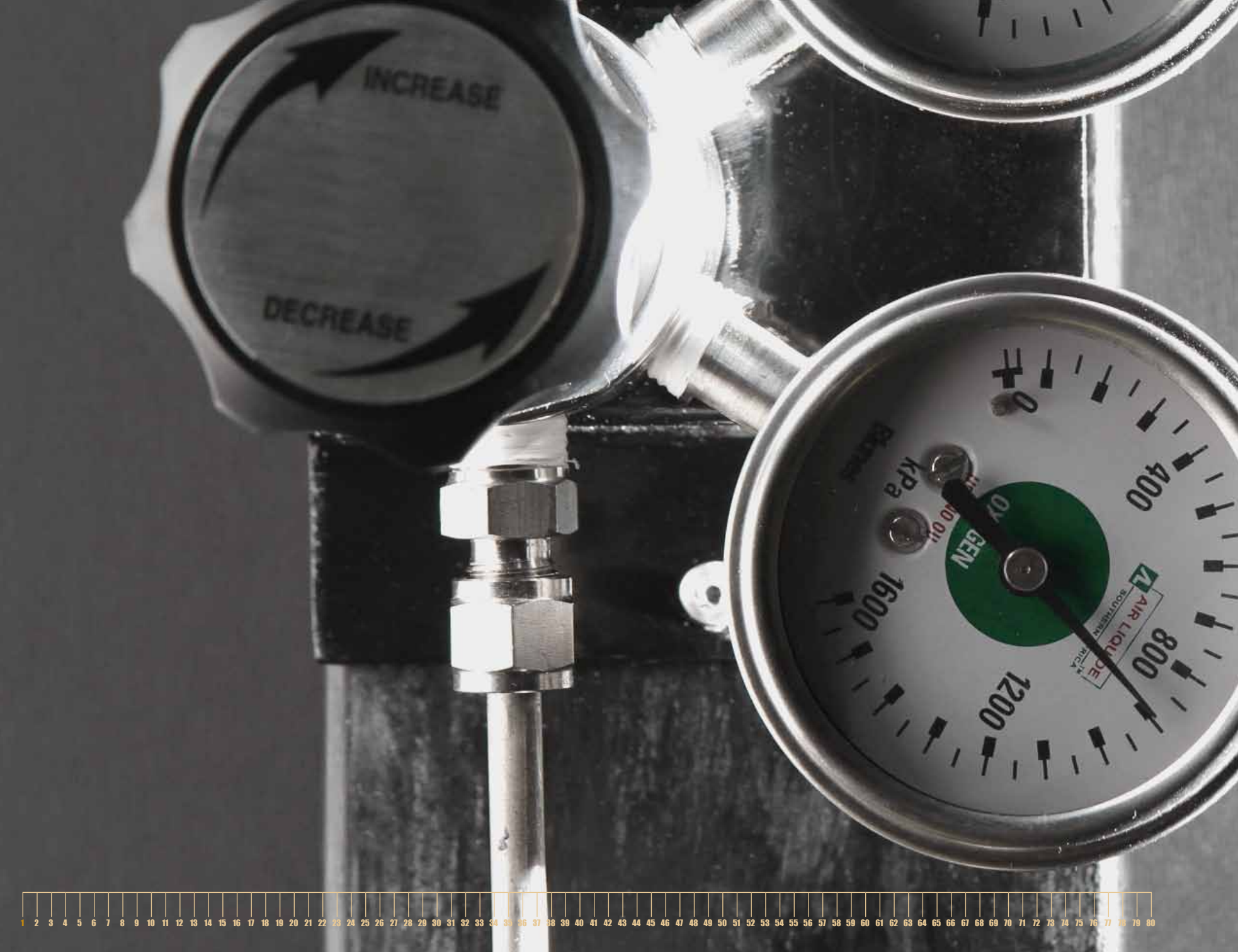
ANNUAL REPORT 2011•12

Submission

OF THE ANNUAL REPORT TO THE EXECUTIVE AUTHORITY

By the Chair of the Board

It is with great pleasure that I, as Chair of the Board of the NMISA, submit the performance and progress report for the entity for the financial year 2011/12 in terms of the Public Finance Management Act, No 1 of 1999.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Dr Rob Davies
Minister of Trade and Industry

FOREWORD

By the Minister

It is my pleasure to present the Annual Report of the National Metrology Institute of South Africa (NMISA). The NMISA as the custodian of the National Measurement Standards for South Africa, ensures that South African national standards and units are internationally comparable and scientifically valid, allowing for the acceptance of export products and manufactured goods into overseas markets, locking out substandard and unsafe imports and ensuring proper analysis in healthcare and law enforcement.

Measurement forms the basis of international trade. Trade in goods depends on agreement on the mass and volume of those goods and trade barriers can emerge when there is no agreement on measurement. As a Technical Infrastructure entity of **the dti**, the NMISA is mandated by the Measurement Units and Measurement Standards Act, Act No. 18 of 2006.

The NMISA's role is emphasised in Industrial Policy Action Plan (IPAP), which emphasises that "the role of Technical Barriers to Trade (TBTs) and Non-Tariff Barriers (NTBs) is increasing the relative importance of the technical infrastructure policies and institutions." The NMISA plays a pivotal role in ensuring access for South African products to export markets, while simultaneously defending South African producers against unfair competition from non-compliant, wrongly measured imports.

The NMISA has been successful at launching a major recapitalisation project that will see a leap in the technology used in the development and maintenance of the national standards, strengthening its value proposition to industry and international markets. New equipment and plans for a new building will see the institute grow substantially in coming years, and will secure the NMISA's position as the authority in measurement which local businesses can rely on to assist them in being competitive and in securing access to international markets.

I would like to **CONGRATULATE THE NMISA ON A SUCCESSFUL 2011/12 FINANCIAL YEAR** and look forward to its contributions to **the dti** deliverables and the South African economy in 2012/13.

MESSAGE

From the Chair of the Board

I WOULD LIKE TO CONGRATULATE THE NMISA ON A SUCCESSFUL 2011/12 FINANCIAL YEAR. In the current landscape of ever more stringent compliance and corporate governance requirements, the NMISA was successful in obtaining an unqualified and clean audit outcome.

The inclusion of performance information in the scope of the audit meant that delivery on the promised deliverables to our clients and stakeholders could be verified. The success of the 2011/12 financial year is due to the combined efforts of the Board, management team and most importantly, our technical staff who work tirelessly towards the achievement of metrology excellence.

Divisions went through a reorganisation, resulting in enhancements of technical management positions which form the heart of the NMISA, and a corporatisation of executive management positions. A lowlight for the institute was the resignation of the CEO, Dr Molefi Motuku and subsequent resignation of the CFO. We wish them well in their future endeavours, and are working hard at filling these positions early in the new financial year.

On a positive note, the Board appointed a strengthened governance structure. Internal audit was structured as an in-house function, and the supply chain management function was enhanced through new appointments. This came at the right time, as the NMISA secured R 25 million for a much needed capital equipment upgrade to address an aging equipment base.

In closing, I would like to express our gratitude to National Treasury and **the dti** for entrusting the NMISA with a further R 50 million of funding for 2013/14, and R 100 million for 2014/15, towards recapitalisation of the NMISA.

These funding injections are vital to the enhancement of metrology and its contribution to the technical infrastructure of South Africa. For the NMISA, it creates a future that is bright with growth opportunities.

Dr Prins Nevhutalu
Chair of the Board

REPORT

CEO Overview

THE NMISA ENTERED A NEW GROWTH PHASE IN 2011/12 WITH A BUSINESS REVIEW AND BENCHMARKING EFFORT TO RAISE THE TECHNICAL PROFILE OF THE INSTITUTE, AND TO CORPORATISE THE MANAGEMENT STRUCTURE. THE OUTCOME WAS A NEW 5-YEAR STRATEGY, WITH TARGETS ALIGNED TO NATIONAL PRIORITIES AS WELL AS PAVING THE ROAD FOR THE MODERNISATION OF THE INSTITUTE.

The NMISA's recapitalisation proposal to modernise the NMISA, including new infrastructure, upgrading of the equipment and an enhancement of to the human resource capacity, was received favourably by National Treasury, and a project for the feasibility study was registered with National Treasury. R 25 million was made availible by **the dti** in 2011/12 to the NMISA specifically for equipment, with the recapitalisation project further funded in 2013/14 and 2014/15 to the value of R 50 million and R 100 million, respectively. The procurement of special equipment from the 2011/12 allocation of R 25 million dominated the activities of the finance team during the last quarter.

Growth does not come without challenges, and the NMISA unfortunately saw resignations in the portfolios of the CEO and CFO. A concern from stakeholders under such circumstances is understandable, however, as Acting CEO, I would like to assure our stakeholders and clients that business continues as normal, and that these key positions are being filled with urgency. With a solid growth phase ahead, the NMISA will strive to continue achieving our goals into the future.

The Human Resources Division implemented a new Human Capital Development plan, aiming to enhance the NMISA's qualification profile and to address employment equity. An undergraduate bursary and post-graduate studentship programme was launched, which will contribute to developing a pipeline of researchers and strengthening transformation. Support services were also strengthened through the establishment of a Compliance Office and by the internalisation of the Internal Audit function.

A decline in the number of calibration certificates issued was noted. Though this is partially due to the economic downturn, the NMISA's laboratories were severely challenged with failure of the ageing airconditioning infrastructure. Several laboratories were non-operational for extended times and this unfortunately affected clients as calibrations could not be performed to the required specifications.

The Technical Divisions excelled once again and most of the technical targets were met or exceeded. The contribution of the NMISA to the national measurement infrastructure was confirmed through two requests from the Department of Environmental Affairs and the National Nuclear Regulator to use the NMISA measurement expertise towards the proposals and establishment of independent facilities that can aid regulatory measurements in air quality monitoring and nuclear monitoring, respectively.

On a positive note, the capital injection has expedited the delivery of improved calibration services, and clients will see the improvements into 2012/13. Despite these challenges, 2011/12 targets were achieved and in many cases exceeded. For this, I would like to congratulate the management team, and most importantly our staff, for holding true to our values of excellence in measurement during a time of change.

Dr Molefi Motuku
Chief Executive Officer (Resigned 31 May 2012)

Benjamin van der Merwe
Acting Chief Executive Officer

1. OVERVIEW

THE NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA (NMISA) WAS ESTABLISHED UNDER THE MEASUREMENT UNITS AND MEASUREMENT STANDARDS ACT, No18 OF 2006 (THE MEASUREMENT ACT).

The NMISA provides for the use of the SI units, maintains 42 gazetted NMS (National Measurement Standard) (as on 31 March 2012), performs reference measurements and analysis and offers certified reference materials to industry. The NMISA is continuing to improve and expand the NMS to enhance and expand the services it offers industry and stakeholders.

Vision

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

Mission

To keep and maintain national measurement standards and units; and disseminate traceability in the South African industry.

MANDATE

TO PROVIDE FOR THE USE OF MEASUREMENT UNITS OF THE INTERNATIONAL SYSTEM OF UNITS (SI) AND CERTAIN OTHER MEASUREMENT UNITS; TO PROVIDE FOR THE DESIGNATION OF THE NATIONAL MEASUREMENT UNITS AND STANDARDS AND TO PROVIDE FOR THE KEEPING AND MAINTENANCE OF THE NATIONAL MEASUREMENT STANDARDS AND UNITS.

LEADING

Measurement
Excellence
Accuracy
Social
Units
Responsibility
Economic

Zakithi Msimang
Director: Ionising Radiation

2. GOALS AND STRATEGIC OBJECTIVES

The NMISA is guided overall by FIVE GOALS:

Goal 1:

Ensure that South Africa maintains national measurement standards and demonstrates their comparability to other national and international standards and measurements.

Goal 2:

Build and maintain an internationally recognised national metrology system as the foundation for the South African measurement system.

Goal 3:

Strengthen the metrology system as a key component of the technical infrastructure that is aligned with international best practice.

Goal 4:

Provide essential support to South African enterprises competing in a fast-paced global economy.

Goal 5:

Provide essential support for public policy objectives with regard to measurement compliance issues in terms of health, safety and the environment.

The NMISA is guided overall by seven strategic objectives:

1. Keep and maintain the equipment necessary for bringing national measurement standards and certified reference materials into being.
2. Upgrade the existing measurement standards; develop new measurement standards and reference materials in line with the requirements of commerce and industry.
3. Establish confidence in the accuracy of the national measurement standards by suitable and documented verification processes.
4. Disseminate traceability, measurement expertise and services to South African commerce and industry by means of calibration, measurement or analysis, certified reference materials, appropriate technology and skills transfer.
5. Establish and maintain the necessary expertise and competence according to internationally acceptable standards.
6. Recapitalise and modernise the NMISA to ensure the NMS supports international trade, health, environmental and safety requirements.
7. Participate and represent South Africa regionally and internationally with reference to traceability and measurement issues and maintain close links with the International Bureau of Weights and Measures (BIPM) and associated activities of the Metre Convention.

Pritesh Jivan
MSC bursor: Photonics

Dr Ronnie Kritzinger
Photonics & special projects

Dr Johan Burger
Photonics & special projects

Ian Veldman
AUV

Nkateko Miyen
Internal Audit

Corné Gouws
Force

Nontete Nhlapo
Organic Chemistry

Dr Ronnie Kritzinger
Photonics & special projects

3. INTRODUCTION

The National Metrology Institute of South Africa (NMISA), a Technical Infrastructure (TI) institution of the Department of Trade and Industry **(the dti)**, was established on 1 May 2007 in accordance with the Measurement Units and Measurement Standards Act, Act No. 18 of 2006 (referred to as the Measurement Act). The NMISA receives a Parliamentary Grant through **the dti** as a Type 3A Public Entity.

Under the Measurement Act, the NMISA is responsible for maintaining and disseminating the International System of Units (SI) in South Africa, and is further mandated to realise and keep the *national measurement standards* (NMS). The NMISA thus maintains and develops primary scientific standards of physical quantities for South Africa and compares those standards with other national and international standards to ensure global measurement equivalence. These standards are disseminated to the South African community through calibration, measurement and analytical services. Moreover, the NMISA provides reference analysis in the case of a measurement dispute and maintains and develops primary methods for chemical analysis to certify reference materials for South Africa and the region. The NMISA also engages in research to facilitate the development of new measurement standards and to address emerging national needs.

In 2011/12 the NMISA fulfilled this mandate and activities as stipulated in its annual Business Plan submitted to and approved by **the dti**. This report is compiled for **the dti** and the NMISA stakeholders to provide an overview of the NMISA activities against its performance indicators during the financial year 2011/12 and demonstrates compliance with the requirements of the Public Finance Management Act (PFMA), Act No. 1 of 1999, National Treasury Regulations, King III Code of Governance Principles and the New Companies Act, Act 71 of 2008.

4. MANAGEMENT OF THE NMISA

4.1 The NMISA Board

THE NMISA BOARD IS APPOINTED BY THE MINISTER OF TRADE AND INDUSTRY IN ACCORDANCE WITH THE MEASUREMENT ACT. THE BOARD CONSISTS OF NINE NON-EXECUTIVE DIRECTORS AND ONE EXECUTIVE DIRECTOR.

The role of all directors is to bring independent judgement and experience to the Board's decision-making process. They are selected and appointed to bring a complementary set of skills to the governance of the NMISA, and serve on the Board Committees.

In addition to non-executive directors, two external members serve on the Audit Risk Committee.

1. Dr Notende Mgudlwa
   Board Member
2. Dr Rudzani Nemutudi
   Chair of the Technical Committee
3. Prof Margit Harting
   Board Member
4. Adv Catherine Letele
   Board Member
5. Dr Prins Nevhutalu
   Chair of the Board
6. Thembani-Bukula
   Chair of the Finance Committee
7. Dr Tshenge Demana
   Board Member
8. Phil Hendricks
   Board Member
9. Tshidi Molala
   Chair of the Audit & Risk Committee
10. Tshokolo Nong
    Chair of the HR and Remuneration Committee

COMMITTEE	MEMBERS	OBJECTIVE	2011/12 HIGHLIGHTS
Audit & Risk	**Ms Tshidi Molala** Mr Hennie Kruger Mr Thembani Bukula Dr Tshenge Demana Mr Phil Hendricks Mr Tshokolo Nong Ms Poni Ngwato	The Audit & Risk Committee oversees management of audit and risk requirements in accordance with the PFMA, the King III standards on good corporate governance and National Treasury Regulations. The committee ensures that finances and risk are managed in accordance with good governance, resulting in a clean financial audit.	For 2011/12, the Committee focussed on strengthening Internal Audit by appointing this function in-house. The Internal audit division was able to focus more effort on in-house business processes, which added value to the external audit of the NMISA. The management of IT Risk was added to the Risk Committee and IT was invited to attend Audit & Risk committee meetings. This allowed the committee to oversee risk implications of new IT systems that were put in place, which included an information management system in Microsoft Sharepoint. The Committee played an active role in checking Quarterly Performance Reports, ensuring that business key performance indicators were revised according to the SMART criteria of National Treasury.
Finance	**Mr Thembani Bukula** Dr Tshenge Demana Prof Margit Härting Ms Tshidi Molala	The Finance Committee focuses on overseeing the financial aspects of reporting; the smooth functioning of the finance department; and ensuring compliance with stakeholder requirements, National Treasury Regulations, Generally Accepted Accounting Principles (GAAP) and the PFMA.	The Finance Committee assisted the Finance Department with strengthening its skills base, adding a dedicated Supply Chain Management function. The Committee oversaw the procurement of new capital equipment as part of the NMISA Recapitalisation process, in which R 25 million was secured from National Treasury. The Committee guided the finance department in compiling its own Annual financial statements, where this had been outsourced in the past. The Committee played an active role in checking Quarterly Performance Reports.
Human Resources (HR) and Remuneration	**Mr Tshokolo Nong** Mr Phil Hendricks Dr Notende Mgudlwa	The HR & Remuneration Committee oversees HR practice and advises on HR policy, assisting with ensuring that these comply with legislation, including the Basic Conditions of Employment Act, No. 75 of 1997.	Focus areas for 2011/12 included oversight of a reorganisation of the NMISA, and a revision of policies. The reorganisation process included a corporatisation of the organogram and an enhancement of the technical director profile. The Committee assisted with overseeing remuneration and reward processes, and provided input into the HR processes.
Technical	**Dr Rudzani Nemutudi** Prof Margit Härting Dr Tshenge Demana Dr Notende Mgudlwa	The Technical Advisory Committee oversees technical strategy ensuring that stakeholder requirements are accounted for. It provides input to the prioritisation of technical capital and ratifies major capital investments to the Board.	Focus areas for 2011/12 included providing guidance on the recapitalisation of the NMISA and the proposals, which were submitted to National Treasury to secure additional funding. There was a strong focus on providing input to the strategy in metrology divisions. The Technical Advisory Committee successfully hosted an Extended Advisory Stakeholder forum which included experts from various industry sectors who have an interest in the NMISA. The forum provided valuable input into the 2012/13 Business Plan.

BOARD MEMBER	COMPANY AND POSITION	QUALIFICATIONS AND MEMBERSHIP OF OTHER BOARDS	MEETINGS					TOTAL REMUNERATION
			BOARD	AUDIT AND RISK	FINANCE	HR AND REMUNERATION	TECHNICAL	
Dr Prins Nevhutalu*	Vice Chancellor (Research, Innovation and Partnerships), Tshwane University of Technology	PhD (Biological Science), Chairperson of Luna Mafhungo Nevhutalu Education Trust, Member of University of Limpopo Student Trust.	4/4					R 22 155.00
Mr Thembani Bukula	Director (Electricity), National Energy Regulator of South Africa	BEng, Diploma: Engineering Business Management, Board member of Ekurhuleni West College and the International Electro-Technical Commission	2/4	3/6	1/3*			R 8 720.00
Dr Tshenge Demana	Chief Director: Technical Infrastructure, **the dti**	PhD (Chemistry), Board member of the South African Bureau of Standards (SABS)	4/4	4/6	2/3		3/4	**The dti** representative
Prof. Margit Härting	Professor, Department of Physics, University of Cape Town	PhD (Physics)	1/4					R 11 034.00
Mr Tshokolo Nong	Head: Labour Relations -Sanlam Personal Finance	Admitted Attorney of the High Court, B-Proc, LLB, Postgraduate Diploma Labour Law	2/4	1/6		4/4*		R 29 485.20
Dr Notende Mgudlwa	Private	MBChB, MSc, BEd	3/4	1/6		3/4	2/4	R 33 817.00
Ms Tshidi Molala	Group Tax Manager, Total SA	Chartered Accountant	2/4	5/6*	3/3			R 22 553.60
Dr Rudzani Nemutudi	Group Head: Materials Research iThemba Labs	PhD (Physics), Board member of the Inter-national Council for Science of South Africa	3/4				4/4*	R 25 011.00

** Denotes Chair of the Committee*

BOARD MEMBER	COMPANY AND POSITION	QUALIFICATIONS AND MEMBERSHIP OF OTHER BOARDS	MEETINGS					TOTAL REMUNERATION
			BOARD	AUDIT AND RISK	FINANCE	HR AND REMUNERATION	TECHNICAL	
Dr Molefi Motuku	CEO NMISA (Resigned)	PhD (Materials Engineering), Member: South African Institute of Mining and Metallurgy (SAIMM), South African Strategic Research Infrastructure Forum (SASRIF), South African Power Utility Research Advisory Board (SAPURAB), Technology & Human Resources for Industry Programme (THRIP), Fort Hare Institute of Technology	4/4	6/6	3/3	4/4	4/4	
Advocate Catherine Letele	Practicing Advocate and member of the Johannesburg Bar; Mediator and Arbitrator	BA Law, LLB, LLM, MBA	1/4			1/4	1/4	R 8 717.86
								R 178 714.66

External Members

Mr Hennie Kruger	Founder: Hennie Kruger Bookkeepers	External Member		3/6				
Ms Poni Ngwato	Risk and Quality Assurance Manager, CSIR Internal Audit department	External Member		4/6				

4.2 Functional and Operational Management

The activities of the NMISA are managed by an executive management team, supported by metrology group leaders representing the technical sections.

The NMISA Management Team reviewed the NMISA's strategic objectives and key performance indicators to ensure closer alignment to national priorities and to facilitate the modernisation of the metrology infrastructure to ensure the institute can meet South Africa's future measurement needs. **A request to recapitalise the NMISA, including new infrastructure, modernising the equipment, and an enhancement of the human resource capacity, was received favourably by National Treasury and an initial R 25 million was allocated in 2011/12 by the dti to the NMISA specifically for equipment. Further funding was secured over the MTEF, with R 50 million and R 100 million allocated for 2013/14 and 2014/15, respectively.**

Another objective of the management team was the implementation of the Human Capital Development (HCD) plan which aims to enhance the NMISA's qualification profile and to address employment equity. This saw the launch of an undergraduate bursary and post-graduate internship programme to develop a pipeline of young black researchers. The HCD programme also included a management development programme.

IMMENSE FOCUS was also placed on strengthening the internal structures. In line with the new strategy, some changes to the operations structure were proposed for implementation in 2012/13. With support from the Board, the NMISA internalised the Internal Audit function. This went hand-in-hand with a project to upgrade the information technology (IT) systems to enhance information management towards facilitating improved workflow in support of increasing more stringent compliance requirements. A dedicated Compliance Office was also established.

Dr Molefi Motuku
Chief Executive Officer (Resigned 31 May 2012)

Benjamin van der Merwe
Acting Chief Executive Officer


Dakalo Netshivhazwaulu
Chief Financial Officer


Sara Prins
Research Manager


Shravan Singh
Operations & Company Secretary


Kgaugelo Masekela
HR Manager


Donald Masuku
Regional & International


Dr Wynand Louw
Director of Metrology


Dumisani Maluleke
Acting Financial Manager


Monica Peart
Quality


Lerato Ntatamala
QESH


Jayne De Vos
Metrology in Chemistry


Benjamin van der Merwe
Mechanical Metrology


Natasha Nel-Sakharova
Electromagnetic Metrology


Zakithi Msimang
Ionising Radiation

5. THE METROLOGY IMPACT

THE TECHNICAL ACTIVITIES OF THE NMISA ARE STRUCTURED INTO TECHNICAL DIVISIONS THAT ARE SUPPORTED BY A RESEARCH AND DEVELOPMENT PORTFOLIO FOR CROSS-CUTTING PROJECTS.

5.1 Products and Services

1. NATIONAL MEASUREMENT STANDARDS:	2. CALIBRATIONS, REFERENCE MEASUREMENTS AND CHEMICAL ANALYSES:	3. CERTIFIED REFERENCE MATERIALS:	4. TRAINING:	5. CONSULTATION:
The NMISA maintains 42 gazetted national measurement standards (Government Gazette 27269 of 18 February 2005). These standards underpin the South African measurement system and facilitate national traceability of measurements to the SI, or to other internationally agreed references.	Delivering direct traceability to the national measurement standards, the NMISA serves the high-end calibration laboratories and specialised service providers with calibrations to the highest accuracy (smallest uncertainty). The NMISA holds accreditation to ISO/IEC 17025 for most of the parameters and ranges in which it offers calibration services. The NMISA furthermore maintains a number of reference measurements in several parameters through which the NMS are disseminated. These methods are verified and validated, and underpinned by Calibration and Measurement Capabilities (CMCs). The NMISA has furthermore built capability to value-assign chemical samples and gas mixtures for customers.	The NMISA offers Certified Reference Materials (CRMs) to industry. CRMs are 'controls' or standards used in the calibration of analytical instruments and/or during the analysis and/or quality assurance process of products, and accredited laboratories are required to use CRMs to ensure traceability of their results. CRMs are produced under stringent manufacturing procedures and differ from laboratory reagents in their certification and the traceability of the data provided. The full list of the NMISA CRMs is available under the Chemistry Reference Material and Measurements Register as published and updated on the NMISA's website.	The expertise residing in the NMISA staff is an important contribution to the development of a skilled and capable workforce through training in measurement science. Where and when required, the NMISA assists especially SANAS and the National Laboratory Association (NLA) with training courses. The NMISA's staff also contributes to academia as invited lecturers in graduate and post-graduate academic courses.	The NMISA offers measurement services to industry. These services include method development for customers, assisting them in problem solving or analysis in support of research and industrial development projects.

5.2 Contributing to the Quality of Life and Environmental Monitoring

5.2.1 METHOD DEVELOPMENT TO MONITOR PERSISTENT ORGANIC POLLUTANTS

Exposure to Persistent Organic Pollutants (POPs) has been associated with a myriad of negative health effects including carcinogenesis, teratogenesis, affected neurological development, changes in bone density, hepatoxicity, immunotoxicity, tumour promotion, embryo toxicity, immunotoxicity, porphyria-independent skin lesions, porphyria as well as endocrine disruption. These chemicals have been produced commercially as industrial additives, lubricants, plasticisers, pesticides, and process intermediates, and are formed as unintentional by-products of anthropogenic activity including pyrogenic and chemical processes. Since many of these chemicals are known to cause adverse health and reproductive effects it is essential for

scientists and government alike to assess the contribution of these chemicals to public health, especially early development stages that represent a sensitive sub-grouping of the population. With the development of global initiatives such as the Stockholm Convention on POPs, this issue has also moved into the realms of policy, regulations, and international obligations. Therefore, the responsibility to meet the obligations of the Stockholm Convention and relevant international legislation with implications for South Africa lies no longer with science and health only but also with government.

To assist in protecting human health through the on-going monitoring of these chemicals in biological matrices such as urine and breast milk, the NMISA has initiated programmes to develop quantitative LC-MS and GCxGC-TOFMS methods and extraction techniques for temperature and low pH sensitive compounds as well as the classical POPs. The development of analytical techniques to determine the levels of toxicants in breast milk is specifically of importance since breast milk is still seen as the ideal nourishment for infants, as it contains the optimal balance of fats, proteins, and carbohydrates for an infant's development.

Since South Africa currently has no facility to measure dioxins and furans, a collaborative project was initiated between the NMISA and the Persistent Organic Pollutant and Toxicant (POPT) research group at the North-West University. The outcome of this collaboration has been the development of a cost effective, integrated bio-analytical and reference analysis approach to POPs and in particular, dioxins. The collaboration between these two institutions has led to ground breaking research for South Africa in POPs.

The ultimate goal is to establish an **ENVIRONMENTAL POLLUTION COMPLIANCE AND RESEARCH CENTRE (EPCRC)** that incorporates more than just a dioxin facility. Method development and method validation is in progress, but dedicated laboratory space and accurate high end instrumentation is required to proceed from current status and this is therefore the main focus moving forward.

5.2.2 MANAGING NOISE LEVELS

Noise (sound) measurements are important in ensuring a safe and conducive work environment. When the NMISA's reciprocity calibration system failed to the point where the realisation of the national measurement standard for Sound Pressure in Air was under threat, research resources were dedicated to the in-house design, development, and assembly of a new reciprocity calibration system. The NMISA commissioned the new system, and was able to participate in a critical international key comparison to ensure continuity in the NMISA's services in microphone and sound-related calibrations. The system ensures continued confidence in all acoustical measurements made in South Africa, such as;

- → testing the acoustical properties of materials used to sound proof rooms,
- → ensuring a quieter (less noise polluted) environment, and
- → enabling scientifically supported hearing conservation programmes for the South African work force.

TOP QUALITY

Nomonde Tebekana
Dosimetry

Corné Gouws
Force

Mariesa Nel
Dosimetry

Floris van der Walt
Radio Frequency

Pamela Silwana
Radio Frequency

Mudalo Nemadzhilili
Gas

5.2.3 MEASUREMENTS FOR FOOD SAFETY

Food with high nutritional benefits such as milk and infant formula is an important source of energy and essential nutrients.

Accurate chemical measurements ensure the validity of nutritional content claims and are of paramount importance. Food safety measurement is especially important for the more vulnerable members of the population such as the formula fed infants of HIV positive mothers. The NMISA is developing and validating methods to accurately quantify the protein content of infant formula and milk in addition to the quantification of the essential amino acids, in an attempt to further safeguard the health of South African citizens.

Benchmarking the NMISA's reference measurement services for persistent organic pollutants (POPs), initially for environmental samples and now also for residues in food matrices, the NMISA participated in an international comparison for pesticides in tea. This is one of many comparisons that allow the NMISA to develop and underpin measurement capabilities for select analytes in complex food matrices.

In 2010 the **NMISA's Inorganic Chemistry** Laboratory embarked on a project in collaboration with the South African Grain Laboratory (SAGL) to characterise approximately 250 samples of wheat flour for the toxic elements of cadmium in lead. In 2011 the exercise was repeated and copper, iron and zinc were added to the analysis scheme.This year manganese and molybdenum will also be added to the characterisation portfolio.

With the NMISA's expertise in trace element analysis in foodstuffs well established, the food analysis scope was expanded further with the Radioactivity Laboratory participating in a study to measure radioactivity levels (Cs-137 and K-40 specifically) in a Rice Reference Material. The NMISA prepared an in-house "rice" sample that was milled down to mirror the fine particle size of the international comparison rice sources in order to measure and correct the attenuation effects in our measurements. Various drying experiments were also conducted so that results can be reported as **"Activity" and/or "Dry Mass".**

5.2.4 MEASUREMENT PARTNER FOR AIR QUALITY MONITORING

The Department of Environmental Affairs (DEA), as part of SAAQIS (the South African Air Quality Information System), has a project to establish a National Reference Laboratory (NRL) for Air Quality Management. The main purpose of the NRL will be to **support the input of accurate and reliable data from ambient air monitoring stations and networks, as well as emission point sources to SAAQIS**. In turn, SAAQIS will then be able to provide reliable air quality information to government and other stakeholders for the development of air quality management policies.

The DEA has identified the National Metrology Institute of South Africa (NMISA) as a candidate to establish and host the NRL. The Gas Analysis Laboratory prepares and offers to industry a suite of primary reference gas mixtures (PRGMs) and these gas mixtures are the primary source of traceability for these monitoring stations.

5.2.5 ARRIVE ALIVE – MIXTURES FOR BREATH ALCOHOL TESTING

The NMISA produces primary reference gas mixtures (PRGMs) for local industry. During 2011/12 they prepared and validated a **new suite of gas reference materials for ethanol in nitrogen to add to the 33 PRGMs already offered.**

The new ethanol in nitrogen mixtures are also used in the calibration of evidential breath analysers. The in-house production ability is of huge benefit, as the reference mixtures for instrument and breathalyser calibrations previously had to be imported. The NMISA's facility for the gravimetric preparation of condensable gas mixtures also serves several external customers who use the mixtures to calibrate breathalysers that are built into the ignition of road freight trucks.

5.2.6 RADIO-ANALYTICAL MEASUREMENTS ON THE ENVIRONMENTAL SAMPLES

The NMISA entered into discussions with the National Nuclear Regulator (NNR) to assist with the performance of independent radio analytical measurements on the environmental samples supplied by license holders or even those sampled by the NNR. The NNR is primarily mandated to monitor and enforce regulatory safety standards for the achievement of safe operating conditions, prevention of nuclear accidents or mitigation of nuclear accident consequences. The NNR's safety standards are to protect workers, the public, property and the environment against the potential harmful effects of ionising radiation or radioactive material. **As an outcome of the collaboration, the Radioactivity Laboratory of the NMISA will be enhanced in order to facilitate this service as an initial start.**

5.3 Contribution to Manufacturing and Industrial Development

5.3.1 NEW ARTEFACT DEVELOPED TO SUPPORT DIMENSIONAL CALIBRATIONS IN INDUSTRY

Coordinate Measuring Machines (CMMs) are widely used in the manufacturing industry to measure the physical geometrical characteristics of an object in three dimensions. Ball plates are used as transfer standards during the performance evaluation of CMMs, but are typically only available for larger CMMs. **The Dimensional Laboratory especially designed a micro-ball (µball) plate for performance evaluation on µCMMs.**

The design criteria not only took into account that the artefact must show long term stability between calibrations, with good geometric features to allow comprehensive performance evaluation, but also that the material must have a well characterised thermal expansion to allow for easy manufacturing. The concept was presented at an international conference where it generated interest, and a design protection was filed under the European trade marks and designs.

5.3.2 TOWARDS ENHANCED OPTICAL FIBRE INSTALLATIONS

Polarisation Mode Dispersion (PMD) is a phenomenon that occurs in optical fibres that severely limits the maximum distance of errorless data transmission in telecommunications networks. **An increase in the rate of data transmission in new-generation fibre networks ('bit rate') has led to the need for reducing the effect of PMDs.** The Fibre Optics Laboratory has demonstrated this proof-of-concept for a calibration procedure for PMD in collaboration with the Physics Department of the Nelson Mandela Metropolitan University. The result of this project paved the way for a PMD calibration service at the NMISA, which will assist industry with the design and installation of next-generation telecommunications networks.

5.3.3 DEVELOPMENT OF A PRIMARY STANDARD FOR DEWPOINT HUMIDITY

Many materials used to produce pharmaceuticals have a physical affinity for moisture. This can cause lumping or caking of powdered material. Humidity can cause a tablet to crumble and in some cases it can cause the medicine to decompose and diminish in therapeutic value. Machines and pipes become clogged and production, transport and storage are impeded. Lumping and caking of powdered substances are also significant problems in industrial chemical production. Some chemicals can even decompose in the presence of water vapour. Where in other situations water vapour can cause a chemical reaction that changes the character of the product completely. The most effective way to protect raw materials and products during production, storage and transport is to ensure that all these processes are surrounded by air which humidity has been accurately measured and controlled. This requires humidity sensors calibrated against reference standards traceable to the national measurement standards maintained by the NMISA.

A Two-Pressure Humidity Generator has been developed. It covers a dewpoint humidity range of -25 to +60°Cdp and allows traceability for high humidity to be obtained from the national temperature and pressure standards. Previously, traceability for all humidity calibrations were imported from overseas calibration laboratories. **Pending final performance tests to verify the system, the TWO-PRESSURE HUMIDITY GENERATOR will become the NEW PRIMARY REFERENCE STANDARD.**

5.3.4 NANOPARTICLE CHARACTERISATION

'Nano' has taken the world by storm. More and more consumer products are being sold as improved or 'better' since they contain something 'nano'. **Nano-materials are claimed to have improved properties to that of traditional materials**. Nanotechnology is driving the development of materials and pushes the physical limits known to man. Nanotechnology has become a driving force in new developments and advances in a cross-cutting field of applications and industry. Advances in any technological field can only be sustainable if the measurement system to support these innovations and advances are also developed. Systematic measurements and results with known limits of uncertainty are the cornerstones in science and industrial quality control.

The NMISA has participated in a number of international studies to develop protocols and measurement uncertainties to underpin the characterisation of nanoparticles. The data will assist industry in its preparation of anticipated new international legislation that will require the quantification of nanoparticles in consumer products. These studies will furthermore be used to compare the measurement equivalence of different methods so that relevant measured definitions are developed for industry use.

With an increase in the health and safety concerns on the uptake of nano-materials in consumer goods, there is a need to quantify the health and safety aspects of nano-materials on humans and the environment. The NMISA partnered with a project from the Department of Science and Technology (DST) on the nano-toxicity of manufactured nanoparticles to develop and validate the measurement methods for quantification and the long-term bio-durability of nanoparticles. These activities are underpinned by the NMISA in the development of new international standards under the International Standards Organisation (ISO) through participation in the South African Bureau of Standards (SABS) Technical Committee (TC) for Nanotechnology.

5.3.5 IMPROVED VIBRATION CAPABILITIES SERVING WIDER INDUSTRY

As part of expanding Vibration measurement capabilities, the Vibration laboratory successfully extended the operational frequency range of the National Measurement Standard for vibration, while at the same time improving its low frequency accuracy. Low frequency vibration measurements are vital in all industry sectors where blasting is performed. It is a safety measure required by law to measure the ground vibration caused during blasting, **to protect surrounding structures,** which could become a safety hazard if damaged.

5.3.6 UPGRADE OF THE NATIONAL STANDARD FOR RADIOACTIVITY IN SUPPORT OF NUCLEAR MEDICINE FACILITIES AND THE NUCLEAR POWER INDUSTRY

The Radioactivity Laboratory completed the first part of a project to **AUTOMATE THE IONISATION CHAMBER.** The automation has improved the quality of the data collected by facilitating the collection of significantly more data for each measurement; improving the statistical analysis and hence reducing potential bias which may be attributable to human error. This improved measurement capability and characterisation of the Ionisation Chamber feeds back directly to the user community, in particular nuclear medicine facilities at South African hospitals, the nuclear power industry, nuclear research and the production of radio-isotopes through improved standards and calibrations that are offered by the NMISA. This further enhances the quality of life for the public as improved measurement of radioactivity for radio-isotopes would also aid the nuclear medicine sectors to continue providing physiological imaging without over-exposing the patients.

5.4 Green Energy

5.4.1 LEADING IN THE DEVELOPMENT OF LIGHT-EMITTING DIODES (LEDS)

International statistics indicate that lighting consumes about 20% of all electricity. It is estimated that the replacement of conventional lamps with more energy efficient light sources, specifically **Light-Emitting Diodes (LEDs),** will bring this number down to 4%, assuming full scale adoption. A scientific approach is required to ensure that a human's need for different types of lighting in different settings are accommodated within energy saving initiatives that do not sacrifice overall lighting quality. It calls for a more efficient use of daylight, augmented with the use of energy efficient lamps and the latest lighting technology (in terms of electronic control gear).

Since the LED is a unique source with photometric characteristics that differ from conventional lamps, dedicated equipment and new measurement methods are required. The NMISA is developing the expertise required to establish new national measurement standards for LED parameters (average luminous intensity, luminous flux, and colour coordinates). The NMISA is furthermore leading a SABS working group for LEDs with the SABS with the purpose of studying international standards and draft standards for suitability to be adopted as national standards. Once these standards are finalised and promulgated, the user-community will require their measurement traceability for LEDs from the NMISA.

5.4.2 TOWARDS THE THIRD GENERATION OF PHOTOVOLTAICS

Silicon nitride (SiN_X) thin films are important in the solar cell and microelectronics industry. SiN_X thin films act as an anti-reflective coating and passivation layer on solar cells, which enhances the conversion efficiency of the solar cell. Third generation photovoltaics seeks to address the limitations of first generation (crystalline Si) and second generation (a-Si, thin films) by increasing the efficiency. These thin films are presently fabricated by plasma enhanced chemical vapour deposition but on the other hand hot-wire chemical vapour deposition (HWCVD) holds potential benefits as an alternative synthesis technique as it offers films deposited at higher growth rates, no ion bombardment and less hydrogen content.

Nanocrystalline silicon (nc-Si:H) is a mixed phase material with regions of amorphous silicon (a-Si) and crystalline silicon (c-Si). The incorporation of nc-Si:H into solar cells is expected to increase the conversion efficiency while reducing the fabrication costs. In a collaborative research project with the University of the Western Cape, the NMISA investigated the structure-property relationship of the HWCVD films.

The outcomes of the project include the development of in-house reference materials for analysis of N and Si content in thin films. In addition, the fabrication and characterisation of solar cells based on SiN_X and nc-Si:H materials **will strengthen the thin films measurement capabilities in the electronic, optical and structural analysis at the NMISA,** which is important for the development of a characterisation service for photovoltaic efficiency.

5.4.3 BIOFUELS INTER-LABORATORY PROGRAMME WITH BRAZIL

As part of supporting international trade between Brazil and South Africa, and with focus on the biofuel sector, the Chemistry Division of the NMISA and the Brazilian National Institute of Metrology, Quality and Technology (INMETRO) have compiled a schedule that details agreed bilateral studies to be undertaken between the laboratories. One of the first bilateral measurements was to underpin (towards a calibration and measurement claim) the ethanol CRMs produced by both institutes. This collaborative measurement exercise will benefit both countries, thus underpinning measurement competency and serving both the bioethanol and forensic ethanol needs. The next phase of the agreement will include benzene, ethyl benzene, toluene, and xylene isomers (BTEX) CRM that will support standards in biodiesel and environmental pollution monitoring.

5.4.4 CLEAN AIR: SO_2 ANALYSIS

In support of the drive to establish the comparability of laboratories and gas manufacturers to provide calibration gases for the monitoring of sulphur dioxide, the Gas Analysis Laboratory hosted a national inter-laboratory comparison for the analysis of 50 to 70 ppm SO_2 in nitrogen. The protocol was accepted by customers and stakeholders at a Technical Advisory Forum, with a total of 13 participants. Amongst them were the three major gas supplier companies, municipalities and private consultants. The results have been returned to the participants, and a follow-up workshop will ensure that the outcomes contribute to the effectiveness and efficiency of air quality analysis in the country.

Dr Maria Fernandes-Whaley
Section Head: Organic Chemistry

6. REGIONAL EXCELLENCE

6.1 Excellence in Organic Analysis

The Organic and Bio analysis laboratory provided an ethanol proficiency testing (PT) scheme for 6 laboratories on the African continent, namely Kenya, Malawi, Zimbabwe, Tunisia and Tanzania. The PT scheme culminated in an informative training workshop held in Kenya during the Intra-Africa Metrology System (AFRIMETS) Technical Committee for Amount of Substance (TCQM) meetings on performing these critical forensic and beverage alcohol analyses and estimating the uncertainty of measurement. This project was coordinated through AFRIMETS, with funding from the United Nations Development Organisation (UNIDO), and has contributed to increased external revenue for the Organic and Bio analysis laboratory. This endeavour also afforded the Organic and Bio analysis laboratory the opportunity to pilot their very first international comparison for ethanol (AFRIMETS.QM-K27), comprising 10 CIPM member nations from Africa, Europe, Asia, and South America.

6.2 Supporting water safety in SADC

The NMISA again supported the SADC Cooperation in Measurement Traceability (SADCMET) Water Proficiency Testing scheme, which was launched in 2004 by the Physikalisch Technische Bundesanstalt (PTB) Technical Cooperation to build capacity in SADC. The scheme has grown to include elemental analysis as well as microbiology measurements. Since 2009 the NMISA has assisted with the value assignment of the elemental solutions, in support and validation of the gravimetric preparation of the solutions. With no major discrepancies between the gravimetric values and the NMISA analysis, the confidence in the measurement results has improved significantly.

The scheme has grown significantly from only 25 laboratories participating at inception to over 100 laboratories participating in the last PT rounds.

YOUR MEASURE OF ★ EXCELLENCE ★

6.3 Contributions to the SADC Trade Protocol

The SADC Trade Protocol **AIMS TO RESPOND EFFECTIVELY** to the challenges of globalisation and development and will enable the SADC region and countries to become more competitive, diversify their exports, and build a regional market. Specifically, in the context of trade liberalisation in Southern Africa, the program aims to support the process of modernisation, growth, and competitiveness of the industries and related services and regional integration. The NMISA participated in the Annual SADC SQAM/TBT meetings held in Malawi. More than 80 delegates from all SADC member states, ordinary members, observers and cooperating partners attended the meeting to discuss progress made on the implementation of the SADC SQAM MoU and TBT Annex and to agree on future plans in support of the SADC Trade Protocol. Three priority sectors have been identified where the NMISA will play a key role in supporting the programme; these include agro-processing, mineral beneficiation, and pharmaceuticals.

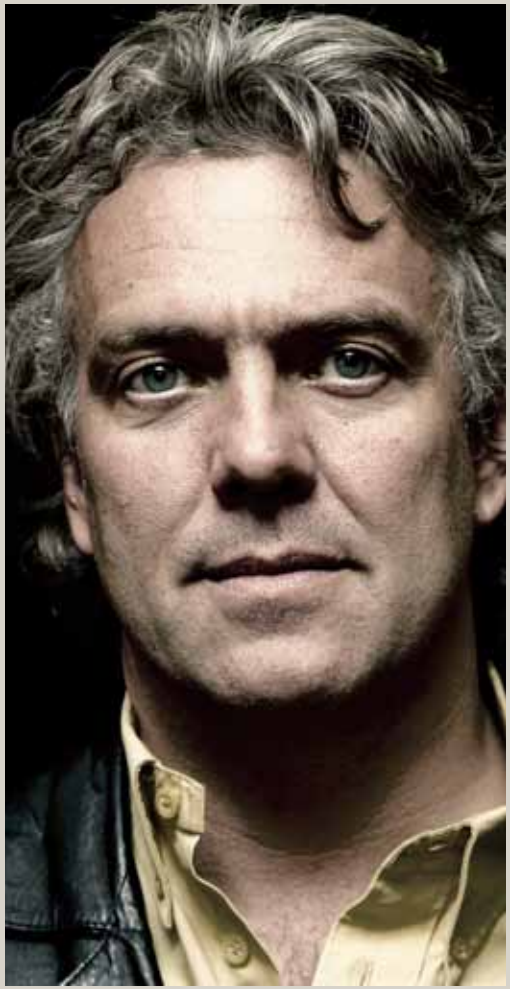
6.4 Regional training for dosimetry measurements

The International Atomic Energy Agency (IAEA) is the world's centre of cooperation in the nuclear field. It works with its Member States, of which South Africa is one, and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies. **The Ionising Radiation Laboratory is part of the network of the Secondary Standards Dosimetry Laboratories (SSDL) which was established by the World Health Organisation (WHO) and the IAEA. The SSDLs play a leading regional role in providing training in the region (SADC/Africa) and with support from the IAEA, facilitated a benchmarking exercise for dosimetry measurements for radiation protection.**

The laboratory is furthermore a designated regional training centre for English speaking countries under the African Regional Cooperative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA)/IAEA. **UNDER THIS PROGRAMME THE NMISA HOSTED AND TRAINED A SCIENTIST FROM NIGERIA IN DOSIMETRY MEASUREMENTS.**

Sonwabile Ngcezu
Ironisation & Radiation

7. MEASUREMENT LEADERSHIP



Oelof Kruger
Section Head: Dimensional

7.1 Organic Solutions

The NMISA provides one of the broadest ranges of certified ethanol reference materials for forensic and toxicological purposes. These reference materials are internationally bench-marked. The NMISA is also the only South African facility producing these reference materials. **BETWEEN 93000 AND 108000 BLOOD SAMPLES ARE ANALYSED FOR ETHANOL IN SOUTH AFRICA ANNUALLY (BOTH DRUNKEN-DRIVING AND POST-MORTEM SAMPLES).** To avoid a miscarriage of justice it is very important that the analyses are accurate and traceable to measurement standards. The ethanol reference materials are also used for the calibration of breathalysers by the 'wet' method. Blood samples are preserved with sodium fluoride to prevent the production of ethanol after a sample is taken, but this is only effective in concentration above 1%. Laboratories thus have to monitor the sodium fluoride content of each sample. For this purpose, the NMISA produces a unique range of certified sodium fluoride reference materials. To enable laboratories to demonstrate the quality of their results the NMISA has been co-ordinating a number of ethanol proficiency testing schemes. As a result, a significant improvement can be seen in the results of the participating laboratories.

7.2 Promoting Excellence in Nuclear Medicine

Nuclear medicine uses very small amounts of radioactive materials (radiopharmaceuticals) to diagnose and treat disease. Nuclear medicine imaging is unique, because it provides doctors with information about both structure and function. It is a way to gather medical information that would otherwise be unavailable, require surgery or necessitate more expensive diagnostic tests. **The NMISA's proficiency scheme with I-131 sources, measured in the vials as received and also in a syringe configuration, was aimed at assisting nuclear medicine departments at (mostly government) hospitals to ensure accurate calibration of dose calibrators and good measurement practise.** This would then aid them in administering correct doses of radiopharmaceuticals to patients. The NMISA also consulted with the hospitals on an individual bases for optimum implementation of feedback to benefit their service to the community.

> The ultimate measure of man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.

Dr Johan Burger
Photonics

Dithole Seepamore
Intern: Dosimetry

Donald Masuku
TID

7.3 Pressure

In support of the development of metrology capability in Africa, a need for an inter-laboratory comparison in pressure measurements was identified. In 2011, the AFRIMETS WG approved a pressure comparison for absolute pressure measurements of 10 to 110 kPa and the PTB initiated a Technical Cooperation Project: **'Support of a Pan-African Quality Infrastructure'** that assisted the NMISA to host this comparison. The project will also provide support for a staff member to receive additional training at the PTB under the guidance of one of the leading experts in the field of pressure metrology. The comparison will support six NMIs in Africa including the NMISA to submit CMCs into the BIPM key comparison database.

7.4 Inputs to the Industrial Policy Action Plan (IPAP)

Accurate measurement plays an essential part in any industrial development, and is therefore described to the sectors for development in the updated Industrial Policy Action Plan, IPAP. To explain this role to Business and Labour, the NMISA presented the importance of accurate, reliable and internationally benchmarked measurements to the NEDLAC. In the NMISA's inputs into the updated IPAP3 the following has been highlighted; the role of metrology as the basis for accurate measurement in the manufacturing industry, ensuring internationally acceptable calibration and measurement results to support and lock-in exports, as an essential part of the infrastructure needed to lock-out unsafe imports, in environmental monitoring and health and safety.

7.5 World Metrology Day 2011 – Year of Chemistry

The impact of metrology is celebrated every year on 20 May. With 2011 declared as the International Year of Chemistry by the United Nations as a world-wide celebration of the achievements of chemistry, the theme for World Metrology Day 2011 was **'CHEMICAL MEASUREMENTS – FOR OUR LIFE, OUR FUTURE',** to recognise the vital contributions of chemical measurements. The NMISA's celebrations included a poster designed for local and regional use, as well as an online puzzle building competition which was open to worldwide entries, comprising the periodic table of the elements.

8. TOTAL QUALITY MANAGEMENT

THE SUCCESS OF THE NMISA IS UNDERPINNED BY A MANAGEMENT SYSTEM THAT SUPPORTS ITS INTERNAL ACTIVITIES, AND THAT ENSURES ACTIVITIES COMPLY WITH NATIONAL LEGISLATIVE REQUIREMENTS AS WELL AS ACCREDITATION AND CERTIFICATION REQUIREMENTS. THE NMISA THUS OPERATES A HOLISTIC SYSTEM TO ENSURE THAT THE NECESSARY DOCUMENTATION IS DEFINED FOR ALL USES (INTERNAL AND EXTERNAL).

IN ADDITION TO THE FORMAL MANAGEMENT SYSTEMS FOR THE OPERATIONAL MANAGEMENT OF THE NMISA, MOST OF THE LABORATORIES OF THE NMISA ARE THIRD PARTY ACCREDITED TO ISO/IEC 17025, SOME ARE ACCREDITED TO ISO GUIDE 34, AND THE NMISA IS ALSO PREPARING TO BE CERTIFIED TO ISO 14001 AND OHSAS 18001.

8.1 Compliance

The management system operated by the NMISA is based on the following recognised and relevant standards, guides and legislative acts:

- Measurement Act
- PFMA
- King III
- Companies Act
- OHSAS 18001
- Labour Act
- ISO/IEC 17025
- ISO Guide 34
- ISO 14001

8.2 Accreditation and Certification

The accreditation scope of the NMISA supports the NMISA's measurement capabilities. Not only is the technical excellence of the laboratories underpinned by these formal systems, but the systems also facilitate continuous improvement processes through internal audits, parameter reviews and a corrective action system.

A FIRST FOR THE NMISA, the Inorganic Analysis Laboratory underwent an assessment for technique accreditation (to ISO/IEC 17025) by SANAS for technical competence in the field of trace element analyses in food matrices by Double Isotope Dilution ICPMS. "Technique Accreditation", effectively expanded the range of analysis that can be offered to industry.

The following is a list of accredited laboratories from April 2011 to March 2012: (see next page)

8.3 Environment, Health and Safety

Environmental, Health and Safety (EHS) management within the NMISA is conducted at two distinct levels. The first level entails the day-to-day management by the EHS Officer of EHS issues and associated risks in accordance with the relevant legislation and the commitment by management to ensure a safe working environment. The second level entails the monitoring by the Risk Committee of the NMISA of the EHS Practitioner, the actions taken and the effect of mitigation.

For the period under review, no incident of possible "LOST TIME INJURY" was reported and no investigation was required either.

Laboratory	Standard	SANAS Code	Assessment Schedule
Acoustics, Ultrasound and Vibration	ISO/IEC 17025	1600	Extension in scope (New Signatory)
Gas	ISO/IEC 17025 ISO Guide 34	1601 CRM002	Extension in scope New signatories
Force	ISO/IEC 17025	1602	New signatory
Temperature	ISO/IEC 17025	1603	Extension in scope New signatories
Time and Frequency	ISO/IEC 17025	1604	New signatory
Mass	ISO/IEC 17025	1605	No assessment in 2011/12
Dimensional	ISO/IEC 17025	1606	Extension in scope New signatory
Ionising Radiation	ISO/IEC 17025	1607	New signatory
RF Electrical	ISO/IEC 17025	1608	New signatory
Radioactivity Standards	ISO/IEC 17025	1610	Extension in scope
Photometry, Radiometry	ISO/IEC 17025	1611	No assessment in 2011/12; Extention in scope; New signatory
DCLF	ISO/IEC 17025	1612	No assessment in 2011/12
Humidity	ISO/IEC 17025	1613	New signatory
Pressure	ISO/IEC 17025	1614	No assessment in 2011/12
Inorganic Chemistry	ISO/IEC 17025	1615 (T0555)	Assessment for extension to technique testing (accreditation pending)
Organic Chemistry	ISO/IEC 17025 ISO Guide 34	1616 CRM001	Assessment
Torque	ISO/IEC 17025	1617	New signatories
Fibre Optics	ISO/IEC 17025	1618	No assessment in 2011/12

9. TECHNICAL EXCELLENCE

9.1 International Comparisons

THE NMISA REGULARLY PARTICIPATES IN INTERNATIONAL COMPARISONS.

These comparisons benchmark the NMISA's measurement capabilities against those of other NMIs and / or other specialised laboratories. The result of these comparisons forms the foundation for the NMISA to submit Calibration and Measurement Claims (CMCs) to the BIPM's KCDB, as all the accredited services the NMISA offers are underpinned by CMCs.

Laboratory	Comparison number (participated in)	Description
EM – Temperature	CCT-K9	Realisations of the ITS-90 from 83.8 K to 692.7 K
EM – dc Low Frequency	APMP.EM-K2	Resistance standards at 10 MΩ and 1 GΩ
EM – dc Low Frequency	P1-APMP.EM-S8	Digital multi-meter comparison
EM – Time	CCTF.K001-UTC	Calculation of the reference time scale UTC (Coordinated Universal Time)
IR – RS	CCRI(II)- S9	Measurement of the activity concentration of Cs-137 and K-40 in rice material
IR – DS	AFRIMETS.RI(I)- S1	Measurement of air kerma
IR – RS	Ni-63 trial comparison	Trial comparison organised by the working group of the Extended International Reference System for activity measurements of pure beta-emitting nuclides (ESIR) (in solution).
PM – Mass	CCM.M-K4	Mass
PM – Mass	CCM.FF-K4	Volume
PM – AUV	APMP.AUV.V-S1	Accelerometers)
PM – AUV	AFRIMETS.AUV.V-S2	Low frequency sensitivity – vibration
PM – AUV	CCAUV.V-K2	Accelerometers
PM – AUV	CCAUV.A-K5	Microphones
Chem – SAM	VAMAS-TWA34_3	Determination of reproducibility and repeatability of grain size measurement by EBSD
Chem – SAM	VAMAS-TWA37_1	Techniques for characterising morphology of airborne nanoparticles
Chem – SAM	CCQM- SAWG P130	Electron microprobe analysis on Au Cu alloy
Chem – Inorganic	CCQM-K87	Mono-elemental calibration standard solutions (Co, Cr & Pb)
Chem – Inorganic	CCQM-K30.1	Analysis of PB in Wine - 31 January 2012
Chem – Organic	CCQM-P136	Mid-Polarity Analytes in Food Matrix: Mid-Polarity Pesticides in Tea
Chem – Gas	CCQM-K93	Preparative EtOH in N2
Chem – Inorganic	CCQM-P12.2	Trace elements in wine

9.2 Peer reviewed publications

RESEARCH IS FUNDAMENTAL TO THE DEVELOPMENT OF NEW STANDARDS AND THE ENHANCEMENT OF CURRENT MEASUREMENT STANDARDS. THE NMISA AGAIN EXCELLED WITH TECHNICAL OUTPUTS THAT UNDERPIN THE EXCELLENCE OF ITS STAFF, MAKING AN IMPACT TOWARDS NEW KNOWLEDGE IN THE FIELD OF MEASUREMENT SCIENCE.

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[4] R. Kritzinger, J. Meyer and J.P. Burger," Investigation of the power coupling of novel wavelength-selective couplers incorporating axially symmetric long-period fibre gratings", S.Afr.J.Sci, 107(5/6) (2011) 1-7

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[12] E. Flores et al. "Final report of the pilot study CCQM-P110-B1: A comparison of nitrogen dioxide (NO2) in nitrogen standards at 10 µmol/mol by Fourier transform infrared spectroscopy (FT-IR)", Metrologia 49 (2012) 08006

[13] F.R. Guenther et al "International comparison CCQM-K76: Sulfur dioxide in nitrogen", Metrologia 48 (2011) 08015

[14] A.M.H. van der Veen et al "Supplementary comparison EURAMET.QM-S4: automotive gas mixtures" Metrologia 48 (2011) 08016

[15] J. Viallon, P. Moussay, F. Idrees, R. Wielgosz and A. Botha "Final report on the ongoing key comparison BIPM.QM-K1: Ozone at ambient level, comparison with the NMISA", Metrologia 48 (2011) 08007

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10. PERFORMANCE AGAINST THE ANNUAL PERFORMANCE PLAN

The NMISA adopted the balanced scorecard approach to set and measure performance targets. The NMISA scorecard addresses the three (3) key components of a generic scorecard namely; stakeholder/ customer (technical), organisational development (learning and growth) and financial and business process perspective.

1. A stakeholder / customer perspective (technical)

The stakeholder/ customer perspective includes measures of importance to stakeholders of the organisation, describing delivery on the core mandate that includes targets for products and services delivered.

- → Improve the quality of delivered products & services
- → Improve external communication
- → Increase customer satisfaction
- → Improve turn–around times

2. An internal organisation (learning and growth) perspective

This perspective includes measurables that focus on human resources, demonstrating the organisation's capacity to deliver on its mandate by maintaining a competent, fair and equitable work force.

- → There are measures to increase core skills and staff capability
- → Reduce employee turnover
- → Improve job satisfaction and
- → Improve internal communication in the HR function

3. A financial and business process perspective

Financial and business process perspectives include measurables that demonstrate the financial performance and sustainability of the organisation.

- → Measures that ensure effective financial controls are included
- → Financial growth and stability is ensured
- → There are targets to decrease the costs of products and services
- → Measures to improve the quality of internal processes, and align and integrate systems and processes
- → Measures to ensure proper internal communications

Performance against the Annual Performance Plan is detailed in section 10.

10.1 Performance Indicator Matrix

TECHNICAL PERSPECTIVE

STRATEGIC OBJECTIVES	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASE - LINE	YEAR TARGETS	YEAR END RESULT	MANAGEMENT COMMENTS
				2010/11	2011/12		
Keep, maintain and disseminate national measurement units and measurement standards	Keep and maintain the measurement units for South Africa in accordance with the International System of Units (SI), adhering to the rules as laid down by the General Conference on Weights and Measures (CGPM), as well as any other units defined for use in the South African market.	Gazetted measurement units	Review every 4 years after CGPM and submit report to the Minister	No baseline. First year of this new KPI.	1	0	Gazetted list compiled for submission to **the dti**
	Keep and maintain all national measurement standards and reference measurements, and the equipment and infrastructure to maintain them	Gazetted national measurement standards	# of gazetted standards (Review every 2 years)	42	49	50	Target exceeded. Updated submission to Minister prepared
		Reference measurements	# of validated reference methods underpinning each measurement	No baseline. First year of this new KPI.	16	16	Met target
			# of reference measurements performed	No baseline. First year of this new KPI.	53	61	Target exceeded
		Maintain laboratory equipment and/or transfer standards	# of transfer standards and equipment operating as transfer standards or for reference measurements, maintained	No baseline. First year of this new KPI.	121	194	Target exceeded
		Disseminate the correct use of the Units	Unit brochure published annually on the NMISA website	No baseline. First year of this new KPI.	1	1	Target met

TECHNICAL PERSPECTIVE

STRATEGIC OBJECTIVES	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASE - LINE	YEAR TARGETS	YEAR AND RESULT	MANAGEMENT COMMENTS
				2010/11	2011/12		
	Disseminate the units, traceability, measurement expertise or services to South African commerce and industry by means of calibration, measurement or analysis, certified reference materials or appropriate technology and skills transfer	Calibration services	# of calibration certificates issued	No baseline. First year of this new KPI	1911	1662	Below target. The laboratories experienced 3 months of down time due to an air conditioner failure. A third backup system was installed to reduce this risk in future
		Production of certified reference materials	# of certified reference materials offered to industry	7	36	44	Target Exceeded
			# of certified reference material certificates issued	64	74	143	Target exceeded
		Provide and support proficiency test (PT) schemes	# of PT schemes hosted by the NMISA	13	16	13	Target behind due to defective equipment
			# of reference values assigned for PT schemes	29	51	72	Target exceeded
Demonstrates national standards and measurement equivalence to international standards and measurements	Arrange for appropriate periodic comparisons of the national measurement standards and reference materials with the corresponding other national measurement standards, international standards or references recognised as such	Participate in international comparisons	# of submitted international comparison results	25	19	22	Target exceeded
		Organise Comparisons	# of organised international comparisons (on CIPM CC or RMO level)	4	2	4	Target exceeded
	Effect the inclusion of the calibration and measurement capabilities in MRA arrangement	Maintain CMCs	# of CMCs in KCDB	356	362	362	Target is to maintain this number

TECHNICAL PERSPECTIVE

STRATEGIC OBJECTIVES	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASE - LINE	YEAR TARGETS	YEAR END RESULT	MANAGEMENT COMMENTS
				2010/11	2011/12		
Build an internationally recognised national metrology system as the foundation for the South African measurement system and key component of the technical infrastructure	Upgrade the existing measurement standards and/or reference material certification procedures in line with the requirements of commerce, industry and health, safety and environmental sectors	Improved CMCs	# of improved/ updated CMCs	10	8	26	Target exceeded
		Reduced measurement uncertainties	# of measurement standards improved	5	7	14	Target exceeded
	Maintain close links with the CIPM and associated activities of the Metre Convention	Membership of consultative committees (CCs) and its working groups	# of consultative committee memberships	9	9	9	Target is to maintain this number
			# of working group memberships	26	26	26	Target is to maintain this number
	Participate and represent South Africa regionally with reference to traceability and measurement issues	Membership of AFRIMETS Working groups	# of working groups	No baseline. First year of this new KPI	9	9	Target is to maintain this number
	Participate and represent South Africa internationally with reference to traceability and measurement issues	Represent Africa at the Joint Committee of Regional Metrology Organisations and the BIPM	# of representations at the meetings	2	1	0	This trip was re-prioritised and did not take place this financial year
Support South African enterprises competing in a fast-paced global economy	Measurements for the South African industry	Certificates and reports issued and CRMs sold	# of companies supported	539	544	812	Target exceeded
	Participate in national interest thrusts/initiatives	Membership to focus bodies (e.g. Consumer Goods Council, Automotive, nanotechnology, etc.)	# of official links with consumer and industry bodies/forums	14	15	23	Target exceeded
			# of SANAS Technical Committees	18	20	20	Met target
Support, regional (SADC), continental (Africa) and global metrology initiatives	Co-ordinate and manage international, regional and bilateral interaction with other national metrology institutes and bodies affiliated to the CIPM and interact with such institutes and bodies	Provide secretariat role to SADCMET and AFRIMETS	# of secretariats hosted	2	1	1	Met target

TECHNICAL PERSPECTIVE

STRATEGIC OBJECTIVES	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASE - LINE	YEAR TARGETS	YEAR AND RESULT	MANAGEMENT COMMENTS
				2010/11	2011/12		
	Participate in relevant national, regional and international committees	Participate in IBSA/ BRICS activities	# of technical interactions	6	7	10	Target exceeded
		Participation in international relevant bodies (such as VAMAS, IAEA, CITAC, CIE, etc.) international committees	# of representations at the meetings	17	18	18	Target met
Support public policy objectives with regard to compliance issues including terms of health, safety and the environment	Input to national initiatives such as participation in NEDLAC, Technical Barriers to Trade, etc.	Contribution to policy documents and meetings	# of requests received	3	4	5	Target exceeded
	Participation in SABS Technical Committees (TCs)	Expert contributions to technical standards	# of SABS TCs the NMISA participates in	18	19	19	Target met
Uphold the principles of good corporate governance (Technical)	Comply with Quality, Environment, Safety and Health Standards	Maintain relevant accreditations (ISO/IEC 17025 ISO Guide 34)	# of accredited fields	34	34	34	Target met. 20 Accreditations have been maintained for the period. Ionising radiation includes the accredited parameters bringing the total to 34
		Maintain relevant certifications (ISO 14001, 18001)	# of certifications maintained	New KPI, no baseline	2	0	Formal certification is postponed to Q2 of 2012/13

Alex Matlejoane
Radio Frequency

Flippie Prinsloo
Radio Frequency

Dr Adriaan van Brakel
Time & Frequency, Fibre Optics

Refuoe Pepenene
Photometry & Radiometry

Dr Eino Vuorinen
Organic Analysis

Lesińda Mann HR

"For with what judgment ye judge, ye shall be judged: and with what measurement ye mete, it shall be measured to you again"

ORGANISATIONAL DEVELOPMENT & GROWTH PERSPECTIVE

OUTCOME/ STRATEGIC OBJECTIVE	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASELINE 2010/11	ANNUAL TARGETS 2011/12	YEAR END RESULT	COMMENTS
Build an internationally recognised national metrology system as the foundation for the South African measurement system as key component of technical infrastructure	Established and maintained the necessary expertise and competence according to internationally acceptable standards	Transformed workforce profile	% staff with PhD/DTech	10.0%	12.0%	10.0%	New appointments were made at qualification levels below PhD
			% staff with MSc/MTech	22.0%	22.0%	25.0%	Including 4 internships
			% staff with Hons	0.0%	14.0%	12.0%	Due to appointments at Diploma level
			% staff with BSc/BTech	14.0%	18.0%	15.0%	Due to appointments at Diploma level
			% staff with National Diplomas	16.0%	13.0%	15.0%	One employee studying
	Increased number of staff with higher technical qualifications	Improved higher qualification profile (The NMISA employees)	# of Post-Graduate studies	5	7	7	Met target
			# of Graduate studies	4	2	8	Target exceeded
	Increased number of black professionals	Transformed workforce profile	% black professionals	39.0%	46.0%	43.0%	Staff turnover was lower than predicted
	Technical publications / outputs	Publications in refereed journals and conference proceedings	# of publications	23	20	28	Target exceeded
		Publications in other scientific and technical related media (e.g. book chapters, technical magazines, short communications and confidential reports)	# of publications	9	11	3	While the number of other publications have not been met, peer reviewed publications have been exceeded
		Patents	# of patents (incl. preliminary patents)	7	8	8	A design protection for a ball plate was filed in the European market. The NMISA has 7 prior patents

ORGANISATIONAL DEVELOPMENT & GROWTH PERSPECTIVE

OUTCOME/ STRATEGIC OBJECTIVE	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/MEASURE	BASELINE	ANNUAL TARGETS	YEAR END RESULT	COMMENTS
				2010/11	2011/12		
	Attend and present at scientific and technical conferences and workshops	Presentations at conferences	# of oral and poster presentations at international conferences/ workshops	25	22	18	The NMISA cut down on international travel, and conference attendance was affected most. Focus was shifted to national conferences, where the target was exceeded
			# of oral and poster presentations at national conferences	22	19	27	Target exceeded
	Human capital development	Internship and in-service training	# of interns and in-service trainees	4	5	8	Target exceeded
		Bursaries	# of undergraduate graduate bursaries	1	6	5	Target missed by 1. The focus was on Post graduate bursaries
			# of post graduate bursaries	1	5	5	Target met
	Internal staff training and development	Skills development	Total spent on training expressed as a % of total budget	1.50%	1.50%	1.60%	Target exceeded
	Performance Management	Performance Management system	% Performance Contracts done and signed (for each employee)	100%	100%	100.0%	Target met
			% Performance Assessment done and signed (for each employee)	100%	100%	100.0%	Target met
	Staff retention & succession	Staff retention & succession	% of staff turnover	8%	8%	3.0%	The reduced staff turnover is viewed in a positive light
	Science, Engineering and Technology promotion (SET) programmes	SET promotion programmes	# of promotion events	1	2	2	Target met
	Employee wellness	Employee wellness	# of employee wellness programme interventions	1	1	1	Target met

ORGANISATIONAL DEVELOPMENT & GROWTH PER SPECTIVE

OUTCOME/ STRATEGIC OBJECTIVE	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASELINE	ANNUAL TARGETS	YEAR END RESULT	COMMENTS
				2010/11	2011/12		
Support bilateral, regional, Africa and global initiatives	Exchange of scientists	Skills transfer	# of exchanged scientists trained at the NMISA	1	3	12	Target exceeded
			# of the NMISA scientists trained at other institutes	1	1	3	Target exceeded
Uphold the principles of good corporate governance (Labour issues)	Compliance with labour legislation	Employment Equity report and plan	EE plan and report submitted to DoL	2 Reports	2 Reports	Reports submitted	On target
		DoL Return of Earnings	Compliance report submitted to DoL	Report	Report	Report	Report submission date has been moved to 31/05/2012 by DoL. Reporting templates are expected during April 2012
		Annual staff satisfaction survey	Staff satisfaction (%)	68.0%	70.0%	66.0%	Can be attributed to a re-organisation of the institute

Vusani Nevari
Intern: Internal Audit

Napo Ntsasa
Acting Section Head: Gas

Patricia Molele
Internal Audit

Dr Laura Quinn
Organic Analysis

Pieter Greeff
Length

Nontete Nhlapo
Organic Analysis

FINANCIAL PERSPECTIVE

STRATEGIC OBJECTIVE	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASELINE 2010/11	ANNUAL TARGETS 2011/12	YEAR END RESULT	COMMENTS
Uphold the principles of good corporate governance in Finance	Financial Management and governance	Internal audits conducted	# of internal audits conducted	16	5	7	The Internal Auditor was appointed during the third quarter and began with the execution of the planned audits
		Costs contained within the allocated budget	Budget vs Expenditure variance	2%	2%	-8%	Budget was adjusted by R 25 Million for Special Capex during the last quarter which is 35% more on the revised budget. The process of equipment is ongoing hence the higher surplus
		No fruitless and wasteful, irregular and or unauthorised expenditures	Management Exception Reports and Audit Reports	0	0	1	No comment
		BEE procurement as a % of total goods and services expenditure	Actual expenditure on BEE service providers	0%	10%	47%	The organisation is procuring 47% of its goods and services from BBEEE compliant service providers. About 55% of this is rental paid to the CSIR
		Develop and Implement Financial internal Controls	Internal Audit opinion on existence and effectiveness of control	16	5	6	The appointment if Internal Auditor was completed during September 2011 and activities started in October 2011
			External Audit opinion on existence and effectiveness of controls	Unqualified Audit Report	Unqualified Audit Report	Yearly target	Target met
		Reduce debtors book value through improvement of debtors collection turn-around time	Debtors Book Value	R 1,8 Million	R 1 Million	R 1,358 Million	The receivables went over the budgeted amount due to mainly PTB conference that was hosted in February and invoiced during March and was still not settled by the end of the financial year
		Introduction of Supply Chain Management process	Functional centralised acquisition and logistics unit	0	In place	Commisioned	Candidate was appointed in Q3

FINANCIAL PERSPECTIVE

STRATEGIC OBJECTIVE	ACTIVITY	OUTPUT	PERFORMANCE INDICATOR/ MEASURE	BASELINE 2010/11	ANNUAL TARGETS 2011/12	YEAR END RESULT	COMMENTS
		Eliminate fraud and corruption practices trough awareness initiatives	No. of awareness initiatives implemented such as workshops, publications, etc.	0	2	1	The global staff meetings during the last quarter were dominated by crucial re-organisation issues and therefore a slot for general staff workshop could not be secured
			Functional and efficient fraud hotline	0	In place	In place	The hotline is active and a number of queries have already been logged indicating that the workforce is aware of the platform
	Compliance to relevant legislation and guidelines	Compliance with PFMA	Status of compliance with PFMA checklist	100%	100%	100%	Complied
		Compliance with GRAP and IFRS	External Audit Findings	3	1	12	This is going to be revealed and confirmed by the audit mainly as changes to the AFS after submission and the figure for 2011/12 is not yet finalised

10.2 Performance Indicator Matrix

Key challenge	Proposed action
Ageing infrastructure resulted in downtime for laboratories, affecting calibration services	Recapitalisation plan submitted to National Treasury
Old and obsolete National Measurement Standards, primary and secondary standards and equipment	Recapitalisation plan submitted to National Treasury Additional CAPEX funding applied for in MTEF
Corporatisation of the management structure of the organisation to ensure: → Compliance to statutory requirements → Corporate governance → Alignment to stakeholder requirements → An effective operational model	Reorganisation process addressing: → New management model → Compliance and corporate governance office → Internal Audit section → Strategic IPAP document

PART 1:

REPORT OF THE RISK & AUDIT COMMITTEE

REPORT OF THE AUDIT AND RISK COMMITTEE FOR THE YEAR ENDED 31st MARCH 2012

The Audit & Risk Committee is a sub-committee of the Board and is accountable to the Board. It derives its mandate from the constitution of the NMISA, Audit Committee Charter, the King III code on Corporate Governance, Public Finance Management Act, Treasury Regulations and other Regulations and Policies, promulgated from time to time by the responsible authorities.

COMMITTEE MEMBERS

The composition of the Audit & Risk Committee is as follows:

- Tshidi Molala - *Chairperson, Non-Executive Director and Board Member*
- Tshenge Demana - *Board Member*
- Phil Hendricks - *Board Member*
- Poni Ngwato - *External Member*
- Hennie Kruger - *External Member*
- Thembani Bukula - *Board Member (Ex member of Risk Committee)*
- Tshokolo Nong - *Board Member (Ex member of Risk Committee)*

The committee met six times during the financial year in line with approved terms of reference.

THE COMMITTEE'S RESPONSIBILITY

The committee was able to discharge all its responsibilities for the year as stipulated in the adopted terms of reference and charter.

INTERNAL AUDIT

An in-house Internal Audit Division was established in terms of Section 38 (1) (a) (ii) of the PFMA, which ENHANCED THE LEVEL OF ASSURANCE AND CONSULTANCY OVER THE ADEQUACY, EFFECTIVENESS AND EFFICIENCY OF INTERNAL CONTROLS, RISK MANAGEMENT AND GOVERNANCE PROCESSES.

THE EFFECTIVENESS OF INTERNAL CONTROLS

Through reviews conducted by the Internal Audit Division, the committee is satisfied that internal controls in place are adequate, effective and efficient to enable the NMISA to achieve its strategic objectives. Internal audit evaluations and assessment have indicated that internal controls are adequate, effective and efficient to mitigate risks to an acceptable level.

IT Governance matters were also central to the committee's oversight functions, as emphasised by the King III Code of Corporate Governance.

RISK MANAGEMENT

The committee reviewed the Enterprise Risk Management activities and is satisfied that risk management processes are adequate, effective and efficient. Aligned to the organisational risk exposure the committee also approved the Internal Audit Three (3) year rolling plan.

EVALUATION OF FINANCIAL STATEMENTS

The audit committee considered and satisfied itself the NMISA has the appropriate expertise and adequate resources within the Finance Division. The Annual Financial Statements for the year ending 31st March 2012, have been evaluated, and based on the outcomes, THE COMMITTEE IS SATISFIED THAT THE ANNUAL FINANCIAL STATEMENTS COMPLIES IN ALL MATERIAL RESPECT with the applicable accounting standards.

T. Molala
Chairperson of the Audit & Risk Committee

PART 2:

ANNUAL FINANCIAL STATEMENTS

National Metrology Institute of South Africa General Information As at 31 March 2012

Country of incorporation and domicile	South Africa
Nature of business and principal activities	Maintain primary scientific standards of physical quantities
Registered office	Meiring Naude' Road, Brummeria, Pretoria, South Africa
Business address	Meiring Naude' Road, Brummeria, Pretoria, South Africa
Postal address	Private Bag x34, Lynwood Ridge, Pretoria, South Africa, 0040
Bankers	Standard Bank Limited
Auditor	PricewaterhouseCoopers Inc. (registered Auditors)

National Metrology Institute of South Africa General Information As at 31 March 2012

REPORT OF THE INDEPENDENT AUDITOR TO THE PARLIAMENT ON THE NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA REPORT ON THE FINANCIAL STATEMENTS

REPORT ON THE FINANCIAL STATEMENTS

INTRODUCTION

1.

We have audited the financial statements of the National Metrology Institute of South Africa set out on pages 6 to 23, which comprise the statement of financial position as at 31 March 2012, the statement of financial performance, statement of changes in net assets and the statement of cash flows for the year then ended, the notes, comprising a summary of significant accounting policies and other explanatory information.

ACCOUNTING AUTHORITY'S RESPONSIBILITY FOR THE FINANCIAL STATEMENTS

2.

The Board of directors which constitutes the accounting authority is responsible for the preparation and fair presentation of these financial statements in accordance with South African Standards of Generally Recognised Accounting Practice (SA Standards of GRAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999)(PFMA), and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

AUDITOR'S RESPONSIBILITY

3.

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2001) (PAA), the General Notice issued in terms thereof and International Standards on Auditing. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

4.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

5.

We believe that the audit evidence obtained is sufficient and appropriate to provide a basis for my audit opinion.

OPINION

6. In our opinion, the financial statements present fairly, in all material respects, the financial position of the National Metrology Institute of South Africa as at 31 March 2012, and its financial performance and cash flows for the year then ended in accordance with SA Standards of GRAP and the requirements of the PFMA.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

7. In accordance with the PAA and the General Notice issued in terms thereof, we report the following findings relevant to performance against predetermined objectives, compliance with laws and regulations and internal control, but not for the purpose of expressing an opinion.

PREDETERMINED OBJECTIVES

8. We performed procedures to obtain evidence about the usefulness and reliability of the information in the annual performance report as set out on pages 34 to 42 of the annual report.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

9. The reported performance against predetermined objectives was evaluated against the overall criteria of usefulness and reliability. The usefulness of information in the annual performance report relates to whether it is presented in accordance with the National Treasury annual reporting principles and whether the reported performance is consistent with the planned objectives. The usefulness of information further relates to whether indicators and targets are measurable (i.e. well defined, verifiable, specific, measurable and time bound) and relevant as required by the National Treasury Framework for managing programme performance information.

The reliability of the information in respect of the selected objectives is assessed to determine whether it adequately reflects the facts (i.e. whether it is valid, accurate and complete).

10. There were no material findings on the annual performance report concerning the usefulness and reliability of the information.

ADDITIONAL MATTER

11. Although no material findings concerning the usefulness and reliability of the performance information were identified in the annual performance report, I draw attention to the following matter below.

REPORT OF THE INDEPENDENT AUDITOR TO THE PARLIAMENT ON THE NATIONAL METROLOGY INSTITUTE OF SOUTH AFRICA REPORT ON THE FINANCIAL STATEMENTS

REPORT ON THE FINANCIAL STATEMENTS

ACHIEVEMENTS OF PLANNED TARGETS

12.

Of the total number of planned targets, only 56 were achieved during the year under review. This represents 21% of total planned targets that were not achieved during the yearunder review.

This was mainly due to the fact that indicators and targets were not suitably developed during the strategic planning process.

COMPLIANCE WITH LAWS AND REGULATIONS

13.

We performed procedures to obtain evidence that the entity has complied with applicable laws and regulations regarding financial matters, financial management and other related matters. My findings on material non-compliance with specific matters in key applicable laws and regulations as set out in the General Notice issued in terms of the PAA are as follows:

BUDGET

14.

The accounting authority did not submit quarterly reports on actual and projected revenue and expenditure to the executive authority, as required by Treasury Regulation 26.1.1.

PROCUREMENT AND CONTRACT MANAGEMENT

15.

The bid documentation did not specify the evaluation and adjudication criteria to be applied, as required by section 51(1)(a)(iii) of the PFMA.

INTERNAL CONTROL

16.

We considered internal control relevant to my audit of the financial statements, annual performance report and compliance with laws and regulations. The matters reported below under the fundamentals of internal control are limited to the significant deficiencies that resulted in the findings on the findings on compliance with laws and regulations included in this report.

FINANCIAL AND PERFORMANCE MANAGEMENT

17.

The accounting authority did not review and monitor compliance with applicable laws and regulations.

OTHER REPORTS AGREED-UPON PROCEDURES ENGAGEMENTS

18.

We have performed an agreed upon procedure engagement with respect to the utilisation of grants received from the National Research Foundation for the year ended 31 March 2012. Our report was issued on 11 July 2012.

PricewaterhouseCoopers Inc.
PricewaterhouseCoopers Inc.
Director: P Persad
Registered Auditor
20 July 2012

National Metrology Institute of South Africa General Information As at 31 March 2012

THE ACCOUNTING AUTHORITY PRESENTS ITS' REPORT THAT FORMS PART OF THE AUDITED ANNUAL FINANCIAL STATEMENTS OF THE ORGANISATION FOR THE YEAR ENDED 31 MARCH 2012.

1. REVIEW OF THE ACTIVITIES

MAIN BUSINESS AND OPERATIONS

The entity maintains primary scientific standards of physical quantities for South Africa and compares those with international standards.

The operating results and state of affairs of the entity are fully set out in the attached annual financial statements and do not in our opinion require any further comment.

2. GOING CONCERN

The annual financial statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

3. EVENTS AFTER THE REPORTING PERIOD

The accounting authority is not aware of any significant matter or circumstances arising since the end of the financial period ending 31 March 2012.

4. BOARD MEMBERS

BOARD MEMBERS OF THE ENTITY DURING THE YEAR WERE AS FOLLOWS

Dr Prins Nevhutalu (Chairperson)
Mr Thembani Bukula
Dr Tshenge Demana
Prof Margit Härting
Mr Phil Hendricks
Dr Notende Mgundlwa
Ms Tshidi Molala
Dr Rudzani Nemutudi
Mr Tshokolo Nong
Adv Catherine Letele (Appointed 08 December 2011)
Dr Molefi Motuku (CEO) (Resigned 31 May 2012)

5. APPROVAL OF THE ANNUAL FINANCIAL STATEMENTS

The Annual Financial Statements of the National Metrology Institute of South Africa set out on pages 50 to 74 have been approved by the Accounting Authority on 13 July 2012.

Benjamin Van der Merwe
Acting CEO

Statement of financial position As at 31 March 2012

ASSETS	NOTES	2012 R	2011 R
Non-current Assets		**52,008,131**	**56,443,851**
Property, plant & equipment	2	51,414,326	56,008,821
Intangible assets	3	147,067	123,898
Rental deposit		446,738	311,132
Current Assets		**38,882,823**	**15,326,831**
Receiveables from exchange transaction	4	1,819,313	1,675,266
Receiveables from non-exchange transaction	5	7,548	37,949
Cash and cash-equivalents	6	37,055,962	13,613,616
Total Assets		**90,890,954**	**71,770,682**
Equity and Liability			
Accumulated surplus		85,755,950	68,501,047
Liabilities			
Current Liabilities		**5,135,004**	**3,269,635**
Deferred operating lease liability	7	631,509	-
Trade payables from exchange transaction	8	959,113	327,680
Other payables from non-exchange transaction	9	3,544,382	2,941,955
Total Equity and Liability		**90,890,954**	**71,770,682**

Statement of financial performance As at 31 March 2012

	NOTES	2012 R	2011 R
Revenue		**96,579,246**	**66,899,990**
Non-exchange revenue		87,581,000	57,519,000
Transfer	10	87,581,000	57,519,000
Exchange revenue		8,998,246	9,380,990
Rendering of services	11	7,229,027	8,195,235
Investment income	12	1,330,765	786,232
Other income		438,454	399,523
Expenditure		**(79,294,025)**	**(68,885,106)**
Compensation of employees	13	42,871,168	35,602,405
Operating expenditure	14	24,921,696	22,337,620
Depreciation/amortisation and impairment	15	11,240,074	10,884,543
Loss on write-off of assets		261,087	57,720
Finance cost		-	2,818
Foreign exchange Gain/Loss		**(30,318)**	**(47,930)**
Surplus/(Deficit) for the year		**17,254,903**	**(2,033,046)**

Statement of changes in net assets as at 31 March 2012

		ACCUMULATED SURPLUS	TOTALS
Balance at 01 April 2010 as restated		**70,534,093**	**70,534,093**
Changes in Equity			
Deficit for the year		(2,033,046)	(2,033,046)
Balance at 31 March 2011		**68,501,047**	**68,501,047**
Changes in Equity			
Surplus for the year		17,254,903	17,254,903
Balance at 31 March 2012		**85,755,950**	**85,755,950**

Statement of cash flows As at 31 March 2012

CASH FLOW FROM OPERATING ACTIVITIES	NOTES	2012 R	2011 R
Cash flow from operating activities			
Cash generated from operations	17	29,172,604	7,656,386
Investment income		1,330,765	786,232
Finance cost		-	(2,818)
Net cash flow from operating activities		**30,503,369**	**8,439,800**
Cash flows from investing activities			
Purchase of property, plant & equipment	2	(6,763,032)	(3,253,861)
Purchase of intangible assets	3	(162,384)	(18,436)
Deposit for the rental of building		(135,607)	-
Net cash from investing activities		**(7,061,023)**	**(3,272,297)**
Total cash and cash equivalents movement for the year		**23,442,346**	**5,167,503**
Cash and cash equivalents at the beginning of the year		13,613,616	8,446,113
Total cash and cash equivalents at the end of the year	6	**37,055,962**	**13,613,616**

Odaho Sengani
Information & Communication

Sibusiso Jozela
Section Head: Dosimetry

Clive Oliphant
Materials Characterisation

Wendy Thoka
Dosimetry

Michelle Rosenberg
Finance

1. Accounting policies

The principal accounting policies applied in the preparation of these financial statements are set out below. Accounting policies for material transactions, events or conditions not covered by the GRAP reporting framework have been developed in accordance with paragraphs 7, 11 and 12 of GRAP 3 and the hierarchy approved in Directive 5 issued by the Accounting Standards Board. The principal accounting policies of the NMISA are, in all material respects, consistent with those applied in the previous year. The historical cost convention has been used, except where indicated otherwise. Management has used assessments and estimates in preparing the annual financial statements; these are based on the best information available at the time of preparation.

1.1. Basis of preparation

The annual financial statements have been prepared in accordance with Generally Recognised Accounting Practice (GRAP), issued by the Accounting Standards Board in accordance with Section 55 of the Public Finance Management Act (Act No. 29 of 1999)

The annual financial statements have been prepared on an accrual basis of accounting and are in accordance with the historical cost convention, unless specifically stated otherwise.

The accounting policies are applied consistently with those used to present the previous year's financial statements, unless explicitly stated. The details of any changes in accounting policies are explained in the relevant policy. Assets, liabilities, revenues and expenses have not been offset except where offsetting is required or permitted by a Standard of GRAP. The financial statements have been prepared on a going concern basis.

1.2. Presentation currency

All amounts have been presented in South African Rand, which is the functional currency of the NMISA.

1.3. Comparative figures

Where necessary comparative figures were adjusted to conform to presentation changes in the current financial year.

1.4. Significant judgements and sources of estimation uncertainty

In preparing the annual financial statements, management is required to make estimates and assumptions that affect the amounts presented in the annual financial statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the annual financial statements. Significant judgements include: provision for doubtful debts, useful life, residual value, impairment of assets and fair values.

Provision for doubtful debts

The NMSA estimates the level of provision required for doubtful debts on an on-going basis based on historical experience as well as other specific relevant factors. A comparison between provision and actual loss incurred is performed to assess reasonableness of provisioning methodology.

Useful lives and residual values of property, plant and equipment

Management has made certain estimates with regards to the determination of estimated useful lives and residual values of items of property, plant and equipment, as discussed further in note 1.5. Annual assessment and review of estimated useful lives and residual values are performed, and any significant change is accounted for as a change in accounting estimate in accordance with GRAP 3.

Impairment

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

The NMISA reviews and test the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. If there are indications that impairment may have occurred, estimates are made for value in use.

The NMISA assesses its financial assets carried at amortised cost for impairment at each reporting date. In determining whether an impairment loss should be recorded in surplus or deficit, the entity makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flows from a financial asset.

Fair value

In determining fair value less cost to sell management makes assumptions that are based on market conditions existing at the end of each reporting date to determine a fair value of financial assets when there is observable evidence that the assets are impaired.

1.5. Property, plant and equipment

The cost of an item of property, plant and equipment is recognised as an asset when it is probable that future economic benefits associated with the item will flow to the entity; and the cost of the item can be measured reliably.

Property, plant and equipment are initially measured at cost. These include costs incurred initially to acquire an item of property, plant and equipment and costs incurred subsequently to add, replace part of it, or service it.

If a replacement cost is recognised in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognised. All other repairs and maintenance costs are charged to surplus or deficit during the financial period in which it is incurred.

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

Depreciation is provided using the straight-line method to write down the cost, less estimated residual value over the useful life of the property, plant and equipment, which is as follows:

ITEM	AVERAGE USEFUL LIFE
NMS equipment	5-30
Furniture and fixtures	1-6
Motor vehicles	5-6
Other equipment	5-30
IT equipment	3–5

The residual value, useful life and depreciation method of each asset are reviewed, and adjusted if appropriate, at the end of each reporting period. If the expectations differ from previous estimates, the change is accounted for as a change in accounting estimate.

The depreciation charge for each period is recognised in surplus or deficit. The gain or losses arising from de-recognition of an item of property, plant and equipment is included in surplus or deficit when the item is derecognised. The gain or loss arising from de-recognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item. An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

1.6. Intangible assets

The cost of intangible is recognised as an asset when it is probable that future economic benefits associated with the item will flow to the entity; and the cost of the item can be measured reliably.

An intangible are initially recognised at cost. The cost of an intangible assets acquired at no or nominal cost, shall be its fair value at the date of acquisition.

Expenditure on research (or on research phase of internal projects) is recognised as an expense when it is incurred.

Intangible assets with an indefinite useful life are not amortised, but they are tested for impairment annually and when there is indication that an assets may be impaired. For all other intangible assets amortisation is provided on a straight line basis over the useful life.

Amortisation period and the amortisation method for intangible assets are reviewed at each reporting date. Amortisation is provided to write down the intangible assets, on a straight line basis, to the residual values as follows:

ITEM	AVERAGE USEFUL LIFE
Computer software	2

1.7. Financial Instruments

The entity classifies financial assets and financial liabilities into the following categories:

- → Financial assets and financial liabilities at fair value
- → Financial assets and financial liabilities at amortised cost

Classification depends on the purpose for which the financial instruments were obtained incurred and takes place at initial recognition.

Initial recognition and measurement

Financial instruments are recognised initially when the entity becomes a party to the contractual provisions of the instruments.

The entity classifies financial instruments, or their component parts, on initial recognition as a financial asset, a financial liability or an equity instrument in accordance with the substance of the contractual arrangement.

Financial instruments are measured initially at fair value, except for investments in residual interests for which a fair value is not determinable, which are measured at cost.

For financial instruments which are not at fair value, transaction costs that are directly attributable to the acquisition or issue of the financial instrument are included in the initial measurement of the instrument.

Financial instruments at amortised cost are subsequently measured at amortised cost, using the effective interest method, less accumulated impairment losses.

Transaction costs on financial instruments at fair value are recognised in surplus or deficit.

Regular way purchases of financial assets are accounted for at trade date.

Subsequent measurement

Financial instruments at fair value are subsequently measured at fair value, with gains and losses arising from changes in fair value being included in surplus or deficit for the period.

For financial instruments measured at amortised cost or cost, a gain or loss is recognised in surplus or deficit when the financial instrument is derecognised or impaired.

Financial assets are derecognised when the contractual rights to the cash flows from the financial asset expire, are settled or waived, the entity transfers to another party substantially all of the risks and rewards of ownership of the financial asset; or the entity, despite having retained some significant risks and rewards of ownership of the financial asset, has transferred control of the asset to another party and the other party has the practical ability to sell the asset in its entirety to an unrelated third party, and is able to exercise that ability unilaterally and without needing to impose additional restrictions on the transfer.

Financial liabilities are derecognised when the liability is extinguished.

Impairment of financial assets

At each reporting date the entity assesses all financial assets, other than those at fair value, to determine whether there is objective evidence that a financial asset or group of financial assets has been impaired.

Impairment losses and reversals of impairment losses are recognised in surplus or deficit. Impairment losses are reversed when an increase in the financial asset's recoverable amount can be related objectively to an event occurring after the impairment was recognised, subject to the restriction that the carrying amount of the financial asset at the date that the impairment is reversed shall not exceed what the carrying amount would have been had the impairment not been recognised.

Impairment losses are not subsequently reversed for financial assets at cost because fair value was not determinable.

Trade and other receivables

Trade and other receivables are classified as financial assets at amortised cost. A provision for impairment of trade receivables is established when there is objective evidence that the entity will not be able to collect all amounts due, according to the original terms of receivables.

Trade and other payables

Trade and other payables are classified as financial liabilities at amortised cost.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, deposits held at call with banks and other short term highly liquid investments with original maturities of three months or less. Cash and cash equivalents are classified as financial assets at amortised cost.

1.8. Leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership.

A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

Operating leases

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease asset. This asset is not discounted.

Any contingent rents are expensed in the period they are incurred.

1.9. Employee benefits

Short-term employee benefits

The cost of short-term employee benefits, (those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses, and non-monetary benefits such as medical care), are recognised in the period in which the service is rendered and are not discounted.

Defined contribution plans

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

1.10. Revenue

Revenue from exchange transaction

Rendering of services

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the end of the reporting period. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- → the amount of revenue can be measured reliably;
- → it is probable that the economic benefits associated with the transaction will flow to theselect entity;
- → the stage of completion of the transaction at the end of the reporting period can be measured reliably; and,
- → the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue shall be recognised only to the extent of the expenses recognised that are recoverable.

Revenue is measured at the fair value of the consideration received or receivable and represents the amounts receivable for goods and services provided in the normal course of business, net of trade discounts and volume rebates, and value added tax.

Interest and royalties

Interest income accrued on a time proportionate basis, taking into account the principal outstanding amount and the effective interest rate over the period to maturity. ROYALTIES ARE RECOGNISED on the accrual basis in accordance with the substance of the relevant agreements.

Revenue from non-exchange transaction

Transfer

Transfers from the Department of Trade & Industry are recognised when it is probable that future economic benefits will flow to the NMISA and when the amount can be measured reliable. Transfers to which a condition is attached are recognised as revenue in the financial statement of performance to the extent that the NMISA has complied with any criteria, conditions or obligation embodied in the agreement. To the extent that a criteria, conditions or obligations have not been met, a liability is raised on the statement of financial position.

Unconditional transfers are recognised as revenue in the statement of financial performance at the earlier of the date of receipts or when the amount is receivable. Transfers are recognised at fair value.

1.11. Provision and contingencies

Provisions are recognised when the NMISA has a present legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will be required to settle the obligation, and a reliable estimate can be made of the obligation. All the provisions of the NMISA are short-term in nature and thus ignore the effect of discounting.

A contingent liability is disclosed in the notes to the annual financial statements when a possible obligation arises from past events, and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the NMISA. At each reporting date, a brief description of the nature of the contingent liability and its possible financial effects is disclosed In notes to the financial statements.

Contingent assets and contingent liabilities are not recognised as provisions, as the recognition criteria is not complied with.

1.12. Budget information

In preparation of the annual financial statements, paragraphs 11 to 14 of GRAP 1 is implemented through the inclusion of reconciliation of net deficit/ surplus as per the statement of financial performance and budget surplus.

1.13. Irregular, fruitless and wastful expenditure

Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, a requirement of any applicable legislation, including the Public Finance Management Act.

Fruitless and wasteful expenditure means expenditure that was made in vain and could have been avoided had reasonable care been exercised.

All irregular, fruitless and wasteful expenditure is charged against income in the period in wich it is incurred.

1.14. Effect of the new standard of GRAP issued.

The following approved Standards of GRAP (on the next page) that have been issued, but are not yet effective, are not likely to affect the annual financial statements when they are adopted as these standards have been used to formulate and inform the current accounting policies and disclosures.

- → GRAP 20 Related party;
- → GRAP 25 Employee benefits
- → GRAP 18 Segment reporting
- → GRAP 105 Transfers of Functions between entities under common control;
- → GRAP 106 Transfer of Functions between entities not under common control; and
- → GRAP 107 Mergers

The adoption of the Amendments to the Standards of GRAP and various Interpretations of the Standards of GRAP (effective from 1 April 2012) will not have a significant effect on the financial statements.

2. Property, plant and equipment (All figures in Rands)

Cost	Furniture and fixtures	Motor Vehicles	Other equipment	IT Equipment	NMS Equipment	Leasehold Improvement	Total
Balance at 31 March 2010	722,809	199,820	46,923,287	2,383,138	25,250,879	-	75,479,933
Additions	133,336	-	369,572	400,671	2,350,282	-	3,253,861
Assets written off	(69)		(3,503)	(159,448)	(62,443)	-	(225,463)
Balance at 31 March 2011	**856,076**	**199,820**	**47,289,356**	**2,624,361**	**27,538,718**	**-**	**78,508,331**
Additions	148,329	-	503,894	229,502	4,088,948	1,792,359	6,763,032
Assets written off	(15,876)		(67,705)	(73,249)	(352,400)	-	(509,230)
Balance at 31 March 2012	**988,529**	**199,820**	**47,725,545**	**2,780,614**	**31,275,266**	**1,792,359**	**84,762,133**
Accumulated depreciation							
Balance at 31 March 2010	(139,703)	(30,565)	(7,204,525)	(1,057,494)	(3,501,171)	-	(11,933,458)
Depreciation	(157,876)	(38,813)	(7,144,345)	(704,589)	(2,688,172)	-	(10,733,795)
Depreciation-assets written off	15	-	3,247	144,694	19,787	-	167,743
Balance at 31 March 2011	**(297,564)**	**(69,378)**	**(14,345,623)**	**(1,617,389)**	**(6,169,556)**	**-**	**(22,499,510)**
Depreciation	(181,196)	(38,812)	(7,044,083)	(721,361)	(2,977,385)	-	(10,962,837)
Impairment	(3,289)	-	(133,977)	(2,037)	-	-	(139,303)
Depreciation-assets written off	12,871	-	55,452	59,083	126,437	-	253,843
Balance at 31 March 2012	**(469,178)**	**(108,190)**	**(21,468,231)**	**(2,281,704)**	**(9,020,504)**	**-**	**(33,347,807)**
Carrying amount at							
31 March 2011	**558,512**	**130,442**	**32,943,733**	**1,006,972**	**21,369,162**		**56,008,821**
31 March 2012	**519,351**	**91,630**	**26,257,314**	**498,910**	**22,254,762**	**1,792,359**	**51,414,326**

3. Intangible assets (All figures in Rands)

	COST	ACCUMULATED AMORTISATION	CLOSING CARRYING AMOUNT
	R	R	R
Application software			
Balance at 1 April 2010	959,000	(702,790)	256,210
Additions	18,436	-	18,436
Assets written-off	(297,465)	297,465	-
Amortisation	-	(150,748)	(150,748)
Balance at 1 April 2011	**679,971**	**(556,073)**	**123,898**
Additions	162,384	-	162,384
Assets written-off	(5,746)	4,465	(1,281)
Amortisation	-	(137,934)	(137,934)
Balance at 31 March 2012	**836,609**	**(689,542)**	**147,067**

4. Receivables from exchange transactions

	2012	2011
	R	R
Trade receivables	1,874,138	1,815,411
Prepayments	248,714	136,781
Credit loss written-off	(165,542)	-
Less: Provision for impairment of trade receivables	(137,997)	(276,926)
	1,819,313	**1,675,266**

4.1. Movement in the provision for impairment of trade receivables

	2012	2011
	R	R
Opening balance	276,926	775,856
Utilised during the year	(165,542)	-
Unrealised provision	26,613	(498,930)
Closing Balance	**137,997**	**276,926**

The effect of discounting was considered and found to be immaterial. See note 27 on financial instruments on how risk is managed in relation to the financial assets listed.

5. Receivables from non-exchange ransaction

	2012	2011
	R	R
Staff advances	7,548	37,949
	7,548	37,949

6. Cash and cash equivalents

	2012	2011
	R	R
Cash and cash equivalents comprise of the following:		
Cash on hand	17,758	13,192
Bank balance	2,049,357	2,091,861
Short-term deposits	34,988,847	11,508,563
	37,055,962	**13,613,616**

7. Deferred operating lease liability

	2012	2011
	R	R
Opening balance	-	-
Amount realised in the income statement	631,509	-
Closing Balance	**631,509**	**-**

Equilisation of operating lease over the period of lease

8. Trade payables from exchange transaction

	2012	2011
	R	R
Trade payables	227,421	249,873
Accrued expenses	731,692	77,807
	959,113	**327,680**

9. Other payables from non- exchange transaction

	2012	2011
	R	R
Leave pay accrual	2,609,257	2,225,836
Accrued bonus	5,000	5,000
Provision for thirteenth cheque	780,475	711,119
Income received in advanced	149,650	-
	3,544,382	**2,941,955**

10. Transfer

	2012	2011
	R	R
Transfer payment from controlling entity	87,581,000	57,519,000

Application has been made to National Treasury under S 53(3) of the PFMA to retain surpluses reported and applied for over the current financial year ending 31 March 2012 totaling R 28 855 961.

11. Rendering of service

	2012	2011
EXCHANGE REVENUE	R	R
Calibration revenue	7,229,027	8,195,235

12. Investment income

	2012	2011
	R	R
Interest revenue from short-term deposit	1,330,765	786,232

13. Compensation of employees

	2012	2011
	R	R
Salaries	**34,609,389**	**28,433,553**
Basic salary	34,142,683	28,189,920
Temporary staff	68,984	59,260
Long service awards	14,301	-
Leave provision	383,421	184,373
Social contribution	**8,261,779**	**7,168,852**
UIF	311,723	298,720
PAYE	7,950,056	6,870,132
	42,871,168	**35,602,405**

14. Operating expenditure

	2012	2011
	R	R
Included in the operating expenditure is the following:		
	412,213	414,936
Advertising and marketing	353,991	-
Bursaries (external)	515,807	507,991
Insurance	4,099,086	4,991,101
Repair and maintenance	718,235	678,125
Telephone cost	3,018,746	2,322,688
Transportation expenses	662,205	702,524
Training and staff development	15,141,413	12,720,255
Other expenses		
	24,921,696	**22,337,620**

15. Depreciation/amortisation and Impairment

	NOTES	2012 R	2011 R
Amortisation	**Note 3**	**137,934**	**150,748**
Computer software		137,934	150,748
Depreciation & Impairment	**Note 2**	**11,102,140**	**10,733,795**
Furniture and fixtures		184,485	157,876
Motor vehicles		38,812	38,813
Other Equipment		7,178,060	7,144,345
IT equipment		723,397	704,589
NMS Equipment		2,977,386	2,688,172
		11,240,074	**10,884,543**

16. Operating deficit

	NOTES	2012 R	2011 R
Operating surplus/(deficit) for the year is stated after accounting for the following:			
Depreciation/amortisation and impairment	Note 15	11,240,074	10,884,543
External audit fees		819,966	584,447
Foreign exchange gain/(loss) on operating activities		30,318	47,930
Internal audit Fees		74,755	166,192
Legal Fees		-	8,853
Loss on assets written off		261,087	57,720
Write off of bad debts		165,542	-
Operating lease Expense		6,742,881	6,024,317

17. Cash generated from operations

	2012	2011
	R	R
Surplus/(deficit) per Statement of financial performance	**17,254,903**	**(2,033,046)**
Non-cash adjustments:		
Depreciation/amortisation and impairment	11,240,074	10,884,543
Loss on assets written off	261,087	57,720
Write off as bad debts	165,542	-
Interest received	(1,330,765)	(786,232)
Finance costs	-	2,818
Operating lease expense	631,509	(29,888)
Changes in working capital:		
Trade and other receivables	(278,606)	1,579,335
Trade and other payables	1,228,860	(2,018,864)
	29,172,604	**7,656,386**

18. Retirement benefits

	2012	2011
	R	R
Defined contribution plan		
It is the policy of the entity to provide retirement benefits through a defined contribution plan to all its employees. The fund is governed by the Pension Funds Act, No 24 of 1956. The entity is under no obligation to cover any unfunded benefits		
Total contribution to such schemes	**3,183,565**	**2,441,974**

19. Change in Estimate

	2012	2011
	R	R
Property, Plant and Equipment		
In the current and prior period management reviewed the estimated useful lives and residual values of the property, plant and equipment. The assessment resulted in an increase in depreciation of R nil (2011: R 126, 145).		
Depreciation-before change in estimate	11,240,074	11,010,688
Depreciation-change in estimate	-	(126,145)
	11,240,074	**10,884,543**

20. Related parties

Relationships	**Entity**
Entities under common control	South African National Accreditation System (SANAS) Small Enterprise Development Agency (SEDA) Companies and Intellectual Property Commission (CIPRO) National Empowerment Fund (NEF) Estate agency Affairs Board (EAAB) Export Credit insurance Corporation (ECIC) South African Bureau of Standards (SABS) National Credit Regulator (NCR) National Lotteries Board (NLB) National Gambling Board (NGB) National Consumer Tribunal (NCT) National Consumer Commission (NCC) National Regulator for Compulsory Specifications (NRCS)
Key management personnel	M Motuku (CEO) DS Netshivhazwaulu (CFO) CW Louw SN Prins GD Masuku KM Masekela S Singh

20. Related parties transactions

	2012	2011
	R	R
Transactions with the controlling entity;		
Department of trade and industry	**87,581,000,**	**57,519,000**
Transactions with entities under common control;		
Services provided to related parties		
SANAS	205,864	197,713
SABS	131,429	247,027
NRCS	22,421	79,492
Services provided by related parties		
SANAS	374,966	-
SABS	33,463	14,748
Mikhail Sakharov [Husband to Executive Manager (Natasha Sakharov)]	12,000	-
Related party balances		
Amounts included in Trade receivables /(trade payables) regarding related parties		
SANAS	-	-
SAB	(7,120)	-
Total payables arising from services provided by related parties	**(7,120)**	-
SANAS	215,784	223,065
SABS	127,548	1,190
NRCS	-	1,100
Total receivables arising from services provided to related parties	**343,332**	**225,355**
Less: Credit loss written-off	(95,680)	-
Less: Provision for doubtful debts	-	-
	247,652	**225,355**

20. Related parties (continued)

	NUMBER OF BOARD MEETING		RANDS
	SCHEDULE	ATTENDED	TOTAL FEE
Director's emoluments			
Year ended 31 March 2012			
Non-Executive directors			
Dr Prins Nevhutalu (Chairperson)	4	6*	22,155
Mr Thembani Bukula	4	2	8,720
Dr Tshenge Demana	4	6*	-
Prof Margit Härting	4	2	11,034
Mr Phil Hendricks	4	2	17,221
Dr Notende Mgundlwa	4	5*	33,817
Ms Tshidi Molala	4	4	22,554
Dr Rudzani Nemutudi	4	4	25,011
Mr Tshokolo Nong	4	4	29,485
Adv. Catherine Letele	4	1	8,718
Total			**178,715**

*There were four (4) official board meetings per regular meeting schedule. In addition, two (2) special meetings were held.

	BASIC SALARY	PERFORMANCE BONUS	ALLOWANCE	PENSION CONTRIBUTION	TOTAL
Executive					
Year ended 31 March 2012					
Total compensation to key management					
M Motuku (CEO)	1,330,815	-	-	69,185	1,400,000
DS Netshivhazwaulu (CFO)	691,806	-	-	61,715	753,521
CW Louw	1,041,477	68,611	-	84,791	1,194,879
SN Prins	710,956	46,457	-	61,416	818,828
GD Masuku	697,288	66,943	-	91,387	855,619
KM Masekela	451,423	15,066	-	39,739	506,228
S Singh	717,658	48,255	-	63,793	829,706
Total	**5,641,424**	**245,332**	**-**	**472,025**	**6,358,781**

	NUMBER OF BOARD MEETING		RANDS
	SCHEDULE	ATTENDED	TOTAL FEE
Director's emoluments			
Year ended 31 March 2011			
Non-Executive directors			
Dr Prins Nevhutalu (Chairperson)	4	4	10,419
Mr Thembani Bukula	4	3	8,680
Dr Tshenge Demana	4	4	-
Prof Margit Härting	4	2	10,836
Mr Phil Hendricks	4	3	7,948
Dr Notende Mgundlwa	4	3	30,305
Ms Tshidi Molala	4	2	15,425
Dr Rudzani Nemutudi	4	4	14,247
Mr Tshokolo Nong	4	3	15,125
Total			**112,985**

	BASIC SALARY	PERFORMANCE BONUS	ALLOWANCE	PENSION CONTRIBUTION	TOTAL
Executive					
Year ended 31 March 2011					
M Motuku (CEO)	537,839	-	-	28,827	566,666
DS Netshivhazwaulu (CFO)	52,734	-	-	4,943	57,677
CW Louw	965,877	92,387	58,475	78,604	1,195,343
SN Prins	650,135	62,914	-	56,248	769,297
GD Masuku	645,997	59,761	-	85,062	790,820
KM Masekela	419,395	39,641	-	36,917	495,953
S Singh	674,509	37,797	-	59,041	771,347
H Edwards	106,532	-	-	9,353	115,885
Total	**4,053,018**	**292,500**	**58,475**	**358,995**	**4,762,988**

Related party relationships exist between the NMISA, its directors, key management personnel and entities under common control within the national sphere of government. Transactions with entities under common control within the national sphere government include but are not limited to the following: sale and purchases of goods, property and other assets. These transactions are conducted in the ordinary course of the NMISA business on terms agreed with other state controlled entities.

Key management personnel are defined as executive management of the NMISA. Key management personnel compensation is detailed in note 20.

All directors and officers of the NMISA have confirmed that they had no interest in any contract of significance with the NMISA which could have resulted in a conflict of interests during the year.

The principal shareholder of the NMISA is the Minister of Trade and Industry.

The comparative figures for the entities listed below are not disclosed as the entities do not ultimately fall under common control with the NMISA, even though they are classified at the national sphere of government.

- → Telkom
- → CSIR
- → SARS

21. Commitments

	2012	2011
	R	R
Operating lease commitments		
At the statement of financial position date the NMISA had outstanding commitments which relates to office building and laboratories and falls due as follows:		
Due within one year	6,722,510	-
Due between one and five years	7,394,761	-
Total minimum future operating lease payments	**14,117,271**	**-**

The NMISA rents building under operating lease for a period of three years with a renewal option. The lease agreement for building was entered into effective 1 April 2011 and will be operational for period of three years, expiring on 31 March 2013.The CSIR allows for annual escalation of 10% per annum. The operating lease expense for the year ended 31 March 2012 is R 6 742 881.

The NMISA rents a photocopier under operating lease for a period of three years from business Connexion effective from 16 May 2011, expiring on 15 April 2014.The operating lease expenses for the year ended 31 March 2012 is R 74 841.

Capital commitments		
Commitment for the acquisition of property, plant and equipment;		
Contracted for but not provided in financial statements	13,071,356	2,253,000
Authorised but not contracted for	10,655,178	--
Total future capital commitments	**23,726,534**	**2,253,000**
The capital expenditure to finance is as follows;		
Government grant	23,726,534	2,253,000

22. Contingent Liabilities

	2012	2011
	R	R
As reflected in note 10, application has been made to National Treasury under S 53(3) of the PFMA to retain surpluses reported and applied for over the current financial year ending 31 March 2012 totaling R 28 855 961. Should permission to retain this surplus not be granted then the NMISA may be required to declare a distribution to National Treasury through its Executive Authority, **the DTI**. The effect of such a distribution would not be significant to the cash balances of the NMISA, and its ability to meet the NMISA financial forecasts for the next years.		
Accumulated surplus not approved	28,855,961	-

"Goal setting has traditionally been based on past performance. This practice has tended to perpetuate the sins of the past."
- Joseph M. Juran

Cynthia Netshiomvani
Finance

23. Irregular expenditure

The NMISA incurred no irregular expenditure during the financial year under review.

24. Fruitless and wasteful expenditure

The NMISA incurred no fruitless and wasteful expenditure during the financial year under review.

25. Financial Loss as a result of Criminal conduct

	2012	2011
	R	R
During the year the NMISA suffered a financial loss of R 4 420 as a result of armed robbery		
Amount Lost	11,092	-
Amount recovered from Insurance	(6,672)	-
Actual financial loss	**4,420**	**-**

26. Taxation

The NMISA is exempt from income tax as more than 80% of its expenditure is defrayed from funds voted by Parliament. No provision has been made for income tax as the NMISA is exempted in terms of section 10(1) (cA) (1) of the Income Tax Act, 1962 (Act No. 58 of 1962).

The NMISA is exempt from the payment of Value Added Tax (VAT) on the grant received. As a result, any VAT paid by the NMISA is also not refundable by SARS.

27. Financial Risk Management

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

Liquidity risk

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

Interest rate risk

The NMISA's interest rate risk arises from markets and economic factors, payables, cash and cash equivalents and receivables. The NMISA's exposure to interest rate risk is minimal due to the following factors:

- → interest is levied on overdue trade receivables;
- → interest is not paid on trade payables as it is the policy of the entity to settle within 30 days of invoice; and,
- → the PFMA does not allow for the entity to utilise bank overdraft facilities.

Based on the activities of NMISA, the only area affected by interest rate risk is investment income earned on call deposits. These call deposits are held short-term and the interest rate is linked to prime.

Cash flow interest rate risk

The NMISA's exposure to this type of risk arises when the entity has a financial instrument with a floating interest rate. The entity is seldom exposed to this type of risk. When the need arises management employs conservative approaches with a limited risk exposure such as call accounts or fixed deposits. The entity does not have policies and procedures to measure this type of risk.

Fair value rate risk

The NMISA's exposure to this type of risk is slightly higher than the cash flow interest rate risk, primarily due to the conservative investment philosophy. Ordinarily fixed deposits expose the entity to this type of risk. The NMISA manages this risk by keeping fixed investments on a shorter term to mitigate the impact that this type of risk might have on the entity. The entity does not have policies and procedures to measure this type of risk.

Credit risk

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

Trade receivables comprise of calibration of equipment undertaken by the NMISA for private companies based on requests from such companies. There is no independent rating; therefore management assesses the credit quality of the customer, taking into account its financial position, past experience and other factors. The NMISA establishes an impairment that represents its estimate of potential losses in respect of trade receivables.

Currency risk

The NMISA is seldom exposed to this type of risk. The NMISA's exposure to this risk comes through the purchase of specialised equipment from foreign suppliers. Due to the infrequent nature of these transactions management does not employ any hedging mechanisms against this risk. Currently there are no policies and procedures to measure currency risk

Price risk

The NMISA's exposure to price risk is non-existent as the NMISA is the only entity in South Africa that provides traceability to the NMS to the outside public

28. Presentation and Classification

The table below discloses the reclassification that have made to the Item of financial statement in accordance with GRAP 1, paragraph 50 and financial reporting framework. Comparative figures have been adjusted to conform to changes in presentation in the current year. Changes in classification are relevant to an understanding of the prior period and current period's financial statement.

ITEM OF FINANCIAL STATEMENT	NATURE OF RECLASSIFICATION	AMOUNT	REASONS FOR RECLASSIFICATION
Intangible assets	Reclassified from property, plant and Equipment to Intangible assets	123,898	GRAP 1, Par 80 require at a minimum a separate disclosure of Intangible assets on the face of the statement of financial position.
Rental Deposit	Reclassified from Trade and Other receivable to non-current assets	311,132	Rental deposit is not expected to be realised within twelve months after reporting date. GRAP 1, Par 63, requires an entity to present separately current and non-current assets on the face of statement of financial position.
Pre-payment	Reclassified from prepayment to trade receivable from exchange transaction.	136,781	GRAP 23, Par 104 (a) requires an entity to disclose on the face of the financial statements the amount of receivables recognised in respect of non-exchange revenue.
Staff advances	Splitted from Trade and other receivables to other receivable from non-exchange transaction	37,949	GRAP 23, Par 104 (a) requires an entity to disclose on the face of the financial statements the amount of receivables recognised in respect of non-exchange revenue.
Leave pay accrual	Splitted from Trade and other payable to Other payables from non-exchange transaction	2,225,836	In accordance with GRAP 1, Par 85 a Judgement has been made to present leave pay accrual under other payable from non-exchange transaction because of the nature of payables.
Accrued bonus	Splitted from Trade and other payable to Other payables from non-exchange transaction	5,000	In accordance with GRAP 1, Par 85 a Judgement has been made to present accrued bonus under other payable from non-exchange transaction because of the nature of payables.
Provision for thirteenth cheque	Splitted from Trade and other payable to Other payables from non-exchange transaction	711,119	In accordance with GRAP 1, Par 85 a Judgement has been made to separately present accrued bonus under other payable from non-exchange transaction because of the nature of payables.
Revenue	Splitted from revenue to revenue from exchange transaction	57,519,000	GRAP 23, Par 104 (a) requires an entity to disclose on the face of the financial statements the amount of receivables recognised in respect of non-exchange revenue.
Revenue	Splitted from revenue to revenue from non-exchange transaction	8,195,235	The split is necessitated by the requirement of GRAP 23, Par 104.
Investment income	Splitted from Investment income to finance cost.	2,818	GRAP 1,par 42 ,Assets and liabilities, revenue and expenses, shall not be offset unless required or permitted by a Standard of GRAP.
Compensation	Splitted from operating expenditure to compensation	35,602,405	In accordance with the requirement of GRAP 1, Par 104 the NMISA present analysis of expenses by nature of expenses on the face of the statement of financial performance as it provides information that is more relevant.
Depreciation/amortisation and impairment	Splitted from operating expenditure to depreciation/amortisation & Impairment	10,884,543	In accordance with the requirement of GRAP 1, Par 104 the NMISA present analysis of expenses by nature of expenses on the face of the statement of financial performance as it provides information that is more relevant.
Loss on write-off of assets	Splitted from operating expenditure to loss on written-off of assets	57,720	In accordance with the requirement of GRAP 1, Par 101 the NMISA made a judgement to separately disclose the loss on write-off of assets because of the nature of expense as it provides information that is more relevant.
Foreign exchange gain/Loss	Splitted from operating expenditure to foreign exchange gain/loss	47,930	In accordance with the requirement of GRAP 1, Par 101 the NMISA made a judgement to separately disclose the loss on write-off of assets because of the nature of expense as it provides information that is more relevant.

29. Reconciliation of budget surplus/deficit with statement of financial performance

	2012	2011
	R	R
Net deficit/Profit as per Statement of Financial Performance	**17,254,903**	**(2,033,046)**
Adjusted for:	**1,468,172**	**10,609,663**
Loss on written-off of assets	261,087	57,720
Foreign gain\loss	-	(47,930)
Write-off of bad debts	165,542	-
Leave pay provision	383,421	184,372
Allowance for bad debts written-off	26,613	(498,930)
Movements in operating lease assets and accruals	631,509	29,888
Depreciation	-	10,884,543
Other:	**8,984,925**	**(2,080,617)**
Variance in operating expenses and overheads	10,416,096	612,575
Variance in the NMISA grant	-	(2,253,000)
Variance in income from rendering of services & Other income	(220,481)	(778,778)
Variance in interest income	(250,765)	335,768
Variance in finance cost	-	2,818
Variance in Depreciation	(959,926)	-
Surplus as per Budget	**27,708,000**	**6,496,000**
Variance in capital expenditure	(27,708,000)	(3,197,702)
Assets additions	-	(3,272,298)
Net surplus as per approved budget	**-**	**26,000**

11. HR MANAGEMENT OVERSIGHT REPORT

The successful execution of the NMISA's mandate relies on a competent and sustainable workforce. The key focus areas during the year under review related to amongst others: resourcing the support functions such as Finance, Human Resources, Information Technology, and Internal Audit to ensure adequate capacity to meet our internal clients' expectations by providing support services that enable them to focus on the core business. Other focus areas include transformation initiatives, the development of leadership and management competencies.

11.1 Human Capital Development

MORE RESOURCES WERE CHANNELLED into the Human Capital Development programme. There was a significant increase in the intake of both undergraduate and postgraduate students to continue building a pipeline of skilled and talented metrologists.

The staff exchange programme, which was initiated through partnerships forged with other NMIs around the world, saw **ITS FIRST SUCCESSFUL PLACEMENT OF ONE THE NMISA EMPLOYEE IN KOREA,** more details are presented under skills development.

11.2 Employee wellness programme

The NMISA continues to encourage a balanced work life for the employees through its professional and holistic employee wellness programme. Participation in wellness days have improved and more employees are making use of the benefits provided through the EWP which include:

- Parental & Family Wellbeing
- Basic Lifestyle & Wellness Coaching
- 24 hours toll free call centre
- Psycho Social Counselling
- Trauma counselling
- Legal & Financial Assistance
- HIV /Chronic Disease education & support
- Managerial Consultancy & Referral Services
- Annual Health, Behavioural & Lifestyle Assessments
- HIV/AIDS voluntary counselling and testing (VCT)
- Targeted Group Interventions

The programme offers professional consultation on any personal problems at no cost to the NMISA employees. Employees are encouraged to use benefits provided in the programme and the data is totally confidential.

11.3 Employment and vacancies

THE FOLLOWING TABLES SUMMARISE THE NUMBER OF POSTS ON THE ESTABLISHMENT, THE NUMBER OF EMPLOYEES, THE VACANCY RATE, AND WHETHER THERE ARE ANY STAFF THAT ARE ADDITIONAL TO THE ESTABLISHMENT. This information is presented in terms of three key variables: programme (Table 1), salary band (Table 2) and critical occupations (Table 3). The organisation has identified critical occupations that need to be monitored.

The vacancy rate reflects the percentage of posts that are not filled.

A total of 14 new employees were appointed for the period, four (4) were replacements while six (6) were appointed to fill vacant positions and four (4) are post graduate bursars who have been appointed on long term contracts to complete their qualifications while working fulltime at the NMISA.

TABLE 1. EMPLOYMENT AND VACANCIES BY PROGRAMME, 31 MARCH 2012

PROGRAMME	NUMBER OF POSTS	NUMBER OF POSTS FILLED	VACANCY RATE	NUMBER OF POSTS FILLED ADDITIONAL TO THE ESTABLISHMENT
Support	7	4	3%	4
Physical Metrology	1	1	0%	0
Ionising Radiation	1	1	0%	0
Electricity &Magnetism	1	0	1%	0
Research and Development	2	0	2%	0
Total	**12**	**6**	**6%**	**4**

TABLE 2. EMPLOYMENT AND VACANCIES BY SALARY BANDS, 31 MARCH 2012

SALARY BAND	NUMBER OF POSTS	NUMBER OF POSTS FILLED	VACANCY RATE	NUMBER OF POSTS FILLED ADDITIONAL TO THE ESTABLISHMENT
Lower skilled (levels 1 - 2)	0	0	0%	0
Skilled (levels 3 - 5)	0	0	0%	0
Highly skilled production (levels 6 - 8)	1	0	1%	1
Highly skilled supervision (levels 9 - 12)	10	6	4%	3
Senior management (levels 13 - 16)	1	0	1%	0

TABLE 3. EMPLOYMENT AND VACANCIES BY CRITICAL OCCUPATION, 31 MARCH 2012

CRITICAL OCCUPATION	NUMBER OF POSTS	NUMBER OF POSTS FILLED	VACANCY RATE	NUMBER OF POSTS FILLED ADDITIONAL TO THE ESTABLISHMENT
Head of finance	1	0	1%	0
Scientists	3	0	4%	0
Internal audit manager	1	0	0%	0
Total	**5**	**0**	**5%**	**0**

The information in each case reflects the situation as at 31 March 2012. For an indication of changes in staffing patterns over the year under review, please refer to section 5 of this report.

11.4 Job evaluation

The NMISA embarked on a process to review the career ladders used to evaluate technical staff members. The metrology career ladders were designed to ensure that metrologists are placed in the appropriate career paths for their growth and development. CONSTANT MONITORING, FEEDBACK FROM STAFF AND EVALUATIONS PANELS HELPED TO IDENTIFY GAPS IN THE CAREER LADDERS AND A PROCESS TO DEVELOP A MORE OBJECTIVE AND TRANSPARENT SYSTEM WAS INITIATED.

Scientific personnel were traditionally classified as Metrologists and Research and Development Metrologists, these descriptions are well understood or recognised by professionals in the science of measurements community. Using the metrologists descriptions in the job advertisements did in itself narrow the search for potential candidates as it is not well recognised in the job market. Human Resources, together with technical divisions, revisited the classification of employees to ensure that familiar job titles are used across the organisation. A benchmarking exercise with other metrology institutes and research councils are being conducted to evaluate best practices.

The Hay job evaluation system is used to evaluate fixed positions. Twelve (12) positions were evaluated as part of the NMISA reorganisation process.

Table 4 summarises the number of jobs that were evaluated during the year under review. The table also provides statistics on the number of posts that were upgraded or downgraded.

TABLE 4. EMPLOYMENT AND VACANCIES BY PROGRAMME, 31 MARCH 2012

				POSTS UPGRADED		POSTS DOWNGRADED	
SALARY BAND	NUMBER OF POSTS	NUMBER OF JOBS EVALUATED	% OF POSTS EVALUATED BY SALARY BAND	NUMBER	% OF POSTS EVALUATED	NUMBER	% OF POSTS EVALUATED
Lower skilled (levels 1 - 2)	-	-	-	-	-	-	-
Skilled (levels 3 - 5)	3	-	-	-	-	-	-
Highly skilled production (levels 6 - 8)	23	3	3%	1	1%	2	2%
Highly skilled supervision (levels 9 - 12	75	19	17%	17	15%	-	-
Senior management service band A	8	7	5%	4	4%	2	2%
Senior management service band B	-	-	-	-	-	-	-
Senior management service band C	1	1	1%	-	-	1	1%
Senior management service band D	1	-	-	-	-	-	-
Total	**111**	**30**	**26%**	**22**	**20%**	**5**	**5%**

Table 5 provides a summary of the number of employees whose salary positions were upgraded due to their posts being upgraded. The number of employees might differ from the number of posts upgraded since not all employees are automatically absorbed into the new posts and some of the posts upgraded could also be vacant.

Although job evaluations were done during the period under review implementation was only planned for the next financial year. No salaries were upgraded (Table 6)

TABLE 5. PROFILE OF EMPLOYEES WHOSE SALARY POSITIONS WERE UPGRADED DUE TO THEIR POSTS BEING UPGRADED, 1 APRIL 2011 TO 31 MARCH 2012

BENEFICIARIES	AFRICAN	ASIAN	COLOURED	WHITE	total
Male	-	-	-	-	-
Female	-	-	-	1	1
Total	-	-	-	1	1
Employee with a disability					0

There were no cases where remuneration levels exceeded the grade determined by job evaluation. Reasons for the deviation are provided in each case.

TABLE 6. PROFILE OF EMPLOYEES WHOSE SALARY LEVEL EXCEED THE GRADE DETERMINED BY JOB EVALUATION, 1 APRIL 2011 TO 31 MARCH 2012 (IN TERMS OF PSR 1.V.C.3)

Total Number of Employees whose salaries exceeded the grades determined by job evaluation in 2011/ 12	None

11.5 Employment changes

This section provides information on changes in employment over the financial year. The NMISA staff turnover rate dropped from 8% to 3% for the period under review.

The turnover rates provide an indication of trends in the employment profile of the organisation. The turnover rates by salary band and by critical occupations are listed in Table 7 and Table 8 respectively. Table 7 identifies the major reasons why staff left the organisation.

EMPLOYMENT

TABLE 7. REASONS WHY STAFF ARE LEAVING THE ORGANISATION

TERMINATION TYPE	NUMBER	% OF TOTAL
Death	0	0
Resignation	3	3%
Expiry of contract	-	-
Dismissal – operational changes	-	-
Dismissal – misconduct	-	-
Dismissal – inefficiency	-	-
Discharged due to ill-health	-	-
Retirement	-	-
Other	-	-
Total	3	3%
Total number of employees who left as a % of the total employment		3%

TABLE 8. ANNUAL TURNOVER RATES BY CRITICAL OCCUPATION FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

OCCUPATION	Number of employees per occupation as on 1 April 2011	Appointments and transfers into the organisation	Terminations and transfers out of the organisation	Turnover rate
Head of Finance	1	0	1	1%
Total	**1**	**0**	**1**	**1%**

TABLE 9. REASONS WHY STAFF ARE LEAVING THE ORGANISATION

TERMINATION TYPE	NUMBER	% OF TOTAL
Death	0	0
Resignation	3	3%
Expiry of contract	-	-
Dismissal – operational changes	-	-
Dismissal – misconduct	-	-
Dismissal – inefficiency	-	-
Discharged due to ill-health	-	-
Retirement	-	-
Other	-	-
Total	**3**	**3%**
Total number of employees who left as a % of the total employment		**3%**

TABLE 10. PROMOTIONS BY CRITICAL OCCUPATIONMARCH 2012

OCCUPATION	Employees as at 1 April 2011	Promotions to another salary level	Salary level promotions as a % of employees by occupation	Progressions to another notch within a salary level	Notch progressions as a % of employees by occupation
R&D Metrologist	1	1	1%	-	-
Total	**1**	**1**	**1%**	**-**	**-**

TABLE 11. PROMOTIONS BY SALARY BAND

SALARY BAND	Employees 1 April 2011	Promotions to another salary level	Salary bands promotions as a % of employees by salary level	Progressions to another notch within a salary level	Notch progressions as a % of employees by salary band
Lower skilled (levels 1 - 2)	-	-	-	-	-
Skilled (levels 3 - 5)	-	-	-	-	-
Highly skilled production (levels 6 - 8)	-	-	-	-	-
Highly skilled supervision (levels 9 - 12)	1	1	1%	-	
Senior management (levels 13 - 16)	-	-	-	-	--
Total	1	1	1%	-	-

11.6 Employment equity

The tables in this section are based on the formats prescribed by the Employment Equity Act, 55 of 1998. Efforts to change the organisational demographic profile in line with that of South Africa remain a challenge. Although 70% of the vacant positions were filled by candidates from the designated groups, more efforts must be put into the attraction and retention of black professionals.

The tables in this section are based on the formats prescribed by the Employment Equity Act, 55 of 1998.

TABLE 12. TOTAL NUMBER OF EMPLOYEES (INCLUDING EMPLOYEES WITH DISABILITIES) IN EACH OF THE FOLLOWING OCCUPATIONAL CATEGORIES AS ON 31 MARCH 2012

Occupational categories (SASCO)	MALE				FEMALE				TOTAL
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Legislators, senior officials and managers	4	-	1	2	2	-	-	4	13
Professionals	13	1	2	22	9	1	-	18	65
Technicians and associate professionals	4	-	1	2	1	0	0	2	10
Clerks	1	-	-	-	7	1	-	4	13
Service and sales workers	1	-	-	-	-	-	-	-	1
Skilled agriculture and fishery workers	-	-	-	-	-	-	-	-	-
Craft and related trades workers	1	-	-	-	-	-	-	-	1
Plant and machine operators and assemblers	1	-	-	-	-	-	-	-	1
Elementary occupations	-	-	-	-	-	-	-	-	-
Total	**25**	**1**	**4**	**26**	**19**	**2**	**0**	**28**	**105**
Employees with disabilities	-	-	-	-	-	-	-	1	1

TABLE 13. TOTAL NUMBER OF EMPLOYEES (INCLUDING EMPLOYEES WITH DISABILITIES) IN EACH OF THE FOLLOWING OCCUPATIONAL BANDS AS ON 31 MARCH 2012

	MALE				FEMALE				TOTAL
Occupational BANDS	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management	4	-	1	1	1	-	-	1	8
Senior Management	-	-	-	1	1	-	-	3	5
Professionally qualified and experienced specialists and mid-management	13	1	2	22	9	1	-	18	65
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents	4	-	1	2	1	-	-	2	10
Semi-skilled and discretionary decision making	1	-	-	-	7	1	-	4	13
Unskilled and defined decision making	3	-	-	-	-	-	-	-	3
Total	**25**	**1**	**4**	**26**	**19**	**2**	**-**	**28**	**105**

TABLE 14. RECRUITMENT FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

	MALE				FEMALE				TOTAL
Occupational BANDS	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top Management	1	-	-	-	-	-	-	-	1
Senior Management	-	-	-	-	-	-	-	-	-
Professionally qualified and experienced specialists and mid-management	2	-	-	2	3	-	-	1	8
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents	3	-	1	-	-	-	-	1	5
Semi-skilled and discretionary decision making	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making	-	-	-	-	-	-	-	-	-
Total	**6**	**-**	**1**	**2**	**3**	**-**	**-**	**2**	**14**
Employees with disabilities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**1**

TABLE 15. PROMOTIONS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2013

	MALE				FEMALE				
Occupational BANDS	African	Coloured	Indian	White	African	Coloured	Indian	White	TOTAL
Top Management	-	-	-	-	-	-	-	-	-
Senior Management	-	-	-	-	-	-	-	-	-
Professionally qualified and experienced specialists and mid-management	-	-	-	-	-	-	-	1	1
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents	-	-	-	-	-	-	-	-	-
Semi-skilled and discretionary decision making	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	1	1
Employees with disabilities	-	-	-	-	-	-	-	-	-

TABLE 16. TERMINATIONS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2011

	MALE				FEMALE				
Occupational BANDS	African	Coloured	Indian	White	African	Coloured	Indian	White	TOTAL
Top Management	-	-	-	-	-	-	-	-	-
Senior Management	-	-	-	-	-	-	-	1	1
Professionally qualified and experienced specialists and mid-management	-	-	-	-	-	-	-	1	1
Skilled technical and academically qualified workers, junior management, supervisors, foreman and superintendents	-	-	-	-	1	-	-	-	1
Semi-skilled and discretionary decision making	-	-	-	-	-	-	-	-	-
Unskilled and defined decision making	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	1	-	-	2	3
Employees with disabilities	-	-	-	-	-	-	-	-	-

TABLE 17. DISCIPLINARY ACTION FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

	MALE				FEMALE				
	African	Coloured	Indian	White	African	Coloured	Indian	White	TOTAL
DISCIPLINARY ACTION	**1**	**-**	**1**	**1**	**-**	**-**	**0**	**2**	**5**

TABLE 18. SKILLS DEVELOPMENT FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

	MALE				FEMALE				
Occupational CATEGORIES	African	Coloured	Indian	White	African	Coloured	Indian	White	TOTAL
Legislators, senior officials and managers	3	-	1	2	2	-	-	4	12
Professionals	12	1	2	18	9	1	-	15	58
Technicians and associate professionals	4	-	1	2	1	-	-	2	10
Clerks	-	-	-	-	6	1	-	3	10
Service and sales workers	-	-	-	-	-	-	-	-	-
Skilled agriculture and fishery workers	-	-	-	-	-	-	-	-	-
Craft and related trades workers	-	-	-	-	-	-	-	-	-
Plant and machine operators and assemblers	-	-	-	-	-	-	-	-	-
Elementary occupations	-	-	-	-	-	-	-	-	-
Total	**19**	**1**	**4**	**22**	**18**	**2**	**0**	**24**	**90**
Employees with disabilities	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

11.7 Performance rewards

To encourage good performance, the organisation has granted the following performance rewards during the year under review. The information is presented in terms of race, gender, and disability (Table 19), salary bands and critical occupations (Table 20) and critical occupations (Table 21).

TABLE 19. PERFORMANCE REWARDS BY RACE, GENDER, AND DISABILITY, 1 APRIL 2011 TO 31 MARCH 2012

	BENEFICIARY PROFILE			COST	
	Number of beneficiaries	Total number of employees in group	% of total within group	Cost (R'000)	Average cost per employee
African	30	31	-	452498	15603
Male	17	17	-	321356	18903
Female	13	14	-	129484	9960
Asian	2	3	-	85830	42915
Male	2	3	-	85830	42915
Female	-	-	-		
Coloured	2	3	-	18335	9167
Male	1	1	-	9991	9991
Female	1	2	-	8344	8344
White	48	52	-	946791	39689
Male	23	25	-	522615	22722
Female	25	27	-	424176	16967
Employees with a disability	-	-	-		
Total	**82**	**89**	**-**	**1503454**	**18318**

TABLE 20. PERFORMANCE REWARDS BY SALARY BANDS FOR PERSONNEL BELOW SENIOR MANAGEMENT SERVICE, 1 APRIL 2011 TO 31 MARCH 2012

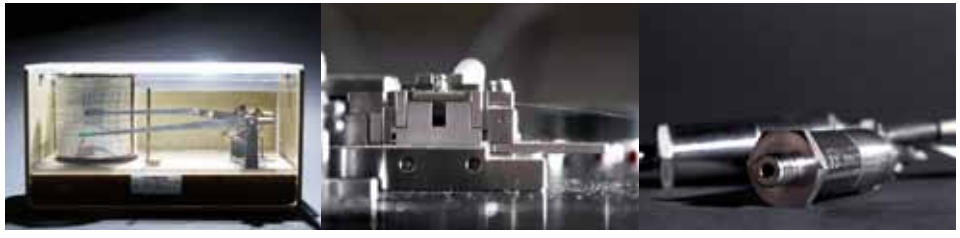
SALARY BANDS	BENEFICIARY PROFILE			COST		
	Number of beneficiaries	Number of employees	% of total within salary bands	Cost (R'000)	Average cost per employee	Total cost as a % of the total personnel expenditure
Lower skilled (Levels 1-2)	-	-	-	-		-
Skilled (Levels 3-5)	2	2	2%	9682	4841	0.645%
Highly skilled production (Levels 6-8)	13	14	16%	73341	5641	4.88%
Highly skilled supervision (Levels 9-12)	59	64	73%	966871	16387	64.37%
Total	**94**	**80**	**91%**	**1049894**	**26869**	**69.89%**

TABLE 21. PERFORMANCE REWARDS BY CRITICAL OCCUPATIONS, 1 APRIL 2011 TO 31 MARCH 2012

CRITICAL OPTIONS	BENEFICIARY PROFILE			COST	
	Number of beneficiaries	Number of employees	% of total within occupation	Cost (R'000)	Average cost per employee
Metrologists	23	26	43%	297718	12944
R&D Metrologists	27	28	48%	482855	17883
Total	**50**	**54**	**91%**	**780573**	**30827**

TABLE 22. PERFORMANCE RELATED REWARDS (CASH BONUS), BY SALARY BAND, FOR SENIOR MANAGEMENT SERVICE

SALARY BAND	BENEFICIARY PROFILE			TOTAL COST (R'000)	Average cost per employee	Total cost as a % of the total personnel expenditure
	Number of beneficiaries	Number of employees	% of total within band			
Band A	6	6	7%	261954	43658	17.44%
Band B	-	-	-	-	-	-
Band C	1	1	1%	68739	68739	4.58%
Band D	1	1	1%	102083	102083	6.80%
Total	**8**	**8**	**9%**	**432776**	**214480**	**28.82%**



11.8 Foreign workers

The tables below summarise the employment of foreign nationals in the organisation in terms of salary bands and by major occupation. Table 23 and Table 24 also summarise changes in the total number of foreign workers in each salary band and by each major occupation.

TABLE 23. FOREIGN WORKERS, 1 APRIL 2011 TO 31 MARCH 2012, BY SALARY BAND

SALARY BAND	1 APRIL 2011		31 MARCH 2012		CHANGE	
	Number	% of total	Number	% of total	Number	% change
Lower skilled (Levels 1-2)	0	0	0	0	0	0
Skilled (Levels 3-5)	1	1%	0	0	0	0
Highly skilled production (Levels 6-8)	0	0	0	0	0	0
Highly skilled supervision (Levels 9-12)	1	1%	1	1%	1	1%
Senior management (Levels 13-16)	0	0	0	0	0	0
Total	**2**	**2%**	**1**	**1 %**	**1**	**1%**

TABLE 24. FOREIGN WORKER, 1 APRIL 2011 TO 31 MARCH 2011, BY MAJOR OCCUPATION

MAJOR OCCUPATION	1 APRIL 2011		31 MARCH 2012		CHANGE	
	Number	% of total	Number	% of total	Number	% of total
Research and Development Metrologist	1	1%	1	1%	-	-
Total	**1**	**1%**	**1**	**1%**	**-**	**-**

Daniel Mabena
Math

Morena Xaba
PHD Bursor

Floris van der Walt
Materials Characterisation

Tebogo Mdluli
Receptionist

Ronel Steyn
Mass & Force

11.9 Leave utilisation for the period 1 January 2011 to 31 December 2012

The Public Service Commission identified the need for careful monitoring of sick leave within the public service. The following tables provide an indication of the use of sick leave (Table 25) and disability leave (Table 26). In both cases, the estimated cost of the leave is also provided.

Table 27 summarises the utilisation of annual leave with capped leave indicated in Table 28. The wage agreement concluded with trade unions in the PSCBC in 2000 requires management of annual leave to prevent high levels of accrued leave being paid at the time of termination of service.

Table 29 summarises payments made to employees as a result of leave that was not taken. Leave is only paid out if an employee leaves the services of the NMISA. Employees can't sell unused leave to the organisation.

TABLE 25. SICK LEAVE, 1 APRIL 2011 TO 31 MARCH 2012

SALARY BAND	TOTAL DAYS	% DAYS WITH MEDICAL CERTIFICATION	NUMBER OF EMPLOYEES USING SICK LEAVE	% OF TOTAL EMPLOYEES USING SICK LEAVE	AVERAGE DAYS PER EMPLOYEE	ESTIMATED COST (R'000)
Lower skilled (Levels 1-2)	-	-	-	-	-	-
Skilled (Levels 3-5)	11	57%	3	3%	4	4,783
Highly skilled production (Levels 6-8)	121	86%	9	8%	16	114,202
Highly skilled supervision (Levels9-12)	504	80%	57	54%	9	1,068,567
Senior management (Levels 13-16)	43	58%	7	7%	6	233,468
Total	**679**	**80%**	**76**	**72%**	**35**	**1,421,020**

TABLE 26. DISABILITY LEAVE (TEMPORARY AND PERMANENT), 1 APRIL 2011 TO 31 MARCH 2012

SALARY BAND	TOTAL DAYS TAKEN	% DAYS WITH MEDICAL CERTIFICATION	NUMBER OF EMPLOYEES USING DISABILITY LEAVE	% OF TOTAL EMPLOYEES USING DISABILITY LEAVE	AVERAGE DAYS PER EMPLOYEE	ESTIMATED COST (R'000)
Lower skilled (Levels 1-2)	-	-	-	-	-	-
Skilled (Levels 3-5)	-	-	-	-	-	-
Highly skilled production (Levels 6-8)	85	100%	1	1%	85	56,240
Highly skilled supervision (Levels9-12)	160	100%	4	4%	40	222,166
Senior management (Levels 13-16)	-	-	-	-	-	-
Total	**245**	**100%**	**5**	**5%**	**49**	**278,406**

TABLE 27. ANNUAL LEAVE, 1 APRIL 2011 TO 31 MARCH 2012

SALARY BAND	TOTAL DAYS TAKEN	AVERAGE PER EMPLOYEE
Lower skilled (Levels 1-2)	4	4
Skilled (Levels 3-5)	80	16
Highly skilled production (Levels 6-8)	281	20
Highly skilled supervision (Levels9-12)	1624	22
Senior management (Levels 13-16)	264	22
Total	**2253**	**21**

TABLE 28. CAPPED LEAVE, 1 APRIL 2011 TO 31 MARCH 2012

SALARY BAND	TOTAL DAYS OF CAPPED LEAVE	AVERAGE NUMBER OF DAYS TAKEN PER EMPLOYEE	AVERAGE CAP LEAVE PER EMPLOYEE AS AT 1 MARCH 2012
Lower skilled (Levels 1-2)	-	-	-
Skilled (Levels 3-5)	1	1	1
Highly skilled production (Levels 6-8)	41	3	6
Highly skilled supervision (Levels9-12)	154	2	4
Senior management (Levels 13-16)	40	3	7
Total	**236**	**9**	**18**

TABLE 29. LEAVE PAYOUTS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

REASON	TOTAL AMOUNT (R'000)	NUMBER OF EMPLOYEES	AVERAGE PAYMENY PER EMPLOYEE
Leave payout for 2011/12 due to non-utilisation of leave for the previous cycle	-	-	-
Capped leave payouts on termination of service for 2011/12	12,061	2	6,031
Current leave payouts on termination of service for 2011/12	7,629	6	1,272
Total	**19,690**	**8**	**7,303**

11.10 Labour relations

The NMISA has not entered into agreements with trade unions (Table 30). The outcome of disciplinary hearings conducted within the organisation for the year under review is summarised in Table 31. The details of misconduct and grievances are reported in Table 32 and Table 33 respectively. No disputes were lodged with any council during the period. The operation of the NMISA was not affected by any strike actions, and no employees were suspended during the period under review.

TABLE 30. COLLECTIVE AGREEMENTS, 1 APRIL 2011 TO 31 MARCH 2012

Total collective agreements	None

The following table summarises the outcome of disciplinary hearings conducted within the organisation for the year under review.

TABLE 31. MISCONDUCT AND DISCIPLINARY HEARINGS FINALISED, 1 APRIL 2011 TO 31 MARCH 2012

OUTCOMES OF DISCIPLINARY HEARINGS	NUMBER	% OF TOTAL
Correctional counselling	2	2%
Verbal warning	1	1%
Written warning	2	2%
Final written warning	0	0
Suspended without pay	0	0
Fine	0	0
Demotion	0	0
Dismissal	0	0
Not guilty	0	0
Case withdrawn	0	0
Total	**5**	**5%**

TABLE 32. TYPES OF MISCONDUCT ADDRESSED AT DISCIPLINARY HEARINGS

OUTCOMES OF DISCIPLINARY HEARINGS	NUMBER	% OF TOTAL
Insubordination	2	2%
Misconduct	2	2%
Adherence to working hours	1	1%
Total	**5**	**5%**

TABLE 33. GRIEVANCES LODGED FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

	NUMBER	% OF TOTAL
Number of grievances not resolved	3	3%
Number of grievances not resolved	0	0
Total number of grievances lodged	3	3%
Total	**5**	**5%**

TABLE 34. DISPUTES LODGED WITH COUNCILS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

	NUMBER	% OF TOTAL
Number of disputes upheld	0	0
Number of disputes dismissed	0	0
Total number of disputed lodged	0	0

TABLE 35. STRIKE ACTIONS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2012

Total number of person working days lost	0	0
Total cost (R'000) of working days lost	0	0
Amount (R'000) recovered as a result of no work no pay	0	0

TABLE 36. PRECAUTIONARY SUSPENSIONS FOR THE PERIOD 1 APRIL 2011 TO 31 MARCH 2

Number of people suspended	0	0
Number of people whose suspension exceeded 30 days	0	0
Average number of days suspended	0	0
Cost (R'000) of suspensions	0	0

11.11 Skills development

This section highlights the efforts of the organisation with regard to skills development, and the needs and training provided are summarised in Table 37 and Table 38, respectively.

SKILLS DEVELOPMENT PROGRAMMES AND ACHIEVEMENTS INCLUDE:

- **Postgraduate Bursaries:** Five postgraduate students including four new students have been appointed fulltime to complete their qualifications while involved in metrology projects.
- **Undergraduate Bursaries:** The NMISA is supporting five undergraduate bursars
- **Academic support for the NMISA employees:** A culture of continuous learning is encouraged amongst the NMISA employees. Study loans are offered to employees who wish to further their studies in fields aligned to their careers. Five employees who are pursuing their PhD degrees are amongst those who were supported during the period under review.
- **Staff exchange programme:** The NMISA was successful concluding an agreement with Korea Research Institute of Standards and Science (KRISS) to host one of our employees James Tshilongo to study towards PhD at the University of Science and Technology (UST) in Korea.
- **Internship and In-service training programme:** Three interns were trained while more students were also afforded the opportunity to participate in the vacation work programme.
- **Leadership development:** A skills needs analysis was conducted early in the year and a training programme was designed to improve skills and develop the leadership team. Amongst others performance management, financial management and corporate budgeting formed part of the courses included in programme.

TABLE 37. TRAINING NEEDS IDENTIFIED 1 APRIL 2011 TO 31 MARCH 2012

OCCUPATIONAL CATEGORIES	GENDER	NUMBER OF EMPLOYEES AS AT 1 APRIL 2011	Training needs identified at start of reporting			
			Learner-ships	Skills Programmes & other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	6	-	14	1	15
	Male	6	-	12	-	12
Professionals	Female	29	-	21	6	30
	Male	37	-	27	18	45
Technicians and associate professionals	Female	2	-	2	-	2
	Male	3	-	-	-	-
Clerks	Female	14	-	7	-	7
	Male	-	-	-	-	-
Service and sales workers	Female	-	-	-	-	-
	Male	2	-	-	-	-
Skilled agriculture and fishery workers	Female	-	-	-	-	-
	Male	-	-	-	-	-
Craft and related trades workers	Female	-	-	-	-	-
	Male	1	-	-	-	-
Plant and machine operators and assemblers	Female	-	-	-	-	-
	Male	1	-	-	-	-
Elementary occupations	Female	-	-	-	-	-
	Male	-	-	-	-	-
Sub Total	Female	51	-	44	10	54
	Male	50	-	39	18	57
Total		**101**	**-**	**83**	**28**	**111**

TABLE 38.TRAINING PROVIDED 1 APRIL 2011 TO 31 MARCH 2012

OCCUPATIONAL CATEGORIES	GENDER	NUMBER OF EMPLOYEES AS AT 31 MARCH 2012	Training needs identified at start of reporting			
			Learnerships	Skills Programmes & other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	6	-	21	5	26
	Male	7	-	21	5	26
Professionals	Female	28	-	29	14	43
	Male	38	-	61	27	88
Technicians and associate professionals	Female	3	-	4	-	4
	Male	12	-	2	-	2
Clerks	Female	1	-	11	-	11
	Male	-	-	-	-	-
Service and sales workers	Female	1	-	-	-	-
	Male	-	-	-	-	-
Skilled agriculture and fishery workers	Female	-	-	-	-	-
	Male	-	-	-	-	-
Craft and related trades workers	Female	-	-	-	-	-
	Male	1	-	-	-	-
Plant and machine operators and assemblers	Female	-	-	-	-	-
	Male	1	-	-	-	-
Elementary occupations	Female	-	-	-	-	-
	Male	-	-	-	-	-
Sub Total	Female	49	0	44	10	54
	Male	56	0	84	32	116
Total		**105**	**0**	**149**	**51**	**200**

11.12 Injury on duty

The NMISA has strict SHE policies in place, and its effectiveness is evitable in that there were no serious injuries on duty. Only 5 cases of basic medical attention were recorded for the period.

TABLE 39. INJURY ON DUTY, 1 APRIL 2011 TO 31 MARCH 2012

Nature of injury on duty	0	0
Required basic medical attention only	5	5%
Temporary Total Disablement	0	0
Permanent Disablement	0	0
Fatal	0	0
Total	**5**	**5%**

Marcellé Archer
Organic Analysis

13. THE INTERNATIONAL SYSTEM OF UNITS (SI)

Unit of Length, meter (m)

The metre is the length of the path travelled by light in vacuum during a time interval of 1/299 792 458 of a second.

Unit of Mass, kilogram (kg)

The kilogram is the unit of mass; it is equal to the mass of the international prototype of the kilogram.

Unit of Time, second (s)

The second is the duration of 9 192 631 770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the caesium 133 atom.

Unit of Electric Current, ampere (A)

The ampere is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 m apart in vacuum, would produce between these conductors a force equal to 2×10^{-7} newton per metre of length.

Unit of Thermodynamic Temperature, Kelvin (K)

The Kelvin, unit of thermodynamic temperature, is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.

Unit of Luminous Intensity, candela (cd)

The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540×10^{12} hertz and that has a radiant intensity in that direction of 1/683 watt per steradian.

Unit of Amount of Substance, mole (mol)

1. The mole is the amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon 12.
2. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles, or specified groups of such particles.

14. ACRONYMS AND ABBREVIATIONS

AFRIMETS	Intra-Africa Metrology System
BIPM	International Bureau of Weights and Measures
BTEX	Benzene, Ethyl benzene, Toluene and Xylene Isomers
CC	Consultative committee
CGPM	General Conference of Weights and Measures
CIE	International Commission on Illumination
CIPM	Committee of Weights and Measures
CMC	Calibration and Measurement Capabilities
CMM	Co-ordinate Measuring Machine
CRM	Certified Reference Material
DEA	Department of Environmental Affairs
DST	Department of Science and Technology
the dti	Department of Trade & Industry
EE	Employment Equity
EPCRC	Environmental Pollution Compliance and Research Centre
EWP	Employee Wellness Programme
HCD	Human Capital Development
HIV	Human Immunodeficiency Virus
HWCVD	Hot-wire Chemical Vapour Deposition
IAEA	International Atomic Energy Agency
IEC	International Electro technical Committee
INMETRO	National Institute of Metrology, Quality and Technology
IPAP	Industrial Policy Action Plan
ISO	International Standards Organisation
LED	Light Emitting Diode
MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
NEDLAC	National Economic Development and Labour Council
NLA	National Laboratory Association
NMI	National Metrology Institute
NMISA	National Metrology Institute of South Africa
NMS	National Measurement Standard
NNR	National Nuclear Regulator
NRL	National Reference Laboratory
NTF	Non-Tariff Barriers
PFMA	Public Finance Management Act
PMD	Polarisation Mode Dispersion
POP	Persistent Organic Pollutant
POPT	Persistent Organic Pollutant and Toxicant
PRGM	Primary Reference Gas Mixtures
PT	Proficiency Testing
PTB	Physikalisch Technische Bundesanstalt
PTS	Proficiency Testing Scheme
SA	South Africa
SAAQIS	South African Air Quality Information System
SABS	South African Bureau of Standards
SADC	Southern African Development Community
SADCMET	SADC Cooperation in Measurement Traceability
SAGL	South African Grain Laboratory
SANAS	South African National Accreditation System
SI	International System of Units
SSDL	Secondary Standards Dosimetry Laboratories
SQAM	Standards, Quality Assurance, Accreditation and Metrology
TBT	Technical Barrier to Trade
TCQM	Technical Committee for Amount of Substance
UNIDO	United Nations Development Organisation
WG	Working Group
WHO	World Health Organisation

"The only man who behaved sensibly was my tailor; he took my measurement anew every time he saw me, while all the rest went on with their old measurements and expected them to fit me."

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