DEPARTMENT OF
SCIENCE AND TECHNOLOGY
Vote No. 34

Annual Report 2013/2014 FINANCIAL YEAR

science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Vote No. 34

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Table of Contents

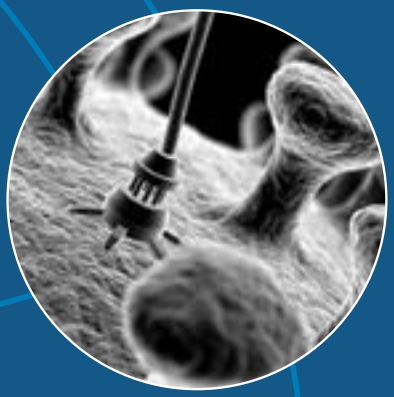
PART A: GENERAL INFORMATION

PART B: PERFORMANCE INFORMATION

PART C: GOVERNANCE

PART D: HUMAN RESOURCE MANAGEMENT

PART E: FINANCIAL INFORMATION



PART A:
General Information

1. Department general information

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2. Abbreviations

ACCESS	Applied Centre for Climate and Earth Systems Science
AEON	Africa Earth Observation Network
AISA	Africa Institute of South Africa
Angloplats	Anglo American Platinum
APP	annual performance plan
BRICS	Brazil, Russia, India, China and South Africa
CAPRISA	Centre for the AIDS Programme of Research in South Africa
CeSTII	Centre for Science, Technology and Innovation Indicators
CIGS	copper indium gallium selenide
CoE	centre of excellence
CSIR	Council for Scientific and Industrial Research
DG	Director-General
DST	Department of Science and Technology
DWA	Department of Water Affairs
EHC	electrochemical hydrogen compression
ENE	Estimates of National Expenditure
EU	European Union
Exco	Executive Committee of the Department
FCSTT	Fuel Cell Solutions Task Team
FPOs	foundations and philanthropic organisations
GCSSRP	Global Change, Society and Sustainability Research Programme
HCD	human capital development
HEI	higher education institution
HSRC	Human Sciences Research Council
HySA	Hydrogen South Africa
ICGEB	International Centre for Genetic Engineering and Biotechnology
ICT	information and communication technology
IGC	WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
IKS	indigenous knowledge system
IP	intellectual property
IPR-PFRD Act	Intellectual Property Rights from Publicly Financed Research and Development Act
NAM	Non-Aligned Movement
Necsa	South African National Energy Corporation
NERDIS	Nuclear Energy Research, Development and Innovation Strategy
NIPMO	National Intellectual Property Management Office

NMMU	Nelson Mandela Metropolitan University
NRF	National Research Foundation
NRS	National Recordal System
NSI	National System of Innovation
ODA	official development assistance
OTT	office of technology transfer
PTiP	Photovoltaic Technology Intellectual Property
R&D	research and development
RAVSC	risk and vulnerability science centre
RDI	research, development and innovation
S&T	science and technology
SAASTA	South African Agency for Science and Technology Advancement
SADC	Southern African Development Community
SAEON	South African Environmental Observation Network
SANReN	South African National Research Network
SANSA	South African National Space Agency
SARChI	South African Research Chairs Initiative
SARS	South African Revenue Service
SCOPA	Standing Committee on Public Accounts
SET	science, engineering and technology
SETI	science, engineering and technology institution
SIF	sector innovation fund
SKA	Square Kilometre Array
SME	small and medium enterprises
SSDU	specialised service delivery unit
StepSA	Spatial and Temporal Evidence for Planning in South Africa
STI	science, technology and innovation
TAP	technology assistance package
Tech4RED	Technology for Rural Education and Development
THRIP	Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TLP	Technology Localisation Programme
TT100	Technology Top 100
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIPO	World Intellectual Property Organization
WMN	wireless mesh network

3. Foreword by the Minister

Naledi Pandor, *Minister of Science and Technology*

The Department of Science and Technology has made many important contributions to South Africa's development and continues to do so, living up to its mandate to use science and technology to improve the country's economy, create employment and improve the quality of life of all citizens.

During the year under review, the Department spent over R6 billion on developing skills and infrastructure, alleviating poverty, contributing to health care and promoting local innovation. Its activities are based on the National Development Plan (which identifies science and technology as key to socio-economic development), as well as the National Research and Development Strategy and the Ten-Year Innovation Plan.

Space science and technology

The project to build the world's largest radio telescope, the Square Kilometre Array (SKA), achieved a major milestone in this financial year when the first dish of the precursor array, the MeerKAT, was installed in March 2014. When completed in 2016, MeerKAT will consist of 64 antennae and will be the most sensitive radio telescope in the Southern Hemisphere. Local and international radio astronomy communities have recognised the MeerKAT as an excellent instrument, and already more than 500 radio astronomers (58 from Africa) have been allocated time on MeerKAT. So far, the use of the telescope has been booked in advance for five years.

Currently, the South African National Space Agency (SANSA) and the DST are working with other stakeholders to fine-tune the National Space Programme, to incorporate all the recommendations of the space capabilities audit, and to drive South Africa's space industry development and progress towards a knowledge-based economy through human capital development, knowledge generation and exploitation, knowledge infrastructure development and, ultimately, a space programme that responds to South Africa's socio-economic challenges. An important milestone in this regard was the absorption of SunSpace (Pty) Ltd employees into Denel Dynamics. This will retain core capabilities for the development of the country's satellite and space industry.

Bio-economy and health

In a major development in the country's fight against HIV and Aids, a DST-funded programme made a breakthrough discovery of a new pathway for the development of potent broadly neutralising antibodies. This might be useful in preventing HIV infection or as an adjunct to antiretroviral drugs for treating it. The Department is proud of researchers at the Centre for the AIDS Programme of Research in South Africa (CAPRISA).

Diabetes is increasingly widespread, and the early diagnosis of this disease is therefore becoming increasingly important. The Medical Research Council is managing health innovation initiatives for the Department through its Strategic Health Innovation Partnerships programme. This relationship has yielded positive results, including the development and completion of the first phase of a study to validate biomarkers for the early detection of diabetes. Phase two has been approved for funding.

The country's Bio-economy Strategy was launched early in 2014. The strategy positions bio-innovation as essential to the achievement of government's industrial and social development goals. It also calls for industry, science councils, government departments and academia to cooperate closely to ensure that biotechnology and bio-innovations are market relevant and find easier application in South Africa.

Approximately R65 million has been invested in indigenous knowledge system (IKS) projects in terms of the new IKS Research Management Model, and the Bioprospecting and Product Development Platform. Five established flagship projects (in African traditional medicines, cosmeceuticals, nutraceuticals, health teas and Moringa technology transfer) have resulted in over 30 prototypes and candidate products. South African companies (Afriplex, Kalahari and Amka) and international companies (L'Oréal and Nestlé) have indicated interest in the commercialisation of these products.

The IKS National Recordal System and the IKS Bioprospecting and Product Development Consortium were launched in the year under review, bringing together 16 organisations, ranging from IKS communities of practice and organisations to science councils, universities, cooperatives and community-based trusts.

Human capital development

Increasing the number of researchers in South Africa and enhancing research innovation outputs are vital for the country's international competitiveness. This year the DST invested heavily in two instruments to boost human capital development in priority areas – the Centres of Excellence (CoE) Programme and the South African Research Chairs Initiative (SARChI).

By the end of 2013/14, SARChI had a total of 157 awarded chairs, 128 of them with approved incumbents. Of these, 73% were recruited in South Africa, 21% were women and 28% were black.

Five more CoEs were established, including one in food security, and one in human development. There are now 14 CoEs.

In line with its Youth into Science Strategy, the Department continues to promote interest in mathematics and science among school learners through its flagship programme, National Science Week. Activities are organised throughout the country in an attempt to boost human capital in science, engineering and technology in the country.

Outreach programmes during World Space Week expose young and old to the fascination of space science and technology, and the benefits they hold, highlighting the country's projects in space.

Energy

The Department supports research, development and innovation work in renewable energy technologies, including solar, wind and biofuel-based technologies for both on and off-grid applications. The Department's achievements in hydrogen and fuel cell technologies include a five-year review of the Hydrogen South Africa (HySA) centres of competence.

In the development of late-generation biofuels, the R&D programme at Nelson Mandela Metropolitan University achieved significant breakthroughs. These include obtaining optimum growth rates from mixed culture microalgae, designing photobioreactors that increase sunlight penetration, producing biocrude oil at laboratory scale, and the successful binding of coal fines with microalgae. The last has led to the development of a new product, Coalgae™, a blend of coal fines and microalgae, which will contribute significantly to a cleaner environment.

In addition, reviews of the South African Nuclear Human Asset and Research Programme and the Energy Efficiency and Demand Side Management Programme were finalised and presented to the Department's Executive Committee in the reporting period. Significant work was also undertaken in terms of finalising the Nuclear Energy Research, Development and Innovation Strategy, the Advanced Battery Technology Roadmap and the Solar Technology Roadmap. The process of developing a roadmap for advanced battery technology expanded to incorporate the entire energy storage value chain, and the roadmap is now called the Energy Storage Roadmap.

Science and technology for poverty alleviation

In collaboration with the CSIR, the DST is using wireless mesh networks to deliver broadband infrastructure in under-serviced areas. In the Northern Cape 25 masts have been erected, with the related equipment. This entails the installation of electricity, connection to the mast, data cabling and the installation of the 19 racks that will host the equipment.

An initiative investigating the application of several technologies to help improve the quality of learning and teaching in rural areas is taking place in Cofimvaba in the Eastern Cape. So far, it has exposed at least 7 000

learners, their teachers and community to mobile learning technology through wireless Internet connection and tablets. Among other things, the pilot has delivered the first professional development material for teachers in ICT. If successful, the project could be rolled out in other rural parts of the country.

Emerging research areas and infrastructure

Researchers at the CSIR have developed the world's first digital laser. This innovation is regarded as a milestone in laser technology and could spur future laser-related innovations. This groundbreaking development is further evidence of the great potential South Africa has in scientific innovation and the calibre of scientists we have.

As part of its continued support for research and innovation infrastructure, DST funding made it possible to award 61 research infrastructure grants to the research community across the country during the 2013/14 financial year. Most of the funding was allocated to universities, science councils and museums through the National Equipment Programme and the National Nanotechnology Equipment Programme, both implemented by the NRF. Infrastructure funds were also used for the development of various initiatives such as a titanium pilot plant, a world-class nanotechnology development clean room at Mintek, and the establishment of the National Recordal System to capture, store and manage indigenous knowledge. By the end of the 2013/14 financial year, two important reports (the final report for the development of a South African research infrastructure roadmap and the final report on recommendations for the development of a national integrated cyberinfrastructure system) had been completed.

International cooperation

Consistent with the recommendation made by the Ministerial Review Committee on the Science, Technology and Innovation (STI) Landscape in South Africa, the DST continues to develop and refine strategies to position the country strategically as an attractive destination for science and technology collaboration, enabling the exchange of knowledge, capacity and resources with other countries.

A thriving partnership with several multinational companies, especially in ICT, highlighted the potential for investment in South Africa.

Bilateral relations with countries such as the UK and the USA received an important boost through agreements reached on ambitious new frameworks for bilateral cooperation, and new partnerships were entered into with Sweden and Norway.

On a multilateral level, aligned with South Africa's foreign policy agenda and the global effort to harness STI for sustainable development, the country was elected Chair of the Non-Aligned Movement Centre for Science and Technology. This includes ongoing work to enhance South Africa's partnership with other countries on the continent; most importantly with the partners in the building of the SKA.

South Africa's bilateral science and technology partnership with the EU continued to prosper. The roadmap for this cooperation, finalised by the two parties in January 2014, committed the partners to concerted efforts to promote research and innovation collaboration in strategic areas such as water, marine research, the bio-economy, infectious diseases, minerals and mining, as well as research infrastructure.

A further priority will be to intensify the Department's cooperation with Brazil, Russia, India and China, building on South Africa's hosting in February 2014 of the first meeting of BRICS science, technology and innovation ministers. A memorandum of understanding on BRICS cooperation in STI will be signed as a result of this meeting.

Conclusion

The Department is working to make the lives of ordinary South Africans better by using science and technology for socio-economic development.

I would like to thank everyone involved in this work: the DST staff, the science councils and all the stakeholders in the National System of Innovation, as well as all our international partners.

Naledi Pandor

Minister of Science and Technology

Department of Science and Technology

31 July 2014

4. Statement by the Deputy Minister

Zanele kaMagwaza-Msibi, *Deputy Minister of Science and Technology*

As the Deputy Minister of Science and Technology, I have the honour of submitting the Department's annual report for the period 1 April 2013 to 31 March 2014 in terms of section (40)(d) of the Public Finance Act, 1999 (Act No.1 of 1999).

This annual report outlines the work undertaken by the Department in terms of fulfilling the government's medium-term objectives during the 2013/14 financial year. In this report, the Department details its achievements against the targets set and challenges encountered during the year under review.

The Department is committed to achieving its planned targets on a yearly basis and is making progress in this regard. Of the 57 targets set for 2013/14 financial year, the Department achieved a total of 44 (77%). This is an increase of six percent from the previous reporting year and the highest achievement in the past three years.

In the period under review, the adjusted budget of the Department was R6,198 billion, of which 92,4% was allocated to transfer payments and 7,6% to the administrative activities of the Department. The Department spent 98% of this, or R6,169 billion.

Enterprise risk management

The Department views enterprise risk management as imperative for successful delivery on its mandate. The Department believes that identifying, understanding and managing risks in an enterprise-wide context will ensure accountability and sustainability, and compel the Department to be proactive in respect of possible negative events, while exploiting the possible opportunities posed by certain future uncertainties.

To ensure the quality, integrity and reliability of the Department's risk management processes and responses, the Department has in place an effective fraud risk management system, which includes an annual fraud prevention and detection plan. Progress in implementing the plan is monitored quarterly by the Enterprise Risk Management and Audit Committees.

The Department actively promotes the use of the National Anti-Corruption Hotline, and holds an annual anti-corruption day as part of its efforts to heighten staff awareness of how to combat fraud and corruption.

Human capital development

In trying to address the human capital shortages in the country, the Department supported a total of 3 569 researchers with research grants during the 2013/14 financial year. In addition to this, and through bursary programmes managed by the National Research Foundation (NRF), the Department funded 9 771 postgraduate students at honours, master's and doctoral levels.

Through the Department-NRF internship programme, the Department supported 840 interns during the 2013/14 financial year. One of the purposes of the internship programme is to retain science, engineering and technology (SET) graduates in the science system by improving their employability through placement as interns in various institutions in the National System of Innovation.

Furthermore, as South Africa celebrates 20 years of democracy, much progress has been made towards intensifying human capital development and innovation in order to transform South Africa into a knowledge-based economy.

One of the critical programmes doing this is the South African Research Chairs Initiative. It aims to retain qualified scientists and researchers and boost knowledge production at the country's publicly funded higher education institutions. It is also helping increase the number of master's and doctoral students in the system to enhance the country's current and future competitiveness.

Research infrastructure

As part of its continued support for research and innovation infrastructure, ring-fenced departmental funding made it possible to award 61 research infrastructure grants to the research community across the country during the 2013/14 financial year. Most of the funding was allocated to universities, science councils and museums through the National Equipment Programme (NEP) and the National Nanotechnology Equipment Programme (NNEP), both implemented by the NRF.

The NNP and NNEP are crucial to ensure the successful acquisition and placement of research equipment that will translate into more research outputs, including more local and international publications, and the strategic advancement of science and technology in South Africa.

Infrastructure funds were also used for the development of various initiatives such as a titanium pilot plant, a world-class nanotechnology development clean room at Mintek, and the establishment of the National Recordal System to capture, store and manage indigenous knowledge.

By the end of the 2013/14 financial year, two important reports (on the development of a South African research infrastructure roadmap and on the development of a national integrated cyberinfrastructure system) had been finalised.

New industry development

In the past decade, considerable progress has been made in scaling-up a breakthrough innovation in the production of titanium powder. The technology is now being optimised and developed. A pilot plant was launched in June 2013 at the Council for Scientific and Industrial Research (CSIR), and will be used to verify the processes before production is upscaled. This is a milestone in the development of titanium metal powder.

Similar progress has been made in the Fluorochemicals Expansion Initiative with the launch of a third and fourth phase of a multipurpose fluorination plant at the South African Nuclear Energy Corporation in December 2013. The pilot plant will help to mature the fluorochemical research and associated processes, and will enable the production of small test samples, essential for trying out the commercial market and development partners.

The Aeroswift programme, the Department-funded investment in the next generation of additive-manufacturing technology, executed by Aerosud and the National Laser Centre at the CSIR, has progressed well. The construction of the prototype machine is near completion and the first test results will be reported in the next financial year. This development, together

with the roadmap for additive manufacturing in South Africa, will help ensure that the South African industry remains at the forefront of this new manufacturing capability, which is expected to have substantial impact on existing manufacturing processes and technologies.

Innovation instruments

Through the National Intellectual Property Management Office (NIPMO), the following key achievements were also made in terms of the Intellectual Property Rights from Publicly Funded Research and Development Act. Developments in this area include the establishment of offices of technology transfer (OTTs) at over 30 publicly financed research and development institutions. Funding capacity was developed at the OTTs (through the placement of suitably qualified and experienced individuals) and researchers at institutions received basic advocacy and awareness training on intellectual property through NIPMO's IP Wise™ programme. About R40 million was disbursed to technology stations, which are important mechanisms for supporting technology development, knowledge transfer and capability building for local industry, with a particular emphasis on small and medium enterprises. Seventy per cent of the funding was used for upgrading capital equipment in order to ensure that the technology stations had continued access to modern equipment in support of industry technology transfer.

The Department continued its project to develop the Integrated Planning, Development and Modelling platform to support service delivery in South Africa.

Regional environmental systems

This multi-phase initiative focused on developing, collating and disseminating the knowledge and evidence generated by a series of advanced spatial analysis and modelling platforms via the StepSA web-based portal to ensure that users (planners, policy analysts, decision-makers and researchers) can easily find and download relevant information for spatial planning and policy-making processes across the spheres and sectors of the state. The progress made within StepSA has enabled it to garner broad support as a foundation for building the National Observatory for Spatial Data Assembly and Analysis, the need for which is identified in the National Development Plan.

AfriGEOSS was launched on 5 November 2013 at Addis Ababa, Ethiopia. This coordination initiative has been committed to by more than 22 African countries, and will enhance the continent's capacity for producing, managing and using Earth observations. This will facilitate Africa's participation in, and contribution to, the Global Earth Observation System of Systems (GEOSS). It will also enhance knowledge sharing and global collaborations, and help to identify challenges, gaps and opportunities in order to streamline existing capacities, vested assets and resources. Earth observation is a useful tool for monitoring biodiversity, agriculture, weather, ecosystems, water, disasters, energy and health.

Conclusion

I would like to thank the whole National System of Innovation for the hard work that is going on to ensure that science and technology really contribute to the development of this country.

I would also like to express my gratitude for the opportunity to work with the Minister, Ms Naledi Pandor and the Director-General, Dr Phil Mjwara in this regard.

Zanele kaMagwaza-Msibi
Deputy Minister of Science and Technology
Department of Science and Technology
31 July 2014

5. Report of the Accounting Officer

Dr Phil Mjwara *Director-General*

1. Introduction

The mandate of the Department of Science and Technology is to develop, coordinate and manage the national system of innovation by providing policy leadership and creating an enabling environment.

The implementation of the National Research and Development Strategy and the Ten-Year Innovation Plan has continued to be the primary focus of the DST in the 2013/14 financial year, and financial resources were committed to the attainment of its strategic objectives.

2. Overview of the operations of the Department

During the 2013/14 financial year, the Department of Science and Technology continued to implement its key strategic priorities which fully embraced the government's outcomes-based approach with the purpose of, among other things, contributing meaningfully to a skilled and capable science and technology workforce to support an inclusive growth path as well as decent employment through inclusive growth.

Among the highlights for the period under review is the Department's continued commitment to finding more innovative ways to increase the country's science and technology human capital through different programmes and to continuously exploit knowledge, coming up with innovative products that could change the lives of ordinary South Africans for the better.

Science, Technology and Innovation Summit

One of the highlights of the period under review was the Science, Technology and Innovation Summit, held in July 2013 in response to the Ministerial Review Commission on the Science, Innovation and Technology Landscape in South Africa. The summit provided an opportunity for the DST and other stakeholders in the national system of innovation, including the private sector, to discuss ways of achieving a more focused, aligned and competitive system of research, development and innovation for South Africa.

Public entities

Most of the Department's work is carried out by the public entities reporting to the Minister, and the Department continued to monitor and guide the entities over the reporting period. The Africa Institute of South Africa (AISA) was successfully incorporated into the Human Sciences Research Council so as to reduce the duplication of activities and potentially destructive competition between the two institutions; to enhance synergies in the research focus of the two institutions;

to achieve greater economies of scale in Africa-wide work; and to strengthen AISA's research capacity and Africa networks.

International relations

The Department continued to position South Africa as a strategic international research, development and innovation (RDI) partner and destination through the exchange of knowledge, capacity and resources between South Africa, the region and other international partners. The first BRICS Science, Technology and Innovation Ministerial Meeting was hosted by South Africa in February 2014, providing a foundation for new multilateral cooperation within the BRICS grouping, and cementing South Africa's existing strong bilateral partnerships with BRICS members. The India-Brazil-South Africa (IBSA) science and technology partnership also gained new momentum following the launch of a call for collaborative research projects to be co-funded by the three countries.

Radio astronomy

In the radio astronomy sphere, the reporting period saw the 64 bases for the MeerKAT dishes completed and the first MeerKAT dish installed. The MeerKAT dish was officially launched by the Minister on 27 March 2014. The South African MeerKAT radio telescope, currently being built some 90 km outside the small Northern Cape town of Carnarvon, is a precursor to the Square Kilometre Array (SKA) telescope and will be integrated into the mid-frequency component of SKA Phase 1. The SKA project is an international enterprise to build the largest and most sensitive radio telescope in the world and will be located in Africa and Australia. The Minister also declared the Karoo Central and Sutherland Astronomy Advantage Areas on 14 March 2014 by notice in the *Government Gazette*.

Human capital development

The Department continued to provide leadership in the creation of an innovative and competitive society with highly skilled human capital, cutting-edge knowledge and research infrastructure. The Department is committed to supporting research development through improved institutional support and delivery programmes and, through the National Research Foundation, funded a total of 9 750 postgraduate students at honours, master's and doctoral levels. Through the DST-NRF internship programme, the Department supported 840 interns during the 2013/14 financial year. One of the purposes of the internship programme is to retain science, engineering and technology graduates in the science system by placing them in various institutions in the NSI, thereby improving their employability. In addition, as a means of enhancing human capital development and knowledge generation, the Department supported a total of 54 new research chairs, bringing the total number of awarded chairs to 137.

The Department further supported the satellite engineering training programme at the Cape Peninsula University of Technology. This programme has registered 32 MTech and nine DTech students, and produced seven engineering graduates. The successful review of the programme in 2013 informed funding for a further three-year cycle (the 2013/14-2016/17 financial years). The programme is internationally recognised as potentially being a CubeSat technology support hub for Africa. It has hosted the First International African CubeSat Workshop, developed subsystems for the international CubeSat market (commercial products such as an S-band transmitter and S-band patch antenna) and providing ground support for international CubeSat missions. A key milestone was the successful launch on 21 November 2013 of a CubeSat named TshepisoSat with a SANSA space weather payload.

Furthermore, the Department focuses not only on the supply of skills, but also pays serious attention to demand, placing graduates and students in DST-funded work preparation programmes in science, engineering and technology institutions. The annual target of 700 placements for these programmes was exceeded by 140 in the 2013/14 financial year, with 840 interns being placed. The major contributor to this total is the DST-NRF internship programme with 568 interns. Of these interns, 30% have already exited the programme, of which 67% have been absorbed in the workforce, 29% are pursuing further studies, and 4% left for personal reasons.

Key policy developments

Through its efforts to strengthen the leadership and coordination role within the NSI, the Department has been working on a number of strategies and roadmaps

to effectively guide the national system of innovation in South Africa. These include the following:

Bio-economy Strategy

The national Bio-economy Strategy was approved by Cabinet and officially launched by the Minister of Science and Technology on 14 January 2014. The strategy provides broad guidelines on how to use South Africa's biological resources and abilities in the biosciences to introduce commercial products in the fields of health, agriculture and industry.

Commercialisation Framework

In terms of enhancing innovation and commercialisation opportunities in South Africa, much progress has been made in developing a Commercialisation Framework. Consultations with key stakeholders are continuing to ensure that inputs are collected as extensively as possible. The framework will be ready for approval by the next financial year.

ICT RDI Implementation Roadmap

This 10-year investment and implementation plan was adopted by Cabinet in April 2013 as a blueprint for implementing the national ICT RDI Strategy. The roadmap aims to enable increased public and private investment in ICT RDI by providing a mechanism to forecast technology developments in targeted areas and identifying critical areas that must be developed to meet South Africa's socio-economic objectives such as education and health.

Science Engagement Framework

The Department's Science Engagement Framework was approved by the Executive Committee (Exco) during the period under review. The document provides an overarching framework for advancing science promotion and engagement in South Africa, and it will guide the development of science promotion and engagement initiatives by the Department and its entities, enable them to coordinate their efforts in this regard, and influence other government departments to support similar initiatives. The Exco also approved the explicit incorporation of a science promotion and engagement mandate for the South African Agency for Science and Technology Advancement (SAASTA).

Science platforms

The Implementation Plan for the South African Strategy for Palaeosciences was approved by Exco in order to give effect to the interventions outlined in the strategy. The Antarctic and the Marine Science research plans were also approved by Exco.

R&D Tax Incentive Programme

In 2013/14 the Department implemented the new amendments to the research and development (R&D) tax incentive which apply to R&D carried out from 1 October 2012. The incentive is administered under section 11D of the Income Tax Act. Following the amendment, companies have to apply for preapproval of R&D activities before applying for the tax deduction from the South African Revenue Service (SARS). The year under review therefore saw the Department managing two administrative approaches, with companies continuing to submit retrospective claims for R&D undertaken prior to 1 October 2012. The procedure for retrospective submission can be phased out completely by end of 2015/16.

During 2013/14, the R&D Tax Incentive Adjudication and Monitoring Committee was established and started adjudicating on applications. The committee comprised officials of the Department of Science and Technology, SARS and the National Treasury. The preapproval process added some new roles for the DST, which has to review each application and prepare correspondence to companies and the SARS Commissioner.

The large number of applications received in the month of October 2012 alone resulted in a backlog. The 2012/13 applications were carried over into 2013/14 and specific measures were introduced to clear the backlog. A progress review in March 2014 indicated that 43% of the 624 applications that had accumulated had been finalised.

Development of the world's first digital laser

The CSIR's breakthrough in the development of the world's first digital laser, which was published in the popular science journal, *Nature Communications*, is an outcome of research conducted by a team of scientists from the CSIR National Laser Centre. The research

commenced in 2009, and is among the research programmes undertaken as part of the implementation of the DST's National Photonics Strategy. The new technology uses liquid crystal display technology as one of its mirrors, allowing for the digital control of what comes out of the laser (laser modes) in real time, so that customised laser modes may be selected on demand by changing only a picture (shape) written to the laser mirror. The ability to control laser light in this way offers a myriad opportunities for application in areas such as medicine and communication. The CSIR has applied for a provisional patent on the technology in the United States of America, Canada, Australia and South Korea. Once the patent has been granted, it will be licensed to a start-up company which is in the process of being formed by the CSIR.

3. Overview of the Financial Results of the Department

Departmental receipts

Table 1: The table below highlights receipts collected by the Department in the financial year under review and the past financial year (2013/14 and 2012/13).

	2012/13			2013/14		
Departmental receipts	Estimate R'000	Actual amount collected R'000	(Over)/ Under collection R'000	Estimate R'000	Actual amount collected R'000	(Over)/ Under collection R'000
Sale of goods and services other than capital assets	83	64	(19)	28	47	19
Interest, dividends and rent on land	-	81	-	12	8	(4)
Sale of capital assets	577	577	-	-	-	-
Financial transactions in assets and liabilities	348	497	149	1,752	1,603	(148)
Total	**1,008**	**1,219**	**130**	**1,792**	**1,658**	**(133)**

The Department does not generate revenue on a recoverable basis with the general public. The revenue generated was mainly from commission on Persal transactions, interest received from a deposit account held with a commercial bank, payments of bursary debts by officials and other recoverable expenditure.

Spending trends

The Department's appropriation for the year under review is R6,198 billion compared to R4,956 billion in 2012/13, which is a 25% year-on-year increase. Most of the additional appropriation was allocated to the Programmes that are core policy implementers of the Department, i.e. Research, Development and Innovation (Programme 2) received 37,9%, Human Capital and Knowledge Systems (Programme 4) received 35,5%, and Socio-Economic Partnerships (Programme 5) received 20,8%.

Table 2: Budget and actual expenditure per Programme for the financial year under review and past financial year (2013/14 and 2012/13)

	2013/14			2012/13		
Programme	Final appropriation R'000	Actual expenditure R'000	(Over)/ Under expenditure R'000	Final appropriation R'000	Actual expenditure R'000	(Over)/ Under expenditure R'000
Administration	258,926	257,471	1,,455	226,372	225,270	1,102
Research, Development and Innovation	1,671,041	1,669,678	1,,363	1,160,383	1,156,845	3,538
International Resources and Cooperation	141,430	139,783	1,647	137,240	136,518	722
Human Capital and Knowledge Systems	2,473,173	2,462,721	10,452	2,057,033	2,038,955	18,078
Socio-Economic Partnerships	1,653,585	1,639,836	13,749	1,418,582	1,415,727	2,855
Total	**6,198,155**	**6,169,489**	**28,666**	**4,999,610**	**4,973,315**	**26,295**

The Department's spending performance has been consistently above 90% since its inception. It was 99,5% for the 2013/14 financial year.

Table 3: Summary of budget expenditure analysis per economic classification

Position	**2013/14 R'000**	**2013/14 %**
Amount voted	6,198,155	100
Actual expenditure	6,169,489	99,5
Unspent funds	28,666	0,5
Economic classification		
Current expenditure	402,595	6,5
Transfer payments	5,703,875	92
Payments for capital assets	63,019	1
Total payments	**6,169,489**	**99,5**

Virements

The Department effected virements amounting to R47,5 million after the Adjusted Estimates process, which represents 0,8% of the adjusted budget. An amount of R37,7 million was moved between major items and R30,7 million between Programmes.

Payment for capital assets received the largest share (R33,5 million) released from compensation of employees and transfer and subsidies, and these funds were mainly redirected towards the procurement of Sunspace's Intellectual Property (under Research, Development and Innovation). Some of the funds from compensation of employees were redirected to goods and services.

4. Future Plans of the Department

Innovation for inclusive development

The Department plans to develop a strategic framework and 10-year roadmap for innovation for inclusive development. This is a significant step by the DST in effecting one of the objectives of the White Paper, ensuring that S&T contributes to improving the quality of life for all. The development of the innovation for inclusive development strategic framework is also aligned to one of the recommendations of the Ministerial Review Committee relating to the development of a social innovation strategy.

ICT and service industry

While the CSIR Meraka Institute has, over the years, been the implementing agency for the ICT RDI Strategy, the implementation of the roadmap demands a stronger ICT RDI ecosystem that will ensure equitable, transparent and efficient deployment of limited financial resources in order to maximise return on investment in ICT RDI. In this regard, the Office of Digital Advantage (ODA) contemplated in the ICT RDI Roadmap will be established in the 2014/15 financial year to assist in achieving this goal. Over and above ensuring effective and sophisticated governance and management of the implementation of the ICT RDI Implementation Roadmap, the ODA will enable optimised resource allocation and utilisation, well-informed consolidation and prioritisation of programmes and projects, a system-wide platform for managing ICT RDI activities, and effective monitoring, evaluation and learning.

Sectoral and local innovation

The DST intends to expand and consolidate its activities for each of the initiatives under the Industry Innovation Partnership initiative in the next financial year. With the sector innovation funds (SIFs), in particular, it is envisaged that activities will be expanded to include mineral processing, marine fishing, wine production, paper manufacturing and the sugar industries. The DST intends to shape the operationalisation of the SIFs that it supports actively. Support for the regional innovation forums will continue in the coming year, and the DST hopes to be able to develop mechanisms to include marginalised or informal sectors of communities in the forums where appropriate.

Implementation plans for the Bio-economy Strategy

Over the period 2014/15 to 2016/17, the Department will endeavour to develop implementation plans for the Bio-economy Strategy in the thematic areas of health, agriculture and industry, and have these plans approved by Exco. The implementation plans will be extended through the establishment of four coordinating committees that align with the thematic areas. In addition, eight strategic product development partnerships, three strategic alliances between local bio-innovation firms and international partners, four new technology platforms and six new R&D initiatives will be supported in pursuit of the Bio-economy Strategy. In addition to 310 bio-entrepreneurs being trained over this period, 50 PhDs will be supported.

Continued support for HySA centres of competence

The Department will continue to support Hydrogen South Africa's three centres of competence (on Infrastructure, Catalysis and Systems) and two hubs (Renewable Energy and Energy Efficiency), as well as one research chair on clean coal technology, and two on biofuels. Over the same period, two technology demonstration plants for lignocellulose-based biofuels and algae-based biofuels will be supported. Three prototypes will be developed and three patents registered. Funding support will also be provided for 1 056 postgraduate students and technicians, with a projected 75 publications being produced in the field of energy.

National Space Programme

Five implementation plans will be developed, including the National Space Programme (to be approved by Cabinet), and plans (to be approved by Exco) for the upgrade of Houwteq, two centres of competence and human capital development. Two technical reports (on liquid rocket engine testing and a launch capability technology demonstrator) will be written. Two centres of competence (on satellite sensors and data processing), and one research chair (in satellite engineering) will be established. In terms of technology innovation projects, there will be two CubeSat launches, and one liquid or hybrid rocket engine demonstrator project will be undertaken. This is in addition to the completion of

the ZA-ARMC-related satellite design, manufacturing model, and assembly, integration and testing of the model. The IBSA mission technical specification document and mission design will also be completed. Other products and services to be developed over the period include hyperspectral imaging for forestry and climate change purposes, Earth observation for rural and urban development, and spatial planning and airborne light detection and ranging (lidar) for agriculture and water resource management. Oversight instruments to be reviewed and/or approved, include six annual reports from the South African National Space Agency (SANSA) and the National Earth Observations and Space Secretariat, 12 quarterly reports from SANSA, and three business and MTEF plans from SANSA. In addition, 40 postgraduate students will be supported (resulting in the graduation of 10 master's students) and 240 trainees will be supported through various space S&T-related initiatives.

The Department will develop two reports on national and international sources of RDI and commercialisation information, one report on RDI commercialisation trends (with recommendations), and one Exco-approved implementation plan for market and business intelligence collection, in addition to eight technical visit/policy briefs developed in response to participation at international forums. An Exco-approved framework will also be developed for the identification, development and maturation of emerging research areas, in addition to two frameworks and an implementation plan for nanotechnology innovation. In terms of innovation support interventions, an information matchmaking beta portal will be launched, tested and implemented, two model centres of competence will be established, two technology matchmaking initiatives will be hosted, and approval for the establishment and implementation of a photonics competence enhancement initiative will be completed. In terms of oversight instruments, six annual performance plans and 24 quarterly reports from the Technology Innovation Agency and the National Intellectual Property Management Office (NIPMO) will be reviewed, as well as a report on the recommendations in respect of legislative review and/or amendment. A total of 36 postgraduates will be supported, resulting in the publication of 23 journal articles. In addition, 210 other trainees will be trained over this period.

Support for offices of technology transfer

Six offices of technology transfer (OTTs) will be supported for capacity development during the current year, while 430 intellectual property creators will be rewarded through the NIPMO incentive scheme, and 27 institutions will receive a rebate for intellectual property prosecution and maintenance costs from the Intellectual Property Fund. In addition, 530 candidates will be trained in intellectual property and technology transfer, and 850 new intellectual property status and commercialisation reports (IP7 forms) from the OTTs will be attended to.

Discontinued activities and activities that are to be discontinued

No activities were discontinued for the year under review.

New and proposed activities

The following are new and proposed activities that the Department will embark on during the next financial year:

Creation of NIPMO incentive schemes

During the 2014/15 financial period, the NIPMO incentive scheme for intellectual property (IP) creators will be established. The reason for this new activity is to encourage IP creators to disclose the IP developed as a result of their R&D outputs and to seek protection, where applicable, before releasing the information into the public domain. This initiative will increase the Department's ability to move towards a knowledge-based economy and ensure the knowledge generated is exploited for the public good. In the 2014/15 financial year, it is envisaged that this new activity will have financial implications for the Department to the extent of R10 million, provided the guidelines to the scheme are successfully launched during 2014/15.

Introduction of the knowledge brokerage function in the global change and earth system knowledge generation domain

This function was never established despite being an integral part of the implementation architecture for the Global Change Grand Challenge approved by DST. SAASTA is earmarked to perform this function or at least assist with its establishment. This function is intended to improve both the implementation of

the Global Change Research Plan and facilitate the increased use of research outputs and science evidence in decision-making. Limited funding has been made available to pilot this function in 2014/15.

Repositioning of ACCESS to improve its role and contribution in global change and earth system research

The Applied Centre for Climate and Earth System Science (ACCESS) currently serves as the key knowledge generation programme, funded under the DST-NRF Centre of Excellence programme. ACCESS is due for review and a mid-term review of the Global Change Grand Challenge is planned for 2014/15. These reviews present an opportunity to relook the role and positioning of ACCESS in the Global Change Grand Challenge. ACCESS will continue to operate optimally and as normal during the review processes. It is envisaged that the NRF's panel review processes will be used for these reviews. Funding for the two review processes has been budgeted for in the NRF's Global Change Fund.

Supply chain management

Supply chain management policies and procedures are in place. The Department has complied with National Treasury instruction notes on enhancing compliance and monitoring, and submitted its procurement plan. The Department ensured that suppliers submit SBD 4 and 9 forms. The Department has established a mechanism to ensure that payments are made within 30 days.

Gifts and donations received in kind from non-related parties

No gifts or donations were received in kind from non-related parties.

Standing Committee on Public Accounts resolutions

There were no Standing Committee on Public Accounts (SCOPA) resolutions.

Prior modifications to audit reports

The Auditor-General found no matters of significance regarding the administration of the Department.

Exemptions and deviations received from the National Treasury

Neither exemptions nor deviations were raised by National Treasury.

Events after the reporting date

No significant events occurred after the reporting date.

Other

The Department acquired intellectual property and other tangible assets as part of the business rescue of SunSpace Pty (Ltd). These assets were transferred to the South African National Space Agency.

Acknowledgements and appreciation

I would like to thank the Minister and the Deputy Minister for their support during the year under review. Their leadership made it possible for the DST to achieve most of the targets set. I would also like to thank the Department's staff for their hard work.

Approval

The Annual Report including Annual Financial Statements set out on pages 162 to 215 has been approved by the Accounting Officer.

Dr PM Mjwara
Accounting Officer
Department of Science and Technology
31 July 2014

6. Statement of responsibility and confirmation of accuracy for the annual report

To the best of my knowledge and belief, I confirm the following:

- All information and amounts disclosed throughout the annual report are consistent.
- The annual report is complete, accurate and free from any omissions.
- The annual report has been prepared in accordance with the guidelines on the annual report as issued by National Treasury.
- The annual financial statements (Part E) have been prepared in accordance with the modified cash standard and the relevant frameworks and guidelines issued by the National Treasury.
- The Accounting Officer is responsible for the preparation of the annual financial statements and for the judgements made in this information.
- The Accounting Officer is responsible for establishing, and implementing a system of internal control that has been designed to provide reasonable assurance as to the integrity and reliability of the performance information, the human resources information and the annual financial statements.
- The external auditors are engaged to express an independent opinion on the annual financial statements.

In my opinion, the annual report fairly reflects the operations, the performance information, the human resources information and the financial affairs of the Department for the financial year ended 31 March 2014.

Yours faithfully

Dr PM Mjwara
Accounting Officer
Department of Science and Technology
31 July 2014

7. Strategic overview

7.1 Vision

To create a prosperous society that derives enduring and equitable benefits from science and technology.

7.2 Mission

To develop, coordinate and manage a National System of Innovation that will bring about maximum human capital, sustainable economic growth and improved quality of life for all.

7.3 Values

The Department seeks at all times to adhere to and promote professionalism, competence, integrity and transparency.

8. Legislative and other mandates

8.1 Science and Technology Laws Amendment Act, 2014

This Act was passed to amend the Scientific Research Council Act, 1988, the National Research Foundation Act, 1998, the Academy of Science of South Africa Act, 2001, the Natural Scientific Professions Act, 2003, the Human Sciences Research Council Act, 2008, the Technology Innovation Agency Act, 2008, and the South African National Space Agency Act, 2008. It is intended to harmonise the processes for the appointment of the chairpersons of the boards of the entities reporting to the Minister; to streamline the processes for the appointment of members of the boards and of the chief executive officers of the entities; to provide for the filling of vacancies of members of the boards; to provide for the qualification requirements for membership of the boards and the disqualification of members of the boards; to provide for the extension of the term of office of members of the boards; to provide for the dissolution and reconstitution of the boards; and to provide for related matters.

8.2 Intellectual Property Rights from Publicly Financed Research and Development Act, 2008

This Act provides for the more effective use of intellectual property emanating from publicly financed research and development (R&D), through the establishment of the National Intellectual Property Management Office (NIPMO), the Intellectual Property Fund, and offices of technology transfer (OTTs) at institutions.

8.3 Technology Innovation Act, 2008

This Act is intended to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements, and for that purpose establishes the Technology Innovation Agency.

8.4 South African National Space Agency Act, 2008

This Act establishes the South African National Space Agency to promote space science research,

cooperation in space-related activities, and the creation of an environment conducive to the development of space technologies by industry.

8.5 Natural Scientific Professions Act, 2003

This Act establishes the South African Council for Natural Scientific Professions, and legislates the registration of professional natural scientists, natural scientists-in-training, natural science technologists and natural science technologists-in-training.

8.6 National Research Foundation Act, 1998

This Act establishes the National Research Foundation to promote basic and applied research, as well as the extension and transfer of knowledge in the various fields of science and technology (S&T).

8.7 National Advisory Council on Innovation Act, 1997

This Act establishes the National Advisory Council on Innovation to advise the Minister of Science and Technology on the role and contribution of science, mathematics, innovation and technology in promoting and achieving national objectives.

8.8 Africa Institute of South Africa Act, 2001

This Act establishes the Africa Institute of South Africa to promote knowledge and understanding of African affairs by encouraging leading social scientists to act in concert and across all disciplines, and by collecting and disseminating information on African affairs. It has since been repealed, and the institute has been incorporated into the Human Sciences Research Council.

8.9 Human Sciences Research Council Act, 2008

This Act provides for the continued existence of the Human Sciences Research Council, which carries out research that generates critical and independent knowledge relative to all aspects of human and social development.

8.10 The Scientific Research Council Act, 1988

This Act provides for the continued existence of the Council for Scientific and Industrial Research, one of the leading scientific and technological research, development and implementation organisations in Africa, which undertakes directed R&D for socio-economic growth in areas including the built environment, defence, the environmental sciences, biological, chemical and laser technology.

8.11 Section 11D of the Income Tax Act, 1962

Section 11D of the Income Tax Act gives the Minister of Science and Technology the authority to approve any R&D undertaken or funded in the republic for an additional 50% tax deduction in order to promote private sector R&D activities in the country. The DST shares the responsibilities for implementing this provision with the National Treasury and the South African Revenue Service (SARS).

9. Organisational structure

Minister of Science and Technology

Ms Naledi Pandor (MP)

Deputy Minister of Science and Technology

Mrs Zanele kaMagwaza-Msibi (MP)

Director-General

Dr Phil Mjwara

Programme 1A

Chief Operations Officer: Mr Thulani Mavuso (April - November 2013)

Programme 1B

Corporate Services: Ms Nombuyiselo Mokoena

Programme 2

Research Development and Innovation: Dr Val Munsami

Programme 3

International Cooperation and Resources: Mr Mmboneni Muofhe

Programme 4

Human Capital and Knowledge Systems: Dr Thomas Auf Der Heyde

Programme 5

Socio-economic Partnerships: Mr Imraan Patel

10. Entities reporting to the Minister

Council for Scientific and Industrial Research (CSIR) Highlights

Overview of objective

The CSIR is one of the leading scientific and technological research, development and implementation organisations in Africa. It undertakes directed research and development for socioeconomic growth in areas including the built environment; defence; the environmental sciences; and biological, chemical and laser technology. The following priority area projects were undertaken during the period under review:

The natural environment

Planning for a secure water future

South Africa needs to manage its water resources effectively, which, if threatened, could have a negative impact on economic development and the social wellbeing of its people. CSIR scientists have provided inputs to global and national policies and guidelines for water resource development based on their expertise in ecosystem science. This includes the mapping of South Africa's strategic water source areas and a contribution to an international publication on the management of fresh water, river, wetland and coastal estuary-based protected areas.

Among other things, the mapping exercise found that the strategic water source areas make up only 8% of South Africa's land area, yet they provide 50% of our water. Only 18% of our water source areas receive some form of protection.

Environmental sustainability – marine and aquatic ecosystems in South Africa

The CSIR's provision of user-friendly satellite data has enabled researchers to explore the dynamics of phytoplankton blooms in St Helena Bay on the West Coast of South Africa. Satellite remote sensing provides a unique capability to monitor our seas and inland water bodies by providing data over vast areas at low cost and almost on a daily basis. CSIR researchers analyse satellite data and produce maps, graphs and other user-friendly products which can provide critical information to decision-makers.

The data has assisted the Department of Agriculture, Forestry and Fisheries (DAFF) to determine the possible influence of climate change on crayfish walkouts, and the (then) Department of Water Affairs to study conditions in dams and lakes to assess long-term changes in water eutrophication around the country. It was also used by the Department of Environmental Affairs to assess the state of the marine environment, for example by monitoring sea temperature and the phytoplankton growth that supports our fisheries.

Progressing towards a green economy

Transitioning to a green economy is a national priority for South Africa. CSIR researchers, in partnership with the private sector and government, provide supporting research and development (R&D). Examples include the development of a green economy index to measure country-level performance in achieving green economic outcomes, as well as a final framework for a green economy transition for the City of Tshwane Metro.

The CSIR, in partnership with Rio Tinto's Richards Bay Minerals (RBM) company, continued with a post-mining alternative land-use programme during 2013, which focuses on feasible agricultural and forestry plant species that can be commercially grown on previously mined land. The pilot farm is conducting trials of viable crops, soil impacts and farming practice for different species. The results from the pilot farm will indicate which plant species could be successfully grown on previously mined land, leading to the creation of sustainable jobs in agriculture following the closure of the mine.

Paired ocean gliders transect the harsh Southern Ocean

In what is regarded as a global first, CSIR researchers paired two types of ocean gliders – 1 km deep profiling gliders with surface CO_2 measuring wave gliders – in the Southern Ocean during the summer of 2013-2014, obtaining climate data from multiple spheres at the same time.

Roughly 2 000 km from Cape Town, these autonomous ocean robots sent back key climate observations from the remote Southern Ocean to CSIR researchers via satellite. This information is used to understand the role of the Southern Ocean in the Earth's climate system and how it may be changing. The use of robotic gliders has unlocked science's ability to attain observations of the physical and biological workings of remote ocean regions at new high-resolution time and space scales.

CSIR researchers contribute to international climate change report

The fifth assessment report of the Intergovernmental Panel on Climate Change, released in early 2014, confirms the reality and risks of climate change caused by human activities. Work by the CSIR, over a period of more than 20 years, has contributed to this finding, especially to understanding its implications for South Africa and Africa, and to the technology and policy solutions.

Following the UNFCCC Conference of Parties 17 in Durban, the CSIR was one of 11 organisations worldwide to form the Climate Technology Centre Network, a clearing-house and brokerage for climate change advice to countries. The CSIR operates sensitive and advanced instruments measuring key aspects of the changing climate system in the southern African region: in the southern oceans, the savannas of Africa, and around areas of industry and habitation. CSIR observation databases are used worldwide to help understand the changing global carbon cycle. The CSIR has expertise, sophisticated modelling systems and experiments to explore the impacts of those changes on ecosystems, water supplies, human health, industries, the built environment and agriculture. The CSIR also developed and maintains the South African Risk and Vulnerability Atlas on behalf of the DST.

Safety and security

CSIR fingerprint analysis software licensed to industry player

The CSIR developed fingerprint software which comprises a collection of functions for performing various fingerprint image processing operations. A licensing agreement was signed with iPulse Systems, a South African company specialising in the design and manufacture of biometric solutions. With this licensed technology, iPulse now has the ability to design and build a uniquely African product that can be specifically customised for the continent. This is particularly necessary in the mining industry, for instance, where the labour force has specific issues relating to their prints.

Network Emulation Platform provides a safe means to test network vulnerabilities

The CSIR has developed a Network Emulation Platform that acts as a testing environment for network and device security. The system is extensively used for cybersecurity training, network modelling and advanced analytics to assist organisations and government departments to improve network resilience. The CSIR now has the capability to perform hardware verification and is able to adapt the testing to suit multiple environments individually. The Network Emulation Platform enables corporations to adopt a comprehensive approach to network security, forming an integral part in the evaluation and improvement of South Africa's corporate network infrastructure.

Health

A ground-breaking discovery in how DNA works

In a ground-breaking discovery that will have a major impact on scientists' understanding of the function of DNA, humankind's genetic blueprint, a group of CSIR-led scientists in South Africa were the first to show that gene activity is a consequence of genes engaging in physical contact in three dimensions, also known as 'gene kissing'. The finding has far-reaching implications with respect to our understanding and treatment of cancer, chronic diseases such as diabetes, allergy responses and a host of other diseases and important cellular processes. The finding also gives scientists across the globe new knowledge and tools about how genes behave and how to direct them, paving the way for future discoveries.

CSIR technology to assist with reducing the mortality rate of unborn babies

In the past year, a field trial was conducted in the Western Cape to measure the operational effectiveness and economic impact of the CSIR-developed Umbiflow. This is a simple yet effective device that can assess foetuses considered to be 'small for gestational age' at the primary point of care, thereby greatly reducing the cases of mothers being referred to secondary care unnecessarily. Umbiflow uses Doppler ultrasound technology to measure blood flow in the umbilical artery of a third trimester foetus as a means of assessing placental sufficiency or insufficiency. It is a mobile-connected, Notebook PC or tablet based system that can empower nursing sisters, midwifes or rural general practitioners in mobile clinics to reduce the mortality rate of sick foetuses and reduce the burden on the secondary health care system.

The trial has attracted great interest from the medical community and the preliminary trial results were shared at the 'Priorities in Perinatal Care Conference' held in Cape Town in March this year. Umbiflow is approaching its commercialisation phase and it is hoped that the benefits demonstrated in the field effectiveness trial will consolidate its value proposition such that provincial and district health departments undertake the necessary changes to care policies in order to incorporate it into clinical level workflow.

The built environment

Traffic simulated on roads around the world using South African invention

The CSIR-developed heavy vehicle simulator (HVS) can show the effect of traffic over 20 years on a road, within three months. Roads are expensive necessities that form part of our infrastructure, with one kilometre of a good road costing as much as R25 million to construct. During the past year, work has been done on the biggest and longest HVS ordered to date. It was ordered by the Federal Aviation Administration of the USA. The HVS is being used in numerous countries, with the latest orders for the current Mark VI version from South Korea, Mexico and Saudi Arabia.

Extensive RD&I contributions to national roads agency

In a multimillion, multiyear project, CSIR researchers set out to apply their knowledge and advance new research, development and innovation (RD&I) insights for updating the South African Road Design Method (SARDM). The new RD&I outcomes have been peer reviewed and delivered to the South African National Roads Agency Limited (SANRAL).

Once the web-based software is completed, the SARDM will be the most comprehensive and latest source of information, data, methods, etc. of its kind in the Southern Hemisphere for road design. It will enable national, provincial and municipal governments to properly design and effectively maintain and protect the road networks that are put in place at a very high cost.

Industry

A new era for South African titanium industry

The Titanium Centre of Competence (TiCoC) hosted by the CSIR and funded by the DST, has developed a suite of complementary technologies to help South Africa add value to its vast resources of titanium. Key to this programme is the development and commercialisation of a novel process for producing primary titanium metal powder. In order to achieve this goal, a continuous 2 kg per hour titanium pilot plant was built at the CSIR and officially opened in June 2013. Commissioning of the main part of the plant was completed in March 2014.

Advanced modelling of underground ventilation systems leads to client's patent

In an industry first for South Africa, the CSIR assisted a local manufacturer of underground mine ventilation systems to achieve energy savings of between 3.5% and 13% when compared to current underground mine ventilation systems. The CSIR made use of computational fluid dynamics to prove the effectiveness of the manufacturer's new design before millions are spent to build the complex network of ducts. As a result, the company is in the process of patenting its new design.

CSIR establishes an open-innovation facility for bio-manufacturing

The CSIR has launched a three-year programme to provide technology and product prototyping and development support to South African small, medium and micro enterprises (SMMEs) that use or intend to use bio-processing technologies in their manufacturing operations. The programme is supported by the Development Bank of Southern Africa through the Jobs Fund programme and by the DST's Industry Innovation Support Fund.

The Bio-manufacturing Industry Development Centre (BIDC) Programme at the CSIR has been established to accelerate the translation of R&D into market-ready products and technologies by addressing the critical gap in skills and infrastructure. Significant investment in infrastructure, equipment and skills has enabled the BIDC Programme to offer support throughout the value chain, from laboratory scale concept validation to pilot scale validation and demonstration of bio-manufacturing technology. Product prototyping and small-scale manufacturing support are also important elements of the programme to support SMMEs in getting their products to the market. The BIDC is located in newly refurbished buildings on the CSIR campus in Pretoria and is the first of its kind in the country.

Recycling in North West improves lives

Located approximately 14 km north of Rustenburg in the Bojanala Platinum District Municipality of North West, is the Mfidikoe Buy-Back Centre. The recently launched centre has the potential to generate employment opportunities as a sustainable enterprise based on the collection, sorting and sale of recyclable waste. This includes paper, plastic, metal and glass. This enterprise is also enhancing the role and responsibilities of waste collectors in the surrounding communities by providing a local point-of-sale to individual collectors.

The establishment of the Mfidikoe Buy-Back Centre was the outcome of a partnership between the North West Department of Economic Development, Environment, Conservation and Tourism and the CSIR through its Enterprise Creation for Development Unit. The CSIR assisted with the feasibility study and the implementation of the Centre's business plan, including assisting with renovating and improving the existing building, ensuring legal compliance, procuring production equipment and assisting in the start-up of business operations of the Centre. The community of Mfidikoe now has the advantage of improving the state of the environment through the channelling of recyclable waste material to the Centre. This will result in an increase in job creation and a more sustainable environment.

Unmanned Aircraft Systems support tertiary education and industry

Through funding provided by the DST, the CSIR developed a Modular UAS (Unmanned Aircraft System) to support local universities and industry with an airframe that was formally calibrated through wind tunnel tests. Of the four systems developed, the universities of Stellenbosch and Johannesburg received one each and the remaining two are housed at the CSIR where they are used in research into performance as flight vehicles and wind tunnel test models respectively.

Another DST-funded initiative is the Civil, Commercial Unmanned Aircraft Systems (CCUAS) project at the CSIR, now in its fourth year. The aim is to provide scientific design tools, testing facilities and technology demonstrators for use by industry and academia. The ultimate objective is to produce a national civil, commercial UAS. Large numbers of students at various universities have been supported over the duration of the project.

Information and communication technology

Controlling the 'airwaves' spectrum

Until recently, the technology to identify spectrum that was not used or under-used in Very High Frequency (VHF) and Ultra High Frequency (UHF) ranges did not exist in South Africa, let alone technology that could stop interference with the adjacent bands. Spectrum that is not used or is under-used in VHF and UHF bands is nicknamed TV white spaces (TVWS). Sharing of TVWS requires dynamic spectrum access, meaning techniques and methods of reusing the same spectrum without any signal 'collisions'.

The CSIR has developed a device that is able to make an enquiry to a primary spectrum user (broadcaster) on behalf of a secondary spectrum user (network operator), whether spectrum is being used at a particular location

and time. The device is able to check adjacent bands and regulate the signal strength of the secondary user so as not to interfere with other broadcasters. This device is called a Geo-Location Spectrum Data Base and has been successfully field-tested.

National Research Foundation (NRF) Highlights

Overview of objective

The objective of the NRF is to contribute to the improvement of the quality of life of all the people of the country. This objective is directly linked to the promotion of a knowledge economy that is based on the generation, transfer and use of knowledge in innovative ways. To assist with this, the NRF promotes and supports research in all fields of science and technology; develops the pipeline of human capacity towards creating critical mass in high-end skills; advances research infrastructure development; and provides researchers and institutions with access to these research facilities to create new knowledge. The NRF is a client-centric organisation that upholds excellence in its service to the research community. Below are some of the highlights for the period under review:

Support for vulnerable disciplines

- R150,000 support to the South African Statistical Association (SASA) towards the strengthening of statistics as an academic discipline.

National Strategy for Southern Oceans, Antarctica and Marine Research

- The DST delegated the NRF through Knowledge Fields Development (KFD) to facilitate the development of the National Strategy for Southern Oceans, Antarctica and Marine Research.
- In September 2013, KFD hosted the first consultative workshops of marine researchers to broadly discuss the key priority areas, agree on working groups, and identify convenors and writers in each group.

Belmont Forum

The Belmont Forum continued to serve as a conduit to leverage international collaboration for implementation of the Global Change Research Plan (GCRP) in the following areas:

- Food security and land use change
- E-infrastructure and data management
- Seasonal to decadal predictability of regional climate for decision making
- Transformation to sustainability

Community engagement

Arising out of a 2006 development grant, Professor Mark Swilling and his team's community engagement project, "Sustainable community transitions", has developed a prototype eco-friendly dwelling in the informal settlement of Enkanini, Stellenbosch (the improved shack: iShack). This project has leveraged an additional R17 million.

South African National Antarctic Programme (SANAP)

Between October 2013 and February 2014, the first robotics-based Seasonal Cycle experiment in the Southern Ocean was completed, with almost 100% data coverage.

Risk and Vulnerability Science Centres (RVSCs)

The three RVSCs based at the rural universities of Fort Hare, Limpopo and Walter Sisulu continued to make progress in student training and community engagement activities at various levels. A workshop in this regard was held at the University of Fort Hare on 17 February 2014, at which the three universities agreed to collaborate on the following issues:

- Water security/safety research and applications thereof (water resource management including pollution, monitoring, household water supply, water use in agriculture, etc.)
- Shared equipment and research platforms – Geographic Information System (GIS) lab, remote sensing drones
- Common web-based outreach platform – common RVSC portal
- Student exchange and co-supervision

Appointment of incumbents into the Research Chair positions

In 2013/14 the process for nomination and appointment of incumbents for the 62 Research Chairs awarded in 2012 was concluded. Of the 62 awarded Research Chairs, 54 were successfully filled. The 54 new Chairs now take the total number of awarded Research Chairs to 150. These are awarded across 20 public universities.

Public announcement of the 54 new Research Chairs

On 7 March 2014, the former Deputy President of the Republic of South Africa, Mr Kgalema Motlanthe together with the Minister of Science and Technology, Minister Derek Hanekom publicly announced the 54 new Research Chairs in Pretoria. The event was attended by representatives from the research and scientific community, South Africa's bilateral science and technology partners, public and private sectors and the media.

Five new Centres of Excellence awarded

Following a Phase 1 call for five new Centres of Excellence (CoEs), 29 applications were received from higher education institutions. The Phase 1 process of reviewing proposals was completed and 15 were recommended to proceed to Phase 2. After the completion of the Phase 2 review process and approval by the Minister of Science and Technology, the following five CoEs were awarded to the following institutions:

1. The Centre of Excellence in Mathematics and Statistical Sciences awarded to the University of the Witwatersrand;
2. The Centre of Excellence in Science, Technology and Innovation (STI) Policy and Measurement awarded to the University of Stellenbosch and Tshwane University of Technology;
3. The Centre of Excellence in Food Security jointly awarded to the University of Western Cape and the University of Pretoria;
4. The Centre of Excellence in Child Development and Livelihoods jointly awarded to the University of KwaZulu-Natal and the University of the Witwatersrand; and
5. The Centre of Excellence in Integrated Mineral and Energy Resource Analyses awarded to the University of Johannesburg.

NRF to co-host GRC 2015

The NRF, in partnership with the Japanese Society for the Promotion of Science (JSPS), has been competitively elected to co-host the 2015 Global Research Council (GRC) meeting in Tokyo, Japan. The International Relations and Cooperation (IRC) business unit initiated the partnership, and will manage the NRF's participation in this global engagement.

NRF partnership with the Carnegie Corporation

IRC, on behalf of the NRF, has forged a strategic partnership with the Carnegie Corporation of New York through a joint initiative to determine how to increase the quantity and quality of PhD production on the African continent.

SA Forum for Promoting Reciprocity in South Africa-European Union (SA-EU) Relations

The European Union (EU) and South Africa have enjoyed long-standing strategic cooperation in science and technology since 1996 – focusing on promoting South Africa's participation in the EU programmes. In responding to the challenge of enhancing reciprocity and expanding relations, the DST has undertaken to facilitate the establishment of a forum to provide a platform for managers of different South African programmes (government, non-government, publicly funded institutions and private sector) to discuss and identify strategies to further encourage European-South African relations.

Large cooperation agreements

- A new framework document for the South Africa-Norway programme, and the concomitant Memorandum of Agreement with the Norwegian Ministry of Foreign Affairs (MFA) for the period 2013-2017, were concluded by the NRF and DST.
- The launch of Phase 2 of the Swiss-South Africa Joint Research Programme supported 26 highly competitive and large-scale projects for funding during 2014-2017.

Expanding collaboration in North Africa

The first Joint Committee between South Africa and Tunisia took place in January 2014, in conjunction with the joint symposia on ICT and Biotechnology.

Agreement was reached to launch a joint call in 2014, focusing on renewable energy, ICT and biotechnology.

Joint Researchers Workshop for enhanced efficiency

The Africa Cooperation unit has initiated a series of joint researcher workshops on the continent. These include workshops in Mozambique (October 2013), Angola (February 2014) and Tanzania (March 2014).

Education India/Brazil/South Africa Trilateral Cooperation

IRC has finalised a three-year Higher Education India-Brazil-South Africa (IBSA) agreement with Higher Education South Africa (HESA). This cooperation focuses on the following areas:

- engineering, computer science and mathematical sciences;
- bio-technology, agriculture and livestock;
- sustainable development;
- social transformation and empowerment;
- climate change and its effect on rural livelihoods, health and food security, and
- higher education studies.

South Africa's cooperation with Belgium

For the past financial year the NRF has focused on revitalising its relationship with Belgium. As a result, two agreements were signed: a renewal of the Fonds Wetenschappelijk Onderzoek – Vlaanderen (FWO) agreement, and a new inter-agency agreement with the Wallonian (French) Fund for Scientific Research (F.R.S-FNRS).

Expansion of the NRF-IIASA partnership

South Africa, as a member country to the International Institute for Applied Systems Analysis (IIASA), strives to take maximum advantage of the opportunities provided by this global and influential organisation. Since the inception of its membership, the NRF has supported IIASA's calls for applications from young South African scientists to participate in the annual Young Scientists Summer Programme (YSSP) held at IIASA. In 2011, the NRF and DST initiated a similar programme in South Africa, the Southern African Young Scientists Summer Programme (SA-YSSP), broadening participation from within the SADC and African regions.

SA Agriculture and Life Sciences Dean's Association established

Prof. Albert Modi, Dean and Head of the School for Agricultural, Earth and Environmental Sciences, UKZN, has been elected as Chairperson of the South African Agriculture and Life Sciences Dean's Association (SAALSDA) during its inaugural meeting at the NRF in 2014.

Internship programme, student and postdoctoral fellowships

Throughout the internship year there has been a steady absorption of interns into the workplace, while others have exited to pursue further studies. To date there are 153 (27%) interns who have exited, with 85 having joined the workforce, while 68 have exited to pursue further studies.

Research career advancement fellowships

This is a new funding instrument which aims to provide an opportunity for emerging researchers to be mentored and groomed for research leadership and academic positions. The fellowship provides for a taxable salary of R350 000 per annum and a grant of up to R100 000 per annum for research running and travel expenses.

TUT/HartRAO seismic vault

The TUT/HartRAO seismic vault was officially opened at the HartRAO Observatory on 25 October 2013. The seismic vault is only one section of the National Academic Co-Located Seismology Network that is currently being developed by TUT and HartRAO. All vaults will be deployed at universities and the data freely available to researchers and all students. The TUT/HartRAO seismic vault is an excellent example of a collaboration between a university and a national facility.

Maiden call for RTF

The Research and Technology Fund (RTF) is a fund of the DAFF, managed by the NRF. The milestones achieved in this cycle include:

- The RTF maiden call for proposals;
- Submission of 66 applications - a pleasingly strong response; and
- An announcement by DAFF that the earlier indication of R8 million allocations for 2014-15 has been confirmed at the higher level of R15 million.

Siyakhula Living Lab

The Siyakhula Living Lab is a project based in Dwesa, a remote rural village in the Eastern Cape. The project connects 17 schools from the surrounding villages to the Internet via satellite, effectively placing the learners and surrounding communities a mouse-click away from all the knowledge offered on the Internet.

Promote internationally competitive research as the basis for a knowledge economy

- KAT-7 is now fully operational and there is keen interest from astronomers for observing time.
- A programme of monitoring bright pulsars with the 26m telescope was continued, and resulted in the discovery of a change in the pulse profile of the pulsar PSR J0738-4042. This work was published in *Astrophysical Journal Letters* in January 2014, and attracted much media interest.
- The HartRAO Space Geodesy Programme installed a tide gauge on Gough Island in the remote southern Atlantic ocean. Daily data from the tide gauge show the effect of the tides caused by the Sun and the Moon. This is part of the SANAP initiatives in collaboration with GFZ (Potsdam) of Germany.

Grow a representative science and technology workforce in South Africa

- During 2013, 20 undergraduate, Honours and B. Tech bursaries, 13 MSc and 10 PhD bursaries have been awarded by SKA SA in addition to three postdoctoral fellowships.
- SKA SA is collaborating with Teach SA to recruit young Science, Engineering and English graduates to teach at Carnarvon High School.
- SKA SA selected 27 learners for school bursaries for the 2014 academic year to study at Carnarvon High School.

Provide cutting-edge research, technology and innovation platforms

- The actual allocated time on each Sutherland telescope in Jan-Mar 2014 was 92% on the 1.9-m, 1.0-m and 0.75-m telescopes, and 100% on the 0.5-m telescope.
- The SALT Virtual Observatory Data Archive System is now available.
- LOCGT made its first call for proposals, open to the SA astronomical community. After review, the seven proposals received were all awarded time.
- SALT completed its fourth full science semester with improved efficiency and better program completion statistics.
- The science verification phase began for the SALT High Resolution Spectrograph, built at Durham University (UK).
- The first phase of the Factory Acceptance Test of the SALT edge sensor was completed successfully.
- An observing programme aimed at understanding Dark Energy has started. A South African research team confirmed the discovery of two supernovae using SALT.
- An important metric for telescope operations defined as “Time Lost due to Technical Issues” was reduced by 30% during the year.
- The first MeerKAT antenna was launched in May 2014, with the delivery date for the second antenna scheduled for July 2014.
- The 15m diameter antenna, the first test and development prototype for the Karoo Array Telescope, was converted for operational use especially for geodetic VLBI by HartRAO. It has taken over most of the standard 24-hour duration geodetic VLBI experiments, and is also being used for astronomical VLBI and doppler measurement experiments on spacecraft in orbit around Venus and Mars. Over 1000 hours of observing were undertaken during the year.
- An intensive VLBI observing campaign, observing Active Galactic Nuclei, was established in which the HartRAO 26m telescope is a participant.
- An underground concrete seismic vault was built east of the main instrument site at HartRAO. Several instruments have been installed to date that form part of a country-wide network of twelve vaults that is being developed in collaboration with TUT. The data from this network will enable scientists to pin-point seismic events and study processes that occur within the Earth’s crust, and interaction between the Earth and Moon.

Human Sciences Research Council (HSRC) Highlights

Overview of objective

The HSRC is mandated to initiate, undertake and foster strategic basic research and applied research in the human sciences, and to gather, analyse and publish data relevant to developmental challenges in the Republic, elsewhere in Africa and in the rest of the world, especially by means of projects linked to public sector-oriented collaborative programmes. Moreover the work of the Africa Institute of South Africa (AISA) was incorporated into the HSRC.

HSRC is committed to the objectives contained in its founding legislation, namely to address developmental challenges, national priorities and the needs of vulnerable communities through research, by producing and disseminating relevant scientific evidence, helping to build collaborative networks in research, and growing research capacity in the social sciences and humanities in South Africa and internationally.

Research to address development challenges, national priorities and needs of vulnerable communities

First national health and nutrition survey concluded successfully

The results of the first ever South African National Health and Nutrition Examination Survey (SANHANES-1), released by the Minister of Health on 6 August 2013, provided a comprehensive understanding of the health of the South African population.

SANHANES-1, undertaken by a research consortium comprising the HSRC and the Medical Research Council (MRC), was financed by the national Department of Health, the UK Department for International Development (DFID) and the HSRC. It provides critical information to map the incidence of non-infectious, or non-communicable diseases (NCDs) in South Africa, and to analyse the underlying social, economic, behavioural and environmental factors that contribute to the population's state of health.

This first round of SANHANES provided baseline data of a representative sample of the population for future analysis over long periods of time (longitudinal surveys), providing information to map the emerging epidemics of non-communicable diseases in South Africa and to analyse their social, economic, behavioural and environmental determinants. These data are essential in developing national prevention and control programmes, assessing the impact of interventions, and evaluating the health status of the country.

Social innovation: Innovation as a rural development catalyst

Slightly more that 30% of South Africa's population resides in rural areas, which are characterised by inadequate basic services such as water, sanitation, health and education facilities, as well as a lack of employment opportunities. More than two-thirds of rural people are poor. Raising rural living standards is therefore a top priority on the government's agenda as articulated in Chapter 6 of the National Development Plan.

One recent initiative of the rural innovation partnership is an HSRC project which has developed a combination of tools, known as Rural Innovation Assessment Toolbox (RIAT), which can assist decision makers in measuring innovation activities in rural district municipalities in South Africa. Appropriate use of the composite tools enabled the generation of unique evidence about innovation activities across four rural district municipalities. Interactive workshops with local stakeholders have helped to identify high impact local innovation catalysts.

Transforming the quality of education of the rural child through innovative research

With financial support from the DST and the NRF, the HSRC is involved in rural-based research that seeks to promote the life of rural school-going learners, by employing innovative ideas that are derived from their environment. There are three multi-year projects – all 'crowded-in' in a single rural school district of the Eastern Cape, in Cofimvaba.

The main intention of these projects is to promote and strengthen learning, largely using the Cofimvaba community's indigenous knowledge, human resources as well as building on their environmental features. Alongside these pursuits is the conscious use of modern technology in the form of ICT tablets.

The 'crowded-in' projects all aim to transform the experience and quality of education of rural learners. Hence, change theory and participatory action research are used as the key research approach. It is hoped that these projects are making a significant contribution towards realising the 2030 educational imperatives for the rural learner. The three research projects are:

- *Technology for Rural Education Development (Tech4RED)*, a joint initiative between the DST, the Department of Basic Education (DBE), the Eastern Cape Department of Education (ECDE) and the Department of Rural Development and Land Reform (DRDLR),
- *Promoting and learning from Cofimvaba community's indigenous knowledge systems (IKS) to benefit and strengthen school curriculum*, and
- *IKS meets mathematics education:* The influence of indigenous knowledge system on Mathematics learning.

Production and dissemination of relevant scientific evidence

Measuring the State of the Nation

The sixth book in the State of the Nation Series, published by HSRC Press, was launched in Cape Town on 23 April 2013. *State of the Nation: South Africa 2012-2013* focuses specifically on inequality and poverty.

Through this series, the HSRC regularly produces a new volume in which academics grapple with some of the pertinent issues facing the country. The emphasis of the sixth edition was on the extent to which race, place, class, culture, gender and age are relevant to the understanding of inequality and poverty in South Africa, while keeping in mind that focusing on only one or some of these factors would result in a diminished understanding.

Government cluster workshops and science seminars for policy development

The HSRC concluded a three-year contract to coordinate a series of government cluster policy workshops in partnership with DST. These workshops formed part of a project on evidence-based deliberation and evidence-informed policy development and aimed to bring the best social science concepts and evidence into the policy arena and stimulate a discussion of how, in light of these insights, policy could be further developed and the prospects of successful programme implementation improved.

Topics covered during the year under review included *'The relationship between spatial inequality and attitudes to inequality in South Africa'; 'Youth development and sustainable livelihoods'; 'The Expanded Public Works Programme (EPWP) extension workers in the social sector'; 'Bi-literacy and multilingualism in schools';* and *'Child health: improving the quality of care during the first 1000 days'*. All of the workshops were well attended and resulted in positive reviews in general.

The HSRC also conducted science seminars on behalf of DST and other institutions. These included topics such as *'Policy-relevant indicators to monitor household food-security status in South Africa'*; and *'Linking knowledge producers and marginalised communities*'.

Major surveys and production of data sets

Research and development for growing the economy

The National Survey of Research and Experimental Development (R&D), commissioned by DST, is used to monitor the country's investments in R&D. The survey provides information on R&D funding and performance in South Africa. The data help to profile the size and shape of the R&D landscape and support the production of statistics for use in system-level planning, monitoring and evaluation.

Results from the 2010/11 R&D survey, published in the 2013/14 financial year, recorded that South Africa spent R20. 254 billion as gross expenditure on research and development (GERD), a nominal decrease of 3.3% from that recorded for 2009/10.

The trends show that the government's funding for R&D has been increasing consistently; and from 2007 its contribution towards funding surpassed that of the business sector. By investing in the higher education and science council sectors, the government is able

to boost the capacity for new knowledge creation and drive strategic research initiatives that have specific outcomes for development. This includes, for example, advances in health research, particularly on HIV/AIDS vaccines and cancer treatment, the five pilot plants to test feasibility for mineral beneficiation processes and technologies, and the hydrogen and fuel cell technology programmes.

Collaborative networks and growing of research capacity

The HSRC as interim South African BRICS Think Tank

The BRICS economies of emerging markets comprising Brazil, Russia, India and China formally invited South Africa to join its group in December 2010. Each of these economies already had a "think tank" devoted to work in the context of BRIC. The South African government requested the HSRC to serve as an incubator for the South African BRICS Think Tank (SABTT). On March 2013, at the eThekwini Summit of BRICS leaders, a declaration was adopted to establish a BRICS Think Tank Council (BTTC) comprising the think tanks of the five countries. The SABTT, represented by the HSRC CEO, Professor Olive Shisana, played a pivotal role in the establishment and founding work of the BTTC.

Incorporation of the Africa Institute of South Africa (AISA)

Following a Cabinet decision in February 2012 to incorporate the Africa Institute of South Africa (AISA) into the HSRC, ongoing preparatory work involving the DST, AISA and the HSRC followed.

- A consultative and legislative process, duly scrutinised by Parliamentary oversight bodies, led to the promulgation of the Africa Institute of South Africa Repeal Act in December 2013.
- The 2013/14 reporting year will be the last in which AISA reports as a separate entity. As of 1 April 2014, when the repeal act comes into effect, AISA activities and contributions will be accounted for by the HSRC. This incorporation builds on preparatory work by staff from both institutions, and is expected to pave the way for a stronger focus on Africa through different lenses provided by a variety of disciplines and partnerships.

Building research capacity through structured training and internship programmes

The HSRC and the University of Limpopo (UL) joined the Mbarara University of Science and Technology (MUST) and the Uganda Technology and Management University (UTAMU) in a bid to improve the quality of higher education on the continent, by developing a specialised PhD programme. This programme is designed to address the gaps at doctoral level in the East African region. The PhD programme started in November 2013 with close to 80 registered students.

Closer to home, the HSRC continues to provide opportunities for emerging researchers who join the organisation as research interns. Balancing their academic studies at Master's degree or PhD level with practical involvement in a broad range of research-related work, these interns are also encouraged to publish reports and peer-reviewed articles in collaboration with their more experienced colleagues. The HSRC also appoints recent PhD graduates in postdoctoral positions, where they have opportunities to publish, present papers, help develop own research capacity alongside that of others, and gain experience in a range of research activities. During 2013/14, the HSRC employed 80 interns, 37 at Master's level, 43 at PhD level and 23 postdoctoral researchers. Seven DST/NRF interns were also hosted during 2013/14.

Report of the Africa Institute of South Africa

AISA was mandated to promote knowledge and understanding of African affairs by encouraging leading social scientists to act in concert and across all disciplines, and by collecting and disseminating information on African affairs.

The year under review was a challenging period for AISA owing to preparations for incorporation into the HSRC. Management had to be innovative to ensure expected delivery on the shareholder compact agreement. Herewith a synopsis of the activities of AISA over the period indicated:

Knowledge production and dissemination

In accordance with AISA's Research Agenda "Seeking Solutions for Africa's developmental Challenges",

AISA researchers undertook research in nine African countries (Democratic Republic of Congo, Ghana, Mauritius, Namibia, Zimbabwe, Rwanda, Botswana, Kenya and South Africa). Through partnerships with the embassies of China and Azerbaijan, AISA was able to extend its research to China and the South Caucasus region. Research in Africa resulted in the publication of 22 journal articles, 40 policy briefs, 51 peer-reviewed book chapters and three published books in collaboration with research fellows, scholars and professionals from the African continent, African Diaspora and other parts of the world. The Publications division published 10 books including the *Africa Yearbook*. The accredited journal, *Africa Insight* was also published.

Geographic Information Systems (GIS) and Cartography prides itself on a state-of-the-art Web-based portal (AISA geo-portal) which is a data gateway to Africa, with spatial data sets and spatial data services on socio-economic, demographic and geographical data for the continent. To expand access to AISA's database, AISA has entered into an agreement with Africa Portal, by means of which AISA researchers are listed as African experts on the portal and are able to upload their publications and policy briefs. This has increased the influence of AISA research output in the continent.

Special projects include the Fifth Archie Mafeje Memorial Lecture; the fourth Scramble for Africa Conference (now renamed African Unity for Renaissance Conference), Africa Day Celebration, and AISA Ambassadorial Fora.

Human capital development

Six AISA researchers without PhD/master's degrees are registered with tertiary institutions, while other staff members were encouraged to pursue further studies through the staff performance development programme. Fifteen interns were mentored in this financial year. Eight of the interns that passed through the Research Division were capacitated in journal article and policy brief writing, conference paper writing and presentations as well as data collection, statistical analysis and project management. Others were mentored in the administration, finance, information technology, publications, library and human resource management departments. The interns participate in all AISA flagship projects, which gives them practical training in project management and conference organisation. One intern secured a job at AISA as a junior researcher; while others are employed in government departments and the private sector. AISA researchers were encouraged to share their fieldwork experiences with students and academics in tertiary institutions during the AISA Campus Lecture Series.

The AISA Young Graduates and Scholars (AYGS) Conference attracted over 200 students representing seven African countries. Students from Germany and Japan also participated. A total of 48 papers were presented by young graduates and scholars. The French Embassy, Erasmus Mundus Fellowship, DST/NRF, American Embassy, German Embassy and Earth Science made presentations on fellowship programmes that the AYGS participants could consider for advancing their academic careers.

Library services

The library continued to expand its services and holdings and boasts an estimated 99,768 holdings and an archival collection of 4,705. Subscriptions to various databases, journals, magazines and other publications assist researchers and the local community, which patronise the library, with vital information during their research. AISA was able to digitise some of its collections, especially maps, photographs and other AISA books.

Visibility

Significant interaction with the media through radio, TV, print and online media was established to increase visibility and disseminate information to all stakeholder levels, both within and outside South Africa. The South Africa–China Relations at 15 years event was well attended and the work done with the Department of Trade and Industry (dti) on Special Economic Zones was published as proceedings. Lectures and presentations were given at the Departments of Defence and the Peace and Security Commission of the African Union. AISA also participated in external events organised by partners such as the China Institute of Research and Development/German International Cooperation (GIZ), European Commission Authentication System (ECAS)

and the Erasmus Mundus Association of the European Commission. AISA also hosted seminars presented by international visitors from the USA, China, Russia, Sri Lanka, India, Ethiopia, South Sudan and Sudan.

National Advisory Council on Innovation (NACI) Highlights

NATIONAL ADVISORY COUNCIL ON INNOVATION

Overview of objective

NACI is a statutory advisory board established in terms of the National Advisory Council on Innovation Act (Act No. 55 of 1997). NACI advises the Minister of Science and Technology and Cabinet on the role and contribution of science, technology and innovation to national objectives. The Act gives NACI a broad policy (advisory) mandate over all aspects intrinsic to the functioning of the national system of innovation (NSI). In the period under review, the focused programme of NACI included (i) a National Innovation Framework for a Refocused NSI; (ii) Gender Mainstreaming in Science, Technology and Innovation; (iii) Strengthening Skills in the Vocational and Technical Pipeline; (iv) Up-scaling Support for the Small and Medium Enterprise sector; (v) a Strategic Model for Investment in Infrastructure for Research and Innovation; (vi) an Assessment of Indicators for the NSI and (vii) the Legislative Environment for Biotechnology.

The following messages, as advanced by the NACI Council, are of significance to policy in the national system of innovation:

i. The development of a National Innovation Framework better aligned to the objectives of the National Development Plan. A proposed framework for a refocused national system of innovation has been put forth by Council. NACI believes that the framework will offer less complexity, more accountability, inclusivity of all actors and sectors and will foster better cooperation and leverage of innovation resources.
ii. The outcome of NACI's work on gender mainstreaming in the academic and research workplace shows positive signs of transformation in relation to improved access by both genders and all races; however rigidities persist in respect of upward mobility and leadership positions. The feminine face of the academic and research workplace diminishes higher up the ladder.
iii. NACI's work confirms the shortage of skilled labour in the technical, vocational education and training pipeline. An enhanced presence of science and technology role players (DST, SAASTA and the technology-based industry) is recommended to alleviate some of the identified shortcomings.
iv. Greater coordination between government departments with support programmes for the SMME sector is called for. Coordinated effort is necessary to streamline supporting instruments and establish clear linkages to the innovation cycle in line with the stages of development of SMEs.
v. NACI's work on infrastructure for research and innovation highlights a need for a model for research and innovation infrastructure. Amongst other things, the model should foster harmonisation of public and private sector interests in research and innovation; facilitate the creation of a positive investment climate in research infrastructure and enhance social impact considerations in planning for research and innovation infrastructure.
vi. Pertinent to accountability in the NSI, NACI's work confirms that current measures of impact do not sufficiently measure the entire domain of innovation. The NSI's influence on the quality of life, economic growth, environmental sustainability and entrepreneurship, are for instance excluded. NACI has suggested a wider array of indicators to holistically evaluate the embedded performance of the NSI in the economy broadly. Furthermore, Council advocates for prioritisation of a few selected strategic emerging industries through an action plan aimed at fostering commercialisation of locally developed technologies.
vii. In support of the recently adopted Bio-economy Strategy, Council completed an assessment of the legislative environment for biotechnology. Council's findings confirm the need for legislative harmonisation at the level of implementation.

South African National Space Agency (SANSA) Highlights

Overview of objectives

SANSA is mandated to promote the peaceful use of space, support the creation of an environment conducive to industrial development in space technology, foster research in space science, communications, navigation and space physics, advance scientific, engineering and technological competencies and capabilities through human capital development (HCD), outreach programmes and infrastructure development; and foster international cooperation in space-related activities. Below are some of the highlights for the period under review:

Satellite data for service delivery

With increasing awareness and appreciation of the efficiency and productivity gains that can be derived from the use and application of satellite imagery for Government service delivery, SANSA is seeing a huge demand for its products and services. Satellite imagery is increasingly applied in addressing challenges in agriculture, water resource monitoring, mapping of natural disaster areas, the effects of climate change over time as well as planning of human settlement. To meet this demand, SANSA distributed more than 100 574 scenes of processed satellite data to Government and Education Institutions. A portion of this, approximately 56 000 scenes, was distributed for research purposes in order to enhance research and development in space science and engineering.

Making an impact on the satellite industry through quality and reliable services

Satellite communication and broadcasting represents a substantial market of the space industry and is largely driven by satellite television. The increasing growth in the launch of communication satellites is primarily driven by the number of households around the world who are direct satellite broadcast subscribers. SANSA offers globally competitive space operations and applications, with services provided daily to satellite operators around the globe for launch support services. In this financial year the full target of achieving 24 mission launches and In-Orbit Testing (IOT) services was achieved.

Pushing the frontiers of knowledge in the geo-space environment

South Africa is progressively improving its position in international science rankings as it continuously contributes to more high-impact research outputs in support of the National System of Innovation. Contributions by SANSA researchers in space science and technology research efforts enabled the institution to achieve 2.79 ISI (Institute for Scientific Information) publications per SANSA researcher for the year, well above the approximate national average of 1.5 per researcher. This demonstrates the Agency's continuous strive to develop emerging researchers as well as contribution to the country's World Share in ISI publication record. Space Science research is critical in building a knowledge economy and gaining a deeper understanding of our space environment to advance society and protect technology on earth and in space.

Providing space weather knowledge through the National Equipment Programme

In support of the Ten Year Innovation Plan and the National Research and Development Strategy, SANSA is undertaking world-class research to study the link between the magnetosphere, the ionosphere and the earth's surface. This system is known as the South African Ionospheric, Geophysics and Geomagnetic Experimental Resource (SNIGGER). In collaboration with partner universities, SANSA has acquired equipment through funding from the NRF. The natural phenomena that will be studied with SNIGGER present a unique opportunity, and for the first time in South Africa, will lead to a better understanding of the space weather chain. Participating in this research will enable SANSA to contribute to research capacity development in space science and technology. National scientists will be empowered to answer long-standing questions about the space environment and its effects on technology. Other questions to be answered through this ground-breaking science relate to a greater understanding of how the earth's magnetic field shields and hence preserves life on earth.

Advancing SET competencies and capabilities

With South Africa's Science, Engineering and Technology (SET) enrolments at public higher education institutions remaining at approximately 29% for the past ten years, there is compelling urgency to promote the development of human capital in space science and engineering. Space science and technology is an ideal instrument for science advancement and public engagement. The Agency is forging ahead, taking science outreach to the youth and the general public. Approximately 11 000 learners were reached through space science initiatives during the year.

Stimulating a sustainable local space industry

SANSA made an active contribution to the South African space industry through local technology development, the advancement of know-how and technology transfer. The Agency provided 13 earth observation and space science end-user services and products to industry clients and partners against the annual target of seven products and services. Thirty four jobs were preserved through the support of the satellite engineering programme. This further demonstrates the value and impact of the satellite engineering programme in supporting job creation.

South Africa: Taking our place as an emerging space-faring nation

SANSA is the primary point of contact and the face of South Africa in the global space arena. It is a vehicle for strategically positioning the country among the community of space-faring nations. SANSA met with a total of seven space agencies including DLR (German Space Agency); JAXA (Japanese Space Agency); ISRO (Indian Space Agency); ASAL (Algerian Space Agency); ROSCOSMOS (Russian Space Agency); ESA (European Space Agency) and JRC, the European Commission's Joint Research Centre. Further, the Agency hosted foreign visitors from DLR, the UK Space Agency, JAXA, and the Ukraine Space Agency. SANSA also participated in various multi-national projects and forums including GEO, AfriGEOSS, CEOS, SFCG (Space Frequency Coordinating Group), IAC (International Astronomical Congress) as well as in the African Union Space Working Group for the development of African space policy and strategy.

Technology Innovation Agency (TIA) Highlights

Overview of objective

TIA is a national public entity that is intended to serve as the key institutional intervention to bridge the innovation chasm between R&D from higher education institutions, science councils, public entities, the private sector and commercialisation.

The mandate of TIA is derived from the provisions of the Technology Innovation Act (Act 26 of 2008), which establishes TIA as an Agency to promote the development and exploitation, in the public interest, of discoveries, inventions, innovations and improvements. Below are some of the highlights for the period under review:

Local and international partnerships

Locally, TIA has signed MoUs with various provincial development agencies and selected provincial incubators around the country, including the Free State Development Corporation (FDC), Eastern Cape Development Corporation (ECDC), Invotech in KwaZulu-Natal, Limpopo Economic Development Agency (LEDA), The Innovation Hub in Gauteng, Cape Craft and Design Initiative (CCDI) in Western Cape, and Smart-X-change in KwaZulu-Natal.

The main objective of the proposed programme is to foster entrepreneurship and contribute to the establishment of innovation/knowledge-based companies in various provinces that respond to provincial priorities and needs through access to finance. These companies will be geared to the creation of sustainable jobs and contribute to the mainstream economy.

As part of the implementation of the signed MoUs, a number of areas of collaboration were identified. These include: strengthening the collaboration amongst R&D undertaking institutions in various provinces as well as industry; leading and driving the regional

Innovation System with more emphasis on Regional Innovation Strategies and regional Innovation Forums; strengthening entrepreneurial activities with particular emphasis on ensuring a vibrant incubation programme that provides a conduit for R&D from universities and state-owned enterprises and industry; and ensuring appropriate innovation-enabling skills mainly at Regional Development Agencies for Innovation Management, innovation skills for targeted industries ranging from ICT, Industrials (including advanced materials and manufacturing, nanotechnology), green economy and biotechnology, to ensure that innovation contributes to the socio-economic development of the respective provinces.

The parties intend to initiate programmes geared towards assisting each other to access finance and support for entrepreneurs. The parties have proposed a Regional Innovation Funding Programme (Start-Up support or Seed Fund) between TIA and these agencies aimed at supporting qualifying SMMEs in the technology innovation space that need to advance their technologies.

Internationally, TIA collaborated with the United Nations Industrial Development Organization (UNIDO), the specialised agency of the United Nations that promotes industrial development for poverty reduction, industrial development, inclusive globalisation and environmental sustainability. In 2013, a UNIDO team from Vienna invited TIA representatives to explore possible collaboration with UNIDO and its global partners in creating a Cleantech accelerator programme for SMEs in South Africa. It was decided at that stage that it was imperative that TIA not only partner with UNIDO but host the programme, since the programme's focus on enhancing emerging clean technology start-ups fulfilled TIA's mandate of stimulating and intensifying technological innovation. Furthermore, the programme aimed to promote the local entrepreneurial ecosystem to identify the most promising entrepreneurs who would assist TIA in creating an enabling environment for innovation especially in the clean technology sector where SMEs face numerous barriers. UNIDO agreed to the proposal of TIA hosting the initiative and funding was secured from the Global Environment Facility (GEF).

Industrial interventions

Varibox: The development of a RotorCVT, targeting low-powered vehicles where there is an opportunity in the two- and three-cylinder passenger vehicles where the current CVT technology is too expensive and too heavy to implement. The funds were utilised to finalise the development, and market a rotor continuously variable transmission (RotorCVT) in the small automobile market through licensing technology to existing original equipment manufacturers or specialists

The RotoCVT was produced and underwent testing in a demonstrator vehicle (Chevy Spark) and was proven to be light weight, fuel and mechanically efficient and lower cost with reduced mechanical complexity. The project has progressed to its last quarter and has entered the commercialisation phase where interest has been expressed by a potential funder

Fibre Lux: A portable device, user-friendly, affordable and accurate fibre diameter meter for the on-farm measurement of wool, mohair and other animal fibre fineness using a laser-based technology. The funding was targeted at the technology development and commercialisation of the product. The product is being manufactured successfully and sold by a local trading company.

Technology Stations: Joint technology project between Adaptronics AMTL, Bayworld Centre for Research and Education (BCRE), and Department of Environmental Affairs (DEA). Development of a coastal observer/buoy for use in obtaining atmospheric and oceanographic data used in weather prediction models. Prototype has been completed and it is now undergoing sea trials in False Bay, Cape Town, South Africa.

Another joint technology project between Adaptronics AMTL, CPUT and Nicky's Drive. The development of a driving simulator to assist physically challenged individuals to learn how to drive. The prototype has been completed and is in use by the client. The project has been selected as one of the Cape Town 2014 World Design Capital flagship projects. Adaptronics AMTL is commencing with the development of a Nicky Drive Demonstrator and identifying more disabled individuals to use the Nicky Drive Simulator.

Biotechnology and health innovations

H3-D Centre at the University of Cape Town (UCT): Africa's first modern integrated drug discovery and development centre. Over the past four years the centre has had remarkable success with the first clinical drug candidate to come out of Africa delivered in 2012.

Building on this success, H3-D has attracted additional projects, partnerships and the funding necessary to hire more staff and develop more infrastructures. On 21 January 2014 it was announced that internationally renowned philanthropic organisation, the Bill and Melinda Gates Foundation, awarded a multi-year R55 million grant to develop the capabilities to prosecute drug development projects in tuberculosis (TB) and malaria. The H3-D Centre received additional funds to host the TB Drug Discovery Symposium in Zambia around August 2014. The initiative will position the centre as a leader in drug discovery and development in Africa and globally.

Future Fynbos: Successful commercialisation of three new protea and fynbos cultivars. Trademarks are registered and royalties earned from sales in Europe. Plant Breeders Rights (PBR) registered protea cultivars for commercialisation.

Innovations in the Youth Space

The Leak-Less Valve: an innovative development of a new toilet float mechanism that will save large quantities of water estimated at 70% in a hygienic and convenient manner. The technology development is based on the mechanism of the toilet that locks at a predetermined water level of the toilet cistern, prohibiting the further inflow of water compared to the conventional valve that permits water to continue entering the cistern in the instance of a leak. Therefore with the Leak-Less Valve technology, only water in the tank that will be lost or reduced once before the next refill which will start when the valve is unlocked by the user attempting to flush, leading to the tank being refilled again to its maximum pre-determined water level.

Through the support of Youth Technology Innovation Fund (YTIF) vouchers (Technology Development, Stipend and Business Coaching), the computer-aided design (CAD) drawings for prototypes have been developed via 3D printing and engineering of small-scale molds is on track for the development of workable pilot samples. Currently, the project is undergoing studies to (i) conduct a field assessment of the product that will demonstrate its water-saving capacity *in situ* as well as its monetary value proposition; (ii) obtain a nationally representative outcome from the assessment that will allow a nationwide promotion of the invention and (iii) obtain validation/accreditation of the product's credibility; that can be recognised internationally.

The recipient was invited to the television programme *Rize Mzansi* on SABC TV, an initiative of SABC 1 and Talent Attack TV that seeks to find South Africa's future business leaders and innovators, who are looking for capital investment and training in business expertise. The recipient was also invited to join the staff and faculty of the USAID-funded Resilient Africa Network (RAN) program in Silicon Valley, California, United States of America to attend the RAN innovation workshop, specialising in online educational materials.

Saggitarious Serpentarious System

Saggitarious Serpentarious System is a device that monitors power consumption for the household inside the prepaid meter as well as outside at the transformer box. If there is a difference between the two measurements, the system will know that the prepaid meter has been bridged/modified. The device will detect if the prepaid meter has been opened for tampering. In the case of tampering, the system will shut down the resident's electricity connection and wirelessly send the resident's details and error codes to the municipality. This will also mean that the resident will have to report the fault to the municipality in order to get reconnected to the grid.

The Saggitarious Serpentarious System won the first prize at the 2013 Free State Enter PRIZE Job Creation Challenge, as the Most Innovative Business. TIA has filed for a provisional patent for the Saggitarious Serpentarious System relating specifically to the parts and function of the device.

Through YTIF's voucher, the Technology Station in Electronics is currently assisting to develop 50 devices that will be installed in households with pre-paid meter boxes around the eThekwini area over a period of three months, as part of the technology demonstration and testing of the device. This process is also supported by the KwaZulu-Natal Industrial Energy Efficient Training

and Resource Centre (IEETR) based at the Durban University of Technology.

Technology Innovation Competition

The Technology Innovation Agency was a strategic partner and sponsor of the inaugural Step-Up Technology Innovation Competition, designed to encourage and develop early-stage technology innovations. The strategic value of the project is to act as an early-stage pipeline to identify innovations which have the potential to be commercialised into scalable businesses.

The competition attracted just under 400 submissions nationally, with 35 finalists being selected in the agriculture, chemicals, energy, health and biosciences, ICT, mining and manufacturing and green economy sectors. From these, a total of eight overall winners were selected.

A total of 40 participants have been selected for ongoing mentorship and business skills development. A network of partners, including Seda, the SABLE network, Enablis, the Innovation Hub and U-Start, are also supporting selected participants. Some of the most promising have been introduced to potential investors, with several receiving offers of venture capital funding.

The competition operates using a specially built on-line portal, COMP-TRAC, which assists and guides innovators to present their concepts, and which also allows for experts around the country to judge entries in their field of expertise.

Academy of Science of South Africa (ASSAf) Highlights

Overview of objective

ASSAf is the only national science academy to be officially recognised by the South African government and is tasked with providing direction, investigating and generating evidence-based advisories on issues of public interest as they relate to scientific research.

Policy advisory programme

Evidence-based study project activities form the core of the Academy's function and are a key area of future development. During this past reporting cycle there has been a dramatic increase in the number of evidence-based projects. Hosting of workshops and involvement of members in project-related activities have also increased.

Improved Nutritional Assessment in South Africa

In the field of health sciences, a consensus study report, *Improved Nutritional Assessment in South Africa*, was published and launched on 14 August 2013 during a gala dinner at the InterAcademy Medical Panel Conference on Non-communicable Diseases in Johannesburg.

The State of Energy Research in South Africa

The Academy was contracted by the Deutsche Gesellschaft für Internationale Zusammenarbeit and its partner organisation, the Renewable Energy Centre of Research and Development, to undertake an in-depth review of the state of energy research in South Africa.

Scholarly publishing programme

Open access platform

Steady progress was made in the implementation of the open access platform, known as the Scientific Electronic Library Online (SciELO)-South Africa, for high-quality South African scholarly journals. The collection has now grown to 36 titles.

The SciELO South Africa Collection was certified in April 2013 as a regular operational collection indexed in the SciELO Network Global Portal according to "Criteria, policies and procedures for site classification and certification in the SciELO Network".

Peer review of South African scholarly journals

A report on the completed peer-review process for South African scholarly journals in the Religion, Theology and Related Fields was completed and published in the reporting year.

Joint working groups between DST/DHET

A bilateral Ministerial meeting between DST and DHET on 24 January 2013 resulted in the signing of a Memorandum of Understanding (MoU) by both

Ministers to formalise the work and the relationships of the joint working group.

South African Journal of Science (SAJS)

The *SAJS*, now in its 110th year of publication, is a multidisciplinary journal published bimonthly by ASSAf. The visibility of the *SAJS* has increased markedly since its availability on the SciELO-SA platform. It is currently the second most frequently accessed journal on the SciELO-SA platform after the *South African Medical Journal*. The Web of Science impact factor has increased from 0.78 to 0.84.

Full digital issues are available in PDF, EPUB and online formats for viewing on tablets and smartphones. A 'Highlights of the issue' – which includes the table of contents, featured articles and links to the full digital issues – is distributed electronically to 2500 recipients, including local and international researchers and local media.

Quest

ASSAf promoted awareness of science amongst the public and particularly among the youth through the publication and dissemination of *Quest: Science for South Africa* science magazine. The magazine was also showcased at the annual Scifest Festival in Grahamstown.

Liaison activities

Memorandum of understanding

The Academy entered into a MoU with the German National Academy of Sciences, Leopoldina in Pretoria in August 2013. The proceedings report of a symposium on Technological Innovations for a Low Carbon Society that was held jointly as part of the German-South Africa Year of Science was launched at the event.

Collaboration with African science academies

ASSAf partnered with the Zimbabwe Academy of Sciences to launch a policymakers' booklet on T*he State of Water in Southern Africa* on 6 December 2013 in Zimbabwe. The event was accompanied by an Academy capacity-building initiative.

A similar event was held together with the Kenya National Academy of Sciences in April 2013, when the ASSAf policymakers' booklet on *Regulation of Agricultural GM Technology in Africa* was launched.

Leadership role in NASAC

ASSAf is currently represented by two candidates on the board with ASSAf Council member, Prof. Barney Pityana, elected as the General Secretary for NASAC and former ASSAf President, Prof. Robin Crewe who serves as an immediate-past Chairperson of the network.

Inter-Academy Medical Panel (IAMP)

ASSAf hosted an International Conference of the Inter-Academy Medical Panel from 13 – 16 August 2013 in Johannesburg. The conference was attended by 148 participants from 38 countries across the world with representatives from African Science Academies, IAMP members, international and South African experts on non-communicable diseases. ASSAf was elected to the Executive Committee of the IAP and the Executive Committee of the IAMP.

ASADI Review

The US National Academy of Sciences has requested the IAC to provide a rigorous final evaluation of the African Science Academy Development Initiative (ASADI). The final objective of the project is to obtain an independent, external evaluation to summarise lessons learned and to make recommendations for future capacity-building activities of this nature.

National liaison activities

Recognition of excellence through awards

Science-for-Society gold medals are the apex awards of the Academy and the South African science system and are awarded in recognition of outstanding achievements by individuals. Prof. Olive Shisana from the Human Sciences Research Council was awarded a gold medal and Prof. Robin Crewe was awarded the prestigious Gold Medal for Outstanding Meritorious Service.

AU-TWAS Prize for Young Scientists

The AU-TWAS award scheme aims to recognise and award talented young scientists in Africa. Two young scientists were recognised. The prize in the category Life and Earth Sciences was awarded to Prof. Landon Myer from the University of Cape Town and Prof. Cornie Scheffer from Stellenbosch University received the prize in the category Basic Sciences, Technology and Innovation.

Sydney Brenner Fellowship

The Sydney Brenner Fellowship, administered by the Academy and supported by the Oppenheimer Memorial Trust, was awarded for postdoctoral studies in the molecular and cellular biosciences conducted at an advanced level in South Africa at the annual Awards ceremony in October 2013. The 2014/15 Fellowship was awarded to Dr Anna Coussens, a postdoctoral research Fellow at the University of Cape Town.

South African Council For Natural Scientific Professions (SACNASP) Highlights

The Council is mandated to legislate the registration of professional natural scientists, natural scientists-in-training, natural science technologists and natural science technologists-in-training.

Herewith a synopsis of the activities of SACNASP over the period indicated:

- **Registration:**
  - 1 240 new applications were received.
  - 1 258 applications were tabled at the Registrations Committee and 1 068 natural scientists were registered.
  - 201 applications were reviewed by the Qualifications Assessment Committee.
  - At the end of the reporting period there were 749 pending applications.
- **The new database** has become operational and went live in July 2013. Judging from the positive feedback from users it is certainly adding value and is fostering positive attitudes towards SACNASP's image.
- **An online mechanism** for PAC evaluations is being developed. This phase of development is geared towards reducing the paper overload experienced by the committees and the PAC will be able to access the database to do their evaluations, while being able to submit their reports online. Testing of this facility has commenced.
- **Online registration** was developed and implemented. This process was launched in March 2014. The initiative will facilitate the registration process and make SACNASP much more user friendly to its clients.
- **Extension Science** was approved by Council as a new Field of Practice and promulgated in the Government Gazette on 24th January 2014. This is a significant development and the first time that SACNASP has responded to a defined need to assist the DAFF to enhance its professional support of the South African farming community.
- **Accreditation and evaluation** of a number of university courses and programmes has commenced. This will be an ongoing process and it may be necessary to form a separate committee for this activity in the near future. However, for the time being the QAC should be able to cope with the workload.
- **Two voluntary associations applied for accreditation by SACNASP:**
  - National Institute for Explosives Technology
  - South African Wetland Society

PART B:

Performance Information

1. Auditor-General's Report: Predetermined objectives

The Auditor-General currently performs certain audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on the performance against predetermined objectives is included in the report to management, with material findings being reported under the Predetermined Objectives heading in the Report on other legal and regulatory requirements section of the auditor's report.

Refer to page 160 of the Report of the Auditor-General, published as Part E: Financial Information.

2. Overview of departmental performance

2.1 Service delivery environment

The DST derives its mandate from the 1996 White Paper on Science and Technology, which introduced the concept of the National System of Innovation (NSI). The NSI concept is an enabling framework for the development of science, technology and innovation (STI) at national level. It can be understood as a set of functioning institutions, organisations and policies that interact constructively in the pursuit of a common set of social and economic goals and objectives, seeking to promote change through the introduction of innovations.

The DST, as the custodial coordinator for the development of the NSI, influences it through key macro-level strategies such as the 2002 National Research and Development Strategy and the 2008 Ten-Year Innovation Plan, as well as technology or sector-based strategies in support of the National Development Plan. A specific emphasis of the Ten-Year Innovation Plan is to enable the transformation of the South African economy into a knowledge-based economy, in which the effective production and exploitation of knowledge lead to economic benefits and enrich all fields of human endeavour. In this regard, the measure of success will be the extent to which STI plays a driving role in enhancing productivity, economic growth and socio-economic development.

The National Development Plan (Vision 2030) identifies education, training and innovation as being at the centre of South Africa's long-term development, and specifically states that "inadequate capacity will constrain knowledge production and innovation unless effectively addressed". Innovation, in particular, will be the basis of future growth and can provide South Africa with the necessary foundation for long-term and sustainable socio-economic development. One of the eight proposals that the National Development Plan makes with regard to increasing employment and growth is that South Africa should increase the size and effectiveness of the innovation system, and ensure closer alignment with companies operating in sectors consistent with the growth strategy.

Globally, innovation has been essential to productivity growth, competitiveness, the shift to higher value-added activities, and improvement of the quality of life. In particular, recently industrialised countries (such as South Korea and Finland) and emerging economic powers (China, India and Brazil) have placed innovation at the centre of their long-term development plans. Innovation introduces new ways of producing and exchanging goods or improving services and processes. It provides new solutions and helps firms to differentiate themselves from other, often more traditional firms. Innovation challenges long-held mindsets and social values. Innovation is central to economic performance and social welfare, and can contribute to addressing urgent global and social challenges such as climate change, health, food security, poverty and access to clean water, in an affordable and timely manner.

Despite the recent global economic turmoil, countries continue to recognise innovation as a source of long-term growth, and have put policies into place to improve scientific infrastructure, basic science, and research, development and innovation (RDI), to strengthen human capital, to promote green technology, and to foster entrepreneurship. Increasing the number of master's and doctoral students, and maximising knowledge production, dissemination and application, are considered essential for an effective and productive innovation system. Strong support for S&T and strategic coherence would enhance the country's current and future competitiveness. South Africa is competitive in many areas, but has specific challenges that require intervention.

These include the following:

- Ensuring that high-level human capital is developed and employed in long-term productive research careers in South Africa.
- Introducing and strengthening efforts that enhance South Africa's ability to exploit knowledge effectively for economic and social benefit.
- Transforming the profile of the researcher community by tackling barriers preventing the NSI from drawing on the talents of all South Africans.
- Improving the ability of government investment to leverage private sector and international funding.
- Building the knowledge-generation and knowledge-exploitation capabilities of rural and historically disadvantaged higher education institutions (HEIs).
- Providing and maintaining state-of-the-art STI infrastructure.
- Creating coordinated and integrated governance and robust monitoring and evaluation of the NSI.
- Developing and strengthening regional and provincial innovation systems and capabilities to meet community and industry demands.
- Fostering a rich and diverse portfolio of global partnerships to leverage international resources to complement South Africa's national research and innovation investments.
- Resourcing the system by achieving and going beyond a gross expenditure on research and development of 1% of GDP.

The DST focuses on overcoming challenges facing STI projects, including human resource development and the continuous modernisation of scientific infrastructure such as laboratories and information technology equipment, in order to unlock the potential of STI to promote effective economic growth.

2.2. Significant developments and major projects undertaken

Knowledge generation

(a) Accelerating human capital development and knowledge production

The Department supports a number of programmes that are designed to strengthen research capacity at HEIs, including student funding, centres of excellence (CoE), and the South African Research Chairs Initiative (SARChI). In trying to address the human capital shortages in the country, the Department supported 3 569 researchers during the year under review. In addition to this, and through bursary programmes managed by the National Research Foundation (NRF), the Department funded 9 771 postgraduate students at honours, master's and doctoral levels. Through the DST-NRF internship programme, the Department supported 1 010 interns during the 2013/14 financial year. A further 190 interns were supported through Technology Innovation Agency (TIA) programmes and through the Technology Top 100 initiative. One of the purposes of the internship programme is to retain science, engineering and technology (SET) graduates in the science system through placement in various institutions in the NSI, thereby improving their employability.

The National Research and Development Plan identified the need to create centres of excellence in S&T. These are physical or virtual centres of research which concentrate existing capacity and resources to enable researchers to collaborate across disciplines

on long-term projects that are locally relevant and internationally competitive, and thus enhance the pursuit of research excellence and capacity development. These centres are envisaged to be a key resource for human capital development (HCD) and to stimulate sustained distinction in research while generating highly qualified scientists to impact significant national and global areas of knowledge. By the end of the 2013/14 financial year five new CoEs had been awarded, resulting in a total of 14 CoEs across the country, as well as the National Institute of Theoretical Physics, which functions like a CoE.

In addition to the Centres of Excellence Programme, the NRF also manages SARChI. During the reporting period, a total of 54 new research chairs were awarded, bringing the total number of awarded chairs to 157 chairs. A document on three potential models for international research chairs (International Visiting Research Fellow, Bilateral SARChI Chair, and Bilateral Research Chair) was approved by the Minister in the 2013/14 financial year. A five-year review of SARChI by an international panel of experts aimed at assessing the overall impact of the initiative was completed during the reporting period.

(b) Modernising RDI infrastructure

As part of its continued support for RDI infrastructure, ring-fenced DST funding made it possible to award 61 research infrastructure grants to the research community across the country during the 2013/14 financial year. Most of the funding was allocated to HEIs, science councils and museums through the National Equipment Programme and the National Nanotechnology Equipment Programme, both implemented by the NRF.

Specialised innovation infrastructure is also required to facilitate long-term R&D-led industrial development. Major progress was made in this regard during the reporting period. This included the building and commissioning of a titanium metal primary pilot plant, a world-class nanotechnology development clean-room at Mintek, the establishment of the National Recordal System (NRS) to capture, store and manage indigenous knowledge, and the building of the final phases of the Multipurpose Fluorination Pilot Plant.

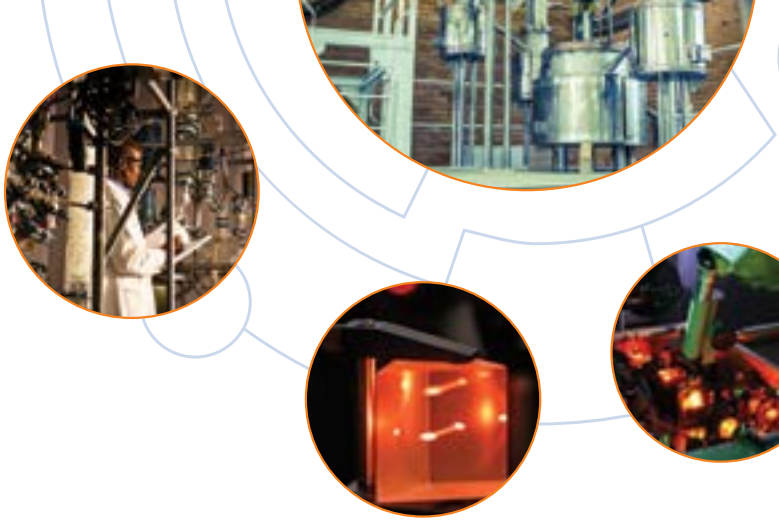
Other noteworthy achievements during 2013/14 were the completion of two important final reports, on the development of a South African research infrastructure roadmap, and on the development of a national integrated cyberinfrastructure system. These reports will help the Department rationalise and coordinate infrastructure investment and ensure that public funding for infrastructure is more strategically deployed.

Knowledge exploitation

(a) Supporting new industry development through R&D

New industry development on the basis of novel or promising technologies requires many years to develop and is accompanied by significant levels of risk and uncertainty. In particular, significant time is required during the process of scaling-up a technology that is successful in a laboratory setting to a commercialisable operation. Global experience has confirmed that the development of new industries requires government to play an active role in reducing risks and building a critical mass of knowledge to enable the private sector to take an initiative to full and successful commercialisation.

One of the long-term industrial development opportunities in which the DST is playing an active developmental role is the building of a multi-product South African titanium industry across the value chain. To develop a titanium industry it is necessary to upscale a breakthrough innovation in the production of titanium metal powder into a commercially viable process. A major milestone was achieved in June 2013 with the launch of a pilot plant at the Council for Scientific and Industrial Research (CSIR). The titanium pilot plant positions South Africa to mature a promising but not yet commercially viable technological process for producing cost-competitive titanium metal powder. The titanium initiative supports government's efforts to beneficiate local mineral resources into higher-value products. The availability of cost-competitive titanium metal is crucial to the growth and development of thousands of companies in South Africa and globally, and it is therefore important to exploit the power of additive manufacturing in the cost-effective production of traditional and novel components using titanium.



Similar progress has been made in the Fluorochemicals Expansion Initiative with the launch of a third and fourth phase of a multipurpose fluorination plant at the South African Nuclear Energy Corporation (Necsa) in December 2013. The Multipurpose Fluorination Pilot Plant enables South Africa to build new markets for novel and promising fluorine-based chemicals by producing sufficient quantities of samples for potential buyers and development partners. This is a vital step in expanding the range of fluorochemicals where South Africa is either an exclusive or preferred supplier.

Globally, one of the most vibrant areas for entrepreneurship and new enterprise creation is in the area of mobile applications and software. The 10-year Information and Communication Technology (ICT) RDI Implementation Roadmap has confirmed the area as important for increased investment. On this basis, the DST and the World Bank infoDev programme have been supporting mLab Southern Africa over the past five years. In these first five years, 12 start-up companies were supported by the Public Rail Agency of South Africa as their official commuter communication channels, and their products are being used in the Western Cape, Gauteng, the Eastern Cape and KwaZulu-Natal. The system attracts over 450 000 unique and active daily users. Building on this success, GoMetro (the transportation application company) has been commissioned by the Gauteng Department of Roads and Transport to develop an inclusive transport mode service for the province, and GoMetro is working with several other mLab start-ups in taking the opportunity forward.

Ongoing investment in energy research also yielded some exciting outcomes, which include the following:

- Photovoltaic Technology Intellectual Property (PTiP), a spin-off company from the University of Johannesburg, which was unveiled at Technopark in Stellenbosch in February 2014. PTIP, in collaboration with a German-listed company Singulus, manufactures photovoltaic thin films and is one of the very few global companies that are using copper indium gallium selenide (CIGS) and/or similar absorber alloys to replace the dominant silicon-based semiconductor. The homogeneous CIGS alloys have unique semiconductor features, which give them improved features for application as thin films in optical devices such as solar panels.
- An algae demonstration plant at Nelson Mandela Metropolitan University (NMMU), which is used to select and grow microalgae suitable for biofuels/bioenergy production. When these strains are harvested and mixed with waste coal, they form Coalgae™, a product that can be used as a replacement of coal in the production of blended biofuels and also in most industrial processes.
- The development of an electrochemical hydrogen compression (EHC) system using platinum group metals as electrocatalysts by Hydrogen South Africa (HySA) Infrastructure. The electrolyser is for small-scale applications and can also be used for hydrogen purification. A collaboration agreement was recently signed between HySA Infrastructure, through North-West University, and Anglo American Platinum (Angloplats), with a US$400 000 funding commitment to support further development of EHC technologies.
- The commissioning and successful launch of a pilot manufacturing facility for the storage of hydrogen using metal hydride as a medium.

As an initial step towards putting in place policies and regulatory frameworks conducive to the development and deployment of fuel cells, an interdepartmental Fuel Cell Solutions Task Team (FCSTT), chaired by the Department of Trade and Industry, was established. The FCSTT is composed of the DST, the Department of Energy, the Department of Mineral Resources, the Department of Rural Development and Land Reform, and National Treasury. One of the task team's main objectives is to promote the deployment of hydrogen and fuel cell technologies in South Africa, as well as to align hydrogen and fuel cell technology initiatives across government. The FCSTT is also mandated to evaluate proposals from industry and advise the Productive Sectors Forum before these initiatives are presented to the Economic and Employment Sectors

Cluster. During the 2013/14 financial year, the FCSTT evaluated the Angloplats/Ballard proposal on the use of fuel-cell mini-grids for rural electrification. A sub-task team, including the DST, was requested to work with Angloplats/Ballard to discuss costs, location (distance from the grid and refuelling logistics) and the overall project viability, after which they were to report back to the FCSTT. The task team earmarked villages for further trials in the 24 distressed district municipalities prioritised by government.

(b) Enhancing economic competitiveness through technology and innovation

In parallel with facilitating new industry development through R&D, which will provide economic returns in the long term, the DST supports a number of programmes aimed at supporting the competitiveness of existing individual firms or industries.

In collaboration with the South African National Space Agency (SANSA), the DST plays a central coordinating role in the space arena. Currently, the DST and SANSA are working together with all stakeholders to fine-tune the National Space Programme, to incorporate all the recommendations of the space capabilities audit, and to drive South Africa's space industry development and progress towards a knowledge-based economy through HCD, knowledge generation and exploitation, knowledge infrastructure development and, ultimately, a space programme which responds to the socio-economic challenges faced by South Africa. SANSA has acquired a licence for the reception, processing and archiving of SPOT 6 and 7 satellites. The installation of the SPOT 6 terminal at Hartebeesthoek was initiated. The objective is to ensure that a seamless service is provided to key stakeholders, and that the cost of acquiring satellite data is significantly reduced for them. SANSA's SPOT initiative also provides opportunities for enhancing regional competitiveness by strengthening the sharing of satellite data with other countries in the Southern African Development Community (SADC). Phase 1 of the calibration and validation site at Paardefontein was established, and postgraduate training was conducted during 2013/14. The calibration and validation facility is critical in developing the infrastructure required for future space missions, and also has the added ability to attract international clients who would like to conduct their calibration and validation in South Africa.

In the area of the bioeconomy, in view of the experience gained and the new capacity, infrastructure and value chains built in the application of the Biotechnology Strategy, the Department developed the Bioeconomy Strategy in consultation with stakeholders and launched it in January 2014. Three coordinating committees (for agriculture, industry and health) were established, constituting a representative group that includes government departments, industry, academia and science councils. This systems approach envisions a world-class biotechnology system that operates at a much higher level than project support. It is expected to be more productive, responsive and relevant to the socio-economic needs of South Africans.

The DST has put in place a stronger Industry Innovation Partnership (IIP) programme through funding support under the Economic Competitiveness Support Package. This is in line with a recommendation of the Ministerial Review Committee on the STI Landscape in South Africa that the DST strengthen strategic cooperation with the private sector.

Under the IIP programme, a number of targeted industry support initiatives were established or expanded. The following were achieved in the 2013/14 financial year:

- Providing an initial investment of R10 million in a partnership with Forestry South Africa to facilitate industry-relevant research and innovation including the use of biotechnology and spatial technologies, improving the quality of timber, forest engineering, and research and technologies to predict and manage risks.
- Continuing an investment of R5 million in a partnership with the Fresh Produce Exporters' Forum for the Post-Harvest Innovation Programme, which focuses on enhancing the competitiveness of the fresh fruit industry.
- Initiating a number of industry-aligned projects with the CSIR under the IIP programme. These include:
  - an investment of R5,9 million for the establishment of a biomanufacturing industry support centre, which is aimed at supporting biomanufacturing opportunities through, among other things, lowering development costs and decreasing times to market for cosmetics and cosmetic ingredients, nutraceuticals, as well as microbial fermentation to produce industrial biologics;

- an investment of R9,5 million to establish a poly-nano-additive upscale facility with the aim of eventually establishing a polymer processing facility, to serve mainly the plastics industry.

- Providing an initial investment of R14 million to establish a three-year ICT IIP Fund of R62 million, aimed at facilitating industry-relevant research and innovation, including (1) subsistence monitoring to detect, measure and monitor mining-induced surface deformation; and (2) development of future wireless technologies to ensure South Africa is a forerunner in the integration of broadcast networks with mobile telecommunications in which dynamically controlled broadcast and broadband converged infrastructure will be realised fully to support the implementation of the National Broadband Policy. The fund also aims to strengthen the innovation ecosystem around mobile applications development, where South Africa has competitive advantage, and significant potential for the creation of new start-ups.
- The IIP has also invested in the arena of space S&T to assist in developing the space industry in South Africa. DST, through SANSA, invested R65 million in the design and development of satellites, contributing to the design of the ZA-ARMC1 satellite mission (part of the African Resource Management Constellation), which has been completed and is being manufactured. A total of 37 employees (high- technology jobs) are directly supported by this programme, and 134 employees are indirectly supported through outsourced work, including local private space companies.

The support (both in terms of financial and skills development) provided to the OTTs was instrumental in ensuring that the OTTs submitted 250 new disclosures to NIPMO on an Intellectual Property Status and Commercialisation Report (IP7) form during the course of the year under review. As at 31 March 2014, 88% of the 467 disclosures received since 2 August 2010, the date on which the Intellectual Property Rights from Publicly Financed Research and Development (IPR-PFRD) Act came into effect, were still waiting for granted intellectual property protection and 6% had enforceable intellectual property rights. These disclosures provide an indication of the pipeline of R&D projects that have resulted in intellectual property that has the potential for application for the public good. An example of intellectual property protected by copyright is the software designed at the University of Cape Town for use in informal settlements as a low-cost fire detection device and integrated alert service, named Khusela (which means “protect” in isiXhosa). Khusela has received recent funding from TIA and the University of Cape Town in order to fully develop, test and roll out the devices.

Of the remainder of the disclosures received, 6% have been licensed, and 4% of these have received royalties in excess of R1,5 million. One of the licensed technologies is the wheat cultivar Kwartel™, produced as part of the Agricultural Research Council’s work to produce new plant varieties that can withstand changing climatic conditions. The Kwartel™ cultivar is suitable for cultivation under dry-land conditions in the Southern and Western Cape and has been exclusively licensed to a South African seed company. Another example is the alternative casing substrate, Mabu casing, used for white button mushroom production. Invented by the University of Pretoria, the Mabu casing is currently being prosecuted in the Patent Cooperation Treaty stage, and will protect the local mushroom industry against increased environmental and customer concerns about peat land exploitation. The casing not only has a very low carbon footprint, but creates jobs and reduces the transport and input costs associated with mushroom farming.

Furthermore, considerable funding was allocated to institutions via the Intellectual Property Fund, providing institutions with financial support for intellectual property protection and maintenance costs incurred in the previous financial period to encourage institutions to seek protection, where applicable, for intellectual property emanating from publicly financed R&D. Finally, during the period under review, a feasibility study was

concluded, with assistance from the National Treasury's Technical Assistance Unit, on the establishment of NIPMO as a specialised service delivery unit (SSDU) of the Department. The feasibility study was approved by the Department of Public Service and Administration and NIPMO became the first SSDU in government in December 2013.

Fostering innovation partnerships with a specific focus on enhancing economic competitiveness and supporting new industry development enjoyed a more strategic focus in South Africa's international S&T partnerships portfolio, with the DST promoting South African participation in global industrial and market-orientated research programmes like Eureka.

(c) Strengthening the application of innovation for inclusive development

There is considerable scope for applying cutting-edge innovations, as well as mature but neglected ones, to make a positive impact on all government's priority outcomes. This includes outcomes pertaining to health, education, safety and security, rural development, the development of sustainable human settlements, and general service delivery. Line-function departments are responsible for facilitating the use and integration of new innovations to enhance the delivery of public services. One of the DST's focuses is to establish value-adding partnerships that allow for the rigorous testing and demonstration of new innovations in order to guide large-scale roll-out. In many instances, this requires changes to the technology or the way in which the technology is applied.

In support of rural and peri-urban development, the DST continued to fund and guide a portfolio of 20 multi-year community-based technology projects spread across seven provinces. Of the projects, 10 aim to demonstrate opportunities for technology-based community enterprises in the areas of agroprocessing and aquaculture. An agroprocessing initiative in Nkowankowa in Tzaneen enabled at least 200 poor households and small-scale farmers with access to fruit trees to secure a fair price and a constant market for their produce. This was made possible by the funding of a well-located centre with appropriate large-volume equipment for converting fruit into higher value-added products such as dried fruit and fruit pulp, and negotiating off-take agreements with big local buyers that have local and international customers.

The focus of nine projects is on developing scientific protocols to enable improved agricultural practices for indigenous food crops and medicinal plants, as well as testing the local viability and suitability of imported species. In 2013/14, scientific protocols were finalised on indigenous leafy vegetables, indigenous medicinal plants and Vitamin A-enriched sweet potatoes. These were shared with the Department of Rural Development and Land Affairs, which is now able to apply the protocols in the development of enterprise creation initiatives in a number of rural provinces.

With increased focus on supporting basic education through STI, the Department funded and supported a project aimed at piloting a novel school nutrition model in the Cofimvaba District in the Eastern Cape, which, among other things, provided a scientifically formulated breakfast drink, high in essential micro-nutrients, to at least 1 400 learners in schools.

Through the large-scale implementation of a wireless mesh network (WMN), the DST has demonstrated how lower-cost Internet connectivity can be provided to hard-to-reach communities. The experiences of the WMN have informed the Broadband Strategy adopted by Cabinet in December 2013. The DST is expanding its rural connectivity project, aiming to provide broadband WMN Internet access to public facilities, including schools, in the John Taolo Gaetsewe District Municipality in the Northern Cape. The district municipality comprises three local municipalities and 186 towns and settlements, of which the majority (80%) are villages. The experiences of the WMN informed the Broadband Strategy adopted by Cabinet in December 2013.

ICT is becoming an increasingly crucial requirement for a modern education system able to deliver 21st century skills to learners and to facilitate inclusion of marginalised groups. The building blocks for a large-scale initiative looking at how ICT can support rural education were put in place in Cofimvaba in the Eastern Cape.

In terms of work undertaken by the Department with regard to health innovation, close to 50% of the national Bioeconomy Strategy budget was invested in human health research and innovation initiatives. This was complemented by direct investment by the Department under the Framework for Science and Technology Interventions in Health Innovation. These health innovation initiatives included the development of programmes aimed at addressing, among other health issues, HIV/Aids, tuberculosis, malaria and priority non-communicable diseases, and the creation of facilities and infrastructure enabling aspects of health innovation.

Approximately R2 million has also been invested in projects related to indigenous knowledge systems (IKS) under the new IKS Research Management Model, and the Bioprospecting and Product Development Platform in the period under review. Five established flagship projects (African traditional medicines, cosmeceuticals, nutraceuticals, health teas and Moringa technology transfer) have resulted in over 30 prototypes and candidate products (four traditional medicines, five cosmeceuticals, 10 nutraceuticals, eight Moringa products and three health teas). Commercialisation models used for these products ranged from licensing and spin-off enterprises to co-operatives and trusts. Both local companies (Afriplex, Kalahari and Amka) and international companies (L'Oréal and Nestlé) have indicated interest in the commercialisation of these products.

(d) Encouraging science-based decision-making

Decision-making has been fundamentally altered by the availability of a range of information and communication technologies for collecting, processing and sharing complex information. This has affected decision-making by individuals, companies and government. The ability to master big data will further expand opportunities for science-based decision-making.

During the reporting period the DST continued with the development of decision-support tools to facilitate effective government interventions for societal benefit in agriculture, energy and health. These tools enabled government to make informed decisions based on the best available scientific knowledge, appropriately packaged for users, and included the following:

- Advancement of an information technology-based spatial planning tool known as StepSA (Spatial and Temporal Evidence for Planning in South Africa) enabled the production of a range of value-adding knowledge products, including a booklet for policy makers and various policy notes designed to address spatial challenges and the social implications and dynamics of current planning practices. In support of the Department of Rural Development and Land Reform's Comprehensive Rural Development Programme, the DST piloted the Rural Innovation and Assessment Tool in a number of priority district municipalities. The information gathered through this initiative led to the publication of five concept papers intended to increase understanding of and enhance innovation in rural areas. The topics covered in these concept papers included skills development in rural areas, prospects for innovation in rural areas, and the development of indicators for innovation in rural areas. This information is critical in terms of ensuring that rural areas are integrated into the knowledge economy.
- In using STI to contribute to improving service delivery, the DST continued with the development of a tool that will provide technical assistance in evaluating innovative sanitation technologies using an appropriate technical assessment process. Although there are various sanitation planning support tools, there is currently a gap in this area.
- The DST is also making long-term, large-scale investments in the collection of environmental data and the generation of information to support decision-making. This will involve the South African Environmental Observation Network (SAEON), the South African Earth Observation System of Systems (SAEOS) Portal, and the Earth Observation Data Centre, which will enhance access to Earth

observation data processed at SANSA and other research entities. The following are some of the uses of this sort of data:

- Geohazards pose danger to life, infrastructure and livelihoods. The South African Geological Hazard Observation System was created to support decision making in respect of the mitigation and prevention of the dangers posed by geohazards. The system is intended to play a role with policy-makers and authorities concerned with disaster management at all levels.
- A viewer application for time series analysis/ vegetation dynamics was developed as a tool to monitor vegetation phenology. The state of natural and human-cultivated vegetation gives information on the nature of the climate, therefore vegetation monitoring is directly linked to drought monitoring and mitigation and it also addresses issues of land degradation, food security and community vulnerability.
- A coastal and inland water quality application was developed as a method of using remote sensing to address coastal and inland water-quality issues. It therefore also serves as a useful coastal (marine) and terrestrial management tool and has the ability to address issues of human and livestock health, food security and marine resource and market security.
- The space-based Advanced Fire Information System, which provides information on the danger rating, distribution and occurrence of fires for use in mitigation plans for disaster management, is being improved by the addition of burnt area products and forecast models.
- An indigenous forest biodiversity and disturbance monitoring system application was developed as a system to provide near-real-time high-resolution data on indigenous forest health or condition; the distribution of problematic invasive species, forest canopy gaps and old-growth indigenous species assemblages. It is therefore useful as a forest inventory/ monitoring tool and addresses issues of land degradation/ urban development, ecotourism and biodiversity.
- In order to increase the percentage of renewable energy into the country's energy mix and successful integration into the grid, renewable energy resource quantification and mapping is extremely important. In support of the Department of Energy's solar park project in the Northern Cape (5 000 MW of solar power), the Department installed two solar resource measuring stations in Prieska and Upington through the South African Weather Service.

Under the framework of the ICT RDI Implementation Roadmap, the following support has been provided to enable better decision-making for service delivery within government:

- Building on the R&D and technical capability that has been developed at the CSIR Meraka Institute over time, the Normative e-Health Standards Framework for the interoperability of the national health information systems was developed and approved for implementation by the National Health Council, chaired by the Minister of Health. This was a key milestone in ensuring the future interoperability of the health information systems across the nine provinces – leading to greater ICT-enabled efficiencies as the roll-out of National Health Insurance gains momentum. From the HCD perspective, this initiative supported four PhD and five master's students.
- Through the DST-supported Information Security RDI Programme, the CSIR's Modelling and Digital Science unit has provided technical advice and support to the Department of Home Affairs in developing a secure smart-card system from concept to a ready-to-manufacture technical specification for the card, as part of the national smart ID roll-out project.
- As part of the Smart and Green Platform project supported through the Department of Environmental Affairs' Development Bank of South Africa-managed Green Fund, two novel technologies (an energy consumption ontology for households and an open data exchange platform) were developed at the CSIR Meraka Institute. These technology packages are geared to support intelligent reasoning and the use of heterogeneous datasets to enable smart decision making in the use of electricity by both households and electricity distributors, thus enabling energy efficiency. These technology platforms will

form the basis for a technology demonstrator to be implemented in partnership with the City of Johannesburg in 2014/15.

- CSIR Meraka, in partnership with Tshwane University of Technology, developed a low-cost technology demonstrator (smart sensor) to monitor water quantity in pipes and display information in near real-time. These sensors, equipped with a communications hub, can be deployed across water-pipe distribution systems to monitor water flow and identify potential leakages and loss of treated water. Information displayed in real time allows decision makers to identify problem areas quickly and manage maintenance tasks on the pipes optimally. This project, currently in its prototype phase, will greatly benefit local municipalities and water management decision makers and ultimately lead to "smart" water solutions.

(e) Southern African regional STI capacities

The DST continued to play a pioneering role in establishing and supporting initiatives to enhance Southern Africa's regional STI capacities. For example, the DST plays a leading role in leveraging international support for the Southern African Network for Biosciences, which is enhancing capacities in SADC member countries for their investment in life science research and innovation to address public health and food security societal challenges better and more directly. Another flagship initiative, in which the DST is playing a leading role, is the Southern African Science Service Centre for Climate Change and Adaptive Land Use, a comprehensive regional programme, which harnesses scientific advice for policy and decision-making in support of sustainable development. The DST has also successfully championed Southern African's integration with the Group on Earth Observations, which will significantly benefit the region's access to Earth observation capacities in support of sustainable development.

2.3 Service delivery improvement plan

The Department has completed a service delivery improvement plan. The tables below highlight the plan and the achievements to date.

Table 1: Main services and standards

Main services	Beneficiaries	Current/actual standard of service	Desired standard of service	Actual achievement
Public awareness	General public	Exposition (EXPO)	Raised awareness of IKS	1st SADC Expo held
Postgraduate bursary support	University students (honours, master's, doctoral) and postdoctoral fellows	Support provided to about 8% of total enrolled postgraduate students in HEIs	Doubling the percentage of postgraduate students supported	9 771 postgraduate students supported in 2013/14
Placement of graduate and postgraduate students in SET institutions for workplace experience	Graduate and postgraduate students	Support provided to about 15% of qualifying graduates	Providing support to about 30% of qualifying graduates	Support provided to 1 010 graduates in 2013/14

Main services	Beneficiaries	Current/actual standard of service	Desired standard of service	Actual achievement
Research grants to researchers	Researchers in HEIs, science councils and other national research facilities	Support provided to about three researchers out every 10 qualifying researchers	Double the support to about six out of 10 qualifying researchers	3 569 researchers supported in 2013/14
Promotion of public engagement with STI	The general public and young people	One national mass participation and 11 regional science awareness and engagement campaigns per annum	All nine provinces covered by the campaign	National Science Week activities conducted in all nine provinces. Each province hosted at least one science event.
Provide funding to institutions and agencies to support technology solutions in the areas of space science, energy and the biosciences, aerospace, advanced manufacturing, chemical-related industries, advanced metals initiative, mining and ICTs	Public research institutions, science councils, HEIs and entities	All funding transferred by the end of the financial year	All funding transferred by the end of October of each financial year	All funding was transferred by the end of the financial year
Financially support OTTs located at HEIs and science councils	Recipients include 23 HEIs and 10 statutory science councils	All OTTs financially supported by the end of the financial year	All OTTs financially supported by October of each financial year	All OTTs financially supported by the end of the financial year
Conduct space S&T outreach and awareness campaign through public engagements, exhibitions and media interviews	The target audience are learners and the general public	One space S&T outreach and awareness campaign conducted by the end of the financial year	One space S&T outreach and awareness campaign conducted by the end of the financial year	Two space S&T outreach and awareness campaigns were conducted by the end of the financial year

Table 2: Batho Pele arrangements with beneficiaries (consultation access)

Current/actual arrangements	Desired arrangements	Actual achievements
Partnership with traditional health practitioners	Regulation of traditional health practitioners in the formal sector	Constitution of Gauteng traditional health practitioners approved
Open call for applications directed at postgraduate students and nominations of students by researchers	Increase the percentage of bursaries awarded through open calls and decrease the percentage of bursaries awarded by researchers	The percentage of bursaries awarded through open calls was lower, but the demand was higher. The percentage of bursaries awarded by researchers was higher, but the uptake was low.

Current/actual arrangements	Desired arrangements	Actual achievements
Stakeholders and role players in STI awareness and engagement invited to submit project proposals Advocacy communication strategy Exhibits and media	Proposals received awarded grant funding to organise activities throughout the country	70 organisations awarded grants to conduct National Science Week 2013 activities and science festivals
R&D project proposals and business plans are submitted by institutions and agencies. These are evaluated and approved by the Department and funding is transferred once approval has been obtained.	No changes required	R&D project proposals and business plans were submitted by institutions and agencies. These were evaluated and approved by the Department and funding was transferred once approval was obtained
Proposals are received from OTTs for financial support and evaluated. Approval is obtained from the DST and funding agreements between NIPMO and the institutions are signed before funding is transferred to the institutions.	No changes required	Proposals were received from OTTs for financial support and evaluated. Then approval was obtained from the DST and funding agreements between NIPMO and the institutions were signed before funding was transferred to the institutions
Engage with the communication unit and relevant stakeholders like SANSA to develop a project plan for the outreach and awareness campaign. Obtain DST approval and embark on the particular outreach and awareness campaign.	No changes required	There were engagements with the communication unit and relevant stakeholders like SANSA to develop a project plan for the outreach and awareness campaigns. DST approval was obtained, and particular outreach and awareness campaigns were embarked on.

Table 3: Service delivery information tool

Current/actual information tools	Desired information tools	Actual achievements
Advocacy communication strategy	Implementation plan for dissemination	Strategy approved by Exco
Ministerial guidelines on awarding bursaries	A reporting framework on Ministerial guidelines	Annual reporting on progress with the implementation of Ministerial guidelines
Ministerial guidelines on awarding research grants	A reporting framework on Ministerial guidelines	Annual reporting on progress with the implementation of Ministerial guidelines
Advocacy communication Exhibitions and media	Implementation plan for dissemination Exhibitions and media	Strategy approved by Exco Exhibitions were held and media were used
The following tools are used as appropriate: • STI Summit • Internet and intranet • Pamphlets and brochures • Print media • Electronic media	The following tools will be used as appropriate: • STI Summit • Internet and intranet • Pamphlets and brochures • Print media • Electronic media	All of the following tools were used as appropriate: • STI Summit • Internet and intranet • Pamphlets and brochures • Print media • Electronic media

Table 4: Complaints mechanism

Current/actual complaints mechanism	Desired complaints mechanism	Actual achievements
Office of the Chief Director: IKS	Council comprising practitioners	Accreditation and certification framework by Exco
NRF has an appeal process for postgraduate students	Panel of experts	Framework for review by NRF
No appeal process at the NRF, selection of interns conducted by host institutions	No change desired	As per the current/actual arrangement
NRF has an appeal process for researchers	Panel of experts	Framework for review by NRF
• Office of CD: IKS • Quarterly project meetings held with the implementing agency	• Council comprising practitioners • Discussion and consensus-based solution	• Accreditation and certification framework by Exco • Quarterly review meetings held as planned

2.4 Strategic outcome-oriented goals

In order to achieve its overall objectives, the DST set five strategic goals to guide its actions:

Goal 1: To develop the innovation capacity of the NSI and thereby contribute to socio-economic development.

Goal 2: To enhance South Africa's knowledge-generation capacities in order to produce world-class research papers and turn some advanced findings into innovative products and processes.

Goal 3: To develop appropriate STI human capital to meet the needs of society.

Goal 4: To build world-class STI infrastructure to extend the frontiers of knowledge, train the next generation of researchers, and enable technology development and transfer, as well as knowledge interchange.

Goal 5: To position South Africa as a strategic international RDI partner and destination through the exchange of knowledge, capacity and resources between South Africa, the region and other international partners, thereby steering the NSI.

2.5 DST contributions to government outcomes

In 2009, Cabinet approved an outcomes-based approach which sets out 12 outcomes that needed to be addressed within the term of office of the 2009-2014 administration. The DST contributed to the delivery of Outcomes 2, 4, 5, 7, and 10. The following are significant highlights for the reporting period:

Outcome 2: A long and healthy life for all South Africans

The DST has made progress in a number of groundbreaking health initiatives. The following are some of the remarkable achievements in the areas of HIV/Aids, malaria and other health-related matters:

Researchers at the University of Cape Town, funded through DST, developed an antiretroviral gel which would significantly reduce a woman's risk of contracting HIV and genital herpes. The microbicide gel, containing 1% Tenofovir, an antiretroviral used for the treatment of HIV, was 39% effective in preventing HIV infection in women who participated in the trial. Furthermore, it also had 51% effectiveness in preventing genital herpes infections. Tenofovir works by preventing HIV from




growing inside human cells. The results from the trial indicated that, formulated as a topical gel and inserted into the female genital tract, it had potential for use in HIV and herpes prevention. The CAPRISA 008 study of HIV/AIDS is under way and the results are anticipated in 2015, which could lead to licensure of the product.

The South African Malaria Initiative focuses on the development of a non-communicable disease research and innovation initiative for new and innovative treatments, diagnosis and human health interventions. More critical is the development of an antimalarial candidate drug which is being tested in animals as part of the preclinical phase.

The DST entered into an agreement with the Medical Research Council for the management of the health innovation initiatives through the Medical Research Council's Strategic Health Innovation Partnerships programme. This relationship yielded positive results, including the development and completion of the first phase of the biomarkers for the early detection of diabetes. The second phase (validating the biomarkers in humans) has been approved.

The DST is funding the Biovac Institute, which provides essential vaccines. A situational analysis of vaccine R&D was conducted in South Africa while Biovac is in the final stage of obtaining a good manufacturing practice certificate for their finish and fill plant in Cape Town. This is an essential step in the development of local manufacturing capacity. The vaccine and biological therapy R&D plan is in the process of development. A strategic planning session involved Biovac, TIA, the Industrial Development Corporation, the Department of Trade and Industry and the DST. The session also focused on the aspect of the local manufacturing of antigens for a tuberculosis vaccine.

In the year under review, the DST has played a pivotal role in the promotion of S&T for socio-economic development. One of the flagship projects in this area is the telemedicine project, which involves the use of telecommunications and information technologies to provide clinical health care at a distance. The project aims to help government eliminate distance barriers and improve poor access to medical services by distant rural communities. A telemedicine workstation has been piloted in the Eastern Cape, Free State and North West. MTN is involved in the transfer of the telemedicine systems to the provincial health departments.

Outcome 4: Decent employment through inclusive economic growth

There is increased R&D expenditure to support growth and development through the development of a strategy to increase R&D spending in South Africa. The draft strategy was presented to the Economic Sectors and Employment Cluster. The strategy has a strong focus on specific opportunities for increasing R&D spending to advance long-term growth opportunities.

An interdepartmental task team on biocomposites was established with the aim of growing industrial crops that can produce fibres for local use, without affecting food security negatively. The DST's advanced metals initiative is aimed at mineral beneficiation in niche areas in close alignment with the Department of Mineral Resources and the Department of Trade and Industry. These initiatives are supporting key partner departments in building stronger RDI and technology transfer capabilities that are required to maintain and grow key labour-absorbing sectors of the economy, including agriculture, aquaculture, forestry, mineral processing and post-harvest beneficiation and exports.

The DST is focusing on strengthening and expanding mutually beneficial links between universities of technology and small and medium enterprises

(SMEs) through the Technology Stations Programme managed by TIA. The initiative aims to improve the competitiveness and innovation capacity of SMEs in selected sectors of the economy. The idea is to establish and maintain a sustainable system of technology stations which are competent providers of technology transfer and related services. Through this programme the DST wants to influence the universities of technology to orientate more R&D outputs towards the needs of the SME sector. As part of the effort to provide more effective support to small businesses and co-operatives, 1 904 SMEs were supported in the 2013/14 financial year.

The DST has developed and used various S&T initiatives as strategic tools to show the potential of the use of STI in employment creation. As such, science councils are used to fast-track and support the creation of economic opportunities on a mass scale. This is reflected in various innovation projects that enable poor communities to implement income-earning activities. One such a project is the Essential Oils initiative. The project targets rural communities with the aim of creating employment and promoting economic benefits through entrepreneurial support. It is implemented by Sasol's ChemCity (Pty) Ltd, in partnership with the CSIR and the Vaal University of Technology. The employment opportunities created by these ventures are multifaceted, ranging from remunerative work to self-employment, internships and apprenticeships.

The Technology Localisation Programme (TLP) has been consolidated through the formalisation of focus areas, support instruments and implementation mechanisms. One of the supporting instruments is firm-level technology assistance packages (TAPs), which are provided by the TLP in an effort to substantially increase local capability, create employment and reduce imports. The number of TAPs has exceeded the target and has resulted in increased job creation and local intellectual property, leading to a reduction in foreign royalties paid.

The programme is executed with support from the Department of Trade and Industry and the Department of Public Enterprises. The United Nations Industrial Development Organisation-SPX programme, previously hosted by the Department of Trade and Industry, was integrated into the Technology Localisation Implementation Unit (hosted at the CSIR) in order to optimise the TLP and effort across departments. Results of the TLP support to firms include an additional 131 new jobs being created in these firms, three new firms acquiring contracts with state-owned enterprises, and 17 students becoming involved in the delivery of the TAPs. The Ultrasonic Broken Rail Detection System, funded through a technology development grant under the TLP, received a National Science and Technology Forum award in the category "Research for innovation through a corporate organisation". During the 2013/14 financial year, the Technology Stations Programme was awarded additional funding in order to upgrade equipment at the technology stations and to expand the focus in energy efficiency and services.

The DST introduced an R&D incentive for small manufacturing firms who wish to increase spending on R&D. Amendments were made to the existing R&D tax incentive under section 11D of the Income Tax Act to ensure that R&D activities are conducted within South Africa to stimulate positive economic growth, and for various other reasons. The analysis indicates that about 30% of the submissions received for the 11D incentive are from companies with an annual turnover of R20 million and below, and therefore fall within the definition of an SME.

Outcome 5: A skilled and capable workforce to support an inclusive growth path

The DST plays an essential role in enhancing RDI human capital for a growing knowledge economy by contributing to Outcome 5. The main aim is to improve graduate output, efficiency and the quality of scarce and critical skills. The DST can be commended for a number of achievements in the area of HCD during the reporting period.

The Department strives to increase the proportion of students receiving financial support for bachelor, honours, master's and doctoral degrees, as well as the number of postdoctoral fellows. The total number of honours, master's, doctoral and postdoctoral students supported by the DST during the 2013/14 financial year was 9 771.




In collaboration with the NRF and the Department of Trade and Industry, the DST promoted the Technology and Human Resources for Industry Programme (THRIP). THRIP's mission is to improve the competitiveness of South African industry by supporting research and technology development, and enhancing the quality and quantity of appropriately skilled people. A Department of Agriculture, Forestry and Fisheries fund that is primarily inspired by and modelled on THRIP, the Research and Technology Fund, was established, and the NRF is currently managing it. The impact of THRIP is being evaluated by the Department of Performance Monitoring and Evaluation.

Outcome 7: Vibrant, equitable and sustainable rural communities and food security for all

The WMN project forms part of the Innovation for Poverty Alleviation Programme — a partnership between the Department and the European Union (EU) that aims to reduce poverty through job creation, economic growth and better quality of life. This network uses low-cost, locally owned equipment to create clusters of wireless nodes that connect to each other via radio signals, removing the need for a central signal tower. In collaboration with the CSIR, the DST has deployed a novel ecosystem using WMNs to deliver broadband infrastructure in under-served areas. Instead of traditional multi-point communication, it is based on peer-to-peer communication between network nodes. The erection of the 25 masts in the Northern Cape was concluded. In terms of the wireless mesh equipment installation, 26 sites have been established. This includes the installation of electricity, connection to the mast, data cabling and the installation of the 19 racks that will host the equipment. The CSIR makes use of high performance nodes to establish peer-to-peer communication within the network. The village operators, young local entrepreneurs with a keen interest in ICT, are then trained to provide support and manage the network.

The DST is funding studies for the use of STI to demonstrate the potential for the production of finfish and shellfish. The environmental impact assessment for the Hondeklip Bay abalone nursery project is currently under review by the Department of Environmental Affairs.

The Department is supporting research on appropriate technological innovations and IKS through the provision of an NRS, on which communities, guilds and other indigenous knowledge holders can record indigenous knowledge to create opportunities for benefits to flow back to communities. These benefits may include community recognition to identify sustainable livelihoods, economic value and improved quality of life. The NRS implementation encompasses the establishment of indigenous knowledge networks, indigenous knowledge documentation centres and an ICT knowledge platform. The activities are strengthened by processes and stakeholder involvement as a strategic focus towards achieving the objective of the policy. In addition, the initiative aims to bring selected, fragmented databases together through a portal to enhance the NSI for R&D purposes within the five Grand Challenges of the DST. The NRS was launched by the Minister in Moruleng, North West, in May 2013. The establishment of the NRS Western Cape IKS Documentation Centre is under way.

The Department offers support for two community-based IKS and technology transfer projects through appropriate technologies. Three IKS-based technology transfer projects were initiated, in Limpopo, KwaZulu-Natal and Gauteng. Capsules, food supplements, ice-teas, vitamin waters, tea-bags and soups have been formulated following extensive product development research.

A policy study on technology-led opportunities for sustainable livelihoods has been tested, evaluated and documented. A feasibility study into adding value to mangoes in the North West is under way, while a tea extract and anti-oxidant project is in progress at Tshivhase tea estate in the Vhembe district of Limpopo. A nut processing, fruit drying and fruit pulp project is in progress in Tzaneen.

With regard to developing an integrated information and modelling platform to support integrated planning, development and service delivery, the ICT-based Geospatial Analysis Platform was incubated as a web-based StepSA toolkit. The StepSA work plans are in progress and the platform continues to be maintained and enhanced by the CSIR and Human Sciences Research Council (HSRC).

Outcome 10: Environmental assets and natural resources that are well protected and continually enhanced

The DST is currently working with the Department of Water Affairs (DWA) on the revision of their policies regarding water use, and on the Appropriate Technologies Strategy. Approval was received from Cabinet for revising the water policies and this process is currently under way. The DST has signed a contract with the Water Research Commission to undertake the development of a Water RDI Roadmap for South Africa.

The Department is actively involved in the development of a long-term DWA strategy that focuses on supporting numerous towns and cities with desalination projects. The DST is in the process of putting a bilateral agreement in place with DWA. Desalination is one of the major problems facing groundwater use in South Africa, as well as aquifer recharge.

Research on greenhouse gas emissions, climate change and improved air or atmospheric quality is funded by the Department. Under its renewable energy initiatives, the DST continues to fund research that supports efforts to reduce greenhouse gas emissions. The DST is also part of the review committee of the Green Fund that is managed by the Development Bank of Southern Africa. As part of the renewable energy programme, the DST has initiated work on developing a national bioenergy atlas.

The DST continues to support 11 research projects that are linked to ecosystem rehabilitation and restoration through various programmes such as the Global Change Research Plan and the large-scale research programme of Global Change, Society and Sustainability. The process of developing a Waste RDI Roadmap for South Africa is under way. The Department of Environmental Affairs contributed to the drafting of the terms of reference for a sector analysis currently being undertaken, while the contract with the CSIR for the development of the roadmap will be finalised in the next financial year.

With regard to reducing the impact of climate change on biodiversity, the development of climate change adaptation frameworks for major biomes (deserts, succulent Karoo, fynbos, Nama Karoo, grassland, savannah, forest and Albany thicket), and aquatic ecosystems (freshwater, estuaries, marine and coastal ecosystems), SAEON has established six nodes which are operational for long-term environmental change observations and impacts on different biomes.

The Department supports conservation in the recovery of key fisheries (hake, abalone, and rock lobster stocks) through research on ecosystems and species to enhance the implementation of the aquaculture RDI transfer plan. The DST is focusing its aquaculture investment in Hondeklip Bay in the Northern Cape, providing funding to the Genetics Department at Stellenbosch University to promote a community abalone farm and a commercial-scale abalone hatchery. Stellenbosch University is applying research work it has already performed on wild and cultured abalone genetic diversity in the western and southern abalone populations to abalone hatchery development with a community ownership component.

The DST plays an important role in environmental sustainability as it is participating in key structures that are established to support the implementation of the National Strategy for Sustainable Development and its Action Plan.




2.6 Highlights and overall achievements for the 2013/14 financial year

The technology demonstrator programme in broadband infrastructure and services, focusing on future wireless technologies, continued with greater synergies being achieved to support the implementation of South Africa Connect, the national broadband policy led by the Department of Communications (now the Department of Telecommunications and Postal Services). The expansion of the WMN project saw 50 more centres (schools and other government facilities) connected to the Internet in John Taolo Gaetsewe District Municipality in the Northern Cape. The project gained more traction with the provincial department of education, which committed itself to providing funding for operational costs for the next three years. A private sector corporation, Kumba Iron Ore, provided funding for the construction of the additional high masts.

The 2013/14 financial year marked the consolidation and expansion of South Africa's rich and diverse portfolio of international partnerships in STI with South Africa's hosting in February 2014 of the first STI Ministerial Meeting of the Brazil, Russia, India, China and South Africa (BRICS) grouping.

The DST also continued to engage vigorously with the programmes of the African Union, and South Africa fulfilled a much appreciated leadership role in developing an African Space Policy and Strategy. The DST also rendered committed support to the development of Africa's science partnerships, as evidenced by its leadership role in the Africa-EU High-level Policy Dialogue on STI, convened in November 2013, at which food security and sustainable agriculture were identified as the priority focus for Africa-EU research cooperation.

One of South Africa's challenges is the high rate of unemployment, particularly among the youth. The Department focuses not only on the supply of skills, but also pays serious attention to demand, placing graduates and students in DST-funded work-preparation programmes in SETIs. About 840 interns were placed in the SET environment during the 2013/14 financial year. The major contributor to this number is the DST/NRF internship programme, which placed 568 interns for experiential learning in the field.

The first 15 graduates with a master's degree in nanoscience and nanotechnology graduated from the multi-university Nanoscience and Nanotechnology Postgraduate Teaching and Training Platform (which involves the University of the Free State, the University of Johannesburg, the University of the Western Cape, and Nelson Mandela Metropolitan University) during the 2013/14 financial year. The purpose of the programme is to build a cadre of young scientists who are well-grounded in the basics of nanosciences and nanotechnologies, and who will be able to advance the goals of the National Nanotechnology Strategy. This is the only programme of its kind in the country, and is unique in the sense that it is registered at all four participating institutions. It is now being used as a model for developing other inter-university programmes. Overall more than 40 master's and PhD students were funded or co-funded as part of the broader targeted DST HCD objective to sustain and grow a stronger science system and technological capability.

The National Indigenous Knowledge Systems Office received an international award in recognition of its work in innovation in enhancing IKS. The award was made by the Knowledge Economy Network in the category of innovation at a forum held in Cape Town on 23 and 24 October 2013.

3. Performance information by programme

3.1 Programme 1: Administration

The purpose of the Programme is to conduct the overall management and administration of the Department, to ensure that organisations funded by the Department comply with good corporate governance standards and that their activities are aligned with the strategic focus of the NSI, and to monitor and evaluate the performance of the science councils.

The Programme consists of the following:

(a) The Ministry and Office of the Director-General coordinate activities within the Department and the NSI to steer the system towards the development of a knowledge-intensive economy with higher productivity levels, coordinating the implementation of the National Research and Development Plan and the Ten-Year Innovation Plan in line with the Medium Term Strategic Framework.

(b) Enterprise Risk Management ensures that a risk management culture is embedded effectively and efficiently within the Department by creating risk management awareness, and elevating risk management to a strategic level within the Department, in order to improve the DST's risk maturity level.

(c) Policy, Planning, Governance, Monitoring and Evaluation supports the DST leadership in steering the NSI.

(d) Internal Audit Activity performs internal appraisal activities to improve the effectiveness of control and governance processes.

(e) Human Resources helps the Department to (a) provide a professional service through accurate, consistent and best employment practices in all its activities, which are aimed at supporting the achievement of the DST's strategic and operational objectives; (b) attract and retain employees who share the same organisational vision; (c) champion change and transition, with a view to becoming a catalyst in the process of influencing and enabling the transition of people and the organisation to embrace and implement change; (d) set standards of performance and manage accordingly; and (e) promote a personal and career-development environment for all employees so that they can reach their potential and thereby contribute fully to the achievement of the strategic objectives and instil a culture of service excellence.

(f) Finance ensures that resources are allocated and used effectively and efficiently in line with good corporate governance. This includes financial planning and monitoring, ensuring compliance with financial prescripts, providing financial advice, and processing all revenue, expenditure, asset and liability transactions through the financial systems used by the Department.

(g) Knowledge, Information and Records Management provides information and knowledge management services intended to optimise business processes and preserve institutional memory.

(h) Information System Management delivers services that support the realisation of the Department's strategic plan and the objectives of individual units through the effective use of information technology.

(i) Science Communication is responsible for developing the DST's communication strategy and its implementation plan.

(j) Legal Services provides legal services to the Department in order to ensure that the interests of the Department are protected against any legal risk.

The main objectives of the Programme are as follows:

- To coordinate the identification, formulation and implementation of strategic initiatives and ensure that the priorities of the DST and its public entities are aligned to national priorities.
- To facilitate the development of a competent, productive and representative workforce within the Department.
- To enable and capacitate the Department to achieve its mandate through resource allocation and strategic support.
- To partner proactively with other Programmes to optimise organisational performance and

improve levels of compliance with relevant policies, frameworks and legislative requirements.

- To proactively position the Department positively, both internally and externally, to ensure informed employees and citizenry.

The Performance Information Management System was successfully piloted internally and launched in September 2013. The annual reports of the Department and all its entities were tabled in Parliament by the set deadlines. The Department's vacancy rate was maintained at an average of 6% over the financial year. On average, it took the Department an average of 70 days to fill its vacancies during the 2013/14 financial year.

The external quality assurance review of the Department's Internal Audit Activity received an overall rating of "generally conforms to best practice". This rating is indicative of the continued efforts to ensure good governance and accountability in the Department. The 2013/14 strategic programme and functional risk profiles were finalised and approved by the Director-General on the recommendation of the Enterprise Risk Management Committee. On a quarterly basis, the Enterprise Risk Management Committee exercised oversight over the effectiveness of the Department's risk management processes.

The Department has maintained a risk maturity level of four out of five in terms of the National Treasury Risk Management Maturity Assessment Tool. The Department successfully hosted its annual Anti-Corruption Day in November 2013 to heighten awareness among staff about fraud, corruption and ethical conduct. The Department performed an annual review of its fraud and enterprise risk management systems.

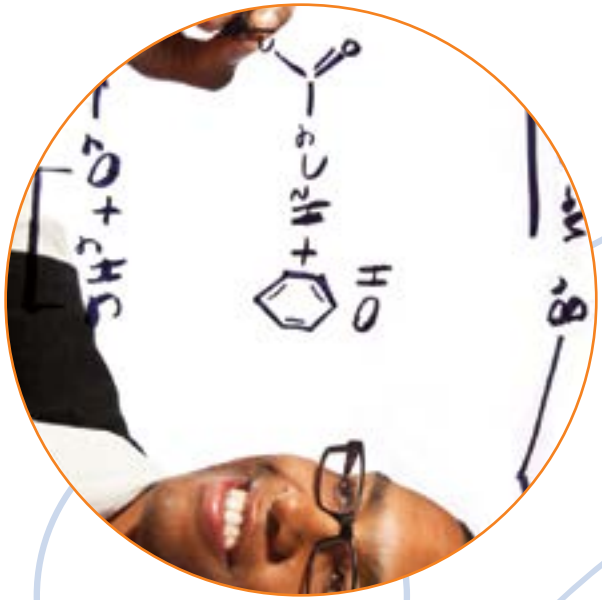
Table 5: Programme 1 performance information for the 2013/14 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To coordinate the identification, formulation and implementation of strategic initiatives and ensure that the priorities of the DST and its public entities are aligned to the national priorities	Percentage alignment of DST planning documents (strategic plan and annual performance plan [APP] submitted to Parliament)	New indicator	80% aligned 2014/15 DST planning documents (strategic plan, APP) submitted to Parliament by 31 March 2014 90% aligned 2014 DST Estimates of National Expenditure (ENE) and 2014/15 APP by 31 March 2014	DST APP submitted to Parliament; ENE Chapter input submitted to Finance; and 100% aligned DST APP and ENE (performance indicators)	The strategic plan and APP could not be aligned	Achieved	The deviation occurred because the strategic plan was changed in response to changes in government priorities following the 2014 General Elections. Guidance will be provided by National Treasury and the Department of Performance Monitoring and Evaluation on the tabling of the 2015-2019 Strategic Plan
	Approved DST public entities' strategic and APPs and signed shareholder compacts	New indicator	Approved 2014/15 DST public entities strategic plans and APPs and signed shareholder compact by 31 March 2014	The APPs of entities for the 2014/15 and shareholder compacts were approved by the Minister prior to the start of the 2014/15 financial year. They were tabled in Parliament on 12 March 2014	No deviation	Achieved	n/a

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of DST performance reports (quarterly reports and annual reports) approved by Exco and signed by the Director-General (DG) (quarterly reports approved and signed within 60 days after the end of each quarter)	New indicator	Four DST 2013/14 quarterly performance reports approved by Exco and signed by the DG within 60 days after each quarter One DST 2012/13 annual report approved by Exco and signed by the DG by 31 May 2013	Four DST 2013-14 quarterly performance reports approved by Exco and signed by the DG within 60 days after each quarter One DST annual report approved by Exco and signed by the DG by 31 May 2013	No deviation	Achieved	n/a
	Number of DST, public entities' annual reports submitted to Parliament	New indicator	Nine DST public entities' 2013/14 annual reports submitted to Parliament by 30 September 2013	Nine DST public entities' 2013/14 annual reports submitted to Parliament by 30 September 2013	No deviation	Achieved	n/a
To facilitate the development of a competent, productive and representative workforce in the Department	Vacancy rate reduced to a set rate	New indicator	Vacancy rate reduced to 7% by 31 March 2014	Vacancy rate reduced to 6% by 31 March 2014	Vacancy rate is a complex construct and is not stable	Achieved	Administrative processes put in place to ensure that the Department did not lack competent employees, and support from DST management for these processes, reduced the vacancy rate

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To enable and capacitate the Department through resource allocation and strategic support to achieve its mandate	DST ENE Chapter and database submitted to National Treasury	New indicator	DST 2014 ENE Chapter and database submitted to National Treasury by 31 January 2014	ENE Chapter and database submitted to National Treasury by 31 January 2014	No deviation	Achieved	n/a
To proactively partner with the Department in optimising organisational performance and improving levels of compliance with relevant policies, frameworks and legislative requirements	Number of enterprise architecture development life cycles steps developed and implemented	New indicator	Two enterprise architecture development life cycles steps developed and implemented by 31 March 2014	Two enterprise architecture development life cycles steps developed and implemented by 31 March 2014	No deviation	Achieved	n/a
	Number of Information Technology (IT) Governance Framework components implemented	New indicator	Three IT Governance Framework components implemented by 31 March 2014	Three IT Governance Framework components implemented by 31 March 2014	No deviation	Achieved	n/a
To proactively position the Department positively both internally and externally to ensure informed employees and citizenry	Number of DST communication, marketing and/ or media plans developed for DST Programmes to profile the Department and inform the citizenry approved by Exco	New indicator	Six communication, marketing and/ or media plans developed for DST programmes to profile the Department approved by Exco by 31 March 2014	Six media plans developed for DST programmes to profile the Department approved by Exco by 31 March 2014 22 marketing and media plans developed for this period	22 marketing and media plans developed for this period	Achieved	The overachievement was due to unplanned events not registered on the calendar of events

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of S&T media coverage monitoring reports approved by Exco	New indicator	Four S&T media coverage monitoring reports approved by Exco by 31 March 2014	Four S&T media coverage monitoring reports approved by Exco by 31 March 2014	No deviation	Achieved	n/a
	Number of public participation programmes conducted	New indicator	10 public participation programmes conducted by 31 March 2014	13 public participation programmes conducted by 31 March 2014	Three additional public participation programmes conducted	Achieved	Additional requests were received from political principals



3.2 Programme 2: Research, Development and Innovation

The purpose of the Programme is to facilitate knowledge generation and exploitation through R&D in key priority areas, namely, space science, bioscience, and energy. The Programme also promotes the exploitation of South Africa's knowledge stock by stimulating the development of innovative products and services, and their commercialisation where appropriate.

The main objectives of the Programme are as follows:

1. To support RDI initiatives in strategic areas (i.e. space, energy, biosciences and innovation research) to enhance South Africa's knowledge and skills base.
2. To create and support multidirectional policy and institutional linkages between R&D and commercialisation in order to increase the commercialisation potential of R&D outcomes.
3. To promote coordination among NSI institutions in space, energy and bioscience-related research that will enable the effective and efficient use of resources and the pooling of expertise.

The Programme consists of the following:

(a) Biotechnology and Health Innovation provides policy and strategic leadership for the development of a world-class bioeconomy in South Africa. This will be achieved through innovation instruments that provide financial, intellectual property and innovation management support, and through the coordination of innovation activities across the value chain.

(b) Hydrogen and Energy supports RDI in the energy domain to address the country's three main energy challenges, namely, ensuring security of supply, reducing the carbon footprint and increasing energy access for the third of South Africa's population that is not currently connected to the grid. The subprogramme also plays a key role in developing a sustainable and globally competitive South African energy knowledge base and industry that will ensure broader socio-economic benefits for the country from, *inter alia,* the nascent global hydrogen economy.

(c) Innovation Priorities and Instruments drives strategic interventions that will enable South Africa to translate a greater proportion of its scientific knowledge outputs into commercial technology products and services. The subprogramme was established in 2005 to drive strategic innovation policy interventions aimed at facilitating the translation of research ideas into commercialisation, which led to the establishment of TIA and the passing of the IPR-PFRD Act in 2008.

(d) Space Science and Technology supports the creation of an environment conducive to the implementation of the National Space Strategy and the South African Earth Observation Strategy (SAEOS), which is given expression in the National Space Programme and implemented through SANSA, with support from the National Earth Observation and Space Secretariat.

In the area of biotechnology and health innovation, achievements in the bioinnovation space include the Nuclear Technologies in Medicine and the Biosciences Initiative partnership in collaboration with Necsa, which was successfully concluded during the period under review. A biosafety communication project was supported this year to develop a strategic biosafety communication strategy that will more adequately address public biosafety concerns. The Bioinformatics Service Platform is a new initiative to strengthen bioinformatics support (complementary to existing bioinformatics capacity development) to academic and commercial biotechnology needs. The biocatalysis initiative is directly supporting the development of human capital that reinforces South Africa's ability to develop enzymes for industrial biotechnology. The biomanufacturing initiative is a CSIR-based programme which uses the CSIR's infrastructure and expertise to incubate a range of start-ups with biological manufacturing at their core. These complement ongoing initiatives, such as the support of strategic health projects driven through the Medical Research Council's Strategic Health Innovation Partnerships programme, the Bioinformatics and Genomics HCD Programme managed by the NRF, the Public Understanding of Biotechnology Programme, and the support of the Eucalyptus Genome Programme.

Successes include the initiation of clinical trials of the locally-developed malaria drug candidate, the ongoing work to commercialise four cosmeceuticals and 22

nutraceuticals based on indigenous knowledge, and the South African-led publication of the Eucalyptus genome in the *Nature* journal. The Innovation Prize for Africa was awarded to a DST-supported start-up, and the Olusegun Obasanjo Prize to a DST-supported platform. In addition, funding has been leveraged from Novartis and the Bill & Melinda Gates Foundation, and further resourcing is in the pipeline. A start-up supported by DST in 2006 is now offering to buy back its shares, potentially realising a four-fold profit.

In the space arena, 16 space and Earth-based end-user technology solutions were provided by SANSA. These include compass calibration services for the South African Air Force and the general aviation sector; space weather bulletins for stakeholders and the general public; time series applications; a forest and carbon tracking portal and geohazard atlas; remote-sensing short courses to students and end-users; magnetic field maps for the South African National Defence Force; the Landsat Moving Window Display; and an Earth observation catalogue.

In the energy sector, the appointment of an advisory board for the HySA programme was successfully completed. The reviews of the South African Nuclear Human Asset and Research Programme and the Energy Efficiency and Demand Side Management Programme at the University of Pretoria were also finalised. The DST also supported a number of R&D programmes, for which the 2013/14 highlights are as follows:

- NMMU developed Coalgae™, a blended biofossil fuel of coal fines and microalgae. This product has a biomass content varying from 10 to 40% and is well positioned to be a competitor to coal.
- PTiP was established. This is a spin-off company from the University of Johannesburg, which (with a German-listed company) manufactures photovoltaic thin films and is one of the very few global companies that are using copper indium gallium selenide and/or similar absorber alloys to replace the dominant silicon-based semiconductor.
- The commissioning of a pilot manufacturing facility for the storage of hydrogen using metal hydride as a medium.
- The development of an electrochemical hydrogen compression (EHC) system using platinum group

metals as electrocatalysts by HySA Infrastructure. A collaboration agreement was recently signed between HySA Infrastructure, through North-West University, and Angloplats to support further development of EHC technologies.

- An interdepartmental FCSTT, led by the Department of Trade and Industry, was established to promote the deployment of hydrogen and fuel cell technologies in South Africa, and to align hydrogen and fuel cell initiatives across government.

In terms of the protection of intellectual property developed from publicly funded research institutions, approval for the establishment of NIPMO as a special service delivery unit under the DST was obtained from the Minister of Public Service and Administration in December 2013. NIPMO continued to provide support for the establishment of OTTs at various publicly funded research institutions. It funded 10 OTTs, located at the University of Cape Town, the University of Pretoria, North-West University, Stellenbosch University, Cape Peninsula University of Technology, Tshwane University of Technology, the University of the Western Cape, the University of the Witwatersrand, the Agricultural Research Council and Necsa.

Recipients of public funds are legislatively obliged to report to NIPMO on a biannual basis on the IP disclosures received by their OTTs. These disclosures are reported to NIPMO on an IP7 form and include information such as the type of IP generated and its commercialisation status (whether under evaluation, protected, licensed (pre-revenue) or commercialised (post-revenue). The disclosures/IP status and commercialisation reports received are captured and monitored by NIPMO to ensure that the IP that is generated following an R&D activity is used and/or commercialised by the institutions for the benefit of the country. During the financial year, 250 new disclosures (IP status and commercialisation reports) were submitted to NIPMO.

The 2013/14 financial year saw a number of initiatives being implemented in response to the institutional review of TIA that was initiated at the end of the 2012/13 financial year. TIA continued with its key mandate of investing in the development of new technologies and supported 37 new technology-based products, processes and/or services during the year. In addition to these investments, TIA provided support towards the commercialisation of eight technology-based products, processes and services.

Collaboration with the Da Vinci Institute of Technology continued to be strengthened in relation to the Technology Top 100 (TT100) awards programme. The awards programme is aimed at recognising innovative South African companies that not only serve as role models but also push the boundaries of innovation and technology commercialisation in order to create sustainable enterprises. An internship programme aimed at providing unemployed SET graduates with an opportunity to be placed in the TT100 network of companies was also rolled out during the year, and 55 interns were hosted by the network during 2013/14.
A partnership with the Southern African Research and Innovation Management Association is being strengthened, with the intention of rolling out a showcase event associated with the Technology Matchmaking Programme. The partnership will ensure ongoing training and development in the field of innovation management.

Table 6: Programme 2 performance information for the 2013/14 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To support ongoing R&D and demonstration of technology-based solutions with the intention of promoting their commercialisation and use	Number of R&D initiatives (including strategic infrastructure) financially and strategically supported and which would lead to publications, patterns and prototypes	Seven research chairs (four in biotechnology and health, and three in energy) and eight research initiatives in biosciences and energy-related fields financially supported by 31 March 2013	20 R&D initiatives in hydrogen and energy and the bioscience-related fields financially and strategically supported and which would lead to publications, patents and prototypes by 31 March 2014	19 R&D initiatives in hydrogen and energy and bioscience-related fields financially and strategically supported by 31 March 2014	The envisaged solar centre of competence was not established	Partially achieved	The solar centre of competence was not established owing to delays in obtaining data on industry capability in order to support the Solar Energy Roadmap, which is a prerequisite for the establishment of the centre
	Number of MeerKAT antennae designed and installed as per Square Kilometre Array (SKA) specifications	MeerKAT antenna designed and installed as per SKA specifications by 31 March 2013	Four MeerKAT antennae designed and installed as per SKA specifications by 31 March 2014	One MeerKAT antenna designed and installed as per SKA specifications by 31 March 2014	The other three MeerKAT antennae were designed but not installed	Partially achieved	Project delays by the contractor resulted in a delay in installing the remaining three dishes. The contractor has made a commitment to have the remaining dishes installed by 31 June 2014
	Number of technology solutions supported in the areas of space sciences, energy and the biosciences through DST funding provided to institutions and agencies	New indicator	Three technology solutions (proof of concepts, pilots and demonstrators) financially supported in the areas of space science, energy and the biosciences through DST funding by 31 March 2014	Two technology solutions (proof of concepts, pilots and demonstrators) financially supported in the area of energy	Only one technology solution was financially supported in the area of the biosciences	Partially achieved	The Resyn technology solution could not be supported owing to financial constraints arising from unplanned funding commitments inherited by the Department to the International Centre for Genetic Engineering and Biotechnology (ICGEB)

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To support ongoing R&D and demonstration of technology-based solutions with the intention of promoting their commercialisation and use	Number of technology-based products/ processes developed through TIA investments	Three technology-based enterprises developed through funding support to TIA by 31 March 2013	30 technology based products/ processes developed through TIA investments by 31 March 2014	37 technology products/ processes have been developed through TIA investments	An additional seven technology products/ processes have been developed through TIA investments	Achieved	TIA received additional requests to support technology-based products/ processes
	Number of technology solutions that are either commercialised or used by the community in the areas of space science, energy or the biosciences	New indicator	15 technology solutions that are either commercialised or used by the community in the areas of space science, energy or the biosciences by 31 March 2014	17 technology solutions were commercialised or used by the community in the areas of space science and energy	Two additional technology solutions were commercialised or used by the community in the areas of space science and energy	Achieved	Additional requests to support technology solutions were received by SANSA
	Number of investments commercialised through TIA funding	58 products, processes or services developed through funding support to TIA for commercialisation by 31 March 2013	12 TIA investments commercialised through TIA funding by 31 March 2014	Eight TIA investments were commercialised through TIA funding	Five additional TIA investments were commercialised through TIA funding	Achieved	Following a recommendation from the TIA Board, the initial target of 12 was revised to three with the approval of the Minister. However at the end of the financial year, the revised target was exceeded by five owing to increased investment commercialisation opportunities

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To provide system-based leadership, including regulatory and compliance functions, and support that seeks to optimise the commercialisation and use of technology-based solutions	Number of concept notes and reviews approved by Exco and strategies approved by Parliament	New indicator	Nine concept notes/ reviews approved by Exco by 31 March 2014 Bioeconomy Strategy approved by Parliament by 30 September 2013	Four concept notes/reviews were approved Bioeconomy Strategy approved by the Cabinet in November 2013	Five concept notes, reviews were not approved	Partially achieved	Three documents (on the Nuclear Energy RDI Strategy [NERDIS], the Energy Storage Roadmap and the Solar Energy Roadmap) are at an advanced stage of development but have not yet been approved. Two other documents (on the Energy Grand Challenge and bio-based products) have not progressed much. The draft NERDIS document required more details on the innovation aspect, and is still being finalised. For both the roadmaps, the scope of the project was extended, resulting in the delay. It is expected that all these documents will be finalised in the 2014/15 financial year
	Number of guidelines and practice notes to the IPR-PFRD Act approved by the Minister and gazetted	New indicator	Three guidelines to the IPR-PFRD Act (incentive scheme, IP ownership, and referral of IP to NIPMO) and one Practice Note (Dispute Panel) approved by the Minister and gazetted by 31 March 2014	One practice note (Dispute Panel Practice Note) has been completed and will be presented to the Minister during the induction and inaugural meeting of the appointed Dispute Panel	None of the three guidelines were approved by the Minister	Not achieved	The referral guideline, the IP ownership guideline and the incentive scheme guideline were not submitted to the Minister for approval as they had not been completed, mainly as a result of capacity constraints at NIPMO. A process of recruiting staff to critical posts has already been initiated and should result in this area of work being prioritised in 2014/15

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To provide system-based leadership, including regulatory and compliance functions, and support that seeks to optimise the commercialisation and use of technology-based solutions	Number of regulations on Astronomy Advantage Area gazetted	New indicator	Three sets of regulations (on the frequency spectrum; electronic magnetic interference and SKA procedural matters) gazetted by 28 February 2014	The Minister declared the Karoo Central Astronomy Advantage Area and Sutherland Central Astronomy Advantage Area on 14 March 2014	No regulations were gazetted	Not achieved	The Independent Communications Authority of South Africa and National Treasury have not yet concurred with the draft regulations. Once concurrence has been obtained, the public consultation process (gazetting draft regulations for public comment) will be initiated
	Number of new collaborative partnerships with the private sector through signed memorandum of understanding	New indicator	Three collaborative partnerships with the private sector through signed memoranda of understanding by 31 March 2014	Two collaborative partnerships with the private and public sector entities were achieved during the year	One collaborative partnership with the private sector could not be achieved	Partially achieved	A partnership (on mycotoxins) could not be supported owing to financial constraints arising from unplanned funding commitments inherited by the Department to the ICGEB
	Number of OTTs financially supported in terms of the contracts signed with institutions and science councils where reporting requirements and sign-off are indicated	10 OTTs were funded from new proposals received and three OTTs were funded from existing NIPMO agreements (the remaining two institutions could not be funded because of funding constraints)	10 OTTs financially supported by 31 December 2013	10 OTTs financially supported 31 December 2013	No deviation	Achieved	n/a

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of new disclosures received by OTTs at institutions	New indicator	250 new disclosures received by OTTs by 31 March 2014	250 new disclosures received by OTTs by 31 March 2014	No deviation	Achieved	n/a
	Number of institutions awarded rebates for intellectual property (IP) prosecution and maintenance costs from the IP Fund and approved	New indicator	24 institutions awarded a rebate for IP prosecution and maintenance costs from the IP Fund by 31 March 2014	The internal IP Fund Committee met on 6 March 2014 to finalise the rebate amount for each of the 24 institutions. All the necessary documentation was also prepared for approval pending the availability of funds from within the Department	24 institutions were not awarded a rebate for IP prosecution and maintenance costs from the IP fund	Not achieved	A lack of funds prevented the immediate award of rebates to the 24 institutions. The obligation has been rolled over into the new financial period

3.3 Programme 3: International Cooperation and Resources

The purpose of the Programme is to strategically develop, promote and manage international relationships, opportunities and S&T agreements that strengthen the NSI and enable an exchange of knowledge, capacity and resources between South Africa and its regional and international partners.

The Programme consists of the following sub-programmes:

(a) Overseas Bilateral Cooperation promotes and facilitates collaborative activities and leverages resources in support of the NSI from countries outside Africa, with a specific focus on developing a knowledge-driven economy.

(b) Multilateral Cooperation and Africa advances and facilitates South Africa's participation in strategic African bilateral agreements and multilateral organisations on STI, so as to strengthen the NSI and to achieve shared economic and social development in the region and the continent.

(c) International Resources works to increase the flow of international resources into the country by creating conditions for access to international STI skills and global projects.

The main objectives of the Programme are as follows:

- To increase leverage of foreign STI funds that will stimulate international technology transfer and knowledge production, and enhance innovation in pursuit of research-led socio-economic development.
- To increase South African and foreign funds spent on S&T-based socio-economic development in Africa.
- To increase access to global knowledge and STI networks that will result in international technology transfer and a competent and equitable pool of SET skills to support the NSI.
- To increase the number of South African students participating in international cooperative STI research projects that will contribute to a competent and equitable pool of SET skills in support of the NSI.

The 2013/14 financial year marked the consolidation and expansion of South Africa's rich and diverse portfolio of international partnerships in STI. These relations during the year under review enabled more than 2 000 international cooperation opportunities for the South African NSI.

A major highlight symbolic of both consolidation and expansion was the DST's hosting in February 2014 of the first meeting of BRICS STI ministers. This meeting not only provided the foundation for new multilateral cooperation within the BRICS grouping, but also served to cement the DST's existing strong bilateral partnerships with its counterparts in the other BRICS member countries. As a direct result of the Ministerial Meeting and South Africa's leadership, a memorandum of understanding on BRICS cooperation in STI is due to be concluded before the end of 2014, providing the foundation for cooperation in areas such as climate change and natural disasters; water resources and pollution treatment; geospatial technology and its application; new and renewable energy and energy efficiency; and astronomy. The India-Brazil-South Africa science and technology partnership was also provided with new momentum following the launch of a call for collaborative research projects to be co-funded by the three countries.

Bilateral relations with major science nations and traditional partners of South Africa, such as the United Kingdom and the United States of America, received an important boost through agreements being reached by the DST with its counterparts on ambitious new frameworks for bilateral cooperation. New partnerships with Finland, Sweden and Norway underlined the DST's privileged ties with the Nordic countries, especially in innovation. The DST also launched new cooperation initiatives with Switzerland, Argentina, Jamaica and the Republic of Korea, which offered rich new collaboration opportunities for South African scientists.

The DST's active engagement in a thriving portfolio of bilateral relations provided an excellent platform for South Africa to play a leadership role in several multilateral forums, aligned with and supporting South Africa's foreign policy agenda, as well as a strategic

priority of the DST to contribute to the global effort to harness STI for sustainable development. These engagements included the DST's election as Chair of the Non-Aligned Movement (NAM) Centre for Science and Technology, following South Africa's hosting of its governing council meeting and launch of a capacity-building initiative targeting minerals beneficiation. The DST's leadership of the NAM Centre will provide new momentum for dynamic South-South cooperation.

In November 2013 the DST Director-General assumed the Presidency of the Science Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the first time ever an African had chaired a UNESCO Commission. Among other things, the DST's hosting of an Organisation for Economic Cooperation and Development workshop to explore how to enhance research partnerships between developed and developing countries in the areas of climate change and biodiversity, all contributed to DST's effort to ensure science and innovation was at the heart of the post-2015 development agenda of the United Nations.

The DST continued to work resolutely for the strengthening of bilateral science and technology partnerships with other African nations. A special focus remained cooperation with South Africa's partners in the Square Kilometre Array project, including Ghana, Kenya, Zambia, Namibia, Botswana, Mozambique, Mauritius and Madagascar. The DST continued to invest significantly in the strengthening of regional science and technology programmes within SADC, including through supporting science policy training for officials of SADC governments and the finalisation of the secondment of a departmental official to the SADC Secretariat, to strengthen the institution's capacity to mainstream science and innovation as part of its programmes.

The DST continued to leverage its broad portfolio of international relationships to support African regional initiatives, efforts which in the past financial year attracted funding by the DST's international partners of close to R50 million. The DST for example plays a valued leadership role in Africa-EU cooperation

and was instrumental in developing a major new cooperation programme related to food security and sustainable agriculture, as well as astronomy, with the African-European Radio Astronomy Platform benefitting significantly from DST support. The DST harnessed South Africa's various science and technology cooperation programmes with international partners to enable numerous international training and mobility (exchange) programmes for South African researchers, which contributed significantly to HCD. These opportunities included co-funding by international partners for the SARChI programme.

Under the custodianship of the DST, South Africa's bilateral science and technology partnership with the European Union continued to prosper. A new roadmap for cooperation finalised by the DST and the European Commission in January 2014, committed the partners to concerted efforts to promote research and innovation collaboration in strategic areas such as water, marine science, the bioeconomy, infectious diseases, minerals and mining, as well as research infrastructure. Furthermore, the DST finalised South Africa's association with the Eureka research network, Europe's leading market-oriented (industrial) research programmes. The EU's renowned Seventh Framework Programme for research and innovation concluded in 2013 with South Africa ranked fifth (in terms of volumes of research cooperation) among the participating countries from outside Europe, behind only the United States of America, the Russian Federation, China and India, attracting direct European investment of more than R500 million. This was achieved as a result of a consistent and determined programme by the DST to support the participation of South African organisations.

Despite South Africa's evolving status as a recipient of direct foreign development assistance, the Department's strategic repositioning as a knowledge partner for development cooperation agencies enabled the formation of a number of partnerships attracting investment from Japan, Finland, Canada and Germany, among others, in research and innovation-oriented capacity-building programmes, which will directly support the South African government's development and poverty alleviation agendas. Especially successful was cooperation with the philanthropic sector, such as the Bill & Melinda Gates Foundation, which will invest several million rands in South Africa's strategic health research and innovation programmes. Overall, the DST leveraged direct foreign investment of close to R250 million for the South African NSI.

As part of the DST's efforts to champion South Africa as a global knowledge partner, the DST's relations with the World Bank were cemented through the conclusion of a memorandum of understanding on cooperation, following the DST's hosting of the Bank's Global Forum on Innovation and Technology Entrepreneurship. Consistent with the policy recommendation addressed to the Department by the Ministerial Review Committee on the STI Landscape in South Africa, the DST continued to develop and refine strategies for ensuring South Africa as a preferred destination for science and technology-oriented foreign investments.

A thriving partnership with several multinational companies, especially in the ICT sector, for example related to HCD programmes (e.g. bursaries and traineeships), highlighted the potential for such cooperation, which will be even more strongly promoted in future. Close to 800 South African students participated in various international partnership programmes enabled by the DST during the year under review.

Table 7: Programme 3 performance information for the 2013/14 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To secure foreign STI funds that will stimulate knowledge production, technology transfer, enhanced innovation and STI human capital development in pursuit of STI-based socio-economic development in South Africa	Amount (expressed in rand millions) of foreign STI funds secured for knowledge production, technology transfer, enhanced innovation, and STI HCD from international partners through agreed instruments	R241,2 million in foreign STI funds leveraged by 31 March 2013	R300 million in foreign STI funds secured from international partners for knowledge production, technology transfer, enhanced innovation and STI HCD through agreed instruments by 31 March 2014	R436,38 million foreign STI funds leveraged by 31 March 2014	An additional R136,38 million in foreign STI funds	Achieved	Additional foundations and philanthropic organisations (FPO) and official development assistance (ODA) opportunities arose during the financial year
To secure South African and foreign funds for knowledge production, technology transfer, enhanced innovation, and STI HCD in Africa	Amount (expressed in rand millions) of South African and foreign funds secured for knowledge production, technology transfer, enhanced innovation and STI HCD in Africa as agreed with foreign partners	R49,3 million of South African and foreign funds secured for STI development in Africa by 31 March 2013	R85,2 million of South African and foreign funds secured for knowledge production, technology transfer, enhanced innovation and STI HCD in Africa as agreed with foreign partners by 31 March 2014	R93 million South African and foreign funds secured	An additional R7,8 million in South African and foreign funds secured	Achieved	More funds were secured under the NEPAD Flagship Programmes than originally planned

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To increase access to global knowledge and STI networks that will result in international technology transfer and a competent and equitable pool of SET skills to support the NSI	Number of foreign participants (representing the links to global knowledge and STI networks) involved with South African participants in knowledge production, technology transfer, enhanced innovation and STI HCD by 31 March 2013	2 175 foreign participants (representing the links to global knowledge and STI networks) collaborating with South African participants in knowledge production, technology transfer, enhanced innovation, and STI HCD as agreed with foreign partners by 31 March 2013	3 985 foreign participants (representing links to global knowledge and STI networks) collaborating with South African participants in knowledge production, technology transfer, enhanced innovation and STI HCD as agreed with foreign partners by 31 March 2014	4 919 foreign participants collaborating with South African participants	An additional 934 foreign participants collaborated with South African participants	Achieved	More foreign participants in the EU programmes than originally planned
To increase the number of South African postgraduate (master's, doctoral and postdoctoral) students participating in international knowledge production, technology transfer, enhanced innovation, and STI HCD in support of the NSI	Number of South African postgraduate (master's, doctoral and postdoctoral) students participating in international knowledge production, technology transfer, enhanced innovation, and STI HCD	748 South African postgraduate students (master's, doctoral and postdoctoral) participated in international STI development as agreed with foreign partners by 31 March 2013	855 South African postgraduate (master's, doctoral and postdoctoral) students participating in international knowledge production, technology transfer, enhanced innovation, and STI HCD as agreed with foreign partners by 31 March 2014	896 South African postgraduate students participating in international STI programmes	An additional 41 South African postgraduate students participating in international STI programmes	Achieved	Student numbers increased owing to the increased opportunities that became available, such as the FPO and ODA opportunities

3.4 Programme 4: Human Capital and Knowledge Systems

The purpose of the Programme is to provide an enabling environment for research and knowledge production that promotes the strategic development of basic sciences and priority science areas through science promotion, HCD, the provision of research infrastructure and relevant research support, in pursuit of South Africa's transition to a knowledge-based economy.

The Programme consists of the following sub-programmes:

(a) Human Capital and Science Platforms conceptualises, formulates and implements programmes that address the availability of human capital for STI, produces new knowledge to build the knowledge resources of the country, and interfaces positively with the institutions that are key in the production of S&T knowledge and human resources for the NSI.

(b) Indigenous Knowledge Systems contributes to the national R&D programmes to strengthen their contribution to STI. The focus is on providing an appropriate regulatory and policy environment, the development of the NRS, an appropriate accreditation and certification system for indigenous knowledge holders, and a bioprospecting and product development platform for indigenous knowledge.

(c) Emerging Research Areas and Infrastructure facilitates the strategic implementation of research equipment and infrastructure to promote knowledge production in areas of national priority and to sustain R&D-led innovation.

The main objectives of the Programme are as follows:

- To contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities.
- To ensure the availability of and access to internationally comparable research and innovation infrastructure in order to generate new knowledge and train new researchers.
- To support and promote research that develops basic sciences through production of new knowledge and relevant training opportunities.
- To strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs.
- To promote public engagement on STI.

In respect of established researchers, the Centres of Excellence Programme and the South African Research Chairs Initiative continued to grow. On 7 March 2014, the Deputy President, together with the Minister, publicly announced 54 new research chairs and chair holders in Pretoria, bringing the total number of awarded chairs to 137. The event was attended by representatives from the research and scientific community, South Africa's bilateral science and technology partners in the public and private sectors, and the media.

In addition to the nine centres of excellence previously established, five more were awarded during the reporting period. Crucially important are the strategic areas in which these centres of excellence were established. They are as follows:

- Mathematics and Statistics – University of the Witwatersrand.
- Scientometrics and STI Policy – Stellenbosch University.
- Food Security – University of the Western Cape and University of Pretoria.
- Integrated Mineral and Energy Resource Analyses – University of Johannesburg.
- Human Development – Witwatersrand University and University of KwaZulu-Natal.

The DST Science Engagement Framework was approved by the Department. This document provides an overarching framework that advances science promotion and engagement in South Africa, and will guide the development of the Department and its entities' science promotion and engagement initiatives. The framework will also influence other government departments to support similar initiatives. Also, the DST approved the explicit incorporation of a science promotion and engagement mandate within the South African Agency for Science and Technology Advancement (SAASTA) arm of the National Research Foundation.

STI awareness and engagement activities (National Science Week and science festivals) led by the DST and managed by SAASTA collectively attracted in excess of a million participants. For the first time, more than half of the participants in National Science Week came from the general public. This provides a strong base for the implementation of the recently approved Science Engagement Framework that seeks to promote science to all sections of the population.

Successful pursuit of science engagement programmes requires quality delivery infrastructure, particularly in the form of science centres. In creating an enabling environment for science centres, the DST piloted its framework for the promotion of excellence in science centres, in five science centres during the 2013/14 financial year.

Regarding the Science Platforms, the Implementation Plan for the South African Strategy for Palaeosciences was approved by the DST in order to give effect to the interventions outlined in the strategy. The Antarctic and the marine research plans were also approved by the DST.

The report on the development of a South African Research Infrastructure Roadmap, which was approved during the period under review, was a joint collaboration between the Department and the European Commission. The framework is developed for six scientific domains, namely humans and society; health, biology and food security; Earth and the environment; energy; materials and manufacturing; and physical sciences and engineering. With the emphasis on medium and large-scale research infrastructure, and in line with the above scientific domains, 17 pieces of research infrastructure were identified through a consultative process for the framework report. The focus of this project was to present the DST with a comprehensive framework that will form the foundation for the development of a national roadmap to guide the strategic development, acquisition and deployment of research infrastructure as a necessary and required enabler for RDI.

In July 2012, the Minister approved the appointment of a steering committee and associated sector working groups to conduct a comprehensive assessment of South African cyberinfrastructure in order to determine the best operational, managerial and governance structure, and the most sustainable business model. This model will assist South Africa in maximising the impact, sustainability and effective governance and management of the country's cyberinfrastructure.

Following intense research and consultation with various stakeholders, the final report was approved by the Exco by the end of the 2013/14 financial year. The report presented 19 concrete, far-ranging recommendations that require more detailed planning, in most cases accompanied by further in-depth consultation with relevant stakeholders in the NSI. One of the key recommendations is for skills and training services to be added as a fourth pillar for a sustainable national integrated cyberinfrastructure system, the other three being the South African National Research Network (SANReN), the Centre for High Performance Computing, and the Data Intense Research Infrastructure of South Africa.

In 2013/14 high-level strategic, policy and implementation activities in IKS were successfully concluded, with the finalisation of (i) a draft IKS Bill for the protection, promotion, development and management of indigenous knowledge, (ii) a framework for the accreditation and certification of indigenous knowledge holders and practitioners, (iii) the IKS database and ethics policies, (iv) the National Bioprospecting Management Framework, and (v) the IKS Advocacy and Communication Strategy. These are significant policy instruments for the further development of IKS.

At the international policy level, the IKS subprogramme continued to participate in the World Intellectual Property Organisation (WIPO) Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC). The team from the DST provided leadership to the African Group from the 23rd to 26th sessions of the IGC and also served as the African Group node during the WIPO General Assembly in October 2013, during which a new mandate for the IGC was successfully negotiated. South Africa hosted a preparatory meeting of the IGC in Pretoria in April 2013, bringing together 15 countries, including the chair of the IGC and the WIPO IGC secretariat. The role of the

DST as the lead South African government department has been critical in the success of the negotiations. The second set of international policy workshops was jointly organised by the DST of South Africa, the DST of Botswana, and the SADC Secretariat. Two ministers from Botswana gave keynote addresses at a workshop in February 2014 in Gaborone. The SADC Secretariat has prepared a report to the SADC Council of Ministers of Science and Technology.

The NRS and the IKS bioprospecting and product development consortium were launched by the Minister in 2013, with the NRS launch being broadcast live by several radio and television stations. The launch of the IKS Bioprospecting and Product Development Consortium brought together 16 organisations, including IKS communities of practice and organisations, science councils, HEIs, cooperatives and community-based trusts.

Community engagement was intense in the past year, reaching out to communities in all the nine provinces using different instruments with no less than eight formal meetings and workshops with a wide range of communities, stakeholders and HEIs, as well as numerous engagements with other government departments. This financial year's IKS retreat and interface conference, held from 23 to 28 November 2013, drew participants from the Netherlands, Sweden, India, the Philippines, Canada, Chile, Ethiopia and Uganda.

Three outstanding achievements from the knowledge-generation work are worth noting. Firstly, following a positive preclinical testing to determine the safety and efficacy of a South African indigenous plant extract that showed positive activity against TB-causing bacteria, the University of Pretoria's OTT filed a patent application under the Patent Cooperation Treaty in October 2013. Secondly, in March 2014, the University of KwaZulu-Natal Council approved the first-ever institutional IKS Policy for the entire university. This is a landmark for the valorisation of IKS in higher education. Thirdly, the establishment of the NRF/DST IKS Centre, bringing together five HEIs (the Universities of KwaZulu-Natal, North West, Venda, Limpopo and South Africa) is a noteworthy achievement.

Table 8: Programme 4 performance information for the 2013/14 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To contribute to the development of representative, high-level human capital able to pursue locally relevant, globally competitive research and innovation activities	Total number of postgraduate students (BTech, honours, master's and doctoral students and postdoctoral fellows) awarded bursaries as reflected in the NRF	8 379 postgraduate students (2 951 honours, 3 397 master's and 2 031 doctoral) were awarded bursaries as reflected in the NRF reports by 31 March 2013	11 208 postgraduate students (3 196 BTech and honours, 4 677 master's and 2 645 doctoral students and 690 postdoctoral fellows) awarded bursaries through NRF-managed programmes by 31 March 2014	9 771 postgraduate students (3 149 honours, 3 704 masters, 2 265 doctoral students, and 653 postdoctoral fellows) awarded bursaries through NRF-managed programmes by 31 March 2014	1 437 fewer postgraduate students awarded bursaries	Partially achieved	Delays in taking up positions by new research chairs meant that they nominated fewer students than anticipated. Reduced aggregate research grants for established researchers limited the number of students they could support and nominate for bursaries. (New funds have gone largely to support for emerging researchers.)
	Total number of graduates and students placed in DST-funded work-preparation programmes in SETIs	711 graduates and students placed in DST-funded work-preparation programmes in SETIs by 31 March 2013	700 graduates and students placed in DST-funded work-preparation programmes in SETI institutions by 31 March 2014	1 010 graduates and students placed in DST-funded work-preparation programmes in SETI institutions by 31 March 2014 (Figure comprises 568 from the DST-NRF Internship programme and 442 from the National Youth Service)	310 more graduates and students placed in DST-funded work-preparation programmes in SETI institutions	Achieved	The distribution of available funds across the different internship support programmes allowed more students to be supported than originally estimated

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To ensure availability of and access to internationally comparable research and innovation infrastructure in order to generate new knowledge and train new researchers	Number of research infrastructure grants awarded as per award letters	53 research infrastructure grants were awarded by 31 March 2013	60 research infrastructure grants awarded as per the award letters by 31 March 2014	61 research infrastructure grants were awarded by NRF and DST internal processes and as per the award letters by 31 March 2014	One additional research infrastructure grant awarded	Achieved	Transfer of one award for 2012/13 to an institution was delayed for administrative reasons until 2013/14, hence the additional award
	Average amount bandwidth per SANReN site per annum	New indicator	2 200 Mbps average bandwidth capacity available per SAReN site by 31 March 2014	2 200 Mbps average bandwidth capacity is available per SANReN site by 31 March 2014	No deviation	Achieved	
To support and promote research that develops basic sciences through production of new knowledge and relevant training opportunities	Total number of researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports	3 076 researchers awarded research grants through NRF-managed programmes by 31 March 2013	3 822 researchers awarded research grants through NRF-managed programmes by 31 March 2014	3 569 researchers awarded research grants through NRF-managed programmes as reflected in the NRF project reports by 31 March 2014	253 fewer researchers awarded research grants	Partially achieved	Delays in taking up positions by new research chairs resulted in a decrease of grants taken up, and there were delays in the uptake of research grants linked to the misalignment of the financial and academic years
	Number of Institute for Scientific Information (ISI)-accredited research articles published by NRF-funded researchers as reflected in NRF project reports	4 273 peer-viewed journal articles published by NRF grant holders by 31 March 2013	5 500 ISI-accredited research articles published by NRF-funded researchers by 31 March 2014	5 641 ISI-accredited research articles published by NRF funded researchers by 31 March 2014	141 more ISI accredited research articles published	Achieved	It is very difficult to predict exactly when a specific researcher will succeed in publishing a specific research paper, and this projection is therefore informed by average rates of productivity of NRF-supported researchers. This fluctuates slightly from year to year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs	Number of strategy documents approved by DST Executive Committee	A stakeholder workshop was held in March 2013 to adopt a framework to guide the development of a strategy in 2013/14	One science, technology, engineering, mathematics and innovation promotion and engagement strategy for the NSI approved by Exco by 31 March 2014	Science Engagement Strategy approved by DST on 17 March 2014	No deviation	Achieved	n/a
		Draft implementation plan for palaeosciences and archaeology strategy completed by 31 March 2013	One implementation plan for the palaeosciences strategy approved by Exco by 31 March 2014	One implementation plan for the palaeosciences strategy was approved by the Exco by 31 March 2014	No deviation	Achieved	n/a
		Terms of reference for the development of the marine biology research strategy finalised by 31 March 2013	One draft marine biology research strategy presented to Exco by 31 March 2014	One marine research strategy was presented to Exco by 31 March 2014	No deviation	Achieved	n/a
		A draft Antarctic research strategy was not developed, but a framework for the draft strategy was developed	One Antarctic research strategy approved by Exco by 31 March 2014	One Antarctic research strategy was presented to Exco and approved for incorporation into a consolidated marine and Antarctic research strategy	No deviation	Achieved	n/a

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
		National bioprospecting platform framework not presented to the Director-General for approval by 31 March 2013	One Implementation Plan for the National Bioprospecting platform developed and approved by Exco by 31 March 2014	The National Bioprospecting Framework and its implementation plan approved by Exco by 31 March 2014	No deviation	Achieved	n/a
		Cabinet memorandum on draft legislation not approved by Minister by 31 March 2013 Draft Bill approved by senior management for wider stakeholder consultation	Cabinet memorandum on draft legislation for the protection, promotion, development and management of IKS approved by the Minister by 31 March 2014	The Minister approved the submission accompanying the cabinet memorandum, but did not sign the memorandum	The Minister did not approve the cabinet memorandum	Not achieved	Approval by the Minister of the cabinet memorandum on the draft Bill required a response on the document from the Department of Trade and Industry. This response had not been received by 31 March 2014
	Number of provinces with established NRS offices and coordinators appointed	Two NRS offices were established (in the Eastern Cape and the Free State) by 31 March 2013 Only one coordinator was appointed (Free State)	One province (Western Cape) with NRS infrastructure deployed and with a coordinator appointed by 31 March 2014	Office established and one coordinator appointed by 31 March 2014	No deviation	Achieved	n/a

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To strategically develop priority science areas in which South Africa enjoys a competitive advantage, by promoting internationally competitive research and training activities and outputs	Number of indigenous knowledge-based technological innovations developed and registered as intellectual property	New indicator	Three indigenous knowledge-based technological innovations developed and registered as intellectual property by 31 March 2014	Three indigenous knowledge-based technological innovations were developed and registered as intellectual property by 31 March 2014	No deviation	Achieved	n/a
To promote public engagement on STI	Total number of participants in science awareness and engagement programmes as reflected in the NRF project reports and those of other service providers	566 511 participants in science awareness and engagement programmes by 31 March 2013	904 646 participants (876 250 learners and 28 396 members of the public) in science awareness and engagement programmes by 1 March 2014	1 108 759 people participated directly in science awareness and engagement programmes by 31 March 2014	An additional 204 113 people participated	Achieved	Increased investment in television-based awareness campaigns and the inclusion of science, technology, engineering, mathematics and innovation Olympiads and competitions contributed to increased participation

3.5 Programme 5: Socio-Economic Partnerships

The purpose of the Programme is to contribute to government's growth and development priorities through targeted S&T interventions and the development of strategic partnerships with other government departments, industry, research institutions and communities. Interventions include high potential R&D-led industrial development programmes, technology support programmes for industry, new approaches to government service delivery and planning, science-based policy development and decision-making, technology-led opportunities for creating sustainable jobs and wealth creation, and the contribution of technology to sustainable human settlements.

The Programme consists of the following sub-programmes:

(a) Science and Technology for Economic Impact advances strategic medium and long-term sustainable economic growth and sector development priorities as well as government service delivery.

(b) Science and Technology for Social Impact supports the experimentation of technology and science-based innovations for tackling poverty, including the creation of sustainable job and wealth opportunities, building sustainable human settlements, and enhancing the delivery of basic services.

(c) Science and Technology Investments leads and supports the development of indicators and instruments for measuring and monitoring investments in S&T and the performance of the NSI, and ways of strengthening the NSI and innovation policy.

The main objectives of the Programme are as follows:

- Through knowledge, evidence and learning, to inform and influence how science and technology can be used to transform rural and socio-economic development, government planning and service delivery, and the building of sustainable human settlements.
- To identify, grow and sustain niche high-potential STI capabilities for sustainable development and the greening of society and the economy.
- To enhance understanding and analysis that support improvements in the functioning and performance of the NSI.
- To identify, grow and sustain niche high-potential R&D capabilities that improve the competitiveness of existing and emerging economic sectors and that facilitate the development of new targeted industries with growth potential in aerospace, advanced manufacturing, chemicals, mining, advanced metals and ICTs.

The DST established an Industry Innovation Partnership (IIP) programme in 2013. The main objective of the IIP initiative is to create an environment in which government can effectively partner with industry to co-fund RDI in key strategic sectors of the economy. The DST is encouraging the IIP as part of a broader government effort to support industry competitiveness. A vital performance measure for the IIP programme will be the amount of funding the industry sector contributes to the identified RDI programmes or priorities, to match government (DST) funding.

In addition, the DST approved the establishment of a Sector Innovation Fund (SIF) Programme in May 2013 as part of the broader IIP initiative. The main objective of the SIF Programme is to provide a mechanism through which government and industry can co-invest in industry-wide RDI priorities identified by industry and which support economic outcomes such as modernisation, competitiveness, and job creation. It also aims to build stronger links between industry and the public science system. The SIF Programme focuses on improving the competitiveness of existing sectors of the South African economy. The SIFs are designed to allow the particular industry to determine its RDI needs. Industry will also be closely involved in monitoring the research and ensuring that it meets identified requirements.

The DST also supported a number of regional innovation forums around the country. These forums created awareness about the vital role of innovation in driving socio-economic development by creating networks between the institutions and individuals that create valuable new knowledge and expertise; and industry and new business in the region that use knowledge and skills and create much needed

new products, processes, and services. All these initiatives are designed to stimulate innovation in an area, and to facilitate the transfer of knowledge or expertise from knowledge generators to consumers or industry. It may eventually also lead to the transfer of innovative products and services to companies, or to create sustainable businesses based on these innovations. It is envisaged that these activities will lead to greater economic growth in the region, and to improve the skills levels of the local population. The DST supports regional innovation forums in the Western Cape, Eastern Cape, Free State, Gauteng and KZN.

The DST conducted the first Waste Sector Survey for South Africa. The Department of Environmental Affairs assisted in the development of the terms of reference for the survey. Key findings from the survey include the following:

- The formal waste sector employed a minimum of 29 833 people in 2012. 33% of these employees were in the private sector and 67% were in the public sector.
- The minimum financial value of the formal waste sector (both private and public sectors) was 0,51% of GDP (R15,3 billion).
- The spend on R&D by the waste sector was approximately 0,33% of the total value of the sector.
- The spend on HCD was approximately 2,8% of the value of the sector. The public sector spends four times more on HCD than the private sector, but still has a greater percentage of unskilled employees.
- In order to achieve the National Waste Management Strategy goals of creating 69 000 new jobs and 2 600 additional SMEs, the Department will have to look at the private waste sector.

The report recommended as follows:

- There should be consideration of classifying the waste sector as a formal economic sector and allocating Standard Industrial Classification codes. This would allow for the routine collection of data on formal waste-sector activities.
- The DST should lead a participatory process to discuss and unlock current obstacles to waste innovation.

Important events included the launch of pilot plants needed to mature novel technology developments. The third and fourth phases of the Multipurpose Fluorination Pilot Plant were launched in November 2013. The launch of the semi-continuous pilot plant for the production of titanium metal powder (based on several South African patents) took place on 7 June 2013.

The evaluation of the implementation of the Advanced Manufacturing Technology Strategy, a joint DST-Department of Performance Monitoring and Evaluation project, began in 2014. This project will help embed evaluation skills in the DST and help inform its position on advanced manufacturing for the future.

The DST is providing TAPs to qualifying local manufacturing companies in order to increase their technological capability and competitiveness. This leads to an increased local production and supplier base which can increase the level of local content (services and manufacturing) procured as a result of the large-scale public procurement programmes. TAPs consist of tailor-made technology interventions for companies and are part of a suite of instruments under the TLP. It was initiated in 2009 in order to successfully secure local supply/production contracts under public procurement. The DST is on track and has exceeded the targeted number of companies on a register to be provided with TAPs. The TLP has the full support of the Department of Public Enterprises and the Department of Trade and Industry, in addition to that of the state-owned enterprises. The TLP programme resulted in 131 new jobs (although the primary goal was competitiveness improvement).

A new Rock Innovation Programme was approved by the DST to drive a focused approach to mining and geosciences R&D.

In terms of HCD, the DST funded and co-funded 264 master's and PhD students in designated niche areas of advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs and 190 interns in the R&D of design, manufacturing and product development by 31 March 2014.

The DST concluded an agreement with the Bill & Melinda Gates Foundation on piloting various sanitation technology solutions within the 23 district municipalities

and rural schools under the Cofimvaba Technology for Rural Education and Development (Tech4RED) Project in the Eastern Cape. The conclusion of this agreement enables the DST to access rigorously tested and selected sanitation technologies in the Bill & Melinda Gates Foundation portfolio, thus significantly reducing R&D costs associated with finding appropriate and innovative sanitation technologies.

The DST received an allocation of R143 million towards the Innovation Partnership for Rural Development. This initiative focuses on demonstrating and piloting innovative technology solutions to improve public services within the rural district municipalities prioritised by government. The initiative includes a capacity building aspect intended to enable municipalities to better integrate technology-based solutions in public service delivery.

The Cofimvaba Tech4RED project is producing results that include a rudimentary decision-support tool to assist with the implementation of the e-Education White Paper. This tool is perceived to be crucial in integrating and incorporating ICT into basic education.

Assisting towards enhancing the capacity of municipalities to improve sanitation service delivery, the DST has invested in a project intending to develop a sanitation technology decision-support tool. This tool will assist decision makers in selecting appropriate technologies for their contexts.

The DST continued its project of developing an integrated information and modelling platform to support integrated planning, development and service delivery for South Africa. This multiphase initiative focuses on developing, collating and disseminating the knowledge and evidence generated by a series of advanced spatial analysis and modelling platforms via the StepSA web-based portal (www.stepsa.org) to ensure that users (planners, policy analysts, decision-makers and researchers) can easily find and download relevant information for spatial planning and policy making processes across the spheres and sectors of the state. The progress made with StepSA has garnered broad support for StepSA as a basis on which to build a national observatory for spatial data assembly and analysis. The need for this is identified in Chapter 8 of the National Development Plan.

In the year 2013/14, the Department implemented the new amendments to the R&D tax incentive which had become effective from 1 October 2012. The incentive is administered under section 11D of the Income Tax Act. A new administrative approach was introduced in which companies have to apply for the approval of R&D activities before they can qualify for the tax deduction from SARS. The procedure for retrospective submission will be phased out completely by the end of 2015/16. During 2013/14, the R&D Tax Incentive Adjudication and Monitoring Committee was established and started evaluating applications. The committee comprised officials from the DST, SARS and the National Treasury. The 2012/13 applications were carried over into 2013/14 and specific measures were introduced to clear the backlog. A progress review indicated that 43% of the cumulative stock of 624 applications had been finalised by 31 March 2014.

Table 9: Programme 5 performance information for the 2013/14 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
Through knowledge, evidence and learning, to inform and influence how science and technology can be used to transform rural and socio-economic development, government planning and service delivery, and the building of sustainable human settlements	Number of livelihoods created, sustained or improved	502 livelihoods[1] were sustained by the end of the 2012/13 financial year, with 52 people self-employed entrepreneurs (10%) and the remainder employees (90%) by 31 March 2013	400 livelihood opportunities created, sustained or improved by 31 March 2014	511 livelihoods created, sustained or improved by 31 March 2014. Of the total number of 511 people, 60% are women and 40% are men	An additional 111 livelihoods were created	Achieved	Commercial-scale production at the Nkowankowa Demonstration Centre started operating effectively and showing results sooner than expected, which resulted in the creation of approximately 100 casual jobs during quarter 4. This number had not been anticipated at the time of setting the target
	Number of knowledge products on technology-led opportunities for sustainable livelihoods published	One knowledge product[2] (policy study) was finalised (but not published) by 31 March 2013	Two knowledge products published by 31 March 2014	Two policy briefs were published on the DST website by 31 March 2014	No deviation	Achieved	n/a

1. Livelihoods include direct employment and self-employment. Direct employment or jobs refers to full-time, seasonal or temporary jobs in which people are paid for their labour (physical and intellectual).
2. Knowledge products refer to case studies, policy briefs and technology briefs. A case study is a detailed description and exploration of a particular project, with a specific focus on challenges, lessons, and success factors, and is usually targeted at people involved in implementation. A policy brief is a document outlining the rationale for selecting a particular policy alternative and aims to convince the target audience that an existing problem can be addressed by adopting a policy alternative or alternative course of action. A technology brief is a document that outlines the rationale for choosing a particular technology and aims to convince the target audience that an existing problem can be addressed by adopting a particular technology.

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of knowledge products for government planning, service delivery and the building of sustainable human settlements through innovation	One knowledge product (case study) was finalised (but not published) by 31 March 2013	One knowledge product for government planning and service delivery improvement through innovation by 31 March 2014	A policy brief on water service delivery was published on the DST website by 31 March 2014	No deviation	Achieved	n/a
	Number of decision support interventions introduced and maintained	New indicator	Two additional decision-support systems introduced, and two existing decision-support systems maintained and improved (StepSA and Risk and Vulnerability Atlas) by 31 March 2014	Two additional decision support systems for improving sanitation and basic education service delivery introduced, and two existing decision support systems (StepSA and Risk and Vulnerability Atlas) maintained by 31 March 2014	No deviation	Achieved	n/a
	Number of learning interventions (seminars, briefs, policy papers) generated	23 policy interventions (seminars, briefs, policy papers) by 31 March 2013	Nine learning interventions (seminars, briefs and policy papers) generated by 31 March 2014	16 learning interventions generated by 31 March 2014	Seven additional learning interventions were generated	Achieved	The HSRC was contracted to produce nine government cluster policy workshops and science seminars. However, during the course of the financial year, opportunities arose in the policy environment for producing additional learning interventions (which were not planned) from both the HSRC work package and the CSIR/ HSRC StepSA project

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To identify, grow and sustain niche high-potential STI capabilities for sustainable development and the greening of society and the economy	Number of high-level research graduates (master's and doctoral students) fully funded or co-funded in designated niche areas (global change and earth system sciences)	294 master's and doctoral students funded or co-funded in designated niche areas (global change sciences and earth systems sciences) by 31 March 2013	200 master's and doctoral students fully funded or co-funded in global change sciences and Earth system sciences by 31 March 2014	247 master's and doctoral students fully funded or co-funded in global change sciences and Earth system sciences by 31 March 2014 These students were supported under five Global Change programmes – the Applied Centre for Climate and Earth Systems Science (ACCESS), SAEON, the African Earth Observation Network (AEON), the Global Change Society and Sustainability Research Programme (GCSSRP) and risk and vulnerability science centres (RAVSC). The combined total number of students reflected in the cover letters is actually 268. However, Programme 5 undertook a thorough verification process to check proof of registration and 203 were found to have valid proof of registration. ACCESS = 60; AEON = 48; GCSSRP and RAVSC = 78 and SAEON = 17	An additional 44 students were funded or co-funded	Achieved	The demand for bursaries is high and the DST allocation is therefore distributed so that most of the recipients also receive some funding from other sources, e.g. international partners and the private sector

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio through fully funded or co-funded research initiatives	Two additions to the IP portfolio achieved by 31 March 2013	Two knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio by 31 March 2014	Two knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio by 31 March 2014: 1. Climate seasonal forecasting system/ model 2. Catalysing the smart and green platform.		Achieved	
	Number of scientific and technical papers accepted for publication	132 scientific and technical papers accepted for publication by 31 March 2013	55 scientific and technical papers accepted for publication by 31 March 2014	166 scientific and technical papers accepted for publication by 31 March 2013. This total tally includes contributions from ACCESS, SAEON and AEON. Lists of publications from the GCSSRP and RAVSC had not been submitted at the time of reporting the overall performance of strategic objective 2. ACCESS =58; SAEON = 28; AEON = 50	An additional 111 scientific and technical papers were accepted for publication	Achieved	Research outputs are difficult to anticipate. High performance is desirable and projects are being encouraged to publish to enhance the credibility of the Global Change Grand Challenge

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To enhance understanding and analysis that support improvements in the functioning and performance of the NSI	Number of reports and policy briefs on the innovation systems and innovation policy approved by Exco and/or published	Five policy briefs or reports finalised by 31 March 2013: • 2011/12 report on performance of R&D Tax Incentive Programme • 2010/11 R&D survey report, including a cabinet memorandum on trends in R&D in South Africa • Report on evaluation of scientific capacity of South African Weather Service • 2011/12 report on publicly funded scientific and technological activities • 2012 policy brief on S&T policy and budget coordination	Five reports and policy briefs approved by Exco and/or published by 31 March 2014	Three reports/policy briefings approved by DST and published by 31 March 2014	Two reports (the R&D Tax Incentive Report and the Innovation Survey) were not published	Partially achieved	The delay in publishing the R&D Tax Incentives Report was caused by inadequate capacity in the R&D Tax Incentives unit, as the unit was dealing with a backlog of applications and the data collation between transitioning systems needed more time for validation. However, the process to procure an efficient database system has been initiated (Bid 3/13, a tender to appoint a service provider to develop IT system, is at bid adjudication committee stage) The delay in publishing the Innovation Survey Report was due to delays in the transfer of the survey sample from Statistics South Africa to the Centre for Science, Technology and Innovation Indicators (CeSTII) and a shortage of fieldwork capacity at CeSTII The survey time frames were revised and the report will be finalised in the third quarter of the 2014/15 financial year

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To identify, grow and sustain niche high-potential R&D capabilities that improve the competitiveness of existing and emerging economic sectors and that facilitate the development of new targeted industries with growth potential in aerospace, advanced manufacturing, chemicals, mining, advanced metals and ICTs	Number of high-level graduates (master's and doctoral students) fully funded and co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs)	227 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, chemicals, advanced metals and ICTs) by 31 March 2013	245 master's and doctoral research graduates fully funded and co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining advanced metals and ICTs) by 31 March 2014	264 master's and doctoral students fully funded or co-funded in designated niche areas (advanced manufacturing, aerospace, chemicals, mining, advanced metals and ICTs) by 31 March 2014	An additional 19 graduates funded	Achieved	The allocated funds for HCD are nominally 30% of all Programme 5 contracts. However, the actual number of students funded or co-funded depends on the number of students interested in pursuing master's or doctoral studies rather than the funds allocated, so it is difficult to provide accurate targets. The co-funded or fully funded students are counted over the year and are not only the sum of the number of students reported quarterly. Quarter 4 shows 205 students, which is below the annual target, but the annual performance is calculated according to the maximum number of students co-funded/funded per area
	Number of interns fully funded or co-funded in the R&D of design manufacturing and product development	50 funded or co-funded internships in the social sciences and humanities by 31 March 2013	130 interns fully funded or co-funded in R&D of design manufacturing and product development by 31 March 2014	190 interns fully funded or co-funded in R&D design, manufacturing and product development by 31 March 2014	An additional 60 interns were fully funded or co-funded in R&D design, manufacturing and product development	Achieved	TIA interns exceeded the target as accumulated interest from the project was used to place additional interns. Furthermore, interns who also do not complete their internship period are replaced with new interns funded from the remaining budget, resulting in the target being exceeded

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
To identify, grow and sustain niche high-potential R&D capabilities that improve the competitiveness of existing and emerging economic sectors and that facilitate the development of new targeted industries with growth potential in aerospace, advanced manufacturing, chemicals, mining, advanced metals and ICTs	Number of knowledge and innovation products (patents, prototypes, technology demonstrators or technology transfer packages) added to the IP portfolio through fully funded or co-funded research initiatives	Two additions to the IP portfolio (patents, patent applications, prototypes, technology demonstrators, and technology transfer packages) by 31 March 2013	15 knowledge and innovation products (patents, technology demonstrators, transfer packages or prototypes) added to the IP portfolio by 31 March 2014	16 knowledge and innovation products (two in-house invention disclosures, one provisional patent and 13 technology demonstrators) added to the IP portfolio by 31 March 2014	One more technology demonstrator added to the IP portfolio by 31 March 2014	Achieved	IP portfolio additions are difficult to anticipate owing to the complexity of the work being done, which is also based on market demand
	Number of companies in the register of companies receiving TAPs	50 companies in the register of companies provided with a TAP by 31 March 2013	72 companies in the register receiving TAPs by 31 March 2014	84 companies in the register of companies by 31 March 2014	An additional 12 companies were added to the register receiving TAPs	Achieved	Savings were realised in the approved budget, which enabled the programme to support more companies than the targeted number. In addition, the processes around the identification, evaluation and approval of the TAPs have matured and are now streamlined

Strategic objective	Performance indicator	Actual achievement 2012/13	Planned target 2013/14	Actual achievement 2013/14	Deviation between planned target and actual achievement for 2013/14	Status	Comment on deviations
	Number of SMEs provided with technology support	1 769 SMEs receiving technology support by 31 March 2013	2 300 SMEs receiving technology support through the Technology Stations Programme by 31 March 2014	1 904 SMEs received technology support through the Technology Stations Programme by 31 March 2014	Fewer SMEs received technology support than planned. The original target agreed to with TIA was 2 300. TIA requested a revised target of 2 000 (approved by the Minister of Science and Technology on 15 January 2014) in view of the delay in finalising the technology stations work plan, and the increased rigour of counting qualifying firms	Partially achieved	This performance indicator is delivered solely by TIA, and its reduction to 2 000 implied that the DST target could not be achieved. In conjunction with TIA, the DST will institute an improved system for recording and validating outputs. The DST Internal Audit Activity has performed an audit on the processes related to this performance indicator and corrective action will be taken in the new financial year. In addition, a signed work programme between the DST and TIA will be used in the 2014/15 financial year

Annexure: Targets adjusted during the 2013/14 financial year

Table 10: Adjusted targets as per National Treasury prescripts

Original target	Adjusted target	Responsible institution/agency
12 TIA investments commercialised through TIA funding by 31 March 2014	Three TIA investments commercialised through TIA funding by 31 March 2014	TIA
2 300 SMEs receiving technology support through the Technology Stations Programme by 31 March 2014	2 000 SMEs receiving technology support through the Technology Stations Programme by 31 March 2014	TIA

4. Transfer payments

The Department transfers funds to various entities in pursuit of its mandate. These entities assisted the Department with the achievement of the objectives mandated to them on the time frames determined by the Department. The tables below highlight the entities and the reasons transfers were made. The detailed information regarding the entities to whom the transfers were made is disclosed fully in the Annexures to the Annual Financial Statements in Part E.

Programme 1: Administration

Organisation/theme	Budget R'000	Actual expenditure R'000	Reason for transfer payment
Institution and programme support	13,551	13,536	Assistance for research activities
Total	**13,551**	**13,536**	

Programme 2: Research, Development and Innovation

Organisation/theme	Budget R'000	Actual expenditure R'000	Reason for transfer payment
Biotechnology Strategy	36,328	36,320	Implementation of the Biotechnology Strategy
Energy Grand Challenge	41,728	41,500	Support R&D in the renewable energy sector
Health Innovation	43,725	43,724	R&D for new health products and services
HIV/Aids prevention and treatment technologies	21,317	21,317	Research into technologies to combat and prevent HIV/Aids
Hydrogen Strategy (Capital)	57,332	57,332	Support research infrastructure in the hydrogen and energy sector
Hydrogen Strategy (Current)	32,479	32,439	Support R&D in the hydrogen and energy sector
Innovation Projects	37,019	37,011	To promote IP management, regulation and commercialisation
International Centre for Genetic Engineering and Biotechnology	10,936	10,936	R&D of new health products
South African National Space Agency	123,708	123,708	To support the creation of an environment conducive to industrial development and space technology
Space Science	45,000	45,000	R&D to support space science initiatives
Square Kilometre Array (Capital)	628,107	628,107	Infrastructure for the SKA project
Square Kilometre Array (Current)	12,458	12,458	R&D for the SKA project
Technology Innovation Agency	481,081	481,081	To stimulate and intensify technology innovation and commercialisation output
Technology Top 100	3,163	3,163	To promote technological advancement for private sector with focus on SMMEs
Total	**1,574,381**	**1,574,095**	

Programme 3: International Cooperation and Resources

Organisation/theme	Budget R'000	Actual expenditure R'000	Reason for transfer payment
Africa Institute of South Africa	35,237	35,237	To conduct research and support policy development
Global Science: Bilateral Cooperation	12,203	12,203	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
Global Science: International Resources	31,650	31,344	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
Global Science: Multilateral Cooperation	7,700	7,700	Growing international partnerships with the aim of leveraging resources for R&D and human capital development
Total	**86,790**	**86,484**	

Programme 4: Human Capital and Knowledge Systems

Organisation/theme	Budget R'000	Actual expenditure R'000	Reason for transfer payment
Academy of Science of South Africa	20,744	20,744	To promote innovative and independent scientific thinking
Centre for High Performance Computing	90,439	90,439	Operation and management of the CHPC initiatives
Emerging Research Areas	56,704	56,704	R&D into emerging research areas
Human Capital Development	410,585	410,585	Implementation of human capital development initiatives
Indigenous Knowledge Systems (IKS)	20,182	20,181	Implementation of IKS initiatives
National Nanotechnology Centres	45,835	45,835	R&D into nanotechnology initiatives
National Research Foundation	1,112,879	1,112,879	To support and promote research through funding human resource development
R&D Infrastructure	442,840	442,817	Infrastructure development
Science and Youth	61,467	51,767	Research and initiatives towards youth involvement in the science arena
Science Themes	76,107	76,107	To support R&D initiatives in areas of geographic advantage
South African National Research Network	101,943	101,943	Connectivity of research institutions
Total	**2,439,725**	**2,430,001**	

Programme 5: Socio-Economic Partnerships

Organisation/theme	Budget R'000	Actual expenditure R'000	Reason for transfer payment
Advanced Manufacturing Technology Strategy	38,033	37,953	Implementation of the Advanced Manufacturing Technology Strategy
Council for Scientific and Industrial Research	781,996	781,996	Parliamentary Grant as per the Estimates of National Expenditure. To provide science and technology services and solutions and identify opportunities where new technologies can be further developed and exploited in the private and public sectors for commercial and social benefit.
Global Change Science and Technology	57,586	57,586	Implementation of Global Change Grand Challenge – Planning support and 10-year research plan
Human and Social Dynamics in Development	11,298	11,223	Policy and institution building (10-year plan and centres of excellence)
Human Sciences Research Council	223,630	223,630	Parliamentary Grant as per the Estimates of National Expenditure. To conduct large-scale, policy-relevant, social-scientific research
Information Communication Technology	21,168	21,168	Implementation of the South African ICT RDI Strategy
Local Manufacturing Capacity	111,947	111,947	To assist local companies to develop their technology capabilities to enable them to leverage the procurement opportunities from the infrastructure build programmes of the state-owned enterprises. To fund technology stations to render technology support to small and medium-sized enterprises
Local Systems of Innovation	104,544	93,838	Cold-Chain Technologies Project (FPEF and ARC); COFISA-DST partnership; advocacy in provinces. Support local innovation interventions and science parks
Natural Resources and Public Assets	69,463	69,463	Maintain and grow genebanks (ARC); South African Biosystematics Initiative; South African Biodiversity Information Facility, Biobank
Research Information Management System	4,519	4,519	Information access for decision making
Resource-Based Industries	41,043	40,854	S&T policy, strategy and direction-setting support to harness value from South Africa's natural resources
Science and Technology Indicators	9,488	9,488	Development of S&T indicators
South African Research Chairs Initiative	74,045	74,045	Strengthen and improve research and innovation capacity in social sciences and humanities
Technology for Poverty Alleviation	25,448	25,447	Poverty alleviation initiatives
Technology for Sustainable Livelihoods	35,501	35,501	Poverty alleviation initiatives
Total	**1,609,687**	**1,598,657**	

5. Donor funds

5.1. Donor funds received

The DST received official development assistance (ODA) from Canada, Ireland, the European Community and the United States Agency for International Development (USAID). Below is a brief summary of the activities supported by these ODA partners in science and technology.

Name of donor	**Canada**
Full amount of the funding (R'000)	20,000
Period of the commitment	5 years
Purpose of the funding	Epidemiological Model for HIV/AIDS Programme
Expected outputs	Improved region, age and gender specific epidemiological measures incorporated into routine surveillance. SACEMA's mature relationship with Department of Health and South African National AIDS Council that impacts on key policy decisions such as the evaluation and redrafting of NCP. Increased capacity of (especially young) South African women and men to perform gender-sensitive policy-impacting epidemiological research.
Actual outputs achieved	Completion of the first SACEMA-led and implemented field work project, an innovative investigation of sexual networks (epidemiology surveillance) The ARV clinical/epidemiological data management development adopted by the Department of Health as the national standard. Final report yet to be submitted.
Amount received in current period (R'000)	4,777
Amount spent by the Department (R'000)	4,777
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**Portugal**
Full amount of the funding (R'000)	232
Period of the commitment	2 years
Purpose of the funding	Bridging Actions for Gems & Africa (BRAGMA)
Expected outputs	Bridging Actions for Gems & Africa (BRAGMA)
Actual outputs achieved	The report for the project was made available.
Amount received in current period (R'000)	232
Amount spent by the Department (R'000)	232
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**Ireland**
Full amount of the funding (R'000)	1,932
Period of the commitment	3 years
Purpose of the funding	Potato Tissue Culture Project in Lesotho
Expected outputs	Potato Tissue Culture Project in Lesotho
Actual outputs achieved	Potato seed has been planted Training of lab and greenhouse staff has taken place Lab and greenhouse have been renovated
Amount received in current period (R'000)	500
Amount spent by the Department (R'000)	96
Reasons for the funds unspent	Everything was in place for the funds to be utilised; however, financial year ended before the funds were utilised. These funds will be surrendered and requested again from National Treasury.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**USAID**
Full amount of the funding (R'000)	54
Period of the commitment	1 year
Purpose of the funding	OECD DAC Trilateral Brainstorming
Expected outputs	To assist the OECD-DAC in formalising trilateral cooperation as a modality of ODA cooperation based on the DST/USAID engagement.
Actual outputs achieved	The workshop was attended and the report has been completed.
Amount received in current period (R'000)	54
Amount spent by the Department (R'000)	54
Reasons for the funds unspent	N/A
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**USAID**
Full amount of the funding (R'000)	1,724
Period of the commitment	2 years
Purpose of the funding	Human health risk and coping mechanisms to environmental pollution in the lower Olifants river with Mozambique
Expected outputs	To determine the extent to which water and air pollution may impact on the health of two communities in the lower Olifants river catchment area.
Actual outputs achieved	The project closed in March. All deliverables were achieved and the necessary reports and documents have been sent to National Treasury and USAID.
Amount received in current period (R'000)	739
Amount spent by the Department (R'000)	739
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**USAID**
Full amount of the funding (R'000)	487
Period of the commitment	2 years
Purpose of the funding	Development of propagation of pathogen-free potato seed for yield improvement in Malawi
Expected outputs	To provide technical assistance to the Malawi government and the higher education sector in the proposed project that is aimed at increased production of good quality seed, high-yielding potato varieties in Malawi.
Actual outputs achieved	Achievements to date: farmers have improved their potato cultivation, plantation and management capacity; training of laboratory and greenhouse staff was completed; the greenhouse and laboratory have been renovated and are functional.
Amount received in current period (R'000)	177
Amount spent by the Department (R'000)	115
Reasons for the funds unspent	TIA, the implementing agency for the project has not been able to absorb the funds and carry on with implementation. Remedial action has been taken to resolve this.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**USAID**
Full amount of the funding (R'000)	1,168
Period of the commitment	2 years
Purpose of the funding	SADC capacity building in relation to the risk and vulnerability atlas
Expected outputs	To build capacity in SADC member states in understanding information on climate change impact and risk in the context of the SADC early warning mechanism.
Actual outputs achieved	The project is progressing well: training was successfully carried out in three SADC countries, user needs assessments have been completed for the countries, and the project website is up to date.
Amount received in current period (R'000)	157
Amount spent by the Department (R'000)	157
Reasons for the funds unspent	CSIR has used its own financing for uninterrupted implementation, which will be recouped from USAID funding at a later stage.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	5,483
Period of the commitment	2 years
Purpose of the funding	Promoting Africa/EU Research Infrastructure
Expected outputs	To develop a database of African Research Infrastructure and influence policy dialogue in the region
Actual outputs achieved	Research Infrastructure inventory database developed. Socio-economic impact report. Funding instrument analysis. Policy recommendations on enhancing EU - Research infrastructure cooperation.
Amount received in current period (R'000)	75
Amount spent by the Department (R'000)	75
Reasons for the funds unspent	Not applicable
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	419
Period of the commitment	2 years
Purpose of the funding	Biocircle
Expected outputs	Increase the participation of researchers from outside Europe in research projects under the Food, Agriculture, Fisheries and Biotechnology theme (FAFB) of the 7th Framework Programme (FP7).
Actual outputs achieved	SA researchers participated in EU activities and the interest in participating in FAFB projects is evident. SA-EU research interacted on a number of activities.
Amount received in current period (R'000)	23
Amount spent by the Department (R'000)	-
Reasons for the funds unspent	Project finished and the amount of R22 000 was utilised; however invoices were not yet received at year end. The remaining funds will be used for FAFB information session on the 26/05/2014
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	300,000
Period of the commitment	3 years
Purpose of the funding	Sector Budget Support
Expected outputs	To contribute to South Africa's harmonious and sustained economic and social development through programmes and measures designed to reduce poverty and encourage economic growth which benefits the poor.
Actual outputs achieved	The Innovation for Poverty Alleviation Programme contributed towards the country's objective to eradicate poverty and improve the standards of living for the rural inhabitants through its 13 rural-based technology demonstration projects. These projects allow for people in the rural communities to participate in the country's economy as well as create jobs.
Amount received in current period (R'000)	61,371
Amount spent by the Department (R'000)	60,871
Reasons for the funds unspent	The difference can be largely attributed to the delayed invoicing by service providers. Therefore transaction entered into just before year-end could only be paid in the beginning of the current financial year
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	143,500
Period of the commitment	3 years
Purpose of the funding	General Budget Support
Expected outputs	To establish a link: Science and technology opportunities for practical policy influence.
Actual outputs achieved	The programme is still at inception phase, transfers have just been made to implementing agencies, so no real outputs could be established yet.
Amount received in current period (R'000)	40,000
Amount spent by the Department (R'000)	39,383
Reasons for the funds unspent	Initially R62 million was planned for transfer to the Water Research Commission, but due to the delays in transfer of the required funds by the National Treasury, a lesser amount (R39 million) was opted for.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	5,000
Period of the commitment	3 years
Purpose of the funding	EASASTAP Plus
Expected outputs	Advancement of South Africa/European Union collaboration
Actual outputs achieved	Assessment of the NCP system. Side event meeting to the 2013 EU-SA Summit with EU Member states and associated countries to discuss collaborations. Revamped of ESASTAP website. Horizon 2020 information session from 27 – 30 January 2014 in Gauteng, KwaZulu-Natal, Free State, Western Cape and Eastern Cape. The European Commission also presented with DST in this information session.
Amount received in current period (R'000)	500
Amount spent by the Department (R'000)	263
Reasons for the funds unspent	The EU launched the first calls in December, thus the money could not be spent before the official launch of the call. The EC representative had to be secured to help with the first sessions, which could only be done at the end of January, meaning the rest of the sessions could only be done after January.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

Name of donor	**European Union**
Full amount of the funding (R'000)	2,055
Period of the commitment	4 years
Purpose of the funding	CAAST-Net Plus
Expected outputs	To promote mutual understanding of Africa/EU cooperation on science, technology and innovation areas of mutual interest.
Actual outputs achieved	CAAST-Net Plus co-organised a validation workshop with the European Commission. The objective of the workshop was to consider, discuss and enrich a study commissioned by the EC on mapping of best practice regional and multi-country cooperative STI initiatives between Africa and Europe's initial outcomes and make recommendations for its finalisation. The workshop was held in Brussels, Belgium on 18 September 2013. As a result of this, CAAST-Net Plus had an S&T event on food security and nutrition during the Africa-EU High Level Policy Dialogue, which was also mentioned in the draft Africa-EU Roadmap 2014-2017.
Amount received in current period (R'000)	480
Amount spent by the Department (R'000)	480
Reasons for the funds unspent	All funds spent
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

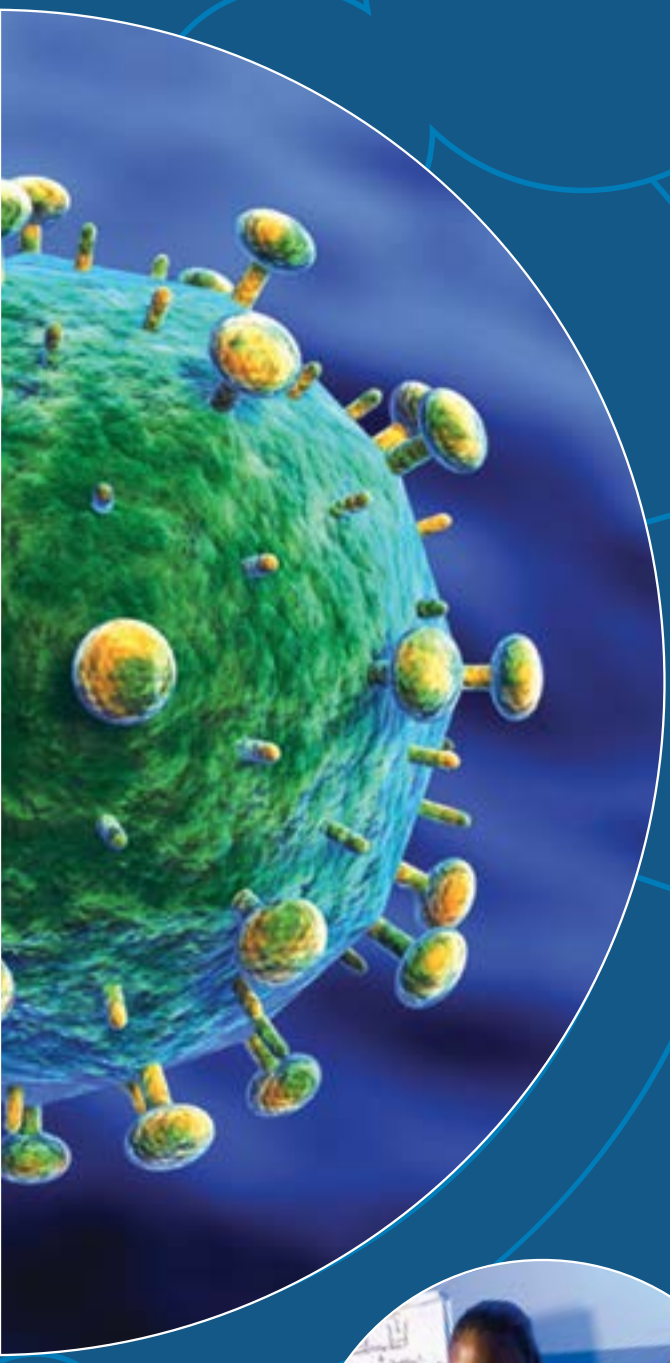
Name of donor	**European Union**
Full amount of the funding (R'000)	2,345
Period of the commitment	3 years
Purpose of the funding	ERAfrica
Expected outputs	Implementing wide dialogue with the aim of reaching consensus among EU and Africa programme owners.
Actual outputs achieved	1. 13 of the successful proposals had South African researchers. 2. Co-investment was provided to SA researchers participating in the ERAfrica joint call from the following institutions: UJ, SU, and UCT.
Amount received in current period (R'000)	250
Amount spent by the Department (R'000)	42
Reasons for the funds unspent	The Department was supposed to secure a venue for the ERAfrica closing conference, but due to the delay in signing agreements by other funding partners, the conference has been postponed. There was also a delay in appointing the external evaluator for the ERAfrica project.
Monitoring mechanism by the donor	These funds are audited by the Auditor-General or external auditors at the request of the donor.

6. Capital investment

6.1 Capital investment, maintenance and asset management plan

The Department has asset management policies and procedures in place. According to the Department's asset management policy, two asset verifications are supposed to be conducted annually to assist in ensuring that the asset register of the Department is up to date. However, the two asset verifications will be increased to four asset verifications annually from the 2015/16 financial year onwards to enhance asset management. The Department also has stringent measures in place to ensure that no one leaves the Department's premises with official assets unless they have authorisation to do so.

The time span of the Asset Disposal Committee has also been increased. The committee will have a time span of two years rather than one as was the case in the period under review. This will ensure that damaged and obsolete assets are disposed on time.



PART C:
Governance

1. Introduction

The Department is commitment to maintain the highest standards of governance that is fundamental to the management of public finances and resources. The corporate governance frameworks below form the main pillars of the Department's corporate governance arrangements, which are based on legislation as well as best practices.

2. Risk management

a. The Department views Enterprise Risk Management (ERM) as an imperative for the successful delivery on its mandate. The Department believes that identifying, understanding and managing risks in an enterprise-wide context will ensure accountability and sustainability, and that ERM will compel the Department to address negative events in a proactive and timely manner, whilst exploiting the possible opportunities posed by certain future uncertainties.

b. There are various processes to ensure the commitment of the entire Department (e.g. awareness sessions at induction and ongoing, regular risk assessments and subsequent follow-up), as well as the definition of clear risk management roles and responsibilities.

c. The Department has appointed a Chief Risk Officer and has in place effective management systems (policy, framework, strategy, guidebooks and an annual implementation plan) for ERM.

d. To ensure the quality, integrity and reliability of the Department's ERM processes and responses, the Department has an ERM Committee (ERMC) comprising four external members and four ex-officio members. The Audit Committee Chairperson is a standing invitee of the ERMC. The ERMC has played an integral part in ensuring that the Department maintains and enhances the maturity level of risk management. The table below indicates the members of the ERMC and the meetings they have attended during the period under review.

e. The Department's Internal Audit Activity and the Audit Committee provide independent assurance of the Department's ERM processes, and advise on risk management controls and risk mitigation effectiveness.

f. Strategic, operational and functional risk profiles were finalised for the period under review and risk mitigation was monitored quarterly by the ERMC.

g. The Department has noted that the improvement in the management of risks has translated into improvement in performance, but there remains room for further improvement. In this regard, the Department has initiated the process of performing project risk assessments.

Name	Member Status	Meetings attended	Notes
M Zakwe	Independent member (Chairperson)	4 of 5	Resigned - 27 Jan 2014
Z Fihlani	Independent member	5 of 5	
L Kaplan	Independent member	3 of 5	
B Gutshwa	Independent member	2 of 3	Resigned - 29 Sep 2013
J Fick	Independent member	1 of 1	New appointment - 4 Feb 2014
N Mokoena	Ex-officio member	0 of 5	
BT Mavuso	Ex-officio member	2 of 4	Resigned – 14 Nov 2013
B Muthwa	Ex-officio member	2 of 4	Resigned – 15 Jan 2014
M Malapane	Ex-officio member	1 of 2	Special leave
N Madwe	Interim ex-officio member	2 of 2	In place of BT Mavuso
D Morabe	Interim ex-officio member	2 of 3	In place of M Malapane
S Moonsamy	Interim ex-officio member	1 of 1	In place of B Muthwa
S Machaba	Audit Committee Chairperson – Standing Invitee	0 of 5	
H Maritz	Audit Committee member	4 of 5	Attended onbehalf of S Machaba

3. Fraud and corruption

a. The Department has in place an effective management system (fraud risk management and whistle-blowing policies, framework, strategy and an annual fraud prevention and detection plan) for Fraud Risk Management.
b. In the period under review, the fraud risk profile was finalised. This formed the basis for the formulation of the annual fraud prevention and detection plan. Implementation of the plan is driven by the ERM unit and progress is monitored quarterly by the ERMC and Audit Committee.
c. The Department actively promotes awareness of fraud and corruption and the use of the National Anti-Corruption Hotline – 0800 701 701, using different mediums of communication. The Department has designated mid-November to mid-December of each year as Anti-Corruption Month and hosts its annual Anti-Corruption Day in this period, the objective being to heighten awareness amongst staff of fraud, corruption and ethical conduct.
d. The validity of allegations of fraud and corruption is thoroughly investigated using internal and/or external resources. The outcome of an investigation guides the Accounting Officer on the steps (disciplinary action, recovery of state resources, criminal investigation), to be taken to finalise the matter. Should it be warranted, the Department will report a matter to the appropriate law enforcement authority (South African Police Service, Special Investigation Unit, the Office of the Public Protector, etc.) for further investigation. For the period under review, this was not necessary. The progress of investigations is reported on 'in committee' at all ERMC meetings.

4. Minimising conflict of interest

Information sessions on the Code of Conduct were presented to the DST staff on 19 February 2014. There was no conflict of interest identified in the previous financial year.

5. Code of Conduct

The Department is adhering to the Public Service Code of Conduct and the disciplinary procedure is applied in cases of breach of the code. One employee was disciplined for contravening the contents of the Code of Conduct in the previous financial year.

6. Health, safety and environmental issues

The Department's Occupational Health and Safety (OHS) strategy focused on the following objectives, which are to: (i) create a healthy and safe working environment through the identification, recognition and evaluation of hazards, and the proactive implementation of appropriate risk control measures; (ii) implement OHS risk management strategies in order to effectively and efficiently manage and reduce OHS risks; (iii) reduce the frequency and severity of risks affecting employees' health and safety; (iv) create OHS awareness by providing

information and education in order to generate and maintain a vigilant OHS culture, thereby creating a healthy and safe environment; and (v) comply with OHS legislation and relevant standards.

In the last financial year, the Department has seen a reduction in occupational health and safety hazards and risks. Inspections, indoor air quality and environmental assessments have been conducted. The Department has a functional Committee in place. Eighteen first aid employees received training. OHS incidents such as injuries and near misses are analysed and addressed quarterly. Information awareness notices have been placed at various points to heighten awareness of OHS risk and compliance.

In terms of compliance, the following guidelines have been put in place – OHS Policy, Procedures for Working on Heights; Incident Management Guide; Management of Medical Emergencies Guide; Evacuation Procedure; and Section 37.2 Agreement.

7. Portfolio committee

Portfolio committee briefings from 1 April 2013 to 31 March 2014

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
16 April 2013	**Oversight visit in Western Cape:** The South African Astronomical Observatory, which hosts the International Astronomical Union's Office of Astronomy for Development	• Members expressed appreciation for and commended the work done.	Not applicable
17 April 2013	**Briefing on 2013/14 Annual Performance Plans (APPs) by the:** 1. Council for Scientific and Industrial Research (CSIR)	• Members requested the Department to furnish the PC with information on projects which demonstrated technology solutions to improve service delivery in rural areas. • Members enquired whether the performance targets adhere to the SMART (specific, measurable, achievable, relevant and time-bound) principle. • Members enquired whether the budget allocated for communication and outreach was insufficient.	Matters that were referred for further action are reported as follows: • The Department to provide a list of CSIR projects and efforts to improve service delivery in rural areas to the PC. • The Department to identify ways to communicate programmes and achievements of the Department and its entities to all South Africans. (DST Communication Strategy was developed.)

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
	2. Human Sciences Research Council (HSRC)	• Members asked the HSRC if their targets are set too low, as the entity reported 113% achievement. • Members questioned and were provided with information regarding research being conducted in support of the Department of Basic Education. • Members enquired and were informed about the role of the HSRC in Africa. • Members requested elaboration on the incorporation of the African Institute of South Africa into HSRC.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	3. Africa Institute of South Africa (AISA)	• Members questioned and sought clarity on AISA's proposed incorporation into the HSRC.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	4. South African National Space Agency (SANSA)	• Members requested and were provided with an update on the progress made with Cabinet's decision regarding Sunspace. • Members enquired about the status of the African Resource Management Constellation (ARMC) satellite development agreement signed in 2009 between Nigeria, Algeria, Kenya and South Africa. • Members asked how effectively SANSA worked with the National Research Foundation (NRF) on the matter of student development bursaries.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
18 April 2013	**Briefing on 2013/14 Annual Performance Plans (APPs) by the:** 1. Technology Innovation Agency (TIA)	• Members engaged in a detailed analysis of the APP and no major issues were outstanding. • Members enquired why only 1% of the budget was allocated to marketing and branding of the Agency.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
	2. Academy of Science of South Africa (ASSAf)	Members enquired about: • the range of studies conducted by ASSAf; • efforts to promote science education; • details about criteria for membership of the Academy; • the levels of cooperation between ASSAf, HSRC and AISA; and • whether ASSAf is working on issues such as rural development, HIV and TB, and hydraulic fracturing of the Karoo shale-gas reserves.	All matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
8 May 2013	1. Briefing by Department on the Africa Institute of South Africa (AISA) Act Repeal Bil	• Members enquired about the consultation process between the Board and staff of AISA regarding the incorporation of AISA into the HSRC. • Members raised questions around the staff's incorporation within the HSRC and whether their remuneration would be affected. • Members and the Parliament's legal advisor needed further clarity about the consultation with National Treasury and whether there existed any written undertaking with the Department around ring-fencing of AISA's funds.	Matters that were referred for further action are reported as follows: • The Department to remove the section of the legislation providing for AISA's budget to be ring-fenced when incorporated into the HSRC. Section removed.
	2. Briefing by the Department on the Research and Development (R&D) Tax Incentive Programme 2011/12 Annual Report	• Members questioned the increase in R&D expenditure over the year and the effectiveness of the programme. • Members asked about the number of companies benefiting from the programme. • Members expressed reservations about the administrative load for small and medium enterprises (SMEs) with regard to the application process.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
5 June 2013	1. Briefing by the Centre for the AIDS Programme of Research in South Africa (CAPRISA)	• Members raised questions about the Tenofovir gel versus tablet formulation, and which would be more effective considering the 39% efficacy rate. • Members asked who owned the intellectual property (IP) rights of the gel. • Members questioned why some trial participants did not take the drug. • The PC expressed its support for CAPRISA's work and its concern about the high incidence of HIV among young women.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	2. Briefing by the Department on the shortlist of candidates for appointment to the Board of the National Research Foundation (NRF)	• Members requested clarification on the process that was followed to identify the shortlisted candidates.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	3. Committee deliberations on the African Institute of South Africa (AISA) Act Repeal Bill	• Members requested that the Department, Parliamentary Legal Advisor and the State Law Advisor reword Clause (3) subsections (5) and (6).	Matters that were referred for further action are reported as follows: • The Department's legal team to consult the Parliamentary Legal Advisor and the State Law Advisor to implement changes to the Repeal Bill. Consultations were held.
12 June 2013	Committee consideration and finalisation of the Africa Institute of South Africa (AISA) Act Repeal Bill	• Members of the Committee adopted the Bill with the proposed amendments.	Not applicable
20-21 July 2013	**Oversight visit to Limpopo:** Science, Technology and Innovation Summit	• Members highlighted that the Summit provided key stakeholders with the opportunity to discuss and explore ways of strengthening the NSI in line with the objectives of the NDP, the NGP and the IPAP2.	Not applicable

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
22-25 July 2013	**Oversight visit to the Eastern Cape:** • Cofimvaba Schools District Technology project • University of Fort Hare • South African Institute of Aquatic Biodiversity • Rhodes University • Uitenhage Science Centre • KwaNobuhle Essentials Oils project in Uitenhage	• Members reported that the Cofimvaba visit was a performance highlight for the year under review. Members witnessed how the introduction of new and tested technologies contributes to the quality of teaching and learning in rural schools. • The Committee visited the University of Fort Hare where the Department's Community-University Partnership Programme (CUPP) is piloted. The project focuses on how universities can be more responsive to and inclusive of community issues by sharing knowledge and expertise. • Members visited the science centre, which they view as an important mechanism to generate awareness and understanding of science and technology among learners and adults. • Members commended the Department and the CSIR on contributing to the alleviation of poverty through the extraction of geranium oil to contribute to the growth of the sector in South Africa.	Matters that were referred for further action are reported as follows: • The Members of the Committee would like to see the Department build on and implement the successes of the Cofimvaba Schools District Technology project on a national scale with the Department of Basic Education. • The Members of the Committee would like to see the Department continue its efforts to seek partnerships with the private sector, as this is crucial for the sustainability of the Science Centres. • The Members of the Committee brought to the attention of the Department the conflict that exists between the trustees, management and some beneficiaries of the farm at the KwaNobuhle Essentials Oils project in Uitenhage.
21 Aug. 2013	Briefing on progress of the Square Kilometre Array (SKA) and MeerKAT projects	• Members asked whether the SKA SA tender system was sufficiently secure to prevent corruption. • Members enquired how, and to what extent, Further Education and Training (FET) colleges in the province were involved in the project. • Members queried whether an environmental impact assessment (EIA) had been carried out to assess the impact of the SKA. • Members enquired about the funding and the intellectual property (IP) rights of the project. • Members asked what mechanisms were in place to ensure that fracking would not impact negatively on the SKA.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
11 Sept. 2013	Briefing by the Department on the 1st Quarter Expenditure and Performance Report	• Members raised concern about the 10% vacancy rate. • Members queried whether the minimum 80% of targets would be met. • Members asked for clarity on the Marine Biology research strategy. • Members enquired about the MeerKAT, and asked whether South Africa had the skills and competence to support the project.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
18 Sept. 2013	1. Briefing by the Department on the shortlisted candidates for the Human Sciences Research Council (HSRC) Board	• Members urged the Department to put more effort into identifying suitable disabled persons as candidates for appointment to Boards. • Members adopted the shortlist of candidates.	All the matters were addressed satisfactory and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	2. Briefing by the Department on the Technology Innovation Agency (TIA) Institutional Review Report	• Members questioned what prompted the TIA review. • Members asked for clarity on whether technology stations should fall under TIA or the CSIR. • Members enquired as to what operational problems TIA was experiencing?	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
8 Oct. 2013	**2012/13 Annual Report briefings:** 1. Department of Science and Technology	• Members congratulated the Department on being identified as the best managed national department by the Presidency's Management Performance and Assessment Tool (MPAT). • Members questioned "partly achieved' targets. • Members asked what level of funding the Department had requested from National Treasury for 2014/15. • Members required clarity on the audit findings. • Members recommended that the Department strengthen its relationships with other government departments in areas where there are cross-cutting or overlapping mandates.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
	2. South African National Space Agency (SANSA)	• Members questioned SANSA's audit findings. • Members asked about the 19% vacancy rate. • Members asked for clarity on the location of Sunspace within Denel Spaceteq. • Members requested information on the progress made with the African Resource Management Constellation (ARMC)	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	3. National Advisory Council on Innovation (NACI)	• Members requested details on NACI's specific targets. • Members wanted clarity on processes that are in place to track what advice given to the Minister has been implemented.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
9 Oct. 2013	**2012/13 Annual Report Briefings:** 1. Technology Innovation Agency (TIA)	• Members raised concern about the high staff turnover • Members also asked about the fruitless and wasteful expenditure reported, which was higher than the previous year.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	2. Academy of Science of South Africa (ASSAf)	• Members were generally satisfied with the briefing by ASSAf.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	3. Council for Scientific and Industrial Research (CSIR)	• Members requested that the CSIR enhance their communication efforts to effectively highlight their work and activities.	Matters referred for further action: The Department and CSIR to identify efforts to communicate activities to all South Africans.
	4. The National Research Foundation (NRF)	• Members raised concern about the high staff turnover. • Members questioned why research chair positions were not filled. • Members enquired about the status of the PhD project.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
10 Oct. 2013	**2012/13 Annual Report Briefings:** 1. Human Sciences Research Council (HSRC)	• Members urged the HSRC to foster closer working relations with other DST entities to enhance performance in overlapping programmes and projects.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
	2. Africa Institute of South Africa (AISA)	• Members expressed their concern about the Auditor-General's findings that AISA's targets were not based on the SMART principle.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
16 Oct. 2013	Briefing by the Auditor-General (AG) on the Department of Science and Technology (DST) 2012/2013 Audit outcomes	• Members noted that the NRF, CSIR and HSRC received unqualified opinions with no findings. • Members further noted that the Department and AISA received unqualified opinions with findings on compliance and predetermined objectives. • Members also noted that SANSA and TIA had findings on predetermined objectives as their indicators were not well defined.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
23 Oct. 2013	Briefing by the Department on the Science and Technology Laws Amendment Bill	• Members raised concerns about their oversight role. • Members suggested that the purpose of any changes be presented at the next meeting.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
29 Oct. 2013	Briefing (clause-by-clause) by the Department of Science and Technology on the Science and Technology Laws Amendment Bill.	• Members asked for clarity as to whether all aspects of the legislative process pertaining to the constitution of the Boards of the entities had been standardised through the proposed amendments. • Members asked what delays were caused by Parliament that warranted the amendment of the legislative process.	Matters that were referred for further action are reported as follows: • The proposed changes by the Members of the Committee were applied.
30 Oct. 2013	Committee discussion on the Science and Technology Laws Amendment Bill	• Members reviewed the Parliamentary Legal Advisor's proposed amendments and made further changes. • Members sought clarity as to whether the Department wanted the text of the clauses to be standardised or whether the functional meaning of the clauses should be standardised.	All the matters were addressed satisfactorily and recorded on the Parliamentary Monitoring Group website: http://www.pmg.org.za/minutes
6 Nov. 2013	Committee deliberation on the Science and Technology Laws Amendment Bill	• Members were presented with the consolidated amendments by the Parliamentary Legal Advisor • Members of the Committee suggested further changes. • Members asked the Department to effect the requested amendments to the CEO provisions in the Bill as they were not standardised.	Matters that were referred for further action are reported as follows: • Members of the Committee requested the Department to effect the amendments to the CEO provisions in the Bill as they were not standardised.

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
4 Feb. 2014	Committee deliberation on the Science and Technology Laws Amendment Bill	• Members of the Committee discussed the amendments of the previous meeting and agreed to further changes. • Members deliberated on the single written submission to the advertisement for public comment. • Members requested that the additional changes requested by the Committee be effected consistently throughout the Bill.	Matters that were referred for further action are reported as follows: • The proposed additional changes by the Members of the Committee were applied.
5 Feb. 2014	Committee consideration and adoption of the Science and Technology Laws Amendment Bill	• Members considered the Bill clause by clause. • Members adopted the Bill inclusive of all the changes.	Matters that were referred for further action are reported as follows: • The Department to present the Bill to the National Council of Provinces.
26 Feb. 2014	Briefing by the Department of Science and Technology on the 2013/14 3rd quarter expenditure and performance	• Members asked for clarity regarding the delay in achieving set targets. • Members questioned the high vacancy rate in the Department. • Members enquired how the Department determines targets. • Members questioned why only 47 of the 62 South African Research Chairs Initiative (SARChI) positions had been filled during the reporting period. • Members requested the Department to provide an update on its role in education, especially pertaining to the Dinaledi Schools programme. • Members requested a copy of the TIA forensic investigation report. • Members requested further information on the DST's involvement with the 'Design Capital' concept. • Members raised the matter of the strategy for rolling out telemedicine systems (whether similar initiatives would be replicated in other provinces throughout the country).	Matters that were referred for further action are reported as follows: • The Department to furnish the Committee with reports on its role in education and especially the Dinaledi Schools programme. • Members requested a copy of the TIA forensic report. • Members requested more information on the Department's involvement with the 'Design Capital' concept.

Date	Subject	Matters raised by the Portfolio Committee (PC)	How the matters raised by the PC have been addressed by the Department
5 March 2014	Briefing by the Department of Science and Technology on the Bio-economy Strategy	• Members asked for information around the programmes identified in the strategy. • Members questioned African traditional medicines' uses and abuses. • Members queried the impact of the strategy on employment. • Members sought clarity on the minimal role of the Department in the biotechnology debate at the global level.	Matters that were referred for further action are reported as follows: • The Department committed to look at ways to generate employment in this sphere. • The Department also committed to increase its participation in international inputs on the bio-economy debate.
12 March 2014	Select Committee consideration and adoption of the Science and Technology Laws Amendment Bill	• The Bill was adopted without amendments. • The Bill was submitted to the President for assent.	Not applicable

8. SCOPA resolutions

There were no Standing Committee on Public Accounts (SCOPA) resolutions.

9. Prior modifications to audit reports

The Auditor-General found no matters of significance regarding the administration of the Department.

10. Internal control unit

The Internal Audit Unit of the Department is responsible for ensuring that the systems of internal control are adequate and effective by conducting various internal audit activities that assist in identifying areas that need management attention. The internal unit activities conducted in the period under review are mentioned in the next section.

11. Internal audit and audit committees

The Department has a fully resourced Internal Audit Activity, which is responsible for evaluating the control environment and assisting the Audit Committee to fulfil its responsibilities. The Internal Audit Activity provides the Audit Committee and management with assurance on whether internal controls, risk management and governance processes are adequate and effective. This is achieved by means of an independent, objective evaluation of the internal controls, risk management and governance processes and suggested enhancements of controls and processes. The Internal Audit Activity has a direct line of reporting to the Audit Committee and carries out its responsibilities as mandated by the internal audit charter.

The Internal Audit Activity executed the annual audit coverage plan that was based on key risks of the Department. The audit engagements included a combination of assurance, consulting and project audits. Significant audit findings are reported to Exco and the Audit Committee. All outstanding audit findings are followed up on and a report presented to Exco and the Audit Committee on a quarterly basis.

Audit Committee

The Audit Committee is established as an oversight body, providing independent oversight over governance, risk management and control processes of the Department. Their mandate and responsibilities are clearly defined in the Audit Committee Charter. Four Audit Committee meetings were convened for the year under review in accordance with the charter.

The table below discloses relevant information on the Audit Committee members:

Name	Qualifications	Internal or external	Date appointed	Date resigned	Number of meetings attended
Shirley Machaba	BCom, BCompt (Hons), CA(SA), CCSA, CRMA	External	1 Oct 2012	n/a	3 out of 4
Roy Marcus	BSc, MSc, PhD	External	1 May 2013	n/a	4 out of 4
Hendrikus Maritz	BCom, B-Tech, IBM Dip, IA Dip, GIA	External	1 Oct 2010	n/a	4 out of 4

12. Audit Committee report

We are pleased to present our report for the financial year ended 31 March 2014.

Audit Committee responsibility

The Audit Committee reports that it has complied with its responsibilities arising from Section 38 (1) (a) (ii) of the Public Finance Management Act and Treasury Regulation 3.1.13. The Audit Committee also reports that it has adopted appropriate formal terms of reference as its Audit Committee Charter, has regulated its affairs in compliance with this charter and has discharged all its responsibilities as contained therein.

The effectiveness of internal control

The Committee evaluated the internal control environment and, based on the information provided, assessed the internal controls as effective to mitigate related risks to an acceptable level.

The following internal audit work was completed during the year under review:

Internal Audit Activity selected and prioritised the audit engagements for the year based on risk exposure, significance, and the quality of the control environment that exists to mitigate risks. Areas selected for audit included:

- Performance information;
- Financial statements review;
- IT audits;
- Convergence of risk management into operational practices;
- Follow up on the Auditor-General's previous audit findings;
- Project audits; and
- Management Performance Assessment Tool (MPAT).

The following is an area of concern:

- Systems and processes used to collect, verify and store the information, to ensure valid, accurate and complete reporting on indicators, and controls to ensure accurate reporting of performance information by entities.

In-year management and monthly/ quarterly report

The Audit Committee is satisfied with the content and quality of monthly and quarterly reports prepared and issued by the Accounting Officer and management during the year under review.

Evaluation of financial statements

The Audit Committee –

- reviewed and discussed, with the Auditor-General of South Africa (AGSA) and the Accounting Officer, the audited annual financial statements to be included in the annual report;
- reviewed the Department's compliance with legal and regulatory provisions;
- reviewed significant adjustments resulting from the audit;
- reviewed the AGSA's management letter and management's response to it;
- reviewed information on predetermined objectives to be included in the annual report; and
- is satisfied with the submission and quality of interim financial statements prepared by the Department.

Enterprise risk management

The Department has an effective Enterprise Risk Management Committee which focuses on the identification, assessment, management and monitoring of risk. Based on the information provided, the Committee monitored the significant risks faced by the Department and is satisfied that these risks were reduced to an acceptable level. The Department implements an enterprise risk management strategy, which includes a fraud prevention plan.

Legal compliance

The Audit Committee reviewed the Department's compliance with legal and regulatory provisions and ensured that processes are in place to monitor the level of compliance to laws and regulations within the Department.

Annual performance review

The Committee has considered the performance information reports submitted to the AGSA for review and is satisfied with the measures that management has put in place to manage performance.

Auditor-General's report

The Auditor-General was independent throughout the financial year under review, and the Audit Committee met with the Auditor-General to ensure that there are no unresolved issues.

We have reviewed the Department's implementation plan for audit issues raised in the previous year and we are satisfied that the matters have been adequately resolved, except for certain control weaknesses in procurement and performance information.

The Audit Committee concurs and accepts the conclusions of the Auditor-General on the annual financial statements and is of the opinion that the audited annual financial statements should be accepted and read together with the report of the Auditor-General.

Ms Shirley Machaba
Chairperson of the Audit Committee
Department of Science and Technology
Date: 31 July 2014

PART D:

Human Resource Management

1. Introduction

The information contained in this part of the annual report has been prescribed by the Minister of Public Service and Administration for all departments in the public service.

2. Overview of Human Resources

This strategic human resource plan tries to find a balance between supply and demand, in other words between the number of people and particular skills in the Department of Science and Technology (DST), and the number of people and particular skills that the DST requires to fulfil its strategic goals.

The DST's leadership, strategic agility, organisational architecture and existing capacity are tested by complex dynamics. The Department is expected to deliver on its core mandate, as prescribed by legislation and policies, which is to manage the National System of Innovation (NSI) in a way that will bring about maximum human capital, sustainable economic growth and improved quality of life for all. It must also show that it is making positive contributions to meeting government's targets for poverty alleviation, economic growth and increased employment. In order to facilitate effective service delivery and meet its obligations, the Department needs to broaden its skills pool.

Furthermore, the unique context of South Africa requires the Department to go beyond the labour economics of supply and demand, and promote employment equity, employee health and wellness, and ethical values and conduct. Success in managing these factors can also contribute to the organisation's ability to attract and retain staff.

Human Resources seeks to ensure that the Department:

- obtains the quality and quantity of staff it requires;
- makes the optimum use of its human resources;
- is able to anticipate and manage surpluses and shortages of staff;
- develops a multi-skilled, representative and flexible workforce, which enables the organisation to adapt rapidly to a changing operational environment; and
- establishes institutional mechanisms that promote productivity and a safe working environment.

Human Resources objectives for the DST are as follows:

- To ensure that the Department has adequate, appropriate, efficient and sustainable capacity for enhanced performance and service delivery.
- To ensure the effective and appropriate utilisation of human resources in order to achieve the Department's strategic objectives.
- To ensure that the development initiatives (mentoring and coaching, capacity building and shadowing programmes) in the DST are informed by realistic, actual and envisaged capacity needs.
- To ensure that identified health, wellness and safety risks are addressed.
- To ensure the implementation of policies and strategies to drive gender and disability mainstreaming.

The following are some of the HR challenges faced by the Department:

- The current systems for managing HR planning information are inadequate and Persal is generally seen as a system that is not ideal for the management of HR information. However, it is envisaged that the Department of Public Service and Administration (DPSA) will develop an integrated HR Information Management System that will ease this burden. In the short term, however, not all the data required to execute HR planning effectively is freely available

and this may affect the ability of the Department to plan effective interventions.

- The environment within which the Department operates is constantly changing, which means that the Department has to be prepared to effect key strategic changes, including decisions related to human resources, in record time. The capacity to collect and analyse relevant data and its implications on HR requirements is therefore critical. The Department will thus, in addition to improving its information management capability, have to adopt a more robust system for identifying and managing risks, challenges and opportunities that may arise from these environmental changes.
- The Department has challenges in attracting and retaining critical skills (specifically technical skills and financial management skills) for a variety of reasons. Perhaps the most important of these is that the skills required to carry out the Department's mandate are scarce and therefore in high demand, both locally and globally.
- Employment equity issues (specifically related to gender and disability) continue to be addressed by the Department through a number of initiatives, policies and strategies. Creating an enabling environment for women and disabled people is key to managing diversity.
- Generally, the Department has a young workforce which places particular pressure on the Department to consider and adopt robust institutional knowledge management practices to mitigate the risks associated with a generally young, and therefore more mobile, workforce.

The Department has introduced a number of interventions in order to address these challenges and is currently implementing them. These include the following:

- **DST HR Strategy:** The Department has embarked on a broader HR transformation drive with the aim of –
  - implementing the DST's Talent Management Framework;
  - developing a leadership model that drives the DST's transformation goals;
  - improving potential employees' perceptions of DST;
  - developing an organisational culture based on responsiveness, caring, performance management, acknowledgement and communication;
  - using the DST's values to guide the required behaviour;
  - using all the above to inform systems, processes and governance structures;
  - enhancing employee health and wellness and addressing health and wellness risks;
  - addressing issues of occupational health and safety for employees; and
  - promoting a culture that values diversity.
- **Vacancy management:** The Department is currently implementing a project aimed at addressing some of the current gaps on the staff establishment, and dealing with vacancies at critical levels in the organisation.
- **Talent management:** The Department has a comprehensive Talent Management Strategy. Among other things, the strategy looks at interventions that should be implemented in order to improve the DST's ability to identify, attract, develop and retain critical and scarce skills.
- **Broader skills development:** The Department continues to invest in the development of its workforce.
- **Exit management:** The Department is working to ensure that exit interviews are conducted with all employees leaving the Department. It is anticipated that, in line with the DPSA guidelines, the Department will also be in a position to undertake studies aimed at identifying reasons that employees stay with the DST, and to use these reasons as a basis for formulating talent retention strategies.
- **Persal clean up:** The Department is continuously updating Persal records so that they can be used as a sound basis for making decisions in relation to human resource matters.

Planned human resource interventions

In addition to the above, it is envisaged that the Department will adopt a multiplicity of strategies and interventions to address the challenges it faces. These include the following:

- Support for the HR planning process:
  - Systems must be established to ensure that the HR planning process is supported. This will

include ensuring a common understanding of the strategic direction of the Department and the accompanying staffing and competency requirements, including the need for internal development. Communication is a critical factor here.

- HR planning cannot be effective without data integrity. Solid efforts will be undertaken to ensure that all HR data is validated and available for HR planning.
- Accurate job analysis and job design is critical to inform the exact HR needs of the organisation. The Department has embarked on a workforce analysis study, which will give a more accurate reflection of the HR supply within the Department.

- In order to improve the DST's competitiveness, the Department is working to establish a strong profile as a competitive and attractive employer by increasing marketing and recruitment efforts, opening all vacant posts to external candidates, modernising its hiring practices, establishing competitive employment packages, and forming partnerships with higher education institutions and other employers.
- Managing of results (performance management): The Department has considered changing the work environment and culture of DST to achieve stronger employee engagement, greater innovation, enhanced productivity and improved workplace health. This is already happening as part of the transformation process.
- Entrenching a learning culture to ensure capacity building and the development of line managers that meet the specific requirements of the DST.
- Managing the implications of the realignment of organisational structure.

Priority HR issues

The following are the priority areas identified:

- Recruitment/ Staffing
- Talent management
- Employment equity
- Training and development

3. Human Resources oversight statistics

3.1 Personnel-related expenditure

The following tables summarise the final audited personnel-related expenditure by programme and by salary bands. In particular, it provides an indication of the following:

- amount spent on personnel and
- amount spent on salaries, overtime, home-owners allowance and medical aid.

Table 3.1.1 Personnel expenditure by programme for the period 1 April 2013 to 31 March 2014

Programme	Total expenditure (R'000)	Personnel expenditure (R'000)	Training expenditure (R'000)	Professional and special services expenditure (R'000)	Personnel expenditure as a % of total expenditure	Average personnel cost per employee (R'000)
Corporate Services	257,471	122,972	5,840	35,557	47.76%	521
Research, Development and Innovation	1,669,678	26,324	0	51	1.58%	627
International Cooperation and Resources	139,783	33,205	0	186	23.75%	583
Human Capital and Knowledge Systems	2,462,720	25,039	0	0	1.02%	556
Socio-Economic Partnerships	1,639,837	34,081	0	1,194	2.08%	620
Donor Fund Expenditure	107,284	1,925	0	0	1.79%	385
Total	**6,276,773**	**243,546**	**5,840**	**36,988**	**3.88%**	**554**

NB: The total expenditure of R6 276 773 includes R107 284 donor fund expenditure. The total appropriate expenditure was R6 169 489. The financial year training budget is not allocated per programme, but centralised under the Human Resources Chief Directorate, hence training expenditure is indicated as one total amount as reported in Table 3.1.1 above.

Table 3.1.2 Personnel costs by salary band for the period 1 April 2013 to 31 March 2014

Salary band	Personnel expenditure (R'000)	% of total personnel cost	No. of employees	Average personnel cost per employee (R'000)
Lower skilled (levels 1-2)	0	0%	0	0
Skilled (levels 3-5)	1,815	0.75%	15	121
Highly skilled production (levels 6-8)	30,572	12.55%	112	273
Highly skilled supervision (levels 9-12)	101,723	41.77%	212	480
Senior and top management (levels 13-16)	109,436	44.93%	101	1084
Total	**243,546**	**100%**	**440**	**554**

Table 3.1.3 Salaries, overtime and home-owners allowance by programme for the period 1 April 2013 to 31 March 2014

	Salaries		Overtime		Home-owners allowance	
Programme	Amount (R'000)	Salaries as a % of personnel costs	Amount (R'000)	Overtime as a % of personnel costs	Amount (R'000)	HOA as a % of personnel costs
Corporate Services	122,972	50.49%	655	0.53%	1,901	1.55%
Research, Development and Innovation	26,324	10.81%	0	0%	646	2.45%
International Cooperation and Resources	33,205	13.63%	46	0.14%	459	1.38%
Human Capital and Knowledge Systems	25,039	10.28%	3	0.01%	756	3.02%
Socio-Economic Partnerships	34,081	13.99%	1	0%	587	1.72%
Donor Fund Expenditure	1,925	0.79%	0	0%	0	0%
Total	**243,546**	**100%**	**568**	**0.23%**	**4,349**	**1.79%**

Table 3.1.4 Salaries, overtime and home-owners allowance by salary band for the period 1 April 2013 to 31 March 2014

	Salaries		Overtime		Home-owners allowance	
Salary band	Amount (R'000)	Salaries as a % of personnel costs	Amount (R'000)	Overtime as a % of personnel costs	Amount (R'000)	HOA as a % of personnel costs
Lower skilled (levels 1-2)	0	0%	0	0%	0	0.00%
Skilled (levels 3-5)	1,815	0.75%	71	0.03%	5	0.05%
Highly skilled production (levels 6-8)	30,572	12.55%	298	0.12%	56	0.25%
Highly skilled supervision (levels 9-12)	101,723	41.77%	199	0.08%	4,288	1.76%
Senior management (levels 13-16)	109,436	44.93%	0	0%	0	0%
Total	**243,546**	**100%**	**568**	**0.23%**	**4,349**	**1.79%**

*Table 3.1.5 Employment and vacancies by programme as on 31 March 2014**

Programme	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Corporate Services	255	234	7.45%	2
Research, Development and Innovation	48	42	12.50%	0
International Cooperation and Resources	63	58	7.94%	0
Human Capital and Knowledge Systems	49	45	8.16%	0
Socio-Economic Partnerships	64	59	7.81%	0
Total	**479**	**438**	**8.14%**	**2**

* NB: The total number of vacant positions was 41, which is 8.14% vacancy rate. The 41 positions are made up of 31 positions, which is 6.14% of positions, that are vacant and funded and 10 positions, which is 2% of positions, that are vacant but not funded.

Table 3.1.6 Employment and vacancies by salary band as on 31 March 2014

Salary band	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Lower skilled (levels 1-2)	0	0	0	0
Skilled (levels 3-5)	13	13	0.00%	2
Highly skilled production (levels 6-8)	117	112	4.27%	0
Highly skilled supervision (levels 9-12)	227	212	6.61%	0
Senior management (levels 13-16)	122	101	17.21%	0
Total	**479**	**438**	**8.14%****	**2**

** NB: Refer Table 3.1.5

Table 3.1.7 Employment and vacancies by critical occupations as on 31 March 2014

Critical occupation	Number of posts on approved establishment	Number of posts filled	Vacancy rate	Number of employees additional to the establishment
Corporate Services	0	0	0	0
Research, Development and Innovation	0	0	0	0
International Cooperation and Resources	0	0	0	0
Human Capital and Knowledge Systems	0	0	0	0
Socio-Economic Partnerships	0	0	0	0
Total	**0**	**0**	**0**	**0**

3.2 Filling of Senior Management Service posts

The tables in this section provide information on employment and vacancies with regard to members of the Senior Management Service (SMS) by salary level. They also provide information on advertising and filling of SMS posts, reasons for not complying with prescribed timeframes and disciplinary steps taken.

Table 3.2.1 SMS post information as on 31 March 2014

SMS Level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Salary Level 16	1	1	100.00%	0	0.00%
Salary Level 15	9	6	66.67%	3	33.33%
Salary Level 14	27	25	92.59%	2	7.41%
Salary Level 13	85	69	81.18%	16	18.82%
Total	**122**	**101**	**82.79%**	**21**	**17.21%**

Table 3.2.2 SMS post information as on 30 September 2013

SMS Level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Salary Level 16	1	1	100.00%	0	0.00%
Salary Level 15	9	8	88.89%	1	11.11%
Salary Level 14	27	24	88.89%	3	11.11%
Salary Level 13	85	68	80.00%	17	20.00%
Total	**122**	**101**	**82.79%**	**21**	**17.21%**

Table 3.2.3 Advertising and filling of SMS posts for the period 1 April 2013 to 31 March 2014

SMS Level	Total number of funded SMS posts	Total number of SMS posts filled	% of SMS posts filled	Total number of SMS posts vacant	% of SMS posts vacant
Salary Level 16	1	1	100.00%	0	0.00%
Salary Level 15	9	6	66.67%	3	33.33%
Salary Level 14	27	25	92.59%	2	7.41%
Salary Level 13	85	69	81.18%	16	18.82%
Total	**122**	**101**	**82.79%**	**21**	**17.21%**

Table 3.2.4 Reasons for not having complied with the filling of funded vacant SMS posts - advertised within 6 months and filled within 12 months after becoming vacant for the period 1 April 2013 to 31 March 2014

Reasons for vacancies not advertised within six months
One position of Senior Science and Technology Representative (SSTR) to Brazil was not advertised. The Department is in the process of re-evaluating the position.

Reasons for vacancies not filled within six months
The position of Head: National Advisory Council on Innovation was advertised, but it was recommended that the position be put on hold until the appointment of new council members, after which the process will resume.
The position of Director: Sustainable Livelihoods was advertised, but no suitable candidate was identified. A headhunting exercise embarked on twice also yielded no suitable candidate.
The position of Senior Science and Technology Representative to Russia (SSTR) was advertised, but no suitable candidate was recommended. The Department is evaluating alternative options regarding the position.

Table 3.2.5 Disciplinary steps taken for not complying with the prescribed timeframes for filling SMS posts within 12 months for the period 1 April 2013 to 31 March 2014

Reasons for vacancies not advertised within six months
No disciplinary action was taken against SMS members. Senior managers work closely with Human Resources to ensure adherence to deadlines. A quarterly report is submitted to the Executive Committee for discussion.

Reasons for vacancies not filled within six months
No disciplinary action was taken against SMS members. Senior managers work closely with Human Resources to ensure adherence to deadlines. A quarterly report is submitted to the Executive Committee for discussion.

3.3 Job evaluation

Within a nationally determined framework, executing authorities may evaluate or re-evaluate any job in the organisation. In terms of the regulations, all vacancies on salary levels 9 and higher must be evaluated before they are filled. The following table 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 3.3.1 Job evaluation by salary band for the period 1 April 2013 to 31 March 2014

Salary band	Number of posts on approved establishment	Number of jobs evaluated	% of posts evaluated by salary bands	Posts upgraded		Posts downgraded	
				Number	% of posts evaluated	Number	% of posts evaluated
Lower skilled (levels1-2)	0	0	0	0	0	0	0%
Skilled (levels 3-5)	13	0	0	0	0	0	0%
Highly skilled production (levels 6-8)	117	0	0	0	0	0	0%
Highly skilled supervision (levels 9-12)	227	2	0.88%	0	0	0	0%
Senior Management Service Band A	85	0	0	0	0	0	0%
Senior Management Service Band B	27	1	3.70%	1	3.70%	0	0%
Senior Management Service Band C	9	0	0	0	0	0	0%
Senior Management Service Band D	1	0	0	0	0	0	0%
Total	**479**	**3**	**0.63%**	**1**	**0.21%**	**0**	**0%**

The following table provides a summary of the number of employees whose positions were upgraded due to their post 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 upgraded posts could also be vacant.

Table 3.3.2 Profile of employees whose positions were upgraded due to their posts being upgraded for the period 1 April 2013 to 31 March 2014

Gender	African	Asian	Coloured	White	Total
Female	0	0	0	0	0
Male	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
Employees with a disability					0

The following table summarises the number of cases where remuneration bands exceeded the grade determined by job evaluation. Reasons for the deviation are provided in each case.

Table 3.3.3 Employees with salary levels higher than those determined by job evaluation by occupation for the period 1 April 2013 to 31 March 2014

Occupation	Number of employees	Job evaluation level	Remuneration level	Reason for deviation
Deputy Director-General	1	Yes	15	The employee was on a higher salary package at previous employment
Total number of employees whose salaries exceeded the level determined by job evaluation				1
Percentage of total employed				0.23%

The following table summarises the beneficiaries of the above in terms of race, gender, and disability.

Table 3.3.4 Profile of employees who have salary levels higher than those determined by job evaluation for the period 1 April 2013 to 31 March 2014

Gender	African	Asian	Coloured	White	Total
Female	0	0	0	0	0
Male	0	0	0	1	1
Total	0	0	0	1	1
Employees with a disability	0	0	0	0	0
Total number of employees whose salaries exceeded the grades determined by job evaluation					None

3.4 Changes in employment

This section provides information on changes in employment during the financial year. Turnover rates provide an indication of trends in the employment profile of the Department. The following tables provide a summary of turnover rates by salary band and critical occupations.

Table 3.4.1 Annual turnover rates by salary band for the period 1 April 2013 to 31 March 2014

Salary band	Number of employees as at 1 April 2013	Appointments and transfers into the Department	Terminations and transfers out of the Department	Turnover rate
Lower skilled (levels 1-2)	0	0	0	100.00%
Skilled (levels 3-5)	10	0	0	0.00%
Highly skilled production (levels 6-8)	112	14	6	5.36%
Highly skilled supervision (levels 9-12)	184	28	13	7.07%
Senior Management Service Bands A	63	5	4	6.35%
Senior Management Service Bands B	22	1	3	13.64%
Senior Management Service Bands C	5	0	1	20.00%
Senior Management Service Bands D	1	0	0	0.00%
Contracts	30	1	25	83.33%
Total	**427**	**49**	**52**	**12.18%**

Table 3.4.2 Annual turnover rates by critical occupation for the period 1 April 2013 to 31 March 2014

Critical occupation	Number of employees as at 1 April 2013	Appointments and transfers into the Department	Terminations and transfers out of the Department	Turnover rate
	0	0	0	0
Total	**0**	**0**	**0**	**0**

Table 3.4.3 Reasons why staff left the Department for the period 1 April 2013 to 31 March 2014

Termination type	Number	% of total resignations
Death	0	0.00%
Resignation	16	30.77%
Expiry of contract	25	48.08%
Dismissal – operational changes	0	0.00%
Dismissal – misconduct	2	3.85%
Dismissal – inefficiency	0	0.00%
Discharged due to ill-health	1	1.92%
Retirement	1	1.92%
Transfer to other Public Service Departments	7	13.46%
Other	0	0.00%
Total	**52**	**100.00%**
Total number of employees who left as a % of total employment	**12.18%**	

Table 3.4.4 Promotions by critical occupation for the period 1 April 2013 to 31 March 2014

Occupation	Employees 1 April 2013	Promotions to another salary level	Salary level promotions as a % of employees by occupation	Progressions to another notch within a salary level	Notch progression as a % of employees by occupation
	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**

Table 3.4.5 Promotions by salary band for the period 1 April 2013 to 31 March 2014

Salary band	Employees 1 April 2013	Promotions to another salary level	Salary band promotions as a % of employees by salary level	Progressions to another notch within a salary level	Notch progression as a % of employees by salary bands
Lower skilled (levels 1-2)	0	0	0.00%	0	0.00%
Skilled (levels 3-5)	10	0	0.00%	9	90.00%
Highly skilled production (levels 6-8)	117	0	0.00%	90	76.92%
Highly skilled supervision (levels 9-12)	204	6	2.94%	169	82.84%
Senior Management (levels 13-16)	96	6	6.25%	82	85.42%
Total	**427**	**12**	**2.81%**	**350**	**81.97%**

3.5 Employment equity

Table 3.5.1 Total number of employees (including employees with disabilities) in each of the following occupational categories as on 31 March 2014

Occupational category	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Legislators, senior officials and managers	36	4	6	6	26	3	7	10	98
Professionals	79	4	3	5	98	5	3	7	204
Technicians and associate professionals	21	2	0	1	78	3	1	3	109
Clerks	9	0	0	0	5	0	0	0	14
Service and sales workers	0	0	0	0	0	0	0	0	0
Skilled agriculture and fishery workers	0	0	0	0	0	0	0	0	0
Craft and related trades workers	0	0	0	0	0	0	0	0	0
Plant and machine operators and assemblers	0	0	0	0	0	0	0	0	0
Elementary occupations	0	0	0	0	0	0	0	0	0
Total	**145**	**10**	**9**	**12**	**207**	**11**	**11**	**20**	**425**
Employees with disabilities	3	0	0	1	6	2	0	3	15

Table 3.5.2 Total number of employees (including employees with disabilities) in each of the following occupational bands as on 31 March 2014

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top management	3	0	1	2	1	0	0	0	7
Senior management	35	4	5	5	25	3	7	10	94
Professionally qualified and experienced specialists and mid-management	80	4	3	5	102	6	3	9	212
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	21	2	0	1	79	4	1	4	112
Semi-skilled and discretionary decision making	9	0	0	0	6	0	0	0	15
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0
Total	**148**	**10**	**9**	**13**	**213**	**13**	**11**	**23**	**440**

Table 3.5.3 Recruitment for the period 1 April 2013 to 31 March 2014

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top management	0	0	0	0	0	0	0	0	0
Senior management	1	0	1	0	2	1	1	1	7
Professionally qualified and experienced specialists and mid-management	13	0	1	0	12	0	0	1	27
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	2	0	0	0	12	0	0	0	14
Semi-skilled and discretionary decision making	1	0	0	0	0	0	0	0	1
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0
Total	**17**	**0**	**2**	**0**	**26**	**1**	**1**	**2**	**49**
Employees with disabilities	0	0	0	0	0	0	0	0	0

Table 3.5.4 Promotions for the period 1 April 2013 to 31 March 2014

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top management	0	0	0	0	0	0	0	0	0
Senior management	2	0	0	1	1	0	1	1	6
Professionally qualified and experienced specialists and mid-management	1	0	0	0	4	0	0	0	5
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	0	0	0	0	1	0	0	0	1
Semi-skilled and discretionary decision making	0	0	0	0	0	0	0	0	0
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0
Total	**3**	**0**	**0**	**1**	**6**	**0**	**1**	**1**	**12**
Employees with disabilities	0	0	0	0	0	0	0	0	0

Table 3.5.5 Terminations for the period 1 April 2013 to 31 March 2014

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top management	1	0	0	2	0	0	0	0	3
Senior management	2	0	1	2	4	0	0	0	9
Professionally qualified and experienced specialists and mid-management	9	0	0	0	7	1	1	2	20
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	2	0	0	0	17	1	0	0	20
Semi-skilled and discretionary decision making	0	0	0	0	0	0	0	0	0
Unskilled and defined decision making	0	0	0	0	0	0	0	0	0
Total	**14**	**0**	**1**	**4**	**28**	**2**	**1**	**2**	**52**
Employees with disabilities	0	0	0	0	0	0	0	0	0

Table 3.5.6 Disciplinary action for the period 1 April 2013 to 31 March 2014

Disciplinary action	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Misconduct	0	0	0	0	2	0	0	0	2

Table 3.5.7 Skills development for the period 1 April 2013 to 31 March 2014

Occupational category	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Legislators, senior officials and managers	24	1	5	4	19	0	5	11	69
Professionals	38	2	1	3	57	1	1	10	133
Technicians and associate professionals	3	0	0	0	2	0	0	0	5
Clerks	5	1	0	0	46	3	0	1	56
Service and sales workers	11	1	0	0	2	1	0	0	16
Skilled agriculture and fishery workers	0	0	0	0	0	0	0	0	0
Craft and related trades workers	0	0	0	0	0	0	0	0	0
Plant and machine operators and assemblers	3	0	0	0	0	0	0	0	3
Elementary occupations	0	0	0	0	2	0	0	0	2
Total	**84**	**5**	**6**	**8**	**128**	**5**	**6**	**22**	**264**
Employees with disabilities	0	0	0	1	0	1	0	0	2

3.6 Signing of performance agreements by SMS members

All members of the SMS must conclude and sign performance agreements within specific timeframes. Information regarding the signing of performance agreements by SMS members, the reasons for not complying within the prescribed timeframes and disciplinary steps taken is presented here.

Table 3.6.1 Signing of performance agreements by SMS members as on 31 May 2013

SMS Level	Total number of funded SMS posts	Total number of SMS members	Total number of signed performance agreements	Signed performance agreements as % of total number of SMS members
Salary Level 16	1	1	1	100%
Salary Level 15	9	8	8	100%
Salary Level 14	27	24	23	95.8%
Salary Level 13	85	61	61	100%
Total	**122**	**94**	**93**	**98.94%**

Table 3.6.2 Reasons for not having concluded performance agreements for all SMS members as on 31 March 2014

Reasons
Employee on suspension on other grounds: None

Table 3.6.3 Disciplinary steps taken against SMS members for not having concluded performance agreements as on 31 March 2014

Reasons
Employee on suspension on other grounds: None

3.7 Performance rewards

To encourage good performance, the Department has granted the following performance rewards during the year under review. The information is presented in terms of race, gender, disability, salary bands and critical occupations.

Table 3.7.1 Performance rewards by race, gender and disability for the period 1 April 2013 to 31 March 2014

	Beneficiary profile			Cost	
Race and gender	Number of beneficiaries	Number of employees	% of total within group	Cost (R'000)	Average cost per employee
African					
Male	102	128	79.7	1,566	15.4
Female	150	204	73.5	1,596	10.6
Asian					
Male	4	7	57.1	116	29
Female	5	11	45.5	91	18.2
Coloured					
Male	5	10	50	87	17.4
Female	9	12	75	92	10.2
White					
Male	11	17	64.7	249	22.6
Female	18	23	78.3	376	20.9
Total	**304**	**413**	**73.6**	**4,173**	**13.7**

Table 3.7.2 Performance rewards by salary band for personnel below Senior Management Service for the period 1 April 2013 to 31 March 2014

	Beneficiary profile			Cost		Total cost as a % of the total personnel expenditure
Salary band	Number of beneficiaries	Number of employees	% of total within salary bands	Total cost (R'000)	Average cost per employee	
Lower skilled (levels 1-2)	0	0	0	0	0	0
Skilled (levels 3-5)	11	11	100	39	3.6	0.02
Highly skilled production (levels 6-8)	90	112	80.4	424	4.7	0.17
Highly skilled supervision (levels 9-12)	162	193	83.9	2,284	14.1	0.94
Total	**263**	**316**	**83.2**	**2,747**	**12.6**	**1.13**

Table 3.7.3 Performance rewards by critical occupation for the period 1 April 2013 to 31 March 2014

	Beneficiary profile			Cost	
Critical occupation	Number of beneficiaries	Number of employees	% of total within occupation	Total cost (R'000)	Average cost per employee
	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**

Table 3.7.4 Performance-related rewards (cash bonus) by salary band for Senior Management Service for the period 1 April 2013 to 31 March 2014

	Beneficiary profile			Cost		Total cost as a % of the total personnel expenditure
Salary band	Number of beneficiaries	Number of employees	% of total within salary bands	Total cost (R'000)	Average cost per employee	
Band A	29	66	43.9	917	31.6	0.38
Band B	9	21	42.9	330	36.7	0.14
Band C	2	9	22.2	91	45.5	0.04
Band D	1	1	100	79	79	0.03
Total	**41**	**97**	**42.3**	**1 417**	**34.6**	**0.58**

3.8 Foreign workers

The tables below summarise the employment of foreign nationals in the Department in terms of salary band and major occupation.

Table 3.8.1 Foreign workers by salary band for the period 1 April 2013 to 31 March 2014

	1 April 2013		31 March 2014		Change	
Salary band	Number	% of total	Number	% of total	Number	% Change
Lower skilled	0	0	0	0	0	0
Highly skilled production (levels 6-8)	0	0	0	0	0	0
Highly skilled supervision (levels 9-12)	0	0	0	0	0	0
Contract (levels 9-12)	0	0	0	0	0	0
Contract (levels 13-16)	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**

Table 3.8.2 Foreign workers by major occupation for the period 1 April 2013 to 31 March 2014

	1 April 2013		31 March 2014		Change	
Major occupation	Number	% of total	Number	% of total	Number	% Change
	0	0	0	0	0	0
	0	**0**	**0**	**0**	**0**	**0**

3.9 Leave utilisation

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 and disability leave. In both cases, the estimated cost of the leave is also provided.

Table 3.9.1 Sick leave for the period 1 January 2013 to 31 December 2013

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)	0	0.00%		0.00%	0	0
Skilled (levels 3-5)	54	2.21%	9	90%	6	36
Highly skilled production (levels 6-8)	937	38.43%	91	79%	10	840
Highly skilled supervision (levels 9 -12)	1,103	45.24%	140	65%	8	1,314
Top and senior management (levels 13-16)	344	14.11%	55	46%	6	1,271
Total	**2,438**		**295**	**72%**	**8**	**3,461**

Table 3.9.2 Disability leave (temporary and permanent) for the period 1 January 2013 to 31 December 2013

Salary band	Total days	% 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)	0	0	0	0	0	0
Skilled (levels 3-5)	0	0	0	0	0	0
Highly skilled production (levels 6-8)	0	0	0	0	0	0
Highly skilled supervision (levels 9-12)	3	100%	1	100%	3	5
Senior management (levels 13-16)	101	100%	2	100%	50,5	225
Total	**104**	**100%**	**3**	**100%**	**34.6**	**230**

The table below summarises the utilisation of annual leave. 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 3.9.3 Annual leave for the period 1 January 2013 to 31 December 2013

Salary band	Total days taken	Number of employees using annual leave	Average per employee
Lower skilled (levels 1-2)	0	0	0
Skilled (levels 3-5)	274	55	186
Highly skilled production (levels 6-8)	2,372	21	2,127
Highly skilled supervision (levels 9-12)	4,209	22	10,211
Senior management (levels 13-16)	2,243	23	8,287
Total	**9,098**	**24**	**20,811**

Table 3.9.4 Capped leave for the period 1 January 2013 to 31 December 2013

Salary band	Total days of capped leave taken	Number of employees using capped leave	Average number of days taken per employee	Average capped leave per employee as on 31 March 2014
Lower skilled (levels 1-2)	0	0	0	0
Skilled (levels 3-5)	0	0	0	14
Highly skilled production (levels 6-8)	0	0	0	26
Highly skilled supervision (levels 9-12)	0	0	0	25
Senior management (levels 13-16)	0	0	0	19
Total	**0**	**0**	**0**	**23**

The following table summarises payments made to employees as a result of leave that was not taken.

Table 3.9.5 Leave payouts for the period 1 April 2013 to 31 March 2014

Reason	Total amount (R'000)	Number of employees	Average per employee (R'000)
Leave payout for 2013/14 due to non-utilisation of leave for the previous cycle	0	0	0
Capped leave payouts on termination of service for 2013/14	0	0	0
Current leave payout on termination of service for 2013/14	369	11	34
Total	**369**	**11**	**34**

3.10 HIV/AIDS and health promotion programmes

Table 3.10.1 Steps taken to reduce the risk of occupational exposure

Units/categories of employees identified to be at high risk of contracting HIV and related diseases (if any)	Key steps taken to reduce the risk
0	0
0	0

Table 3.10.2 Details of health promotion and HIV/AIDS programmes

Question	Yes	No	Details, if yes
1. Has the Department designated a member of the SMS to implement the provisions contained in Part VI E of Chapter 1 of the Public Service Regulations, 2001? If so, provide her/his name and position.	✓		Chief Director: Human Resources – Ms Naledi Modibedi and Director: Gender and Special Programmes - Ms Siphiwe Mthombeni
2. Does the Department have a dedicated unit or has it designated specific staff members to promote the health and well-being of its employees? If so, indicate the number of employees who are involved in this task and the annual budget that is available for this purpose.	✓		Special Programmes Unit, which has five employees. The budget for the Unit is R1,732,000 which also covers the HIV/AIDS and TB programmes.
3. Has the Department introduced an Employee Assistance or Health Promotion Programme for its employees? If so, indicate the key elements/services of this programme.	✓		Counselling, Health Risk Assessments, HIV Counselling and Testing, TB Screenings, and Sporting Activities
4. Has the Department established (a) committee(s) as contemplated in Part VI E.5 (e) of Chapter 1 of the Public Service Regulations, 2001? If so, please provide the names of the members of the committee and the stakeholder(s) that they represent.	✓		1. Mr Azwi Phuravhathu - Employee Health and Wellness 2. Mr Yandisa Ndaba - Occupational Health and Safety 3. Ms Loretta Pillay - Employee Health and Wellness 4. Ms Mabel Moabi - Programme 5 5. Ms Kholeka Mzamo - Security 6. Ms Tumisang Sebitloane - Programme 2 7. Ms Xoliswa Nqabeni - Programme 1 8. Ms Truelove Mnguni - Facilities 9. Ms Nombulelo Dlalisa - Facilities 10. Ms Matlhodi Mathebula - Programme 4 11. Ms Siphiwe Mthombeni - Senior Manager
5. Has the Department reviewed its employment policies and practices to ensure that these do not unfairly discriminate against employees on the basis of their HIV status? If so, list the employment policies/ practices so reviewed.	✓		1. DST policy on HIV/AIDS and TB in the workplace 2. DST policy on Reasonable Accommodation 3. DST policy on support on the death of an employee 4. DST policy on Occupational Health and Safety 5. DST expression of appreciation, condolences and congratulations

Question	Yes	No	Details, if yes
6. Has the Department introduced measures to protect HIV-positive employees, or those perceived to be HIV-positive, from discrimination? If so, list the key elements of these measures.	✓		1. Annual candlelight memorial which seeks to fight against any form of discrimination or stigma attached to HIV or TB. 2. Distribution of male and female condoms. 3. HIV/AIDS and TB policies which have a clause on non-tolerance of discrimination. 4. Awareness campaigns during World AIDS Day. 5. Provision of information on intranet. 6. Mass participation in sport geared towards tolerance of each other.
7. Does the Department encourage its employees to undergo voluntary counselling and testing? If so, list the results achieved.	✓		The Department conducts quarterly HIV counselling and testing drives. The percentage of employees tested has been 40%. The Department has also contracted Dis-Chem as an offsite testing resource for HIV counselling and testing for employees and immediate family members.
8. Has the Department developed measures/indicators to monitor and evaluate the impact of its health promotion programme? If so, list these measures/indicators.	✓		The Department monitors the health screening results from quarterly health screening reports. The Department has also initiated a pilot project specifically for employees identified with high health risks. This project will be monitored over a period of one year and a report will be produced to assess the impact of interventions implemented.

3.11 Labour relations

Table 3.11.1 Collective agreements for the period 1 April 2013 to 31 March 2014

Subject matter	Date
Total number of collective agreements	None

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

Table 3.11.2 Misconduct and disciplinary hearings finalised for the period 1 April 2013 to 31 March 2014

Outcomes of disciplinary hearings	Number	% of total
Correctional counselling	0	0
Verbal warning	0	0
Written warning	1	0
Final written warning	0	0
Suspended without pay	1	0
Fine	0	0
Demotion	0	0
Dismissal	2	0
Not guilty	0	0
Case withdrawn	0	0
Total	**4**	**0**

Table 3.11.3 Types of misconduct addressed at disciplinary hearings for the period 1 April 2013 to 31 March 2014

Type of misconduct	Number	% of total
Gross insubordination and incompatibility	1	50%
Threats of violence	1	50%
Total	**2**	**100%**

Table 3.11.4 Grievances logged for the period 1 April 2013 to 31 March 2014

Grievances	Number	% of total
Number of grievances resolved	1	67%
Number of grievances not resolved	2	33%
Total number of grievances lodged	**3**	**100%**

Table 3.11.5 Disputes logged with councils for the period 1 April 2013 to 31 March 2014

Disputes	Number	% of total
Number of disputes upheld	3	75%
Number of disputes dismissed	1	25%
Total number of disputes lodged	**4**	**100%**

Table 3.11.6 Strike actions for the period 1 April 2013 to 31 March 2014

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

Table 3.11.7 Precautionary suspensions for the period 1 April 2013 to 31 March 2014

Number of people suspended	1
Number of people whose suspension exceeded 30 days	1
Average number of days suspended	119
Cost of suspension (R'000)	R 613

3.12 Skills development

This section highlights the efforts of the Department with regard to skills development.

Table 3.12.1 Training needs identified for the period 1 April 2013 to 31 March 2014

Occupational category	Gender	Number of employees as at 1 April 2013	Training needs identified at start of the reporting period			
			Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	45	0	5	0	5
	Male	56	0	5	0	5
Professionals	Female	115	0	5	0	5
	Male	80	0	5	0	5
Technicians and associate professionals	Female	1	0	5	0	5
	Male	3	0	5	0	5
Clerks	Female	87	0	5	0	5
	Male	17	0	5	0	5
Service and sales workers	Female	4	0	5	0	5
	Male	12	0	5	0	5
Skilled agriculture and fishery workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Craft and related trades workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Plant and machine operators and assemblers	Female	0	0	5	0	5
	Male	4	0	5	0	5
Elementary occupations	Female	4	0	5	0	5
	Male	0	0	5	0	5
Subtotal	Female	256	0	35	0	35
	Male	173	0	35	0	35
Total		**429**	**0**	**70**	**0**	**70**

Table 3.12.2 Training provided for the period 1 April 2013 to 31 March 2014

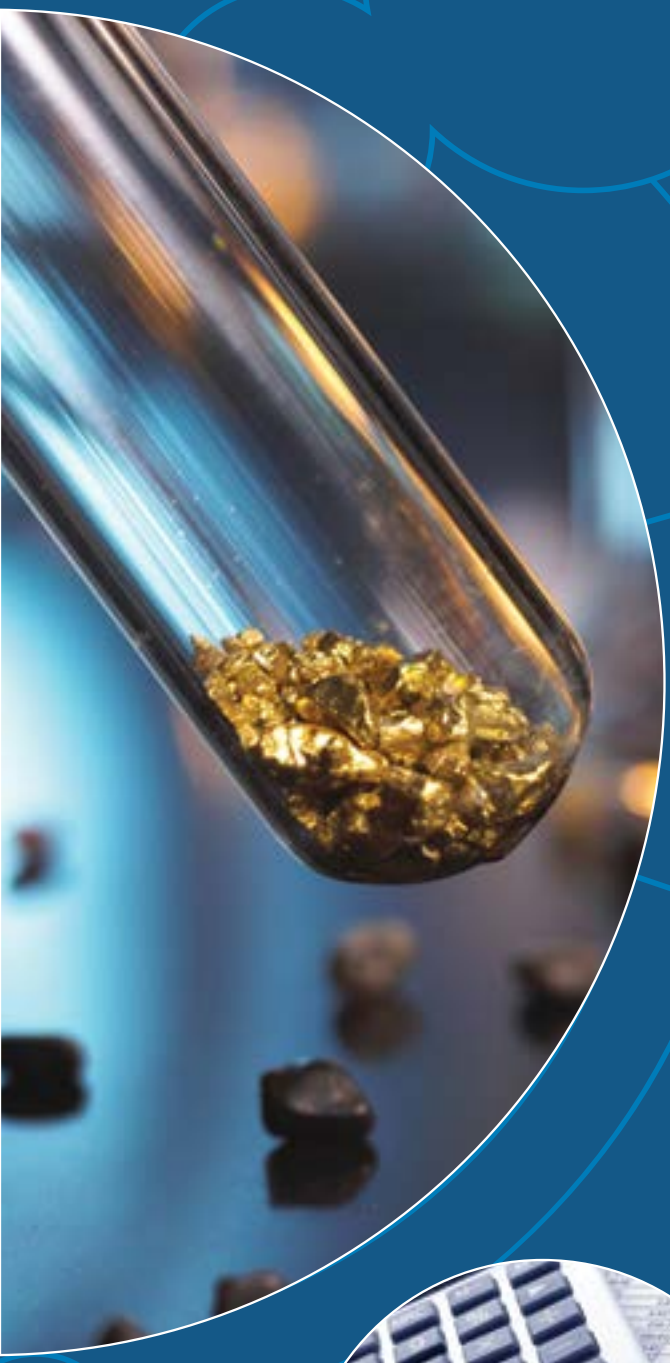
Occupational category	Gender	Number of employees as at 1 April 2013	Training provided within the reporting period			
			Learnerships	Skills programmes and other short courses	Other forms of training	Total
Legislators, senior officials and managers	Female	45	0	31	0	31
	Male	56	0	27	0	27
Professionals	Female	115	0	52	0	52
	Male	80	0	33	0	33
Technicians and associate professionals	Female	1	0	4	0	4
	Male	3	0	2	0	2
Clerks	Female	87	0	22	0	22
	Male	17	0	7	0	7
Service and sales workers	Female	4	0	1	0	1
	Male	12	0	2	0	2
Skilled agriculture and fishery workers	Female	0	0	0	0	0
	Male	0	0	0	0	0
Craft and related trades workers	Female	0	0	0	0	0
	Male	1	0	0	0	0
Plant and machine operators and assemblers	Female	0	0	0	0	0
	Male	4	0	3	0	3
Elementary occupations	Female	4	0	2	0	2
	Male	0	0	0	0	0
Subtotal	Female	256	0	110	0	110
	Male	173	0	74	0	74
Total		**429**	**0**	**184**	**0**	**184**

3.13 Injury on duty

The following table provides basic information on injury on duty.

Table 3.13.1 Injury on duty for the period 1 April 2013 to 31 March 2014

Nature of injury on duty	Number	% of total
Required basic medical attention only	4	0.9%
Temporary total disablement	0	0%
Permanent disablement	0	0%
Fatal	0	0%
Total	**4**	**0.9%**



PART E:
Financial Information

Table of Contents

Report of the Auditor-General to Parliament on Vote No. 34: Department of Science and Technology

Report on the Financial Statements

Introduction

1. I have audited the financial statements of the Department of Science and Technology (DST) set out on pages 162 to 215, which comprise the appropriation statement, the statement of financial position as at 31 March 2014, the statement of financial performance, statement of changes in net assets and the cash flow statement for the year then ended, as well as the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting officer responsibility for the financial statements

2. The accounting officer is responsible for the preparation and fair presentation of these financial statements in accordance with the Modified Cash Standard as prescribed by the National Treasury 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 officer determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor-general's responsibility

3. My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (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 department'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 department'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. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

6. In my opinion, the financial statements present fairly, in all material respects, the financial position of the Department of Science and Technology as at 31 March 2014 and its financial performance and cash flows for the year then ended, in accordance with the Modified Cash Standards and the requirements of the PFMA.

Additional matter

7. I draw attention to the matter below. My opinion is not modified in respect of this matter.

Unaudited supplementary schedules

8. The supplementary information set out on pages 216 to 231 does not form part of the financial statements and is presented as additional information. I have not audited these annexures and, accordingly, I do not express an opinion thereon.

Report on other legal and regulatory requirements

9. In accordance with the PAA and the general notice issued in terms thereof, I report the following findings on the reported performance information against predetermined objectives for selected programmes presented in the annual performance report, non-compliance with legislation as well as internal control. The objective of my tests was to identify reportable findings as described under each subheading but not to gather evidence to express assurance on these matters. Accordingly, I do not express an opinion or conclusion on these matters.

Predetermined objectives

10. I performed procedures to obtain evidence about the usefulness and reliability of the reported performance information for the following selected programmes presented in the annual performance report of the department for the year ended 31 March 2014:
    - Programme 4: human capital and knowledge systems, on pages 83 to 90
    - Programme 5: socio-economic partnership, on pages 91 to 101

11. I evaluated the reported performance information against the overall criteria of usefulness and reliability.

12. I evaluated the usefulness of the reported performance information to determine whether it was presented in accordance with the National Treasury's annual reporting principles and whether the reported performance was consistent with the planned objectives. I further performed tests to determine whether indicators and targets were well defined, verifiable, specific, measurable, time bound and relevant, as required by the National Treasury's *Framework for managing programme performance information.*

13. I assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.

14. I did not raise any material findings on the usefulness and reliability of the reported performance information for the selected objectives.

Additional matter

15. Although I raised no material findings on the usefulness and reliability of the reported performance information for the selected programmes, I draw attention to the following matter:

Achievement of planned targets

16. Refer to the annual performance report on pages 64 to 101 for information on the achievement of planned targets for the year.

Compliance with legislation

17. I performed procedures to obtain evidence that the department had complied with applicable legislation regarding financial matters, financial management and other related matters. My findings on material non-compliance with specific matters in key legislation, as set out in the general notice issued in terms of the PAA, are as follows:

Procurement and contract management

18. Goods and services with a transaction value below R500 000 were procured without obtaining the required price quotations, as required by Treasury Regulation 16A6.1.

19. Goods and services of a transaction value above R500 000 were procured without inviting competitive bids, as required by Treasury Regulations 16A6.1.

20. Sufficient appropriate audit evidence could not be obtained that quotations were awarded to suppliers whose tax matters have been declared by the South African Revenue Services to be in order as required by Treasury Regulations 16A9.1 (d) and the Preferential Procurement Regulations.

Financial statements, performance report and annual report

21. Although the financial statements submitted for auditing were prepared in accordance with the prescribed financial reporting framework, material misstatements of tangible assets, intangible assets

and commitments identified by the auditors in the submitted financial statement were subsequently corrected, resulting in the financial statements receiving an unqualified audit opinion. These adjusted misstatements resulted in a non-compliance with section 40(1)(a) and (b) of the PFMA.

Human resource management and compensation

22. Some employees were appointed without following a proper process to verify the claims made in their applications. Failure to follow proper process is in contravention of Public Service Regulation 1/ VII/D.8.

Internal control

23. I considered internal control relevant to my audit of the financial statements, annual performance report and compliance with legislation. The matters reported below are limited to the significant internal control deficiencies that resulted in the findings on non-compliance with legislation included in this report.

Leadership

24. There was a lack of oversight by the appropriate level of management, who did not regularly review the monthly reporting in terms of best practice to ensure compliance with supply chain management (SCM) policies and procedure in awarding of tenders and quotations and effective human resource management to ensure compliance with Public Service Regulation 1/VII/D.8 requirements.

Financial and performance management

25. Management did not review and monitor compliance with SCM legislation and human resources policies and procedures surrounding the verification process on new appointments.

26. Non-compliance with section 40(1) (a) and (b) of the PFMA could have been prevented had management properly reviewed the accuracy of the amounts supporting the financial statements.

Auditor - General

Pretoria
31 July 2014

AUDITOR-GENERAL
SOUTH AFRICA
Auditing to build public confidence

Appropriation per programme

Programme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
1. Administration									
Current payment	229,929	-	6,553	236,482	235,147	1,335	99.4%	220,709	219,805
Transfers and subsidies	13,551	-	751	14,302	14,287	15	99.9%	1,101	929
Payment for capital assets	2,178	-	5,964	8,142	8,037	105	98.7%	4,551	4,526
Payment for financial assets	-	-	-	-	-	-	-	11	10
	245,658	**-**	**13,268**	**258,926**	**257,471**	**1,455**	**99.4%**	**226,372**	**225,270**
2. Research, Development and Innovation									
Current payment	44,510	-	(2,991)	41,519	40,461	1,058	97.5%	45,018	44,932
Transfers and subsidies	1,581,635	-	(7,113)	1,574,522	1,574,236	286	100%	1,114,838	1,111,390
Payment for capital assets	27,500	-	27,500	55,000	54,981	19	98.2%	527	523
Payment for financial assets	-	-	-	-	-	-	-	-	-
	1,653,645	**-**	**17,396**	**1,671,041**	**1,669,678**	**1,363**	**99.9%**	**1,160,383**	**1,156,845**

Appropriation per programme

Programme	2013/14 Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	2012/13 Final appropriation R'000	2012/13 Actual expenditure R'000
3. International Cooperation and Resources									
Current payment	58,640	-	(4,066)	54,574	53,233	1,341	97.5%	57,215	56,550
Transfers and subsidies	86,790	-	66	86,856	86,550	306	99.6%	79,402	79,350
Payment for capital assets	-	-	-	-	-	-	-	623	618
Payment for financial assets	-	-	-	-	-	-	-	-	-
	145,430	**-**	**(4,000)**	**141,430**	**139,783**	**1,647**	**98.8%**	**137,240**	**136,518**
4. Human Capital and Knowledge Systems									
Current payment	36,096	-	(2,649)	33,447	32,719	728	97.8%	29,307	29,208
Transfers and subsidies	2,439,725	-	-	2,439,725	2,430,001	9,724	99.6%	2,027,404	2,009,426
Payment for capital assets	-	-	-	-	-	-	-	311	310
Payment for financial assets	-	-	-	-	-	-	-	11	11
	2,475,821	**-**	**(2,649)**	**2,473,172**	**2,462,720**	**10,452**	**99.6%**	**2,057,033**	**2,038,955**

Appropriation per programme

Programme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
5. Socio-Economic Partnerships									
Current payment	44,899	-	(1,145)	43,754	41,034	2,720	93.8%	37,827	36,264
Transfers and subsidies	1,632,702	-	(22,870)	1,609,832	1,598,803	11,029	99.3%	1,380,235	1,378,950
Payment for capital assets	-	-	-	-	-	-	-	520	513
Payment for financial assets	-	-	-	-	-	-	-	-	-
	1,677,601	**-**	**(24,015)**	**1,653,586**	**1,639,837**	**13,749**	**99.1%**	**1,418,582**	**1,415,727**
Subtotal	6,198,155	-	-	6,198,155	6,169,489	28,666	99.5%	4,999,610	4,973,315
Statutory appropriation									
Current payment	-	-	-	-	-	-	-	-	-
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Total	**6,198,155**	**-**	**-**	**6,198,155**	**6,169,489**	**28,666**	**99.5%**	**4,999,610**	**4,973,315**

	2013/14		2012/13	
	Final appropriation	Actual expenditure	Final appropriation	Actual expenditure
Total (brought forward)	**6,198,155**	**6,169,489**	**4,999,610**	**4,973,315**
Reconciliation with Statement of Financial Performance				
ADD				
Departmental receipts	1,658		1,219	
Direct Exchequer receipts	-		-	
Aid assistance	109,335		34,829	
Actual amounts per Statement of Financial Performance (Total Revenue)	**6,309,148**		**5,035,658**	
ADD				
Aid assistance		107,284		29,922
Direct Exchequer payments		-		-
Prior year unauthorised expenditure approved without funding		-		-
Actual amounts per Statement of Financial Performance (Total Expenditure)		**6,276,773**		**5,003,237**

Appropriation per economic classification

Appropriation per economic classification	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	251,403	-	(8,547)	242,856	241,621	1,235	99.5%	223,979	221,767
Goods and services	162,671	-	4,249	166,920	160,974	5,946	96,4%	165,728	164,615
Interest and rent on land	-	-	-	-	-	-	-	376	376
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	4,179,448	-	(18,500)	4,160,948	3,762,927	398,021	90.4%	2,868,166	3,011,927
Higher Education Institutions	-	-	-	-	156,163	(156,163)	-	-	153,642
Foreign governments and international organisations	-	-	-	-	452	(452)	-	-	-
Public corporations and private enterprises	1,034,199	-	(4,515)	1,029,684	1,697,974	(668,290)	164.9%	1,015,740	1,350,541
Non-profit institutions	540,756	-	(7,254)	533,502	84,701	448,801	15.9%	718,814	63,305
Households	-	-	1,103	1,103	1,658	(555)	150.3%	260	630
Gifts and donations	-	-	-	-	-	-		-	-

Appropriation per economic classification									
	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-		-	-
Machinery and equipment	2,178	-	6,089	8,267	8,156	111	98,7%	6,525	6,490
Heritage assets	-	-	-	-	-	-		-	-
Specialised military assets	-	-	-	-	-	-		-	-
Biological assets	-	-	-	-	-	-		-	-
Land and subsoil assets	-	-	-	-	-	-		-	-
Software and other intangible assets	27,500	-	27,375	54,875	54,863	12	100%	-	-
Payments for financial assets	-	-	-	-	-	-	-	22	22
Total	**6,198,155**	**-**	**-**	**6,198,155**	**6,169,489**	**28,666**	**99.5%**	**4,999,610**	**4,973,315**

Detail per Programme 1 – Administration
for the year ended 31 March 2014

Detail per subprogramme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
1.1 Ministry									
Current payment	3,853	-	(350)	3,503	3,403	100	97.1%	3,569	2,790
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
1.2 Management									
Current payment	71,813	-	(7,765)	64,048	63,233	815	98.7%	63,970	63,924
Transfers and subsidies	13,551	-	65	13,616	13,601	15	99.9%	1,021	850
Payment for capital assets	890	-	815	1,705	1,676	29	98.3%	1,082	1,077
Payment for financial assets	-	-	-	-	-	-	-	2	1
1.3 Corporate Services									
Current payment	142,759	-	14,870	157,629	157,526	103	99.9%	143,478	143,475
Transfers and subsidies	-	-	684	684	684	-	100%	80	79
Payment for capital assets	1,123	-	5,314	6,437	6,361	76	98.8%	3,337	3,334
Payment for financial assets	-	-	-	-	-	-	-	9	9

Detail per Programme 1 – Administration
for the year ended 31 March 2014

Detail per subprogramme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
1.4 Governance									
Current payment	8,590	-	(552)	8,038	7,825	213	97.4%	6,554	6,479
Transfers and subsidies	-	-	2	2	2	-	100%	-	-
Payment for capital assets	165	-	(165)	-	-	-	-	132	115
Payment for financial assets	-	-	-	-	-	-	-	-	-
1.5 Office accommodation									
Current payment	2,914	-	350	3,264	3,160	104	96.8%	3,138	3,137
Transfers and subsidies	-	-	-	-	-	-	-	-	-
Payment for capital assets	-	-	-	-	-	-	-	-	-
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	**245,658**	**-**	**13,268**	**258,926**	**257,471**	**1,455**	**99.4%**	**226,372**	**225,270**

Detail per Programme 1 – Administration
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 1 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	120,222	-	3,147	123,369	122,972	397	99.7%	111,921	111,328
Goods and services	109,707	-	3,406	113,113	112,175	938	99.2%	108,545	108,232
Interest and rent on land	-	-	-	-	-	-	-	243	243
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	-	-	-	-	11,231	(11,231)	-	-	-
Higher Education Institutions	-	-	-	-	1,324	(1,324)	-	-	-
Foreign governments and international organisations	-	-	-	-	452	(452)	-	-	-
Public corporations and private enterprises	-	-	-	-	300	(300)	-	-	500
Non-profit institutions	13,551	-	-	13,551	228	13,323	1.7%	1,000	329
Households	-	-	751	751	751	-	100.0%	101	101
Gifts and donations	-	-	-	-	-	-	-	-	-

Detail per Programme 1 – Administration
for the year ended 31 March 2014

Programme 1 per economic classification	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	2,178	-	5,964	8,142	8,038	104	98.7%	4,551	4,526
Biological assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Payments for financial assets	-	-	-	-	-	-	-	11	11
Total	**245,658**	**-**	**13,268**	**258,926**	**257,471**	**1,455**	**99.4%**	**226,372**	**225,270**

Detail per Programme 2 – Research, Development and Innovation
for the year ended 31 March 2014

Detail per subprogramme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
2.1 Space Science									
Current payment	9,782	-	(995)	8,787	7,834	953	89.2%	9,503	9,458
Transfers and subsidies	809,273	-	95	809,368	809,326	42	100%	392,653	392,653
Payment for capital assets	27,500	-	27,500	55,000	54,981	19	98.2%	83	83
Payment for financial assets	-	-	-	-	-	-	-	-	-
2.2 Hydrogen and Energy									
Current payment	8,844	-	(250)	8,594	8,566	28	99.7%	7,668	7,655
Transfers and subsidies	137,393	-	(5,854)	131,539	131,295	244	99.8%	127,263	124,135
Payment for capital assets	-	-	-	-	-	-	-	91	91
Payment for financial assets	-	-	-	-	-	-	-	-	-
2.3 Biotechnology and Health									
Current payment	11,943	-	(1,750)	10,193	10,142	51	99.5%	13,847	13,847
Transfers and subsidies	113,706	-	(1,400)	112,306	112,306	-	100%	109,403	109,098
Payment for capital assets	-	-	-	-	-	-	-	66	62
Payment for financial assets	-	-	-	-	-	-	-	-	-

Detail per Programme 2 – Research, Development and Innovation
for the year ended 31 March 2014

Detail per subprogramme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
2.4 Innovation Planning and Instruments									
Current payment	13,941	-	4	13,945	13,919	26	99.8%	14,000	13,972
Transfers and subsidies	521,263	-	46	521,309	521,309	-	100%	485,519	485,504
Payment for capital assets	-	-	-	-	-	-	-	287	287
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	**1,653,645**		**17,396**	**1,671,041**	**1,669,678**	**1,363**	**99.9%**	**1,160,383**	**1,156,845**

Detail per Programme 2 – Research, Development and Innovation
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 2 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	32,280	-	(5,877)	26,403	26,324	79	99.7%	25,687	25,610
Goods and services	12,230	-	2,886	15,116	14,137	979	93.5%	19,301	19,293
Interest and rent on land	-	-	-	-	-	-	-	30	30
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	1,401,354	-	-	1,401,354	1,172,150	229,204	83.6%	728,884	936,441
Higher Education Institutions	-	-	-	-	94,860	(94,860)	-	-	94,277
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	-	-	-	-	275,335	(275,335)	-	-	65,581
Non-profit institutions	180,281	-	(7,254)	173,027	31,750	141,277	18.3%	385,862	14,999
Households	-	-	141	141	141	-	100%	92	92
Gifts and donations	-	-	-	-	-	-	-	-	-

Detail per Programme 2 – Research, Development and Innovation
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 2 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	125	125	118	7	94.4%	527	522
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	27,500	-	27,375	54,875	54,863	12	100%	-	-
Payments for financial assets	-	-	-	-	-	-	-	-	-
Total	**1,653,645**	**-**	**17,396**	**1,671,041**	**1,669,678**	**1,363**	**99.9%**	**1,160,383**	**1,156,845**

Detail per Programme 3 – International Resources and Cooperation
for the year ended 31 March 2014

Detail per subprogramme	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
3.1 Multilateral Cooperation and Africa									
Current payment	17,345	-	589	17,934	17,570	364	98%	17,292	17,287
Transfers and subsidies	42,937	-	11	42,948	42,948	-	100%	41,043	41,043
Payment for capital assets	-	-	-	-	-	-	-	105	103
Payment for financial assets	-	-	-	-	-	-	-	-	-
3.2 International Resources									
Current payment	19,298	-	-	19,298	19,025	273	98.6%	18,355	17,742
Transfers and subsidies	31,650	-	-	31,650	31,377	273	99.1%	26,759	26,707
Payment for capital assets	-	-	-	-	-	-	-	270	267
Payment for financial assets	-	-	-	-	-	-	-	-	-
3.3 Overseas Bilateral Cooperation									
Current payment	21,997	-	(4,655)	17,342	16,638	704	95.9%	21,568	21,521
Transfers and subsidies	12,203	-	55	12,258	12,225	33	99.7%	11,600	11,600
Payment for capital assets	-	-	-	-	-	-	-	248	248
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	**145,430**	**-**	**(4,000)**	**141,430**	**139,783**	**1,647**	**98.8%**	**137,240**	**136,518**

Detail per Programme 3 – International Resources and Cooperation
for the year ended 31 March 2014

Programme 3 per economic classification	2013/14							2012/13	
	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	37,959	-	(4,286)	33,673	33,205	468	98.6%	34,267	33,934
Goods and services	20,681	-	220	20,901	20,028	873	95.8%	22,913	22,581
Interest and rent on land	-	-	-	-	-	-	-	35	35
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	35,237	-	-	35,237	52,862	(17,625)	150%	33,643	50,217
Higher Education Institutions	-	-	-	-	17,032	(17,032)	-	-	13,788
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	-	-	-	-	16,318	(16,318)	-	-	12,453
Non-profit institutions	51,553	-	-	51,553	272	51,281	0.5%	45,759	2,892
Households	-	-	66	66	66	-	100%	-	-
Gifts and donations	-	-	-	-	-	-	-	-	-

Detail per Programme 3 – International Resources and Cooperation
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 3 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	623	618
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payments for financial assets	-	-	-	-	-	-	-	-	-
Total	**145,430**	**-**	**(4,000)**	**141,430**	**139,783**	**1,647**	**98.8%**	**137,240**	**136,518**

Detail per Programme 4 – Human Capital and Knowledge Systems
for the year ended 31 March 2014

Detail per subprogramme	2013/14 Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	2012/13 Final appropriation R'000	2012/13 Actual expenditure R'000
4.1 Human Capital and Science Platforms									
Current payment	16,573	-	(800)	15,773	15,476	297	98.1%	13,731	13,645
Transfers and subsidies	1,681,782	-	-	1,681,782	1,672,082	9,700	99.4%	1,409,976	1,408,754
Payment for capital assets	-	-	-	-	-	-	-	122	121
Payment for financial assets	-	-	-	-	-	-	-	11	11
4.2 Indigenous Knowledge Systems									
Current payment	11,533	-	(1,500)	10,033	9,812	221	97.8%	9,215	9,206
Transfers and subsidies	20,182	-	-	20,182	20,181	1	100%	19,186	18,505
Payment for capital assets	-	-	-	-	-	-	-	38	38
Payment for financial assets	-	-	-	-	-	-	-	-	-
4.3 Emerging Research Areas and Infrastructure									
Current payment	7,990	-	(349)	7,641	7,431	210	97.3%	6,361	6,357
Transfers and subsidies	737,761	-	-	737,761	737,738	23	100%	598,242	582,167
Payment for capital assets	-	-	-	-	-	-	-	151	151
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	**2,475,821**	**-**	**(2,649)**	**2,473,172**	**2,462,720**	**10,452**	**99.6%**	**2,057,033**	**2,038,955**

Detail per Programme 4 – Human Capital and Knowledge Systems
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 4 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	25,266	-	-	25,266	25,039	227	99.1%	22,309	22,239
Goods and services	10,830	-	(2,649)	8,181	7,681	500	93.9%	6,975	6,945
Interest and rent on land	-	-	-	-	-	-	-	23	23
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	2,042,411	-	-	2,042,411	2,010,493	31,918	98.4%	1,611,217	1,580,417
Higher Education Institutions	-	-	-	-	38,562	(38,562)	-	-	40,944
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	101,943	-	-	101,943	340,771	(238,828)	334.3%	129,946	352,317
Non-profit institutions	295,371	-	-	295,371	39,744	255,627	13.5%	286,193	35,455
Households	-	-	-	-	430	(430)	-	48	293
Gifts and donations	-	-	-	-	-	-	-	-	-

Detail per Programme 4 – Human Capital and Knowledge Systems
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 4 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	311	311
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payments for financial assets	-	-	-	-	-	-	-	11	11
Total	**2,475,821**	**-**	**(2,649)**	**2,473,172**	**2,462,720**	**10,452**	**99.6%**	**2,057,033**	**2,038,955**

Detail per Programme 5 – Socio-Economic Partnerships
for the year ended 31 March 2014

Detail per subprogramme	2013/14 Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	2012/13 Final appropriation R'000	2012/13 Actual expenditure R'000
5.1 Science and Technology for Economic Impact									
Current payment	24,616	-	(1,000)	23,616	22,145	1,471	93.8%	20,900	20,606
Transfers and subsidies	1,243,773	-	(18,015)	1,225,758	1,214,805	10,953	99.1%	1,009,041	1,007,972
Payment for capital assets	-	-	-	-	-	-	-	390	387
Payment for financial assets	-	-	-	-	-	-	-	-	-
5.2 Science and Technology for Social Impact									
Current payment	9,644	-	(1,227)	8,417	7,468	949	88.7%	7,059	6,765
Transfers and subsidies	374,922	-	(4,858)	370,064	369,988	76	100%	348,101	347,929
Payment for capital assets	-	-	-	-	-	-	-	91	91
Payment for financial assets	-	-	-	-	-	-	-	-	-
5.3 Science and Technology Investment									
Current payment	10,639	-	1,082	11,721	11,421	300	97.4%	9,868	8,893
Transfers and subsidies	14,007	-	3	14,010	14,010	-	100%	23,093	23,049
Payment for capital assets	-	-	-	-	-	-	-	39	35
Payment for financial assets	-	-	-	-	-	-	-	-	-
Total	**1,677,601**	**-**	**(24,015)**	**1,653,586**	**1,639,837**	**13,749**	**99.2%**	**1,418,582**	**1,415,727**

Detail per Programme 5 – Socio-Economic Partnerships
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 5 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Current payments									
Compensation of employees	35,676	-	(1,531)	34,145	34,081	64	99.8%	29,795	28,656
Goods and services	9,223	-	386	9,609	6,953	2,656	72.4%	7,994	7,564
Interest and rent on land	-	-	-	-	-	-	-	45	45
Transfers and subsidies									
Provinces and municipalities	-	-	-	-	-	-	-	-	-
Departmental agencies and accounts	700,446	-	(18,500)	681,946	516,191	165,755	75.7%	494,422	444,852
Higher Education Institutions	-	-	-	-	4,385	(4,385)	-	-	4,633
Foreign governments and international organisations	-	-	-	-	-	-	-	-	-
Public corporations and private enterprises	932,256	-	(4,515)	927,741	1,065,250	(137,509)	114.8%	885,794	919,690
Non-profit institutions	-	-	-	-	12,707	(12,707)	-	-	9,630
Households	-	-	145	145	270	(125)	186.2%	19	144
Gifts and donations	-	-	-	-	-	-	-	-	-

Detail per Programme 5 – Socio-Economic Partnerships
for the year ended 31 March 2014

	2013/14							2012/13	
Programme 5 per economic classification	Adjusted appropriation R'000	Shifting of funds R'000	Virement R'000	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Expenditure as % of final appropriation %	Final appropriation R'000	Actual expenditure R'000
Payments for capital assets									
Buildings and other fixed structures	-	-	-	-	-	-	-	-	-
Machinery and equipment	-	-	-	-	-	-	-	513	513
Heritage assets	-	-	-	-	-	-	-	-	-
Specialised military assets	-	-	-	-	-	-	-	-	-
Biological assets	-	-	-	-	-	-	-	-	-
Land and subsoil assets	-	-	-	-	-	-	-	-	-
Software and other intangible assets	-	-	-	-	-	-	-	-	-
Payments for financial assets	-	-	-	-	-	-	-	-	-
Total	**1,677,601**	**-**	**(24,015)**	**1,653,586**	**1,639,837**	**13,749**	**99.2%**	**1,418,582**	**1,415,727**

Notes to the Appropriation Statement

for the year ended 31 March 2014

1. Detail of transfers and subsidies as per Appropriation Act (after virement):

Detail of these transactions can be viewed in the note Transfers and subsidies, disclosure notes and Annexure 1 (C, D, E, F, G, H and K) to the Annual Financial Statements.

2. Detail of specifically and exclusively appropriated amounts voted (after virement):

Detail of these transactions can be viewed in note 1 (Annual Appropriation) to the Annual Financial Statements.

3. Detail on payments for financial assets:

There were no transactions on payments for financial assets.

4. Explanations of material variances from amounts voted (after virement):

4.1 Per programme:

	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Variance as a % of final appropriation %
Administration				
Compensation of employees	123,369	122,972	397	0.3%
Goods and services	113,113	112,175	938	0.8%

The under-spending in Programme 1: Administration is due to vacant position and resultant administrative costs.

International Cooperation and Resources				
Compensation of employees	33,673	33,205	468	1.4%
Goods and services	20,901	20,028	873	4.2%

The under-spending in Programme 3: International Cooperation and Resources is due to vacant position and resultant administrative costs.

Socio-Economic Partnerships				
Compensation of employees	34,145	34,081	64	0.2%
Good and services	9,609	6,953	2,656	27.6%

The under-spending in Programme 5: Socio-Economic Partnerships is due to vacant position and resultant administrative costs.

4.2 Per economic classification

	Final appropriation R'000	Actual expenditure R'000	Variance R'000	Variance as a % of final appropriation %
Current payments				
Compensation of employees	242,856	241,621	1,235	0.5%
Goods and services	166,920	160,974	5,946	3.5%
Interest and rent on land	-	-	-	-
Unauthorised expenditure approved	-	-	-	-
Transfers and subsidies				
Departmental agencies and accounts	4,160,948	3,762,927	398,021	9.6%
Higher Education Institutions	-	156,163	(156,163)	-
Foreign government and international organisation	-	452	(452)	-
Public corporations and private enterprises	1,029,684	1,697,974	(668,290)	(64.9%)
Non-profit institutions	533,502	84,701	448,801	84.1%
Households	1,103	1,658	(555)	(50.3%)
Payments for capital assets				
Machinery and equipment	8,267	8,156	111	1.3%
Intangible assets	54,875	54,863	12	0.02%
Payments for financial assets	-	-	-	-

The variance is due to vacant positions; resultant reduced administrative costs and delays in finalising contracts.

Statement of Financial Performance

for the year ended 31 March 2014

Performance	Note	2013/14 R'000	2012/13 R'000
Revenue			
Annual appropriation	1	6,198,155	4,999,610
Departmental revenue	2	1,658	1,219
Aid assistance	3	109,335	34,829
Total revenue		**6,309,148**	**5,035,658**
Expenditure			
Current expenditure			
Compensation of employees	4	241,621	221,767
Goods and services	5	160,974	164,615
Interest and rent on land	6	-	376
Aid assistance	3	8,263	4,692
Total current expenditure		**410,858**	**391,450**
Transfers and subsidies			
Transfers and subsidies	8	5,703,875	4,580,045
Aid assistance	3	98,966	25,211
Total transfers and subsidies		**5,802,841**	**4,605,256**
Expenditure for capital assets			
Tangible capital assets	9	8,211	6,509
Intangible assets	9	54,863	-
Total expenditure for capital assets		**63,074**	**6,509**
Payment for financial assets	7	-	22
Total expenditure		**6,276,773**	**5,003,237**
Surplus for the year		**32,375**	**32,421**
Reconciliation of net surplus for the year			
Voted funds		28,666	26,295
Departmental revenue	14	1,658	1,219
Aid assistance	3	2,051	4,907
Surplus for the year		**32,375**	**32,421**

Statement of Financial Position

at 31 March 2014

Position	Note	2013/14 R'000	2012/13 R'000
Assets			
Current assets		**31,520**	**31,492**
Cash and cash equivalents	*10*	30,027	30,649
Prepayments and advances	*11*	283	142
Receivables	*12*	1,210	701
Total assets		**31,520**	**31,492**
Liabilities			
Current liabilities		**31,455**	**31,351**
Voted funds to be surrendered to the Revenue Fund	*13*	28,666	26,295
Departmental revenue to be surrendered to the Revenue Fund	*14*	720	11
Payables	*15*	18	160
Aid assistance repayable	*3*	2,051	4,885
Total liabilities		**31,455**	**31,351**
Net assets		**65**	**141**
Represented by:			
Recoverable revenue		65	141
Total		**65**	**141**

Statement of Changes in Net Assets

for the year ended 31 March 2014

Net assets	Note	2013/14 R'000	2012/13 R'000
Recoverable revenue			
Opening balance		141	107
Transfers:		**(76)**	**34**
Debts revised		2	2
Debts recovered (included in departmental receipts)		(78)	(94)
Debts raised		-	126
Closing balance		**65**	**141**
Total		**65**	**141**

Cash Flow Statement

for the year ended 31 March 2014

Cash flow	Note	2013/14 R'000	2012/13 R'000
Cash flows from operating activities			
Receipts		**6,309,148**	**5,035,081**
Annual appropriated funds received	*1.1*	6,198,155	4,999,610
Departmental revenue received	*2*	1,650	561
Interest received	*2.2*	8	81
Aid assistance received	*3*	109,335	34,829
Net (increase) in working capital		(792)	106
Surrendered to Revenue Fund		(27,244)	(4,769)
Surrendered to RDP Fund/Donor		(4,885)	(6,380)
Current payments		(410,858)	(391,074)
Interest paid		-	(376)
Payments for financial assets		-	(22)
Transfers and subsidies paid		(5,802,841)	(4,605,256)
Net cash flow available from operating activities	*16*	**62,528**	**27,310**
Cash flows from investing activities			
Payments for capital assets	*9*	(63,074)	(6,509)
Proceeds from sale of capital assets	*2.3*	-	577
Net cash flows from investing activities		**(63,074)**	**(5,932)**
Cash flows from financing activities			
Increase/(decrease) in net assets		(76)	34
Net cash flows from financing activities		**(76)**	**34**
Net increase/(decrease) in cash and cash equivalents		(622)	21,412
Cash and cash equivalents at the beginning of the period		30,649	9,237
Cash and cash equivalents at end of period	*17*	**30,027**	**30,649**

Accounting Policies

for the year ended 31 March 2014

The Financial Statements have been prepared in accordance with the following policies, which have been applied consistently in all material aspects, unless otherwise indicated.

The historical cost convention has been used, except where otherwise indicated. Management has used assessments and estimates in preparing the annual financial statements.

Where appropriate and meaningful, additional information has been disclosed to enhance the usefulness of the Financial Statements and to comply with the statutory requirements of the Public Finance Management Act, Act 1 of 1999 (as amended by Act 29 of 1999), and the Treasury Regulations issued in terms of the Act and the Division of Revenue Act.

1. Basis of preparation

The Financial Statements have been prepared in accordance with the Modified Cash Standard.

2. Going concern

The financial statements have been prepared on a going concern basis.

3. Presentation currency

All amounts have been presented in South African Rand (R), which is also the functional currency of the Department.

4. Rounding

Unless otherwise stated, all financial figures have been rounded to the nearest one thousand Rand (R'000).

5. Foreign currency translation

Cash flows arising from foreign currency transactions are translated into South African Rands using the exchange rates prevailing at the date of payment.

6. Current year comparison with budget

A comparison between the approved, final budget and actual amounts for each programme and economic classification is included in the appropriation statement.

7. Revenue

7.1 Appropriated funds

Appropriated funds comprises departmental allocations as well as direct charges against revenue fund (i.e. statutory appropriation). Appropriated funds are recognised in the statement of financial performance on the date the appropriation becomes effective. Adjustments to the appropriated funds made in terms of the adjustments budget process are recognised in the statement of financial performance on the date the adjustments become effective.

The net amount of any appropriated funds due to or from the National Revenue Fund at the reporting date is recognised as payable or receivable in the Statement of Financial Position.

7.2 Departmental revenue

The departmental revenue is recognised in the Statement of Financial Performance when received and is subsequently paid into the National Revenue Fund, unless otherwise stated.

Any amount owing to the National Revenue Fund at the reporting date is recognised as payable in the Statement of Financial Position.

7.3 Accrued departmental revenue

Accruals in respect of departmental revenue (excluding tax revenue) are recorded in the notes to the financial statements when:

- It is probable that the economic benefits or service potential associated with the transaction will flow to the Department, and
- The amount of revenue can be measured reliably.

The accrued revenue (and related interest and penalties) is measured at amounts receivable from collecting agents.

8. Expenditure

8.1 Compensation of employees

8.1.1 Salaries and wages

Salaries and wages are recognised in the Statement of Financial Performance on the date of payment.

8.1.2 Social contributions

Social contributions made by the Department in respect of current employees are recognised in the Statement of Financial Performance on the date of payment. Social contributions made by the Department in respect of ex-employees are classified as transfers to households in the Statement of Financial Performance on the date of payment.

8.2. Other expenditure

Other expenditure such as goods and services, transfers and subsidies and payments for capital assets is recognised in the Statement of Financial Performance on the date of payment. The expense is classified as a capital expense if the total consideration paid is more than the capitalisation threshold.

8.3 Accrued expenditure payable

Accrued expenditure payable is recorded in the notes to the financial statements when the goods are received or, in the case of services, when they are rendered to the Department. Accrued expenditure payable is measured at cost.

8.4 Leases

8.4.1 Operating lease

Operating lease payments made during the reporting period are recognised as current expenditure in the Statement of Financial Performance on the date of payment. The operating lease commitments are recorded in the notes to the financial statements.

8.4.2 Finance leases

Finance lease payments made during the reporting period are recognised as capital expenditure in the Statement of Financial Performance on the date of payment. The finance lease commitments are recorded in the notes to the financial statements and are not apportioned between the capital and interest portions.

Finance leases acquired at the end of the lease term are recorded and measured at the lower of:

- cost, being the fair value of the asset, or
- the sum of the minimum lease payments made, including any payments made to acquire ownership at the end of the lease term, excluding interest.

9. Aid assistance

9.1 Aid assistance received

Aid assistance received in cash is recognised in the Statement of Financial Performance when received. In-kind aid assistance is recorded in the notes to the financial statements on the date of receipt and is measured at fair value.

9.2 Aid assistance paid

Aid assistance paid is recognised in the Statement of Financial Performance on the date of payment. Aid assistance payments made prior to the receipt of funds are recognised as a receivable in the Statement of Financial Position.

10. Cash and cash equivalents

Cash and cash equivalents are stated at cost in the Statement of Financial Position.

Bank overdrafts are shown separately on the face of the Statement of Financial Position.

For the purposes of the Cash Flow Statement, cash and cash equivalents comprise cash on hand, deposits held, other short-term highly liquid investments and bank overdrafts.

11. Prepayments and advances

Prepayments and advances are recognised in the Statement of Financial Position when the Department receives or disburses the cash.

Prepayments and advances are initially and subsequently measured at cost. Prepayments and

advances are expensed when expenditure is incurred and are recognised in the Statement of Financial Performance when the expenditure is effected on the system.

12. Loans and receivables

Loans and receivables are recognised in the Statement of Financial Position at cost plus accrued interest, where interest is charged, less amounts already settled are recognised in the Statement of Financial Position when the cash is paid to the beneficiary. Loans that are outstanding at year-end are carried in the Statement of Financial Position at cost plus accrued interest.

13. Investments

Investments are recognised in the Statement of Financial position at cost.

14. Impairment of financial assets

Where there is an indication of impairment of a financial asset, an estimation of the reduction is the recorded carrying value, to reflect the best estimate of the amount of the future economic benefits expected to be recovered from that asset is recorded in the notes to the financial statements.

15. Payables

Loans and payables are recognised in the Statement of Financial Position at cost.

16. Capital assets

16.1 Immovable capital assets

Immovable capital assets are initially recorded in the notes to the financial statements at cost. Immovable capital assets acquired through a non-exchange transaction is measured at fair value as at the date of acquisition.

Where the cost of immovable capital assets cannot be determined accurately, the immovable assets are measured at R1 unless the fair value of the asset has been reliably estimated, in which case a fair value is used.

Immovable capital assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of a capital nature is added to the cost of the asset at the end of the capital project unless the immovable asset is recorded by another department, in which case the completed project costs are transferred to the department.

16.2 Movable capital assets

Movable capital assets are initially recorded in the notes to the financial statements at cost. Movable capital assets acquired through a non-exchange transaction is measured at fair value as at the date of acquisition.

Where the cost of movable capital assets cannot be determined accurately, the movable capital assets are measured at fair value and where fair value cannot be determined, the movable assets are measured at R1.

All assets acquired prior to 1 April 2002 (or a later date as approved by the Office of the Accountant-General [OAG]) are measured at R1.

Movable capital assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of capital nature is added to the cost of the asset at the end of the capital project unless the movable asset is recorded by another department, in which case the completed project costs are transferred to the department.

16.3 Intangible assets

Intangible assets are initially recorded in the notes to the financial statements at cost. Intangible assets acquired through a non-exchange transaction are measured at fair value as at the date of acquisition.

Internally generated intangible assets are recorded in the notes to the financial statements when the Department commences the development phase of the project.

Where the cost of intangible assets cannot be determined accurately, the intangible capital assets are measured at fair value and where fair value cannot be determined, the intangible assets are measured at R1.

All assets acquired prior to 1 April 2002 (or a later date as approved by the OAG) are recorded at R1.

Intangible assets are subsequently carried at cost and are not subject to depreciation or impairment.

Subsequent expenditure that is of a capital nature is added to the cost of the asset at the end of the capital project, unless the intangible asset is recorded by another department/entity in which case the completed project costs are transferred to that department.

17. Provisions and contingents

17.1 Provisions

Provisions are recorded in the notes to the financial statements when there is a present legal or constructive obligation to forfeit economic benefits as a result of events in the past and it is probable that an outflow of resources embodying economic benefits or service potential will be required to settle the obligation and a reliable estimate of the obligation can be made. The provision is measured as the best estimate of the funds required to settle the present obligation at the reporting date.

17.2 Contingent liabilities

Contingent liabilities are recorded in the notes to the financial statements when there is a possible obligation that arises from past events, and whose existence will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not within the control of the Department, or when there is a present obligation that is not recognised because it is not probable that an outflow of resources will be required to settle the obligation, or the amount of the obligation cannot be measured reliably.

17.3 Contingent assets

Contingent assets are recorded in the notes to the financial statements when a possible asset arises from past events, and whose existence will be confirmed by the occurrence or non-occurrence of one or more uncertain future events not within the control of the Department.

17.4 Commitments

Commitments are recorded at cost in the notes to the financial statements when there is a contractual arrangement or an approval by management in a manner that raises a valid expectation that the Department will discharge its responsibilities, thereby incurring future expenditure that will result in the outflow of cash.

18. Unauthorised expenditure

Unauthorised expenditure is recognised in the statement of financial position until such time as the expenditure is either:

- approved by Parliament or the Provincial Legislature with funding and the related funds are received; or
- approved by Parliament or the Provincial Legislature without funding and is written off against the appropriation in the statement of financial performance; or
- transferred to receivables for recovery.

Unauthorised expenditure is measured at the amount of the confirmed unauthorised expenditure.

19. Fruitless and wasteful expenditure

Fruitless and wasteful expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the total value of the fruitless and/or wasteful expenditure incurred.

Fruitless and wasteful expenditure is removed from the notes to the financial statements when it is resolved or transferred to receivables for recovery.

Fruitless and wasteful expenditure receivables are measured at the amount that is expected to be recoverable and are de-recognised when settled, or subsequently written-off as irrecoverable.

20. Irregular expenditure

Irregular expenditure is recorded in the notes to the financial statements when confirmed. The amount

recorded is equal to the value of the irregular expenditure incurred unless it is impracticable to determine, in which case reasons therefore are provided in the note.

Irregular expenditure is removed from the note when it is either condoned by the relevant authority, transferred to receivables for recovery, or not condoned and is not recoverable.

Irregular expenditure receivables are measured at the amount that is expected to be recoverable and are de-recognised when settled or subsequently written-off as irrecoverable.

21. Changes in accounting estimates

A change in accounting estimate is an adjustment of the carrying amount of an asset or a liability, or the amount of the periodic consumption of an asset, that results from the assessment of the present status of, and expected future benefits and obligations associated with, assets and liabilities. Changes in accounting estimates result from new information or new developments and, accordingly, are not corrections of errors.

22. Prior period errors

Prior period errors are omissions from, and misstatements in the Department's financial statements for one or more prior periods arising from a failure to use, or misuse of, reliable information that:

- was available when financial statements for those periods were authorised for issue; and
- could reasonably be expected to have been obtained and taken into account in the preparation and presentation of those financial statements.

23. Non-adjusting events after the reporting date

Non-adjusting events after the reporting date are those events that are indicative of conditions that arose after the reporting date.

24. Agent – Principal arrangements

A department is acting as a principal when it has the power to exercise beneficial control over an activity. A department has beneficial control when it has both the power to direct the activity, and the ability to benefit from that power. Agent – principal arrangements exclude transfer payments.

Notes to the Annual Financial Statements

for the year ended 31 March 2014

1. Annual appropriation

Included are funds appropriated in terms of the Appropriation Act (and the Adjustments Appropriation Act) for national departments (Voted funds):

	Final appropriation R'000	2013/2014 Actual funds received R'000	Funds not requested/ not received R'000	Appropriation received 2012/13 R'000
Administration	258,926	258,926	-	226,372
Research, Development and Innovation	1,671,041	1,671,041	-	1,160,383
International Cooperation and Resources	141,430	141,430	-	137,240
Human Capital and Knowledge systems	2,473,172	2,473,172	-	2,057,033
Socio-Economic Partnerships	1,653,586	1,653,586	-	1,418,582
Total	**6,198,155**	**6,198,155**	**-**	**4,999,610**

2. Departmental revenue

	Note	2013/14 R'000	2012/13 R'000
Sales of goods and services other than capital assets	*2.1*	47	64
Interest, dividends and rent on land	*2.2*	8	81
Sale of capital assets	*2.3*	-	577
Transactions in financial assets and liabilities	*2.4*	1,603	497
Departmental revenue collected		**1,658**	**1,219**

2.1 Sales of goods and services other than capital assets

	Note 2	2013/14 R'000	2012/13 R'000
Other sales		47	64
Total		**47**	**64**

2.2 Interest, dividends and rent on land

	Note	2013/14	2012/13
	2	R'000	R'000
Interest		8	81
Total		**8**	**81**

2.3 Sale of capital assets

	Note	2013/14	2012/13
	2	R'000	R'000
Machinery and equipment		-	577
Total		**-**	**577**

2.4 Transactions in financial assets and liabilities

	Note	2013/14	2012/13
	2	R'000	R'000
Stale cheque written back		6	-
Other receipts, including recoverable revenue		1,597	497
Total		**1,603**	**497**

3. Aid assistance

3.1 Aid assistance received in cash from RDP

	Note	2013/14	2012/13
		R'000	R'000
Foreign			
Opening balance		4,885	6,358
Revenue		109,335	34,829
Expenditure		**(107,284)**	**(29,922)**
Current		(8,263)	(4,692)
Capital		(55)	(19)
Transfers		(98,966)	(25,211)
Surrender to RDP		(4,885)	(6,380)
Closing balance		**2,051**	**4,885**

3.2 Analysis of balance

	Note	2013/14 R'000	2012/13 R'000
Aid assistance repayable		2,051	4,885
RDP Fund		2,051	4,885
Closing balance		**2,051**	**4,885**

4. Compensation of employees

4.1 Salaries and wages

	Note	2013/14 R'000	2012/13 R'000
Basic salary		163,256	144,477
Performance award		4,230	5,952
Service-based		53	111
Compensative/circumstantial		2,318	1,856
Periodic payments		33	92
Other non-pensionable allowances		46,731	46,971
Total		**216,621**	**199,459**

4.2 Social contributions

	Note	2013/14 R'000	2012/13 R'000
Employer contributions			
Pension		19,777	17,364
Medical		5,185	4,923
Bargaining council		38	21
Total		**25,000**	**22,308**
Total compensation of employees		**241,621**	**221,767**
Average number of employees		**431**	**384**

5. Goods and services

	Note	2013/14 R'000	2012/13 R'000
Administrative fees		3,223	3,816
Advertising		16,466	14,959
Minor assets	*5.1*	292	179
Bursaries (employees)		1,201	1,248
Catering		2,752	3,227
Communication		5,364	4,553
Computer services	*5.2*	7,409	7,812
Consultants, contractors and agency/outsourced services	*5.3*	27,965	31,039
Entertainment		706	871
Audit cost – external		4,548	3,316
Fleet services	*5.4*	542	-
Inventory		318	371
Consumables	*5.5*	7,151	13,973
Operating leases	*5.6*	5,178	4,339
Property payments	*5.7*	5,816	5,318
Rental and hiring		1,002	1,918
Travel and subsistence	*5.8*	40,458	39,796
Venues and facilities		14,634	17,991
Training and staff development		6,075	5,943
Other operating expenditure	*5.9*	9,873	3,946
Total		**160,974**	**164,615**

5.1 Minor assets

	Note *5*	2013/14 R'000	2012/13 R'000
Tangible assets		**289**	**179**
Machinery and equipment		289	179
Intangible assets		3	-
Total		**292**	**179**

5.2 Computer services

	Note *5*	2013/14 R'000	2012/13 R'000
SITA computer services		3,639	4,344
External computer service providers		3,770	3,468
Total		**7,409**	**7,812**

5.3 Consultants, contractors and agency/outsourced services

	Note 5	2013/14 R'000	2012/13 R'000
Business and advisory services		7,272	2,130
Legal costs		2,708	234
Contractors		4,445	5,018
Agency and support/outsourced services		13,540	23,657
Total		**27,965**	**31,039**

5.4 Audit cost – External

	Note 5	2013/14 R'000	2012/13 R'000
Regularity audits		4,548	3,316
Total		**4,548**	**3,316**

5.5 Inventory

	Note 5	2013/14 R'000	2012/13 R'000
Clothing material and accessories		286	-
Materials and supplies		32	371
Total		**318**	**371**

Due to changes on Standard Charts of Accounts, an amount of R 10 842 million of prior year figures in 'Inventory' was reclassified under 'Consumables' in note 5.6.

5.6 Consumables

	Note 5	2013/14 R'000	2012/13 R'000
Consumables supplies		3,540	5,958
Uniform and clothing		96	-
Household supplies		470	-
Building material and supplies		568	-
IT consumables		123	-
Other consumables		2,283	5,958
Stationery, printing and office supplies		3,611	8,015
Total		**7,151**	**13,973**

An amount of R 3 131 million of prior year figures in 'Other operating expenditure', note 5.9 was reclassified under 'Consumables' as instructed by National Treasury.

5.7 Property payments

	Note	2013/14	2012/13
	5	R'000	R'000
Municipal services		2,733	2,926
Property maintenance and repairs		-	-
Other		3,083	2,392
Total		**5,816**	**5,318**

5.8 Travel and subsistence

	Note	2013/14	2012/13
	5	R'000	R'000
Local		21,067	21,657
Foreign		19,391	18,139
Total		**40,458**	**39,796**

5.9 Other operating expenditure

	Note	2013/14	2012/13
	5	R'000	R'000
Professional bodies, membership and subscription fees		3,296	1,918
Resettlement costs		1,000	492
Other		5,577	1,536
Total		**9,873**	**3,946**

An amount of R 3 131 million of prior year figures in 'Other operating expenditure' was reclassified under 'Consumables', note 5.6 as instructed by National Treasury.

6. Interest and rent on land

	Note	2013/14	2012/13
		R'000	R'000
Interest paid		-	376
		-	**376**

7. Payments for financial assets

	Note	2013/14	2012/13
		R'000	R'000
Other material losses written off	*7.1*	-	22
Total		**-**	**22**

7.1 Other material losses written off

	Note	2013/14	2012/13
	7	R'000	R'000
Nature of losses			
Damages to hired vehicles		-	6
Bursary debt		-	7
Damages to official vehicles		-	9
Total		**-**	**22**

8. Transfers and subsidies

	Note	2013/14	2012/13
		R'000	R'000
Departmental agencies and accounts	*Annex 1C*	3,762,927	3,011,927
Higher education institutions	*Annex 1D*	156,163	153,642
Foreign governments and international organisations	*Annex 1F*	452	-
Public corporations and private enterprises	*Annex 1E*	1,697,974	1,350,541
Non-profit institutions	*Annex 1G*	84,701	63,305
Households	*Annex 1H*	1,103	260
Gifts, donations and sponsorships made	*Annex 1K*	555	370
Total		**5,703,875**	**4,580,045**

9. Expenditure for capital assets

	Note	2013/14	2012/13
		R'000	R'000
Tangible assets		**8,211**	**6,509**
Machinery and equipment	*9.1*	8,211	6,509
Intangible assets		**54,863**	
Software	*9.1*	54,863	-
Total		**63,074**	**6,509**

9.1 Analysis of funds utilised to acquire capital assets – 2013/14

	Voted funds R'000	Aid assistance R'000	Total R'000
Tangible assets	**8,156**	**55**	**8,211**
Machinery and equipment	8,156	55	8,211
Intangible assets	**54,863**	**-**	**54,863**
Software	54,863	-	54,863
Total	**63,019**	**55**	**63,074**

The amount of R55 000 is in respect of the donor fund project "Innovation for Poverty Alleviation Programme" [Note 3.1 and Annexure 1J] funded by the European Union and is accounted for under a different fund of the Department. This amount is, however, not included in the Departmental Asset Register and the additions in Note 25.1

9.2 Analysis of funds utilised to acquire capital assets – 2012/13

	Voted funds R'000	Aid assistance R'000	Total R'000
Machinery and equipment	6,490	19	6,509
Total assets acquired	**6,490**	**19**	**6,509**

9.3 Finance lease expenditure included in Expenditure for capital assets

	2013/14 R'000
Tangible assets	**740**
Machinery and equipment	740
Total	**740**

10. Cash and cash equivalents

	Note	2013/14 R'000	2012/13 R'000
Consolidated Paymaster-General Account		29,994	30,616
Cash on hand		33	33
Total		**30,027**	**30,649**

11. Prepayments and advances

	Note	2013/14 R'000	2012/13 R'000
Travel and subsistence		107	44
Advances paid		176	98
Total		**283**	**142**

11.1 Advances paid

	Note	2013/14 R'000	2012/13 R'000
National departments	*Annex 8A*	176	98
Total		**176**	**98**

12. Receivables

	Note	2013/14				2012/13
		Less than one year R'000	One to three years R'000	Older than three years R'000	Total R'000	Total R'000
Claims recoverable	*12.1*	257	1	59	317	187
Recoverable expenditure	*12.2*	521	25	275	821	339
Staff debt	*12.3*	-	27	45	72	175
Total		**778**	**53**	**379**	**1,210**	**701**

12.1 Claims recoverable

	Note *12*	2013/14 R'000	2012/13 R'000
National departments		62	165
Households and non-profit institutions		255	22
Total		**317**	**187**

12.2 Recoverable expenditure (disallowance accounts)

	Note *12*	2013/14 R'000	2012/13 R'000
Income tax debt		14	14
Persal salaries and stoppages		6	1
Damages to vehicles		469	324
Value-Added Tax (VAT) in respect of the Donor Fund Project "Innovation for Poverty Alleviation"		332	-
Total		**821**	**339**

12.3 Staff debt

	Note	2013/14	2012/13
	12	R'000	R'000
Bursary debt		20	98
Salary overpayment		7	26
Previous employees - resettlement debt		45	43
Other – lost overhead projector		-	8
Total		**72**	**175**

13. Voted funds to be surrendered to the Revenue Fund

	Note	2013/14	2012/13
		R'000	R'000
Opening balance		26,295	3,554
Prior period error		-	-
As restated		26,295	3,554
Transfer from Statement of Financial Performance		28,666	26,295
Paid during the year		(26,295)	(3,554)
Closing balance		**28,666**	**26,295**

14. Departmental revenue to be surrendered to the Revenue Fund

	Note	2013/14	2012/13
		R'000	R'000
Opening balance		11	7
Prior period error		-	-
As restated		11	7
Transfer from Statement of Financial Performance		1,658	1,219
Paid during the year		(949)	(1,215)
Closing balance		**720**	**11**

15. Payables – current

	Note	2013/14	2012/13
		R'000	R'000
Clearing accounts	*15.1*	18	160
Total		**18**	**160**

15.1 Clearing accounts

	Note	2013/14	2012/13
	15	R'000	R'000
Persal salaries and stoppages		18	123
Income tax		-	33
Pension Fund		-	4
Total		**18**	**160**

16. Net cash flow available from operating activities

	Note	2013/14	2012/13
		R'000	R'000
Net surplus as per Statement of Financial Performance		32,375	32,421
Add back non-cash/cash movements not deemed operating activities		30,153	(5,111)
(Increase)/Decrease in receivables – current		(509)	(84)
(Increase)/Decrease in prepayments and advances		(141)	58
Increase/(Decrease) in payables – current		(142)	132
Proceeds from sale of capital assets		-	(577)
Expenditure on capital assets		63,074	6,509
Surrenders to Revenue Fund	*13 & 14*	(27,244)	(4,769)
Surrenders to Donor Fund		(4,885)	(6,380)
Voted funds not requested/not received		-	-
Net cash flow generated by operating activities		**62,528**	**27,310**

17. Reconciliation of cash and cash equivalents for cash flow purposes

	Note	2013/14	2012/13
		R'000	R'000
Consolidated Paymaster-General Account		29,994	30,616
Cash on hand		33	33
Total		**30,027**	**30,649**

18. Contingent liabilities

	Note	2013/14	2012/13
		R'000	R'000
Liable to			
Claims against the Department	*Annex 3B*	3,000	3,000
Total		**3,000**	**3,000**

19. Commitments

	Note	2013/14 R'000	2012/13 R'000
Current expenditure			
Approved and contracted		20,352	14,674
Approved but not yet contacted		218	13
		20,570	**14,687**
Capital expenditure			
Approved and contracted		562	142
Approved but not yet contracted		101	-
		663	**142**
Total commitments		**21,233**	**14,829**

20. Accruals and payables not recognised

	2013/14			2012/13
Listed by economic classification	30 days R'000	30+ days R'000	Total R'000	Total R'000
Goods and services	10,286	963	11,249	5,004
Capital assets	182	-	182	7
Total	**10,468**	**963**	**11,431**	**5,011**

Listed by Programme	Note	2013/14 R'000	2012/13 R'000
Programme 1: Administration		7,991	2,838
Programme 2: Research, Development and Innovation		930	765
Programme 3: International Cooperation and Resources		1,660	616
Programme 4: Human Capital and Knowledge Systems		338	484
Programme 5: Socio-Economic Partnerships		512	308
Total		**11,431**	**5,011**

	Note	2013/14 R'000	2012/13 R'000
Confirmed balances with other departments	*Annex 5*	1,571	296
Total		**1,571**	**296**

21. Employee benefits

	Note	2013/14 R'000	2012/13 R'000
Leave entitlement*		7,373	5,695
Service bonus (Thirteenth cheque)		5,687	4,887
Performance awards		3,643	3,360
Capped leave commitments		2,479	2,438
Total		**19,182**	**16,380**

*A negative amount of R446, 374.76 was offset against leave entitlement. The amount was as a result of pro-rata calculation of leave taken by employees as at 31 March 2014. In terms of the pro-rata calculation, employees are entitled to 5.49 days leave from 1 January to 31 March. If an employee takes more leave, this results in a negative leave taken for the three-month period. This situation will automatically be rectified during the leave period.

22. Lease commitments

22.1 Operating leases expenditure

2013/14	Land R'000	Buildings and other fixed structures R'000	Machinery and equipment R'000	Total R'000
Not later than 1 year	-	1,170	4,025	5,195
Later than 1 year and not later than 5 years	-	823	2,753	3,576
Total lease commitments	**-**	**1,993**	**6,778**	**8,771**

2012/13	Land R'000	Buildings and other fixed structures R'000	Machinery and equipment R'000	Total R'000
Not later than 1 year	-	552	2,829	3,381
Later than 1 year and not later than 5 years	-	816	1,864	2,680
Total lease commitments	**-**	**1,368**	**4,693**	**6,061**

22.2 Finance leases expenditure

2013/14	Specialised military equipment	Land	Buildings and other fixed structures	Machinery and equipment	Total
Not later than 1 year	-	-	-	-	-
Later than 1 year and not later than 5 years	-	-	-	-	-
Later than five years	-	-	-	-	-
Total lease commitments	**-**	**-**	**-**	**-**	**-**

2012/13	Specialised military equipment	Land	Buildings and other fixed structures	Machinery and equipment	Total
Not later than 1 year	-	-	-	613	613
Later than 1 year and not later than 5 years	-	-	-	-	-
Later than five years	-	-	-	-	-
Total lease commitments	**-**	**-**	**-**	**613**	**613**

23. Accrued departmental revenue

	Note	2013/14 R'000	2012/13 R'000
Transactions in financial assets and liabilities		240	638
Total		**240**	**638**

Analysis for receivables for departmental revenue

	Note	2013/14 R'000	2012/13 R'000
Opening balance		638	-
Less: Amounts received		(638)	
Add: Amounts recognised		240	638
Total		**240**	**638**

24. Irregular expenditure

Reconciliation of irregular expenditure

	Note	2013/14 R'000	2012/13 R'000
Opening balance		569	-
Add: Irregular expenditure – relating to prior year		15,304	-
Add: Irregular expenditure – relating to current year		16,910	569
Less: Amounts recoverable (not condoned)		-	-
Less: Amounts not recoverable (not condoned)		-	-
Irregular expenditure awaiting condonation		**32,783**	**569**

Details of irregular expenditure – current year

Incident	Disciplinary steps taken/ criminal proceedings	2013/14 R'000
Non-compliance with regards to procurement of travel services	Investigating	6,848
A deviation was not an emergency	Investigating	690
Non-compliance with SCM processes	Investigating	355
Non-compliance with SCM processes	Investigating	103
IT procurement not done through SITA	Investigating	494
Goods procured without obtaining three quotations	Investigating	153
Goods procured without obtaining three quotations	Investigating	335
Goods procured without obtaining three quotations	Investigating	98
Goods procured without obtaining three quotations	Investigating	265
Non-compliance with Preferential Procurement Policy Framework Act	Investigating	370
Non-compliance with Preferential Procurement Policy Framework Act	Investigating	176
Goods and services procured without obtaining valid tax clearance certificates	Investigating	7,023
Total		**16,910**

25. Fruitless and wasteful expenditure

Reconciliation of fruitless and wasteful expenditure

	Note	2013/14 R'000	2012/13 R'000
Opening balance		-	60
Fruitless and wasteful expenditure – relating to prior year		-	-
Fruitless and wasteful expenditure – relating to current year		-	-
Less: Amounts resolved		-	(60)
Fruitless and wasteful expenditure awaiting condonement		**-**	**-**

25. Related party transactions

25.1 Public entities under ownership control of the Department

The following entities are under the ownership control of the Department in terms of Chapter 1 of the Public Finance Management Act, 1999, report to the Minister of Science and Technology, and as such are related parties to the Department:

Schedule 3A – National public entities

- Africa Institute of South Africa
- Human Sciences Research Council
- National Research Foundation
- South African National Space Agency
- Technology Innovation Agency

Schedule 3B – National government business enterprises

- Council for Scientific and Industrial Research

The Department transactions with these entities are limited to transfer and subsidy payments. Annexures 1C and 1E to the Annual Financial Statement reflect payments to these public entities. Where transactions other than these occur, they occur within a normal supplier/client relationship in terms of the procurement procedures of the Department and the Public Finance Management Act, 1999.

25.2 Related party relationships with other departments

The Department has a related party relationship with the Department of Public Works. The Department of Public Works is providing office accommodation free of charge to the Department of Science and Technology. The Memorandum of Understanding that stipulates the amount the Department of Public Works is spending on behalf of the Department of Science and Technology was not yet concluded by 31 March 2014.

26. Key management personnel

	No. of individuals	2013/14 R'000	2012/13 R'000
Political office bearers (provide detail below)	*2*	3,362	2,790
Officials:		-	-
Level 15 to 16	*8*	9,693	9,684
Level 14 (incl. CFO if at a lower level)	*27*	24,097	20,385
Total		**37,142**	**32,859**

The key management personnel do not qualify for any remuneration other than the approved remuneration structures for the different classes of key management personnel (political office bearers and officials).

27. Movable tangible capital assets

Movement in movable tangible capital assets per asset register for the year ended 31 March 2014

	Opening balance R'000	Curr. year adjustments to prior year balances R'000	Additions R'000	Disposals R'000	Closing balance R'000
Machinery and equipment	**55,588**	**-**	**7,598**	**(1,029)**	**62,157**
Transport assets	3,127	-	1,813	-	4,940
Computer equipment	27,224	-	5,144	(894)	31,474
Furniture and office equipment	13,199	-	423	(32)	13,590
Other machinery and equipment	12,038	-	218	(103)	12,153
Total movable tangible capital assets	**55,588**	**-**	**7,598**	**(1,029)**	**62,157**

27.1 Additions

Additions to movable tangible capital assets per asset register for the year ended 31 March 2014

	Cash R'000	Non-cash R'000	(Capital work in progress current costs and finance lease payments) R'000	Received current, not paid (Paid current year, received prior year) R'000	Total R'000
Machinery and equipment	**8,156**	**-**	**(740)**	**182**	**7,598**
Transport assets	1,813	-	-	-	1,813
Computer equipment	4,962	-	-	182	5,144
Furniture and office equipment	423	-	-	-	423
Other machinery and equipment	958	-	(740)	-	218
Total additions to movable tangible capital assets	**8,156**	**-**	**(740)**	**182**	**7,598**

27.2 Disposals

Disposals of movable tangible capital assets per asset register for the year ended 31 March 2014

	Sold for cash R'000	Transfer out or destroyed or scrapped R'000	Total disposals R'000	Cash received actual R'000
Machinery and equipment	**-**	**(1,029)**	**(1,029)**	**-**
Transport assets	-	-	-	-
Computer equipment	-	(894)	(894)	-
Furniture and office equipment	-	(32)	(32)	-
Other machinery and equipment	-	(103)	(103)	-
Total disposal of movable tangible capital assets	**-**	**(1,029)**	**(1,029)**	**-**

27.3 Movement for 2012/13

Movement in movable tangible capital assets per asset register for the year ended 31 March 2013

	Opening balance R'000	Curr. year adjust-ments to prior year balances R'000	Additions R'000	Disposals R'000	Closing balance R'000
Machinery and equipment	**54,187**	**-**	**5,484**	**(4,083)**	**55,588**
Transport assets	5,697	-	178	(2,748)	3,127
Computer equipment	24,162	-	4,328	(1,266)	27,224
Furniture and office equipment	12,906	-	317	(24)	13,199
Other machinery and equipment	11,422	-	661	(45)	12,038
Total movable tangible capital assets	**54,187**	**-**	**5,484**	**(4,083)**	**55,588**

27.4 Minor assets

Minor assets of the Department for the year ended 31 March 2014

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Opening balance	-	-	1,836	-	1,836
Current year adjustments to prior year balances	-	-	-	-	-
Additions	3	-	289	-	292
Disposals	(3)	-	(16)	-	(19)
Total minor assets	**-**	**-**	**2,109**	**-**	**2,109**

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Number of R1 minor assets	-	-	27	-	27
Number of minor assets at cost	-	-	183	-	183
Total	**-**	**-**	**210**	**-**	**210**

Minor assets of the Department for the year ended 31 March 2013

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Opening balance	-	-	1,806	-	1,806
Current year adjustments to prior year balances	-	-	-	-	-
Additions	-	-	179	-	179
Disposals	-	-	(149)	-	(149)
Total minor assets	**-**	**-**	**1,836**	**-**	**1,836**

	Intangible assets R'000	Heritage assets R'000	Machinery and equipment R'000	Biological assets R'000	Total R'000
Number of R1 minor assets	-	-	27	-	27
Number of minor assets at cost	-	-	114	-	114
Total	**-**	**-**	**141**	**-**	**141**

28. Intangible capital assets

Movement in intangible capital assets per asset register for the year ended 31 March 2014

	Opening balance R'000	Curr. year adjust-ments to prior year balances R'000	Additions R'000	Disposals R'000	Closing balance R'000
Software	-	-	54,863	(54,863)	-
Total intangible capital assets	**-**	**-**	**54,863**	**(54,863)**	**-**

28.1 Additions

Additions to intangible capital assets per asset register for the year ended 31 March 2014

	Cash R'000	Non-cash R'000	(Develop-ment work in progress current costs) R'000	Received current, not paid (Paid cur-rent year, received prior year) R'000	Total R'000
Software	54,863	-	-	-	54,863
Total additions to movable tangible capital assets	**54,863**	**-**	**-**	**-**	**54,863**

28.2 Disposals

Disposals of intangible capital assets per asset register for the year ended 31 March 2014

	Sold for cash R'000	Transfer out or destroyed or scrapped R'000	Total disposals R'000	Cash received actual R'000
Software	-	(54,863)	(54,863)	-
Total disposal of intangible capital assets	**-**	**(54,863)**	**(54,863)**	**-**

The Department purchased intangible assets as part of the business rescue of Sunspace (Pty) Ltd. These assets were transferred to the South African National Space Agency.

	Transfer allocation				Transfer		2012/13
Department/Agency/Account	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
Africa Institute of South Africa	35,237	-	-	35,237	35,237	100%	33,643
Agricultural Research Council	64,000	-	-	64,000	69,769	109%	-
Council for Geoscience	3,500	-	-	3,500	3,500	100%	-
Human Sciences Research Council	257,801	-	-	257,801	250,078	97%	217,569
National Research Foundation	3,117,332	-	(18,500)	3,098,832	2,667,824	86%	1,983,122
South African Medical Research Council	48,567	-	-	48,567	34,688	71%	-
South African National Biodiversity Institute	42	-	-	42	42	100%	-
South African National Energy Development Institute	6,000	-	-	6,000	6,000	100%	9,000
South African National Space Agency	123,708	-	-	123,708	172,708	140%	144,120
Technology Innovation Agency	523,081	-	-	523,081	523,081	100%	467,288
Total	**4,179,268**	**-**	**(18,500)**	**4,160,768**	**3,762,927**		**2,854,742**

University/University of Technology	Transfer allocation				Transfer			2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	Amount not transferred R'000	% of Available funds transferred %	Appropriation Act R'000
Cape Peninsula University of Technology	-	-	-	-	1,173	(1,173)	-	-
Durban University of Technology	-	-	-	-	8	(8)	-	-
Nelson Mandela Metropolitan University	-	-	-	-	500	(500)	-	-
North-West University	-	-	-	-	31,745	(31,745)	-	-
Rhodes University	-	-	-	-	106	(106)	-	-
Tshwane University of Technology	-	-	-	-	2,066	(2,066)	-	-
University of Cape Town	-	-	-	-	37,737	(37,737)	-	-
University of Fort Hare	-	-	-	-	1,039	(1,039)	-	-
University of the Free State	-	-	-	-	2,950	(2,950)	-	-
University of Johannesburg	-	-	-	-	980	(980)	-	-
University of KwaZulu-Natal	-	-	-	-	2,753	(2,753)	-	-
University of Pretoria	-	-	-	-	9,448	(9,448)	-	-
University of South Africa	-	-	-	-	750	(750)	-	-
University of Stellenbosch	-	-	-	-	8,263	(8,263)	-	-
University of the Western Cape	-	-	-	-	44,485	(44,485)	-	-
University of the Witwatersrand	-	-	-	-	9,927	(9,927)	-	-
University of Venda	-	-	-	-	1,733	(1,733)	-	-
Vaal University of Technology	-	-	-	-	500	(500)	-	-
Total	**-**	**-**	**-**	**-**	**156,163**	**(156,163)**		**-**

Annexure 1E

Statement of transfers/subsidies to public corporations and private enterprises

Name of Public Corporation/Private Enterprise	Transfer allocation						Expenditure		2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Capital R'000	Current R'000	Appropriation Act R'000
Public corporations									
Transfers									
Council for Minerals Technology (Mintek)	37,055	-	-	37,055	38,383	104%	-	38,383	51,597
Council for Scientific and Industrial Research	203,351	-	(4,515)	198,836	795,577	400%	472,901	322,676	221,391
Nuclear Energy Corporation of South Africa	11,597	-	-	11,597	13,811	119%	-	13,811	-
South African Bureau of Standards	200	-	-	200	200	100%	-	200	-
Subtotal	**252,203**	**-**	**(4,515)**	**247,688**	**727,884**		**472,901**	**258,433**	**272,988**
Subsidies									
Council for Scientific and Industrial Research	781,996	-	-	781,996	781,996	100%	-	781,996	742,752
Subtotal	**781,996**	**-**	**-**	**781,996**	**781,996**		**-**	**781,996**	**742,752**
Total	**1,034,199**	**-**	**(4,515)**	**1,029,684**	**1,629,967**		**472,901**	**1,157,066**	**1,015,740**

Name of Public Corporation/Private Enterprise	Transfer allocation						Expenditure		2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Capital R'000	Current R'000	Appropriation Act R'000
Private enterprises									
Transfers									
Bsquare Communications (Pty) Ltd	-	-	-	-	300	-	-	300	-
Da Vinci Institute for Technology	-	-	-	-	10,163	-	-	10,163	-
Epi Use Africa (Pty) Ltd	-	-	-	-	3,098	-	-	3,098	-
Infusion Knowledge Hub (Pty) Ltd	-	-	-	-	976	-	-	976	-
Mcnulty Bros (Pty) Ltd	-	-	-	-	13	-	-	13	-
Onscreen Presentation and Hire	-	-	-	-	100	-	-	100	-
Pelchem (Pty) Ltd	-	-	-	-	15,142	-	-	15,142	-
Scattering of Africa	-	-	-	-	50	-	-	50	-
South African Innovation Summit (Pty) Ltd	-	-	-	-	75	-	-	75	-
The Resonance Bar	-	-	-	-	500	-	-	500	-
Wits Commercial Enterprise (Pty) Ltd	-	-	-	-	100	-	-	100	-
Wits Health Consortium (Pty) Ltd	-	-	-	-	20,234	-	-	20,234	-
Water Research Commission	-	-	-	-	17,242	-	-	17,242	-
Techno Science	-	-	-	-	14	-	-	14	-
Subtotal	**-**	**-**	**-**	**-**	**68,007**	**-**	**-**	**68,007**	**-**
Total	**1,034,199**	**-**	**(4,515)**	**1,029,684**	**1,697,974**	**-**	**472,901**	**1,225,073**	**1,015,740**

Annexure 1F

Statement of transfers to foreign government and international organisations

Foreign Government/ International Organisation	Transfer allocation				Expenditure		2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
United Nations Education, Scientific and Cultural Organisation	-	-	-	-	452	-	-
	-	-	-	-	-	-	-
Total	**-**	**-**	**-**	**-**	**452**		**-**

	Transfer allocation				Expenditure		2012/13
Non-profit institutions	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
Transfers							
Academy of Science of South Africa	2,200	-	-	2,200	2,200	100%	-
Bakgatla Sports, Arts and Culture	500	-	-	500	500	100%	-
Biosafety South Africa	-	-	-	-	200	-	-
Black Science, Technology and Engineering Professionals	-	-	-	-	-	-	8,200
Centre for Proteomic and Genomic Research	-	-	-	-	14,504	-	-
Forestry South Africa	-	-	-	-	10,000	-	-
Grahamstown Foundation	-	-	-	-	2,000	-	-
International Centre for Genetic Engineering and Biotechnology	13,886	-	-	13,886	13,886	100%	-
Knowledge Economic Network	87	-	-	87	87	100%	-
National Health Laboratory Service	4,500	-	-	4,500	4,500	100%	4,000
National Science and Technology Forum	2,631	-	-	2,631	2,631	100%	-
South African Chemical Institute	100	-	-	100	100	100%	-
South African Institute of Physics	800	-	-	800	800	100%	-
South African Research and Innovation Management Association	15,827	-	(7,254)	8,573	8,573	100%	-
South African Society for Human Genetics	100	-	-	100	100	100%	-

Non-profit institutions	Transfer allocation				Expenditure		2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
Transfers							
South African Society of Biotechnology and Molecular Biology	50	-	-	50	50	100%	
South African Weather Service	-	-	-	-	1,720	-	-
Southern African Association of Science and Technology Centres	200	-	-	200	200	100%	-
Unallocated funds in Non-Profit transferred to other items.	475,225	-	-	475,225	-	-	691,454
World Meteorological Organisation	1,676	-	-	1,676	1,676	100%	-
Young Water Professionals (WISA)	230	-	-	230	230	100%	
Total	**518,012**	**-**	**(7,254)**	**510,758**	**63,957**		**703,654**
Subsidies							
Academy of Science of South Africa	20,744	-	-	20,744	20,744	100%	13,584
	20,744	**-**	**-**	**20,744**	**20,744**		**13,584**
Total	**538,756**	**-**	**(7,254)**	**531,502**	**84,701**		**717,238**

	Transfer allocation				Expenditure		2012/13
Households	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
Transfers							
Leave gratuity: Badsha, N	-	-	-	-	-	-	13
Leave gratuity: Bareetseng, S	-	-	-	-	-	-	27
Leave gratuity: Canca, AJ	-	-	-	-	3	-	-
Leave gratuity: Dilotsotlhe, KE	-	-	-	-	11	-	-
Leave gratuity: Dingoko, OW	-	-	-	-	-	-	20
Leave gratuity: Dube, TKO	-	-	-	-	22	-	-
Leave gratuity: Engelbrecht, A	-	-	-	-	15	-	-
Leave gratuity: Gumbi, L	-	-	-	-	-	-	23
Leave gratuity: Hector, A	-	-	-	-	2	-	-
Leave gratuity: Khosa, BG	-	-	-	-	2	-	-
Leave gratuity: Langa, PE	-	-	-	-	6	-	-
Leave gratuity: Mabodisa, KG	-	-	-	-	3	-	-
Leave gratuity: Mabokano, MR	-	-	-	-	-	-	46
Leave gratuity: Makobane, PR	-	-	-	-	9	-	-
Leave gratuity: Makondo, N	-	-	-	-	26	-	-
Leave gratuity: Malapane, M	-	-	-	-	80	-	-
Leave gratuity: Mathabe, IT	-	-	-	-	2	-	-
Leave gratuity: Mogomotsi, SR	-	-	-	-	2	-	-
Leave gratuity: Mokoduwe, PS	-	-	-	-	11	-	-
Leave gratuity: Mokola, LM	-	-	-	-	1	-	-
Leave gratuity: Mopai, MD	-	-	-	-	19	-	-
Leave gratuity: Mosehle, LL	-	-	-	-	1	-	-
Leave gratuity: Mothiba, HN	-	-	-	-	3	-	-
Leave gratuity: Motopa, MM	-	-	-	-	3	-	-
Leave gratuity: Motsepe, VN	-	-	-	-	3	-	-
Leave gratuity: Mudzanani, V	-	-	-	-	1	-	-
Leave gratuity: Mukhoro, PT	-	-	-	-	10	-	-
Leave gratuity: Murovhi, NAC	-	-	-	-	24	-	-

Households	Transfer allocation				Expenditure		2012/13
	Adjusted Appropriation Act R'000	Rollovers R'000	Adjustments R'000	Total available R'000	Actual transfer R'000	% of Available funds transferred %	Appropriation Act R'000
Transfers							
Leave gratuity: Muthwa, BS	-	-	-	-	101	-	-
Leave gratuity: Nghulele, W	-	-	-	-	1	-	-
Leave gratuity: Nkgadime, NL	-	-	-	-	10	-	-
Leave gratuity: Ntuli, VM	-	-	-	-	15	-	-
Leave gratuity: Rakate, E	-	-	-	-	-	-	21
Leave gratuity: Ramabulana, E	-	-	-	-	2	-	-
Leave gratuity: Ramela, MA	-	-	-	-	10	-	-
Leave gratuity: Ramushu, L	-	-	-	-	2	-	-
Leave gratuity: Robbertse, ZE	-	-	-	-	-	-	9
Leave gratuity: Rubadiri, TM	-	-	-	-	19	-	-
Leave gratuity: Saar, MJ	-	-	-	-	142	-	-
Leave gratuity: Saloojee, I	-	-	-	-	53	-	-
Leave gratuity: Seekoe, TW	-	-	-	-	28	-	-
Leave gratuity: Seokane, G	-	-	-	-	-	-	34
Leave gratuity: Shibambo, LP	-	-	-	-	2	-	-
Leave gratuity: Shilubane, C	-	-	-	-	4	-	-
Leave gratuity: Sikrweqe, AA	-	-	-	-	-	-	18
Leave gratuity: Thobejane, JN	-	-	-	-	-	-	27
Leave gratuity: Thusi, KK	-	-	-	-	2	-	-
Leave gratuity: Tomotomo, P	-	-	-	-	-	-	22
Leave gratuity: Tshiseisei, M	-	-	-	-	2	-	-
Leave gratuity: Yabo, P	-	-	-	-	2	-	-
Leave gratuity: Youngleson, JS	-	-	-	-	48	-	-
Leave gratuity: Zwane, MN; Phaswana, R and Mokhari, MT	-	-	-	-	1	-	-
Claim against the state: A & L Catering	-	-	-	-	400	-	-
Total	**-**	**-**	**-**	**-**	**1,103**		**260**

Name of donor	Purpose	Opening balance R'000	Surrendered funds R'000	Revenue R'000	Expenditure R'000	Closing balance R'000
Received in cash						
Argentina	Argentinean Bureau for Enhancing Cooperation with the European Community in the Science, Technology and Innovation Area, PHASE II (ABEST II)	193	193	-	-	-
Canada	Epidemiological Model for HIV/AIDS Programme	-	-	4,777	4,777	-
European Union	BioCircle2: To develop a skilled and capable workforce	23	23	23	-	23
European Union	Innovation for Poverty Alleviation Programme	2,716	2,716	61,371	60,871	500
European Union	To develop vibrant and sustainable rural communities that contribute to adequate food security.	-	-	40,000	39,383	617
European Union	Coordination and Advancement of Sub-Saharan Africa – EU Science and Technology Network (CAAST-Net)	453	453	480	480	-
European Union	Strengthening the European – South African Science and Advancement Programme (ESASTAP2)	490	490	500	263	237
European Union	Promoting Africa/EU Research Infrastructure (PAERIP)	75	75	75	75	-
European Union	The European Union to South Africa's Research and Innovation Programme (SACCESS)	429	429	-	-	-
European Union	ERA Africa: To develop a skilled and capable workforce IST Africa	64	64	250	42	208
European Union	IST Africa	210	210	-	-	-
Portugal	Bridging Actions for GMES and Africa – BRAGMA	232	232	232	232	-
United States Agency for International Development	Southern African Development Community capacity building project in relation to Risk and Vulnerability Atlas	-	-	157	157	-
United States Agency for International Development	Malawi potato pathogen project	-	-	177	115	62

Name of donor	Purpose	Opening balance R'000	Surrendered funds R'000	Revenue R'000	Expenditure R'000	Closing balance R'000
Received in cash						
United States Agency for International Development	Human health risks and coping mechanisms to environment pollution in the lower Olifants with Mozambique	-	-	739	739	-
United States Agency for International Development	Potato tissue culture project in Lesotho	-	-	500	96	404
United States Agency for International Development	To assist the Organisation for Economic Cooperation and Development (OECD) and DAC in formalising trilateral cooperation as a modality of ODA cooperation based on DST/USAID engagement	-	-	54	54	-
Subtotal		**4,885**	**4,885**	**109,335**	**107,284**	**2,051**
Received in kind		-	-	-	-	-
Subtotal		**-**	**-**	**-**	**-**	**-**
Total		**4,885**	**4,885**	**109,335**	**107,284**	**2,051**

Annexure 1K

Statement of gifts, donations and sponsorships made and remissions, refunds and payments made as an act of grace

Nature of gift, donation or sponsorship	2013/14 R'000	2012/13 R'000
Paid in cash		
South African Women in Science Awards	555	370
Subtotal	555	370
Total	555	370

Annexure 3B

Statement of contingent liabilities as at 31 March 2014

Nature of liability	Opening balance 1 April 2013 R'000	Liabilities incurred during the year R'000	Liabilities paid/ cancelled/ reduced during the year R'000	Liabilities recover-able) R'000	Closing balance 31 March 2014 R'000
The Department has a dispute over breach of contract with Brentlana. Brentlana accuses the Department of not adhering to the terms of the contract and wants the Department to pay R3 million. The matter is being arbitrated.	3,000	-	-	-	3,000
Total	**3,000**	**-**	**-**	**-**	**3,000**

Annexure 4

Claims recoverable

Government entity	Confirmed balance outstanding		Unconfirmed balance outstanding		Total	
	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000
Department						
Department of Basic Education	-	17	-	-	-	17
Department of Home Affairs	-	10	-	-	-	10
Department of Public Enterprises	-	2	-	-	-	2
Department of Women, Children and People with Disabilities	-	15	-	-	-	15
Gauteng Province: Provincial Treasury	8	-	-	-	8	-
Province of KwaZulu-Natal	36	-	-	-	36	-
South African Police Service	24	-	-	-	24	-
Subtotal	**68**	**44**	**-**	**-**	**68**	**44**
Other government entities						
Government Employee Pension Fund	-	-	1	1	1	1
Subtotal	**-**	**-**	**1**	**1**	**1**	**1**
Total	**68**	**44**	**1**	**1**	**69**	**45**

Government entity	Confirmed balance outstanding		Unconfirmed balance outstanding		Total		Cash in transit at year end 2013/14	
	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000	Payment date up to six (working) days before year end	Amount
Departments								
Current								
Province of KwaZulu-Natal: Department of Education	35	-	-	-	35	-	-	-
Department of Home Affairs	-	20	-	-	-	20	-	-
Department of International Relations and Cooperation	1,536	240	-	-	1,536	240	27/03/2014	678
Western Cape Provincial Government: Social Development	-	36	-	-	-	36	-	-
Total	**1,571**	**296**	**-**	**-**	**1,571**	**296**		**678**

Annexure 6

Inventory

Inventory	Quantity	2013/14 R'000	Quantity	2012/13 R'000
Opening balance	10,633	433	21,469	379
Add/(Less): Adjustments to prior year balance	-	20	149	51
Add: Additions/Purchases - Cash	27,313	5,953	18,476	9,247
Add: Additions - Non-cash	-	-	-	-
(Less): Disposals	-	-	-	-
(Less): Issues	(22,757)	(6,008)	(29,455)	(9,243)
Add/(Less): Adjustments	-	(10)	(6)	(1)
Closing balance	15,189	388	10,633	433

Annexure 8A

Inter-entity advances paid (note 17)

Government entity	Confirmed balance		Unconfirmed balance		Total	
	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000	31/03/2014 R'000	31/03/2013 R'000
Departments						
Current						
Department of International Relations and Cooperation	176	98	-	-	176	98
Total	**176**	**176**	**-**	**-**	**176**	**98**

Approval

The Annual Financial Statements set out on pages 162 to 215 for the financial year ended 31 March 2014 have been approved.

Dr PM Mjwara
Director-General

Department of Science and Technology

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