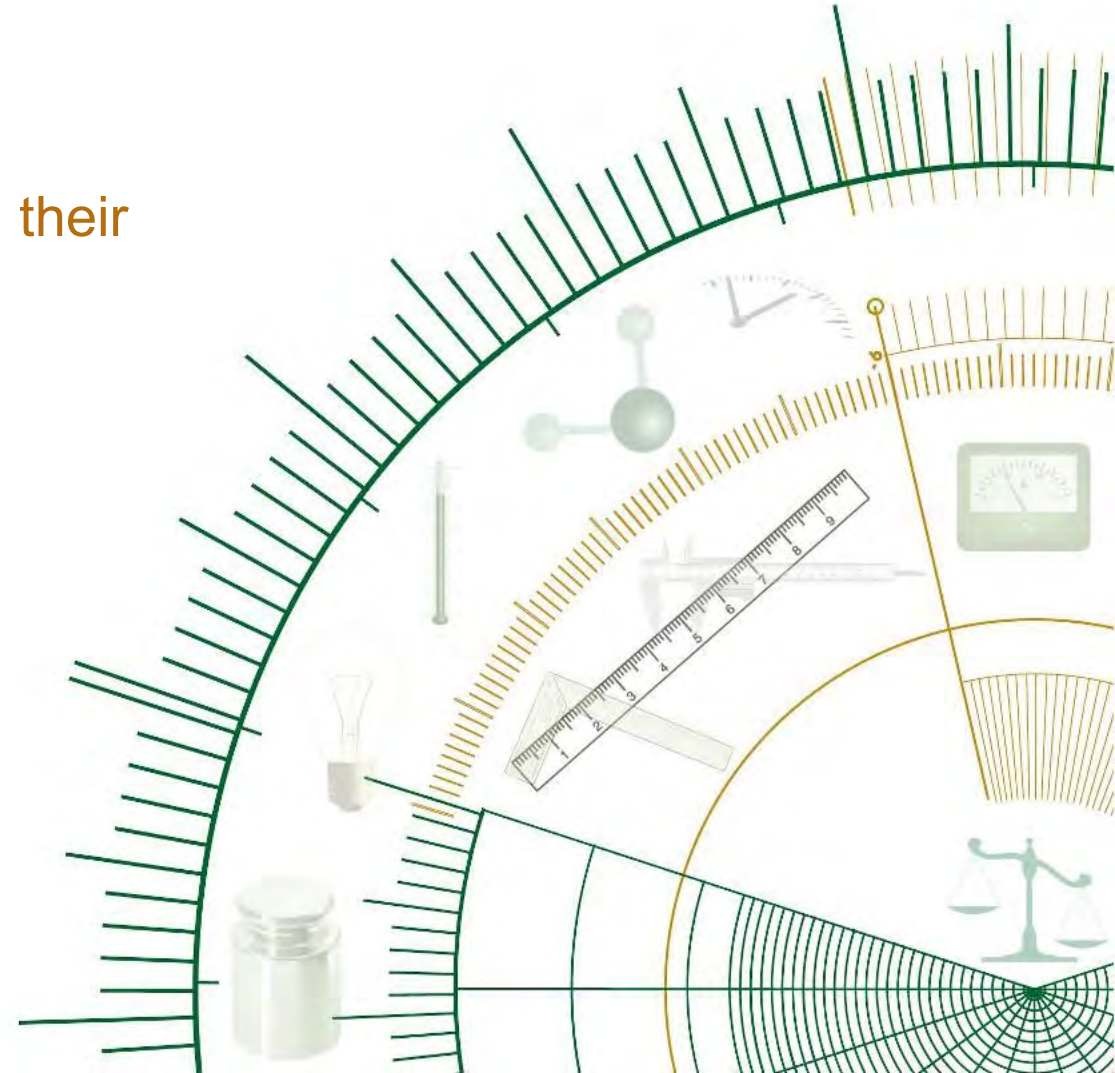
Dr Jayne de Vos, acting CEO

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The NRCS, Montague Gardens, Cape Town

21 August 2024

Your measure of excellence



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Measurement Units and Standards Act (No.18 of 2006)



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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.



Mandate:

The Measurement Units and Measurement Standards Act 18 of 2006, aims:

1. to provide for the **use of measurement units** of the **International System of Units** and certain other measurement units;
2. to provide for the **designation** of national measurement units and standards;
3. to provide for the keeping and maintenance of **national measurement standards** and units;
4. to provide for the establishment and functions of the **National Metrology Institute**;
5. to provide for the **repeal of certain laws**; and
6. to provide for matters connected therewith.



The new International System of Units

For people who just really want to know what the new international definitions are.



kilogram

unit of mass

^(*) values not yet finalized

Defined by taking the fixed numerical value of the Planck constant h to be $6.626070040 \times 10^{-34}$ ^(*) when expressed in the unit J·s, which is equal to kg·m²·s⁻¹.



metre

unit of length

Defined by taking the fixed numerical value of the speed of light in vacuum c to be 299792458 when expressed in the unit m·s⁻¹.



second

unit of time

Defined by taking the fixed numerical value of the caesium frequency $\Delta\nu_{\text{Cs}}$, the unperturbed ground-state hyperfine transition frequency of the caesium 133 atom, to be 9192631770 when expressed in the unit Hz, which is equal to s⁻¹.



ampere

unit of electric current

Defined by taking the fixed numerical value of the elementary charge e to be $1.6021766208 \times 10^{-19}$ ^(*) when expressed in the unit C, which is equal to A·s.



ampere

unit of electric current

Defined by taking the fixed numerical value of the elementary charge e to be $1.6021766208 \times 10^{-19}$ ^(*) when expressed in the unit C, which is equal to A·s.



kelvin

unit of thermodynamic temperature

Defined by taking the fixed numerical value of the Boltzmann constant k to be $1.38064852 \times 10^{-23}$ ^(*) when expressed in the unit J·K⁻¹, which is equal to kg·m²·s⁻²·K⁻¹.



mole

amount of substance

Defined by taking the fixed numerical value of the Avogadro constant N_A to be $6.022140857 \times 10^{23}$ ^(*) when expressed in the unit mol⁻¹.



candela

unit of luminous intensity in a given direction

Defined by taking the fixed numerical value of the luminous efficacy of monochromatic radiation of frequency 540×10^{12} Hz, K_{cd} , to be 683 when expressed in the unit lm·W⁻¹, which is equal to cd·sr·W⁻¹, or cd·sr·kg⁻¹·m⁻²·s³.

Strategic Priorities

1. Ensure regional, continental, and **international comparability** of the South African **measurement infrastructure** to support economic growth and to enhance the quality of life for all.
2. Improve **financial stability** and ensure **sustainable growth**.
3. Maintain fast and **efficient service delivery** to clients.
4. Develop and retain a **capable workforce** that is able to utilise world-class infrastructure to deliver specialised and **innovative measurement solutions**.
5. Effectively engage and collaborate with **stakeholders** to develop and strengthen mutually beneficial relationships in fulfilment of the NMISA mandate.



Context

- A measurement infrastructure enables a country **to manufacture to local and international specifications and tolerances** and to ensure the integrity of commodities, locally and for the export market.
- Competitive manufacturing relies **on accurate, internationally comparable measurement** that is achieved through the establishment of 'traceability' of the measurement result to the SI or internationally agreed references.
- This local capability enables trade, component manufacturing, legal acceptance of measurement results for law enforcement, reliable measurement data for environmental monitoring, food safety, improved medical diagnosis and treatments through accurate measurement, and consumer protection.



Context continued



- In support of **the Africa Continental Free Trade Area (AfCFTA)**, the Africa Reference Institute (ARI) of NMISA serves as a hub for offering **measurement solutions** and services to stakeholders on the African continent. Local and uniquely African products and services that are demonstrated to be **internationally equivalent**, eliminate the need for importing substitute products from overseas, thereby enhancing the continent's **self-sustainable development**.
- In collaboration with **the dtic**, NMISA ensures that the **interests of South Africa, SADC, and Africa are represented at the International Bureau of Weights and Measures (BIPM)** – the intergovernmental organisation responsible for providing the basis for a single, coherent system of measurements throughout the world – under the supervision of the International Committee for Weights and Measures (CIPM).

Vision

To enable regional and global market access for our clients and enhance the quality of life for all South Africans, through internationally accepted measurement systems.

Mission

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

Values

- Forward thinking
- Trustworthy
- Knowledge sharing
- Accountability
- Respect

NMISA at a Glance



117 Permanent staff members

11 Bursars & Work-back contractors

77 Years of service to South Africa

25 SANAS Accredited Laboratories

521 Published Calibration & Measurement Capabilities

Technical divisions and laboratories

Physical and Electrical Metrology Division

Quantum Technologies:

- DC Low Frequency and Radio Frequency
- Photometry and Radiometry
- Temperature and Humidity
- Time Frequency and Fiber Optics

Mechanical and Engineering:

- Length, Dimensional and Coordinate Metrology
- Mass, Volume and Density
- Pressure and Vacuum
- Flow
- Vibration
- Acoustics
- Force and Torque

Chemical, Medical, and Material Science Division

Analytical and Material Science:

- Inorganic Analysis
- Organic Analysis
- Gas Analysis
- Materials Characterisation

Bio-medical Science:

- Radioactivity Standards
- Dosimetry Standards
- Audit Programme

Applied Metrology Division

Africa Reference Institute:

- NMISA Training Centre
- Industrial Metrology Laboratory
- Reference Measurement Laboratory

Product Development Centre (under development):

- Systems Support and Development Centre
- Production of Standards and Reference Materials

Products and Services Offered

Calibration:

Delivering direct traceability to the NMS, NMISA serves the accredited calibration and testing laboratories by performing calibration to the highest accuracy (smallest uncertainty). Calibration is also provided directly to the industry, mostly in cases where the service is not provided by commercial accredited calibration laboratories, or when the desired accuracy can only be provided by NMISA, or where a new or niche service is required.

Reference measurement and certification of reference materials:

NMISA provides reference measurement and analysis according to its calibration range and services. In addition, NMISA has established the capability to value-assign chemical samples and gas mixtures for clients, including purity assignment. This capability allows NMISA to produce certified (pure) reference materials (CRMs) as standards or calibration solutions for quality control purposes, and primary reference gas mixtures that are internationally recognised and accepted.



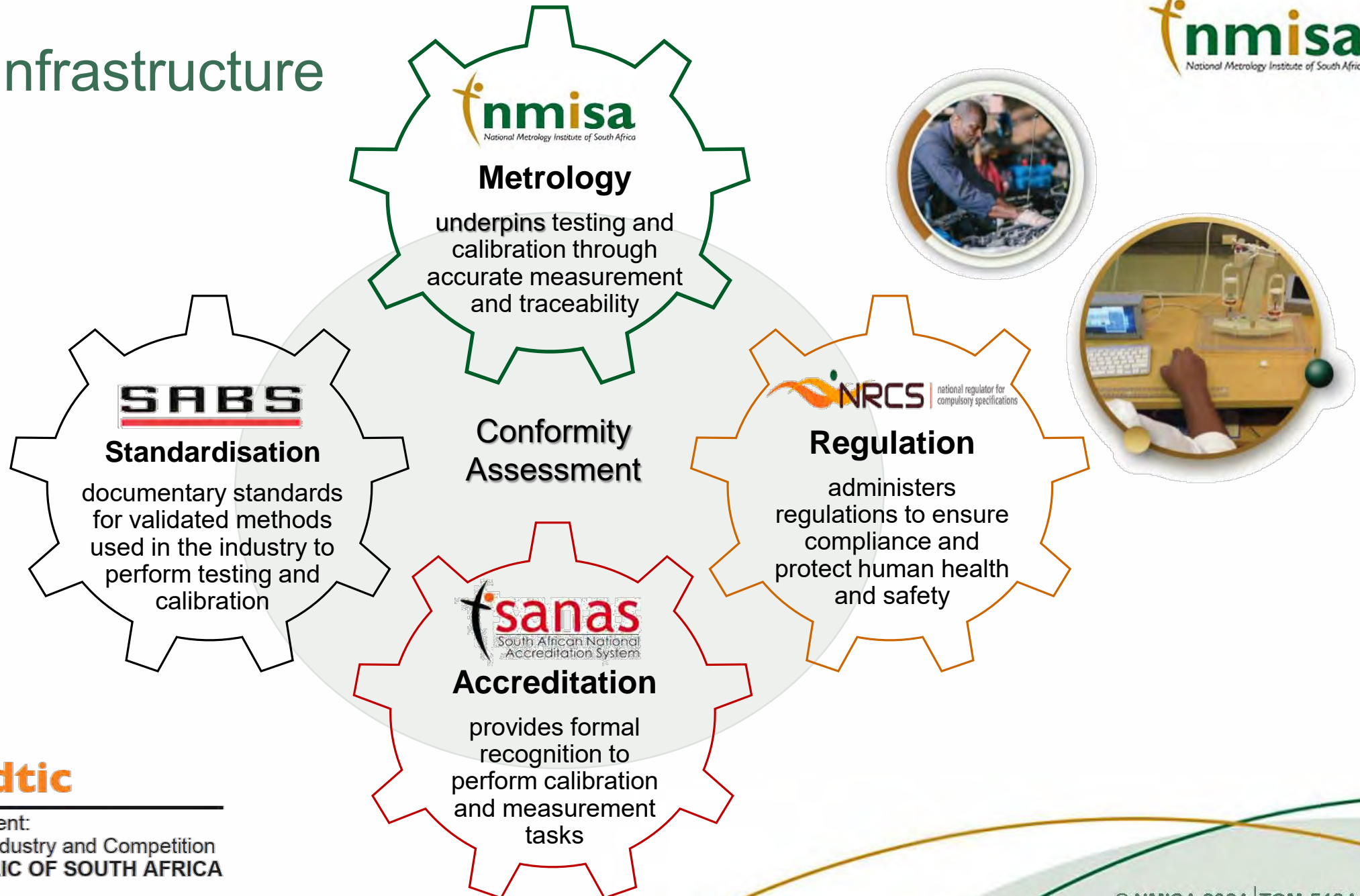
Measurements, testing, and analysis:

NMISA offers advanced measurement services to the industry. This includes method development for clients to assist with problem-solving, analytical services for research projects, specialised testing services to industry, and development of specific measurement solutions for clients on contract.

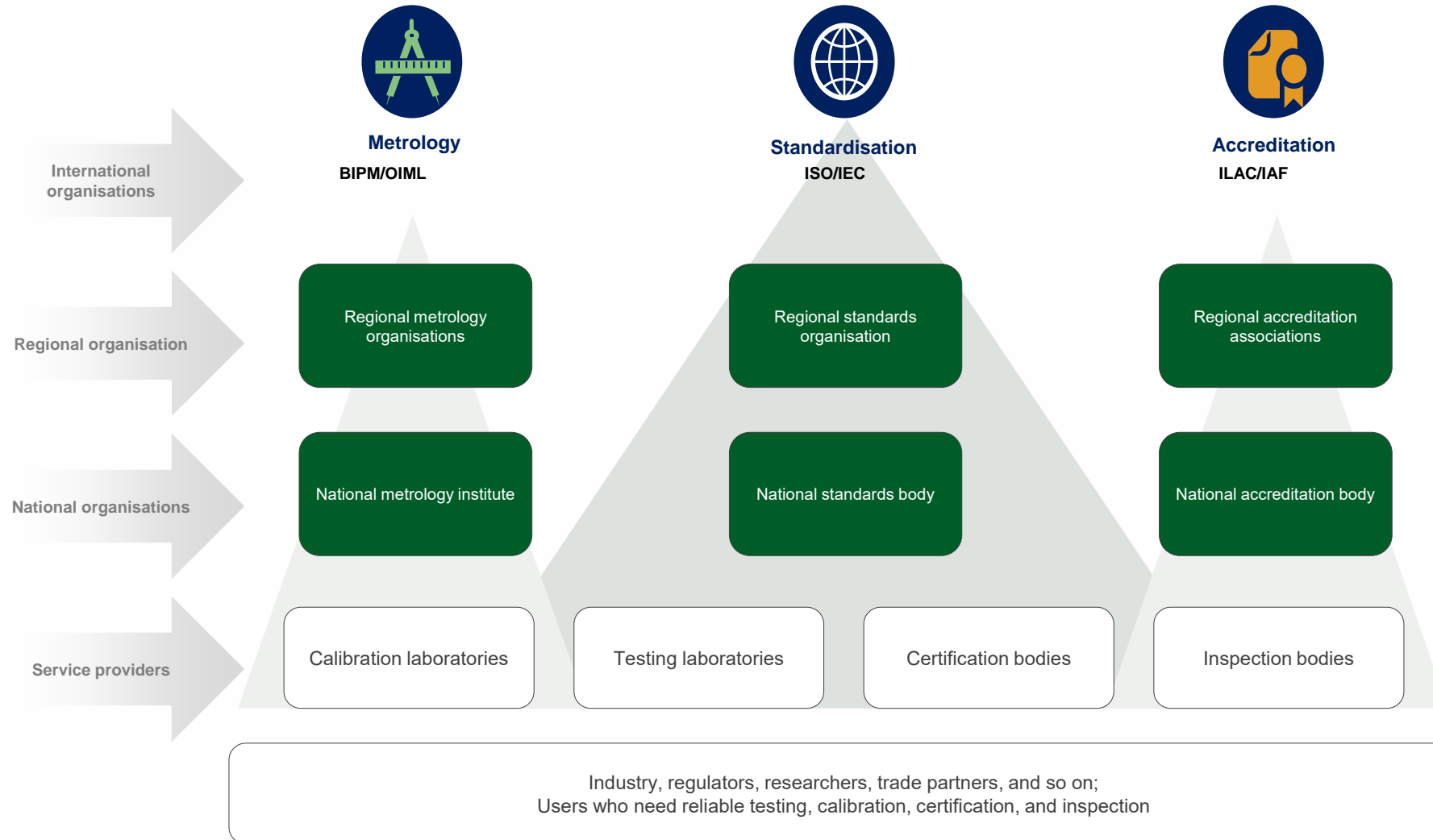
Training and consultancy:

NMISA provides expertise in measurement science through training and consultancy, supporting the quality infrastructure both locally and on the rest of the continent. The expertise provided contributes to the national priorities of building a capable state and enhancing economic transformation.

Quality Infrastructure



Regional and International cooperation



Key Performance Indicators

OUTCOME	KPI #	OUTCOME INDICATOR	BASELINE	2024/25
Ensure regional, continental and international comparability of the South African measurement infrastructure to support economic growth and to enhance the quality of life for all	1	Annual realisation of 6 SI base units	6 SI base units realised annually	Realisation of 6 SI base units
	2	Percentage of metrological services offered covered by CMCs	85 %	86 %
	3	New and improved NMS and reference materials and reference methods	13	2
	4	ILCs and PTS initiated, administered, or participated in by NMISA	20	20
Improve financial stability and ensure sustainable growth	5	Achieve the annual real revenue growth rate <i>[adjusted for inflation]</i>	Revised KPI	≥ 5 %
	6	Diversification of revenue streams: % revenue earned in new categories of sources	New KPI	5 %
	7	Maintain visibility of NMISA in South Africa and the region	R2 606 023 AVE Social Media: Total number of followers: 9 042	Maintain AVE ≥ R1m Increase social media following ≥ 10 %
	8	Percentage of new clients serviced	New KPI	5 %
Maintain fast and efficient service delivery to clients	9	Client Satisfaction Score [not absence of complaints]	Revised KPI	≥ 70 % (≥ 3.5 on a 5-point scale)
	10	Meeting target turnaround times for products and services	New KPI	80 %
	11	Client satisfaction rate for training courses presented	New KPI	≥ 70 % (≥ 3.5 on a 5-point scale)
	12	Client retention rate	New KPI	70 %
	13	Percentage of clients served in geographical areas outside main metros	New KPI	3 %
	14	% of audit non-conformances cleared within target dates	New KPI	100 %
	15	Number of case studies submitted to the dtic	20	8
Develop and retain a capable workforce that is able to utilise world-class infrastructure to deliver specialised and innovative measurement solutions	16	Staff turn-over rate	New KPI	≤ 7 %
	17	Number of in-service trainees and interns hosted	5-year achievement of 105	6
	18	Number of staff leading new external collaborative agreements	New KPI	1
Effectively engage and collaborate with stakeholders to develop and strengthen mutually beneficial relationships in fulfilment of the NMISA mandate	19	New collaboration or service agreements with private, non-profit, or public entities	20	2
	20	% of active service/collaboration agreements	New KPI	≥ 70 %
	21	Number of outreach activities to entities within SEZs and outside main metropolitan areas	New KPI	2

Contribution to DTIC Output Targets (1)

DTIC OUTCOME	NMISA OUTPUTS	OUTPUT INDICATORS	MTEF PERIOD		
			2024/25	2025/26	2026/27
Investment					
dtic Output 17 – 1 new SEZs application considered for designation	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 18)	At least 2 new service agreement with a SOE/firm within a SEZ	At least 3 new service agreements with a SOE/firm within a SEZ	At least 3 new service agreements with a SOE/firm within a SEZ
Industrial Production					
dtic Output 2 – R60 billion additional local industrial output committed or achieved	Creating awareness of NMISA’s products and services in support of quality assurance in the manufacturing, mining, and related industries, to increase uptake	Increased visibility of NMISA through awareness campaigns and marketing activities aimed at the manufacturing, mining and related industries (included in NMISA KPI 7)	At least 1 stakeholder engagement and 1 article published for the manufacturing, mining or related industries	At least 1 stakeholder engagement and 1 article published for the manufacturing, mining or related industries	At least 1 stakeholder engagement and 1 article published for the manufacturing, mining or related industries
Exports and Trade					
dtic Output 27 – 20 Successful export interventions to support the implementation of the AfCFTA	Support the implementation of the AfCFTA agreement through active participation in the activities of regional metrology bodies	Number of ILCs and PTS initiated, administered or participated in within AFRIMETS (included in NMISA KPI 4)	4	6	8
Industrial Support					
dtic Output 8 – R8 billion in financial support programmes and procurement contracts approved to SMMES, women and youth- empowered businesses	Develop a support programme specifically for SMMEs	Number of SMMEs trained or supported by measurement services offered by NMISA	15	20	25
dtic Output 7 – R15 billion 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 (included in KPI 20)	2 outreach activities concluded	2 outreach activities concluded	2 outreach activities concluded

Contribution to DTIC Output Targets (2)

DTIC OUTCOME	NMISA OUTPUTS	OUTPUT INDICATORS	MTEF PERIOD		
			2024/25	2025/26	2026/27
Jobs					
dtic Output 13 – 100 000 jobs to be created (50 000 social economy fund part-time or temporary job opportunities and 50 000 full-time jobs)	Internal job opportunities created by NMISA through its Internship Programme	Number of non-permanent jobs created for the year (NMISA KPI 16)	6 interns hosted	6 interns hosted	6 interns hosted
Energy					
dtic Output 22 – 2 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	At least 2 stakeholder engagements on energy efficiency hosted by NMISA plus at least 1 publication in the field	At least 3 stakeholder engagements on energy efficiency hosted by NMISA plus at least 2 publications in the field	At least 3 stakeholder engagements on energy efficiency hosted by NMISA plus at least 2 publications in the field
Green Economy Targets					
dtic Output 31 – 1 green hydrogen commercialisation framework implementation	Support the green hydrogen strategy plan for South Africa 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	Collaboration agreement(s) to support development of measurement capabilities for green hydrogen	Report on 1 new measurement solution of green hydrogen	Report on 1 new/improved measurement solution for green hydrogen
Stakeholder Engagement and Impacts					
dtic Output 32 – 1 000 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	8	8	8
Red Tape and State Capability Targets					
dtic Output 40 – 5 high-impact measures to reduce red tape or improve turnaround times in administration of incentives and work of agencies	Digitalisation of operational processes and customer service management	Number of digital solutions implemented to increase operational efficiency and improve client experiences	Implement 1 new/improved digital solution to improve operational efficiency	Implement 1 new/improved digital solution to improve operational efficiency	Implement 1 new/improved digital solution to improve operational efficiency

Overview of the Programmes



Programme 2:

Applied Metrology Contributions and Products for Industry, SOEs, and Regulatory Support (1)



Africa Reference Institute

- **Training Centre:**
 - 33 courses 23/24 (incl. SMMEs)
 - 87 professionals trained
- **Reference Analysis:**
 - Essential oils (emerging producers)
 - Cannabis testing
- **AfCFTA:**
 - Mutual recognition of CMCs: ILCs / PTS
 - Consultancy: capacity development projects



Health and safety

- **Dosimetry Audit:**
 - 26 hospitals participated 23/24 – patient safety, treatment efficacy
- **Mining – Radiation Safety:**
 - Calibration of radiation monitors
- **Ultraviolet germicidal radiation for air and water disinfection**
 - Calibration of sources, detectors and filters
- **Non-destructive testing**



Law enforcement

- **Road Safety:**
 - Primary Reference Gas Mixtures for calibration of evidential breath analyzers against SANS 1793 (in collaboration with RTMC, municipalities)
 - Speed camera calibration
- **Reference Analysis:**
 - Forensic blood alcohol testing

Programme 2:

Applied Metrology Contributions and Products for Industry, SOEs, and Regulatory Support (2)



Energy efficiency

- **Energy efficient lighting:**
 - Reference laboratory established
 - On hold – loss of staff
- **National power grid:**
 - Accurate power measurements
 - Grid stability & reliability (V, A, f measurements)
 - Integration of renewable energy
 - Smart grid development
- **Reference gasses:**
 - Gas to power industry
- **High temperature standards**



Manufacturing

- **Automotive:**
 - Steel & coatings composition analysis
 - Dimensional calibrations
 - Analysis of advanced materials
 - 3D printing: evaluation
 - Local component suppliers
- **Mining – beneficiation:**
 - Purity analysis of metals for export
 - Particle matter size distribution
- **Infrastructure projects:**
 - Failure analysis



Strategic research

- **Redefinition of the SI:**
 - New NMS for voltage, current & gravimetry
 - New realisation of the kilogram: Kibble Balance Project
- **Kibble Balance:**
 - Research collaboration with NPL (UK)
 - Knowledge development with African NMIs (desk-top versions delivered)

Programme 2:

Applied Metrology Contributions and Products for Industry, SOEs, and Regulatory Support (3)



Digital economy

- **Time Reference Signal:**
 - Realisation of South Africa Standard Time
 - High accuracy time reference signal to SARAO (SKA)
- **4iR Digital Technologies:**
 - Digital certificates
 - Quantum metrology (on hold)
 - Data science & time stamping applications in banking industry



Mining and environmental monitoring

- **Air Quality Monitoring**
 - Reference measurements of gas emissions in manufacturing, agriculture and mining
- **Food safety:**
 - Reference analysis of toxic elements in food (export regulations)
- **Environmental management:**
 - Analysis of water, soil and mine trailing sludge for pollutants
 - Radioactivity measurement



Food and agriculture

- **Food quality and nutrition:**
 - Certified reference materials for commercial food testing laboratories
 - PT Schemes for local and African food testing laboratories
 - Reference analysis of organic samples

Budget Allocation 2024/25



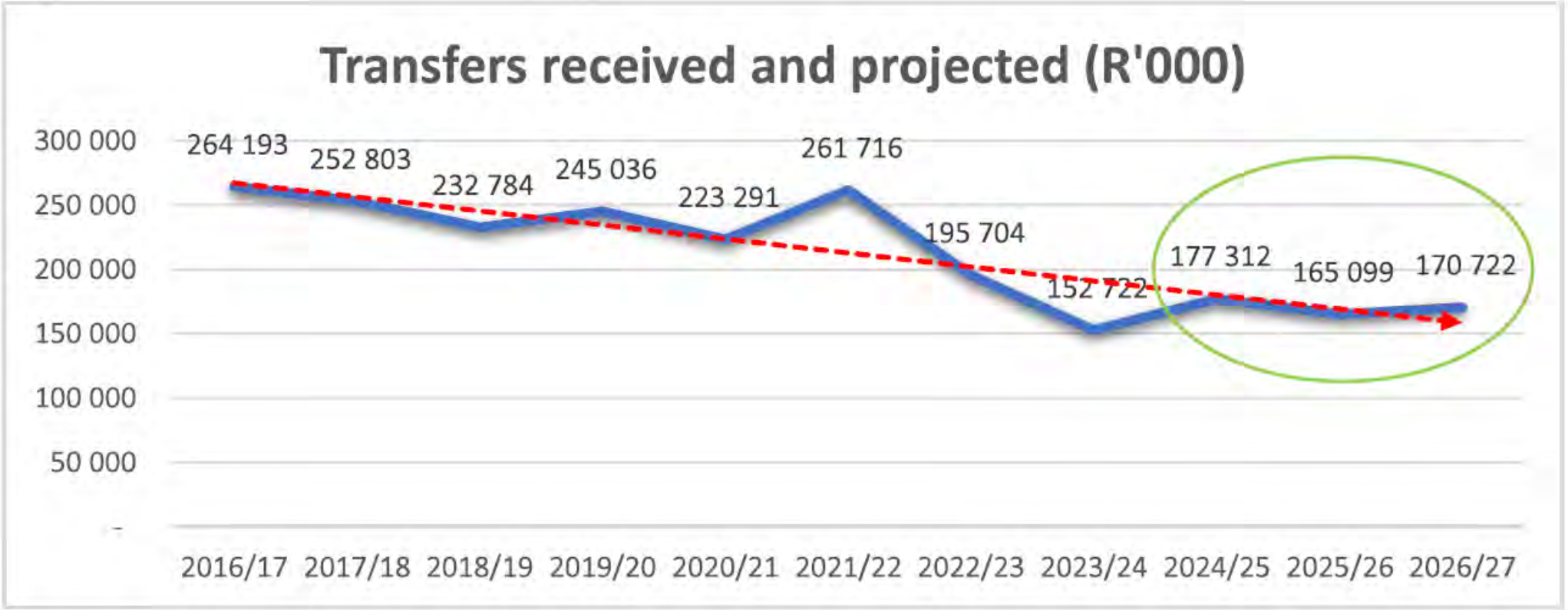
2024/25 to 2026/27 Budget Estimates

NMISA CONSOLIDATED BUDGET 2024/25–2026/27			
	2024/25	2025/26	2026/27
	R'000	R'000	R'000
		-5 % (average growth rate)	4 % (average growth rate)
Revenue	205 992	196 247	204 585
Transfers received	177 312	165 099	170 722
Rendering of service	24 680	27 148	29 863
Investment income	4 000	4 000	4 000
Expenditure	205 992	196 247	204 585
Administrative and operating expenditure	55 174	55 749	58 508
Employee cost	127 140	119 512	119 512
Computer services	11 552	12 014	12 567
Repairs and maintenance	7 778	8 073	8 444
Audit fees	848	899	940
Capital expenditure	3 500	-	4 614

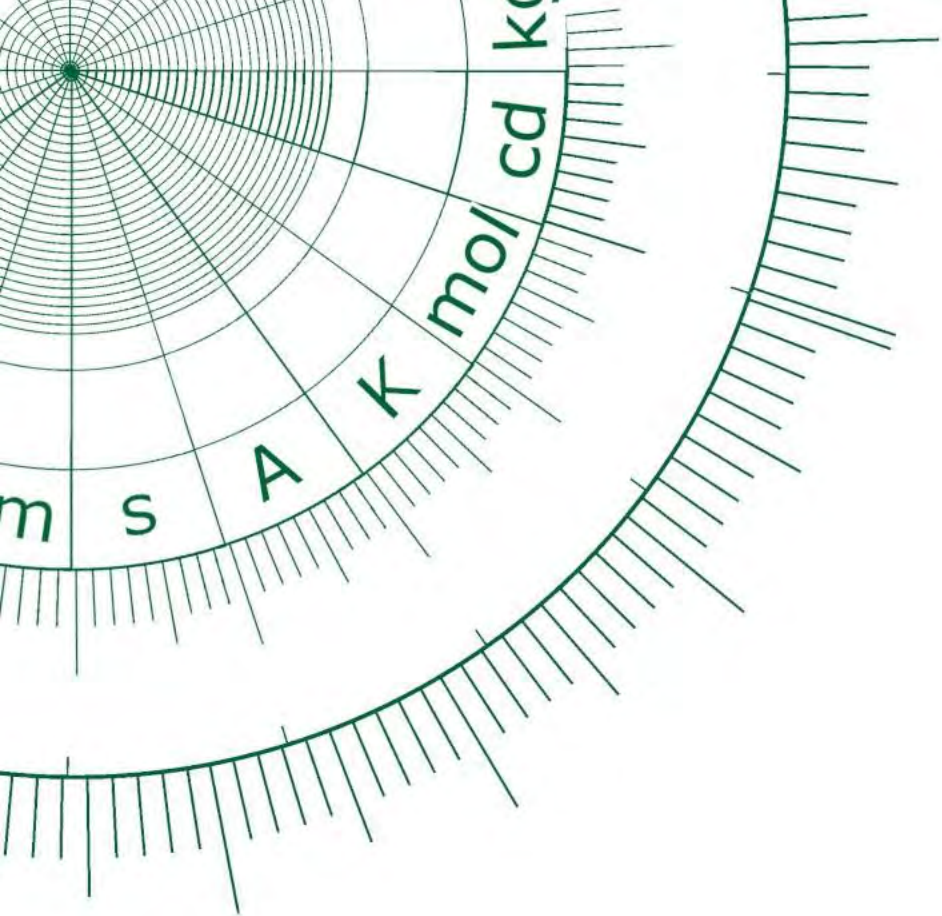
C3.2 EXPENDITURE ESTIMATES

STATEMENT OF FINANCIAL PERFORMANCE	AUDITED OUTCOME	AUDITED OUTCOME	AUDITED OUTCOME		APPROVED BUDGET	AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)	MEDIUM-TERM ESTIMATE			AVERAGE GROWTH RATE (%)	EXPENDITURE/ TOTAL: AVERAGE (%)
R thousand	2020/21	2021/22	2022/23		2023/24	2020/21–2023/24		2024/25	2025/26	2026/27	2023/24–2026/27	
Revenue												
Tax revenue	–	–	–		–	–	–	–	–	–	–	–
Non-tax revenue	23 689	27 241	31 659		34 736	13.6 %	12.9 %	28 680	31 148	33 863	-0.8 %	16.2 %
Sale of goods and services other than capital assets	14 833	18 701	24 653		22 436	14.8 %	8.8 %	24 680	27 148	29 863	10.0 %	13.1 %
Sales of goods and services produced by entity	14 833	18 701	24 653		22 436	14.8 %	8.8 %	24 680	27 148	29 863	10.0 %	13.1 %
of which:												
Administrative fees	–	–	–		–	–	–	–	–	–	–	–
Sales by market establishment	14 833	18 701	24 653		22 436	14.8 %	8.8 %	24 680	27 148	29 863	10.0 %	13.1 %
Other sales	–	–	–		–	–	–	–	–	–	–	–
Sales of scrap, waste, arms and other used current goods	–	–	–		–	–	–	–	–	–	–	–
Other non-tax revenue	8 856	8 540	7 006		12 300	11.6 %	4.0 %	4 000	4 000	4 000	-31.2 %	3.1 %
Transfers received	223 331	261 716	195 704		152 722	-11.9 %	87.1 %	177 312	165 099	170 722	3.8 %	83.8 %
Total revenue	247 020	288 957	227 363		187 458	-8.8 %	100.0 %	205 992	196 247	204 585	3.0 %	100.0 %
Expenses												
Current expenses	239 551	253 542	256 748		187 458	-7.8 %	100.0 %	205 992	196 247	204 585	3.0 %	100.0 %
Compensation of employees	131 570	133 068	127 404		121 980	-2.5 %	55.5 %	127 140	119 512	119 512	-0.7 %	61.5 %
Goods and services	66 654	76 736	79 086		65 478	-0.6 %	31.0 %	78 852	76 735	85 073	9.1 %	38.5 %
Depreciation	41 114	43 733	50 258		–	-100.0 %	13.5 %	–	–	–	–	–
Interest, dividends and rent on land	213	5	–		–	-100.0 %	–	–	–	–	–	–
Transfers and subsidies	–	–	–		–	–	–	–	–	–	–	–
Total expenses	239 551	253 542	256 748		187 458	-7.8 %	100.0 %	205 992	196 247	204 585	3.0 %	100.0 %
Surplus/(Deficit)	7 469	35 415	(29 385)		–	-100.0 %	–	–	–	–	–	–

Grant Allocation Trends



Description	2024/25	2025/26	2026/27
Current	129 612 000	120 523 000	124 628 000
Capital	47 700 000	44 576 000	46 094 000
	177 312 000	165 099 000	170 722 000



Thank You

We measure what matters